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DECEMBER 1992 **VOLUME 11, NUMBER 4**

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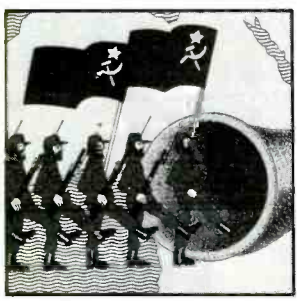
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FEATURES

COLUMNS

DEPARTMENTS

This month's cover: *Dave Vrablic, system engineer for "Airpage the Beeper People," adjusts a transmitter located on Mt. Rafinesque at Troy, NY, USA. Photo by Larry Mulvehill.*

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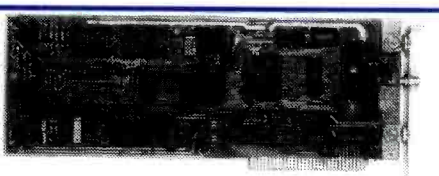

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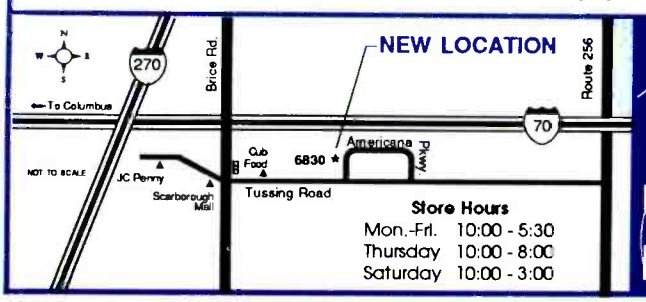

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BEAMING IN

AN EDITORIAL

BY TOM KNEITEL, K2AES

Ears To You

It's not only the phenomenon of radio itself, in its technical sense, that has always fascinated me. I have never ceased to be a student of the cultural impact it has upon people—what effect it has on lifestyles, attitudes, language, and tastes. When you think about commercials and political announcements, you get an instant feeling of what I mean. Also think about clandestine and political persuasion broadcasters, religious programs, and all night call-in programs. You can understand how this medium is regularly used in changing the public's viewpoints and tastes. Even popular personalities like Arthur Godfrey, Will Rogers, and Walter Winchell were masters at shaping public opinion via radio.

Because of radio broadcasting, a perfectly harmless and very useful word like *propaganda* ended up with its meaning changed to something that most people perceive as sinister. It's not the only word that got chopped up by radio.

This fuss about people listening in on cordless and/or cellular phone calls has caused me to be invited on lots of radio call-in programs where the topic of phone privacy is discussed. A rather standard question put forth by either the program moderator or a caller goes something like, "Don't you think that this is voyeurism of the very worst kind?"

That question always gives me a laugh. I got another laugh when I read the generally informative cellular monitoring article by David Handelman in the September issue of the men's magazine, *Details*. This feature mostly related some stories about how the author got his hands on a scanner for the first time. This gave him the opportunity to try eavesdropping on Hollywood scriptwriters talking shop, people talking about going out to dinner, and guys working out business deals. The article's subtitle refers to scanning cellular calls as having brought about a "new subculture of voyeurs."

Furthermore, although the author told about hearing mostly mundane stuff, he still concluded his report with the sentiment that, "for all of its sexiness, cellular scanning ends up feeling a little like looking at pornography. Something doesn't have to be illegal to make you feel cheaply titillated and slightly soiled."

Is cellphone monitoring really the *worst* kind of voyeurism? The only definition my dictionary gives for voyeurism is that it is a sexual deviation in which gratification is obtained by looking at certain objects or scenes, like the activities of a "Peeping Tom." It would seem that the radio scanner has changed the popular meaning of voyeurism. Now some people are saying that others are practicing voyeurism if they hear things, including business deals. It appears that they have even devised some kind of rating scale denoting the best and worst kinds of voyeurism. I'd love to see the criteria for pegging these ratings.

Like, what happened to just plain being interested, or maybe "nosy"? People are, after all, by nature, rather nosy. We always have been. We rubberneck along the highways at everything from accidents to cars with overheated engines. When we see a crowd on the street, we can't resist asking what's going on.

When the neighbors are having an animated shouting match and airing all of their dirty laundry, do most people close all windows and doors to keep out the noise—or do they quietly listen, hanging on every word? Is that voyeurism, or is it simple curiosity and human nature?

Then how did it become voyeurism (of the worst kind) when people sit in their own homes using passive pieces of electronic equipment? It isn't the listeners who are voyeurs, it is the speakers who are exhibitionists. It is they who choose to voluntarily put on a public display their business dealings and the intimate details their private lives. They get on the radio and broadcast this information across neighborhoods or communities, through everybody's walls and into everybody's homes, then have a nasty name for those who hear it. If they don't want an audience, then let them get voice scramblers, or take their cellphones and cordless signals and go somewhere else where nobody can hear them!

It's not as if someone had dragged a step ladder onto anybody else's property to peer through an inch or two of space at the bottom of an open window to learn someone else's business. While that would be obnoxious, it still might not be voyeurism.

When you think about it, listening in on the neighbors' conversations is an ancient and

(Continued on page 76)

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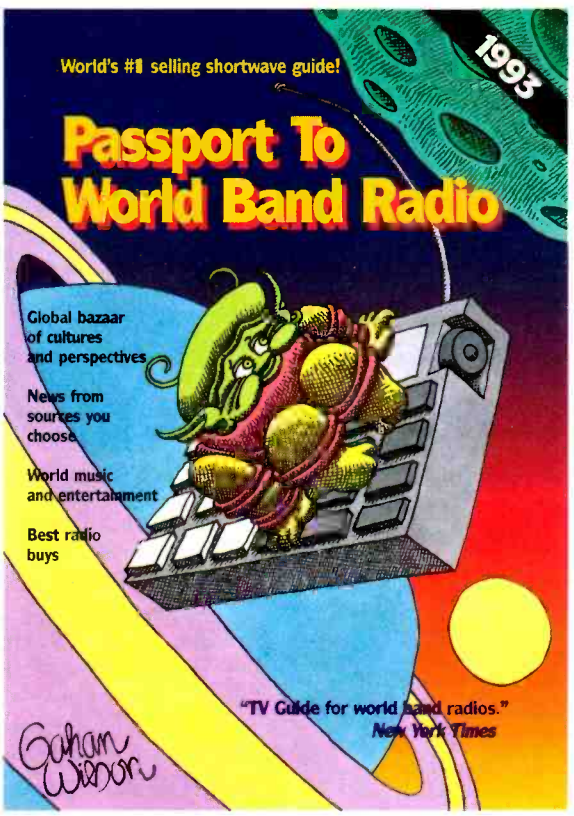

- **Up-to-date frequency information.** Nearly two out of three—63.4%—of the 15,423 listings in *Passport's* famous Blue Pages are new or substantially updated. More ethnic languages are included, too. Thoroughly researched by the IBS international monitoring team, this is the authoritative guide used by professional agencies.

- **More station addresses.** "Addresses PLUS," the directory of stations that respond to inquiries, has nearly doubled in size. If you want to write to the stations that will write back or provide giveaways, this guide gives full details.

- **Revised independent Buyer's Guide.** Which portable or tabletop receivers will you cherish . . . or curse? What about Sony's new offerings and the Lowe HF-150? Continuing in the *Passport* tradition, the Buyer's Guide curries no favor and takes no prisoners. It's straightforward talk about real radios from a panel of real experts.

- **Expanded program information.** "What's On Tonight?," *Passport's* hour-by-hour guide to world band shows has expanded, offering undiluted wisdom on the best of the best and the worst of the worst.

- **Revamped country-by-country references.** "Worldwide Broadcasts in English" and "Voices From Home" have been completely updated to reflect the nearly 170 countries now on the air.

Passport to World Band Radio 1993—at your dealer or bookstore now. The largest-selling shortwave publication in North America. For further information, write *Passport to World Band Radio*, Box 300A, Penn's Park, PA 18943 or call (24 hours) 215/794-8252.

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"Best Communications Receiver"

World Radio TV Handbook 1992

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Radio Paging Frequency Roundup

Hundreds Of Channels In Use. Everybody Wants To Be In Touch. Your Scanner Covers The Frequencies!

BY TOM KNEITEL, K2AES, EDITOR

Within the past few years, the beeper has come into its own. Makes no difference whether you're a physician or a construction foreman, a police office, a salesman or a service tech, or just about anybody else—chances are that a beeper can play an important role in your daily activity schedule.

Beepers got that nickname more than thirty years ago. When someone wanted to let someone else know that they should call their home or office, they dialed up a special telephone number. That triggered a chain of events that sent out a radio signal eventually resulting in a shirtpocket receiver to sound a *beep*.

At this point, things have gotten more sophisticated. Maybe they can still go beep, but they can make other sounds, too. And they can silently vibrate. Furthermore, the receivers can display the number a person is supposed to call back, or they can read out an entire message via LCD. Many one-way paging systems send out of voice messages exclusively, or combined with non-voice messages.

Maxon's Maxcall can send out voice and non-voice paging messages. Transmitters are available from 2 to 100 watts. They're made by Maxon in Kansas City, Missouri.

The Regency Micro-Com beeper is a modern paging receiver covering 148 to 160 MHz.

One-way radio paging messages can be sent out by private companies for their own employees. Hospitals have private beeper paging systems, too. There are also numerous companies that rent or sell beepers to public subscribers in order to provide message services. Fact is, there now are many different types and ways in which voice and non-voice radio paging services presently operate. We thought it would be interesting to gather up information on all of the various frequencies now being used for this popular service, especially since paging seems to be capturing the interest of monitors.

Of course, non-voice paging doesn't sound like much on a scanner; just a lot of blips and bloops. But voice paging systems are understood as easily as any other transmissions, and many of these messages are considered rather interesting to those who follow this aspect of monitoring. The ECPA says you aren't supposed to eavesdrop on voice paging signals, so that's your first clue that some of the messages get a bit hairy. In fact, people do send a surprising number of weird (and often very personal) messages over one-way

Radio Paging Channels

MHz	Designator						
26.995	–	152.18	11	454.550	QB	929.8375	–
27.045	–	152.21	13	454.575	QO	929.8625	–
27.095	–	152.24	P5	454.600	QR	929.8875	–
27.145	–	152.48	–	454.625	QY	929.9125	–
27.195	–	152.51	JL	454.650	QF	929.9375	–
35.02	–	152.54	YL	462.750	–	929.9625	–
35.20	PA	152.57	JP	462.775	–	929.9875	–
35.22	P1	152.60	YP	462.800	–	931.0125	81
35.24	PB	152.63	YJ	462.825	–	931.0375	82
35.26	PC	152.66	YK	462.850	–	931.0625	83
35.30	PD	152.69	JS	462.875	–	931.0875	84
35.34	PE	152.72	YS	462.900	–	931.1125	85
35.38	PF	152.75	YR	462.925	–	931.1375	86
35.42	PG	152.78	JK	465.000	–	931.1625	87
35.46	PH	152.81	JR	929.0125	–	931.1875	88
35.50	PI	152.84	T1	929.0375	–	931.2125	89
35.54	PJ	154.625	–	929.0625	–	931.2375	90
35.56	PK	157.45	–	929.0875	–	931.2625	91
35.58	P2	157.74	–	929.1125	–	931.2875	92
35.60	PL	158.10	T2	929.1375	–	931.3125	93
35.62	PM	158.46	–	929.1625	–	931.3375	94
35.64	–	158.70	P6	929.1875	–	931.3625	95
35.66	P7	163.25	–	929.2125	–	931.3875	96
35.68	–	453.025	–	929.2375	–	931.4125	97
43.20	PN	453.075	–	929.2625	–	931.4375	98
43.22	P3	453.125	–	929.2875	–	931.4625	99
43.24	PO	453.175	–	929.3125	–	931.4875	100
43.26	PP	454.025	21	929.3375	–	931.5125	101
43.30	PQ	454.050	22	929.3625	–	931.5375	102
43.34	PR	454.075	23	929.3875	–	931.5625	103
43.38	PS	454.100	24	929.4125	–	931.5875	104
43.42	PT	454.125	25	929.4375	–	931.6125	105
43.46	PU	454.150	26	929.4625	–	931.6375	106
43.50	PV	454.175	27	929.4875	–	931.6625	107
43.54	PW	454.200	28	929.5125	–	931.6875	108
43.56	PX	454.225	29	929.5375	–	931.7125	109
43.58	P4	454.250	30	929.5625	–	931.7375	110
43.60	PY	454.275	31	929.5875	–	931.7625	111
43.62	PZ	454.300	32	929.6125	–	931.7875	112
43.64	–	454.325	33	929.6375	–	931.8125	113
43.66	P8	454.350	34	929.6625	–	931.8375	114
43.68	–	454.375	QC	929.6875	–	931.8625	115
152.005	–	454.400	QJ	929.6875	–	931.8875*	116
152.03	1	454.425	QD	929.7125	–	931.9125*	117
152.06	3	454.450	QA	929.7375	–	931.9375*	118
152.09	5	454.475	QE	929.7625	–	931.9625	119
152.12	7	454.500	QP	929.7875	–	931.9875	120
152.15	9	454.525	QK	929.8125	–	*Nationwide Paging Chan.	

Table 1. Popular frequencies used for voice and non-voice radio paging. The channel designators are unofficial.

radio voice pagers.

In the list here (Table 1), the main national one-way radiopaging frequencies are shown. Some of them are given with channel designator codes. Such listings represent frequencies used by Common Carriers and Radio Common Carriers selling voice and/or non-voice paging services to public subscribers. The channel designators are unofficial and are those used within the radio paging industry. Channels shown without designators are available for use by private, medical, industrial, and other groups for voice and/or non-voice radio paging operations.

You may find it strange that there are some 27 MHz frequencies shown. Several low power (4 watt) voice and non-voice 27 MHz paging systems available are intended for plant, office, hospital, shopping center, mall, and other limited area applications. They have a range of several miles. One such unit is the Page-Com ET-6, made by Page-Com, Inc., of Dallas, Texas. This low-cost 27 MHz unit can selectively page as many as 100 receivers.

Frequencies 929.3625 through 929.4625 MHz, and 929.6375 through 929.9875 MHz, are used by private carrier paging services to provide one-way paging to police and fire officers, federal agents, as well as others.

So far as we are aware, the data presented here in *POP'COMM* is the most complete listing of radio paging frequencies ever compiled and published. Even so, there are yet additional frequencies used for radio paging purposes. For instance, there are subcarriers of FM broadcasters being used for paging purposes. And you might hear paging between 72 and 76 MHz, as there are some fixed (point-to-point) radio links used by pagers operating in this band. Furthermore, some cellular phone service suppliers are incorporating paging options in their operations. The Centel cellular service in Las Vegas, for one, is now providing digital alphanumeric

Search Here For More Pagers:

Boston, Mass.
470.0125 to 470.2875 MHz,
482.0125 to 482.2875 MHz

Chicago, Ill.; Cleveland, Ohio,; New York City; N.E. New Nersey
470.0125 to 470.2875 MHz,
476.0125 to 476.2875 MHz

Dallas/Fort Worth, Texas
482.0125 to 482.2875 MHz

Detroit, Mich.
476.0125 to 476.2875 MHz,
482.0125 to 482.2875 MHz

Houston, Texas
488.2875 MHz

Los Angeles, Calif.
506.0625, 506.0875, 506.1125 MHz

Miami, Fla.
470.0125 to 470.2875 MHz

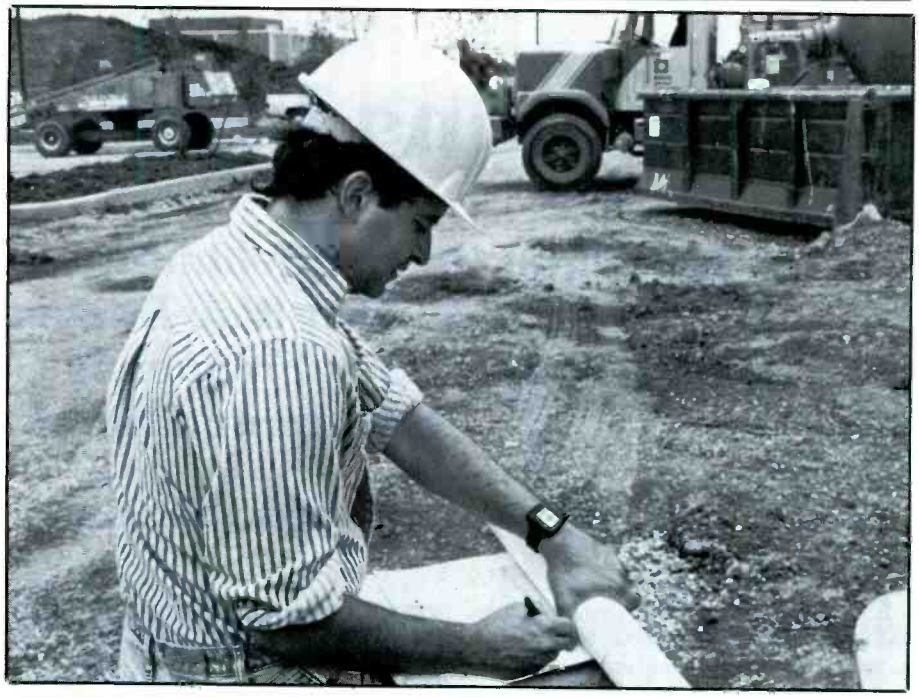
Philadelphia, Pa.
500.0125 to 500.2875 MHz,
506.0125 to 506.2875 MHz

Pittsburgh, Pa.
470.0125 to 470.2875 MHz

San Francisco, Calif.
482.0375 to 482.2875 MHz,
488.0375 to 488.2875 MHz

Washington, D.C.
488.0128 to 488.2875 MHz
494.0125 to 494.2875 MHz

Table 2. These are the UHF-T bands and frequencies the FCC originally designated for car phones. Now they are also available for radio paging in the cities indicated.



This construction foreman is wearing a new Motorola pager that looks like a wristwatch.

paging over their system.

Some Specialized Mobile Radio Service (SMRS) licensees may provide private paging for their own internal purposes. These stations operate in the 851 to 869 MHz and 935 to 940 MHz bands. You may sometimes hear one-way paging messages sent out over police stations. Also, be sure to search the 162.60 to 174.00 MHz band, as it is widely used for federal agency pagers. Examples of federal paging systems (voice): Goddard Space Flight Center (Md.) on 164.175 MHz; Brookhaven National Laboratories (N.Y.) on 167.975 MHz; and St. Elizabeth's Hospital (D.C.) on 165.2625 MHz. No shortage of similar federal systems in this band. Some areas may also have federal agency pagers in the 406 to 420 MHz band, like the one in the New York City area on 414.90 MHz.

And don't forget that some of the newer 144 and 440 MHz band ham handheld transceivers (like the Kenwood TH-28A/48A, and TH78A) have built-in pager functions.

As it turns out, radio paging has expanded so rapidly that the FCC has had to look at digging up new frequencies to meet its needs. The FCC has reserved 930 to 931 MHz for advanced paging services, and has proposed allocating 901 to 902 MHz, and 940 to 941 MHz, for new one-way paging technologies.

One of the most dramatic changes for radio paging is a program the FCC calls *Flexible Paging II*. When the FCC established land mobile operations in the UHF-T (470 to 512 MHz) band, they set aside groups of frequencies that could be used in metro areas for car phones. But that was before the development of the 800 MHz cellphone. When 800 MHz cellphones became popular, those frequency UHF-T band car phone allocations weren't being put to very much use. The FCC therefore decided let some of them be used for radio paging purposes, same way they did with the old 35, 152 and 454 MHz car phone frequencies.

Included here (Table 2) is a listing of the original UHF-T bands set aside for car phones in the various metro areas. Check these base station channels out, also the paired mobile frequencies (3 MHz higher) to see if any are being used for radio paging in one of these cities near you.

Know any more paging frequencies? Let us know! ■

Scanning Televangelists

Listening-in On The Behind-the-Scenes Chatter, Wireless Mikes, Two-Way Transmitters, & More! Here's Your Hidden Frequency Guide To The Electronic Church!

BY CHUCK ROBERTSON

You're probably aware that in recent years the world of televangelism has been rattled to its very roots by a series of scams and scandals. It has made Elmer Gantry look like a choirboy. Recent segments of ABC-TV's *Primetime Live* and PBS' *Frontline* have documented deliberate deceptions by several of the most popular televangelists. Certainly, it's not to say that *all* televangelists are out to clip their flocks, but all of the fuss has certainly directed the public's attention to televangelists, in general.

In this report, we'll take you behind the electronic pulpit to view the communications devices and frequencies used by the televangelists as well as some of the more traditional religious organizations and churches now using VHF and UHF.

Today, televangelists dominate the religious fare available on TV. Televangelists have purchased their way onto satellites, and into cable systems. Their messages are broadcast around the world, around the clock, every day of the week. Their programming can be received from virtually anywhere on Earth.

But, there's more to what they have to say than what goes out via satellite or cable. They may not be particularly anxious for you to hear some of those things, for those are televangelism's hidden communications. You'd need a scanner to hear those messages. The first stop on our tour is the TV production studio.

The TV production facilities used by televangelists are modern and loaded with radio equipment. You can hear much of this on a scanner. This studio belongs to WTCT, Channel 27, in Marion, Illinois. WTCT is a Trinity Broadcasting Net affiliate.

Heavenly Studios

The video production studios operated by top televangelists rival any studios owned by the major networks. Pat Robertson's CBN and Paul Crouch's TBN are among the most technically sophisticated TV production facilities in the world. Jimmy Swaggart uses a top notch camera and production crew to intensify his presentations.

But the finished product that goes out to audiences may be vastly different than what is taking place away from the broadcast microphones and TV cameras. There's a lot of communications equipment in use during any of the live broadcasts and tape recording sessions.

For instance, by monitoring satellite downlinks (the ones used by local TV stations wishing to pre-tape a program for later air use, or for adding in their own commercials), you might see personalities making candid or even brazen comments when they believe they're off camera. This happened recently when one televangelist was caught "off camera" commenting to someone about how well he can manipulate his viewers. It was quite revealing.

The Remote Pickup and Studio-Transmitter Link (STL) channels offer revelations, too. The transmitters are usually left in a standby or "on" mode before and after the programming, so persons within range of microphones will have their words sent out. See Table 1.

Another way to listen behind the scenes is to monitor the wireless microphones used. The 161.64 to 161.76 and 174 to 216 MHz

The studios at WTCT, in Illinois.

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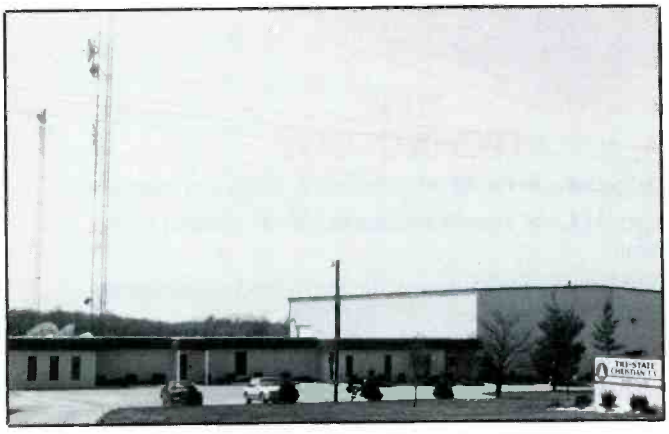


A view of the WTCT facilities, from the outside.

25.87 to 26.47 MHz	170.15 MHz
152.84 to 153.38 MHz	450.05 to 450.95 MHz
161.64 to 161.76 MHz	455.05 to 455.95 MHz
166.25 MHz	944.0125 to 951.9875 MHz

Table 1. Remote pick-up and STL frequencies within the range of scanners and communications receivers.

26.10 to 26.48 MHz	450 to 451 MHz
54.00 to 72.00 MHz	455 to 456 MHz
76.00 to 88.00 MHz	470 to 608 MHz
161.625 to 161.775 MHz	614 to 806 MHz
174 to 216 MHz	944 to 952 MHz

Table 2. Wireless microphone bands used by TV and radio stations. In addition, TV film crews may be using 173.225, 173.275, 173.325, and 173.375 MHz.

30.84, 33.14, 33.40 MHz	171.845 MHz
35.02, 42.98 MHz	171.905 MHz
154.515 to 154.60 MHz	457.5125 to 457.6125 MHz
169.445 MHz	460.6875 to 462.1875 MHz
169.505 MHz	463.20 to 464.9875 MHz
170.245 MHz	465.6875 to 467.1875 MHz
170.305 MHz	468.20 to 469.9875 MHz
171.105 MHz	470 to 512 MHz
171.845 MHz	851.0125 to 865/9875 MHz

Table 3. Wireless microphone and walkie-talkie bands used by churches and televangelists. These match up with the frequencies used by fast-food shops.

bands are known to be very active. See Tables 2 and 3 for more frequencies. Handhelds and low power repeaters (as used by pages, security, ushers, etc.) can often be found on one of the frequencies in Table 3.

Messages From Nowhere?

A couple of years ago, author James Randi observed that televangelist Peter Popoff was diagnosing the illnesses of members of those attending his services. He was also calling out their names and announcing the names of their doctors. He claimed that this seemingly supernatural knowledge was a Heavenly revelation.

Randi's investigation learned that before the services began, Popoff's wife and other helpers spoke to those in attendance, casually asking relevant questions regarding health, doctor's name, etc.

Equipped with with a combination hearing aid and "bone phone" collar receiver, Popoff could hear the transmissions of vital information that Randi discovered were being sent to him on 39.17 MHz. This permitted him to amaze the crowd, perform "healings," and solicit contributions to his ministry.

James Randi wrote the whole story in his book, *The Faith Healers*, published by Prometheus Books, Amherst, New York.

In The Chapel

Many traditional religious groups and churches have become technologically hip, too. Wireless mikes are widely used by pastors, song leaders, singers, and others. Numerous churches have services over local broadcast stations.

It's not widely known, but the frequencies used at fast-food drive-up windows are also available to other activities, including

Jimmy Swaggart Evangelical Assn.: Baton Rouge, LA 463.825 464.50 467.85 467.90, 948.0; Pensacola, FL 161.76; Bethany, OK 166.25; Conroe, TX 947.625.

Robert Tilton Ministries, Success N Life: World of Faith Outreach, Farmers Branch, TX 851 to 866 MHz band.

• **Paul Crouch, Trinity Broadcasting Network:** TBN Center, Tustin, CA 464.8625 464.9125 469.8625 469.9125; Praise The Lord, Inc., Irvine, CA 457.5375 461.0375 461.5375 466.0375 466.5375; Detroit, MI 161.67 161.73; Palestine, TX 153.35; Hoquiam, WA 947.50.

Dan & Bonnie Sheaffer, The Answer. Celestial Acres Studio, Oklahoma City, OK 464.525.

Benny Hinn Media, Miracle Invasion, Orlando, FL 800 MHz band.

Marilyn Hickey, Today With Marilyn. Denver, CO 173.325 173.375 (used throughout the US0.

Carpenter's Home Church. Lakeland, FL 464.325; School 161.73 455.55, 947.0.

James Dobson, Focus On The Family. Pomona, CA 463.2375 463.5375 463.9125 464.3125 464.8875 468.2375 468.5375 468.9125 469.3125 469.8875, 465.80.

Pat Robertson, CBN. CBN Center, Virginia Beach, VA 450.70 461.525 461.6125 461.6875 461.8125 947.375 947.625; Paging 461.325 465.0; Honolulu & Hilo, HI 161.64 161.73 947.0 949.5; Boise, ID 945.5; Caldwell, ID 951.375 951.625; Kentucky 450.65; Puerto Rico 984.0 951.5; Canton, OH 947.375 947.625; Alllene, TX 946.875 947.125; Dallas, TX 455.85.

Billy Graham Evangelical Assn. Tallahassee, FL trunked 861.5125/.9875 thru 865.5125/.9875; Minneapolis, MN 461.625 466.65; Asheville, NC 463.875.

Oral Roberts Assn. Tulsa, OK 461.65; O. Roberts Univ. 461.675 464.825; City of Faith 461.15 461.4875 461.4875; City/Faith Hospital 453.175.

Kenneth Copeland Ministries, Believer's Voice of Victory, Ft. Worth, TX trunked 856.1875/.5875 thru 860.1875/.5875.

Robert Shuller, Crystal Cathedral of The Air. Hour of Power, Inc/ 154.57 154.60; Crystal Cathedral, Garden Grove, CA 154.57 154.60.

Kenneth Hagin, Word of Faith. Broken Arrow, OK 466.10; Rhema Training Center, Tulsa, OK 462.00.

Jerry Falwell. Old Time Gospel Hour 464.50; Liberty Baptist College, Lynchburg, VA 154.515 450.65 464.775 947.0 947.875 948.125; Liberty Univ., Lynchburg, VA 151.625 154.57 154.60 464.375 464.40 464.50 468.55 469.375 469.50; Thomas Road Baptist Church on 800 Mhz band.

Heritage, USA. Morris Cerullo World Evangelism,, Ft. Mill, SC 151.925 152.48 461.175 463.70 464.0625 464.0875 460.0875 464.075 464.50.

Unity Village. Church, Unity Vlg., MO 461.85; School 455.65 461.85; Unity Vlg. 35.56 43.58 Police 155.67 155.37.

Worldwide Church of God, The World Tomorrow. World Vision, Pasadena, CA 463.825; Worldwide Church of God, var. locations 464.50 469.50 469.55; Ambassador College, Pasadena, CA 151.625 151.655 151.865 154.515 154.57 461.975; Ambassador College, Big Sandy, TX 151.655 151.715 151.865 151.995 154.515; Ambassador Field, Big Sandy, TX 122.8 (Unicom).

Church Universal & Triumphant (Bhagwan Shree Rajneesh). Gardiner, MT 151.895 151.995 152.915; Grand Teton Ranch to Little Joe Lake 75.68; Little Joe Lake to Grand Teton Ranch 72.34.

Unification Church, Reverend Sun Myung Moon. Irvington, NY 464.375; Tarrytown, NY 151.865.

Church of Scientology/Dianetics. Clearwater, FL 464.775 468.3375; Los Angeles, CA 462.1375.

General Listings

Churches, video production companies, para-church organizations, seminaries, radio programs, and other related listings:

Eternal Word Television Net. Birmingham, AL 151.775.

N. Phoenix Baptist Church. AZ 154.57 170.305.

Evangelical Free Church. Chico, CA 33.40 35.02 154.57 469.55.

First Congregational Church. Escondido, CA 154.60 170.305.

Calvary Chapel. W. Covina, CA 461.5125 462.8125 462.9125 463.2625.

Calvary Chapel of Costa Mesa, Inc. San Clemente, CA 154.54 154.57 956.00 947.50 951.00.

Immanuel Presbyterian. Los Angeles, CA 31.04.

Campus Crusade for Christ. San Bernardino, CA 151.745.

First Baptist Church for Los Angeles, Inc. CA 151.625 154.57.

Youth Action For Christ. La Crescenta, CA 461.075.

Christ Church Unity. Los Angeles, CA 154.57 461.0125 464.3375.

Christ Unity Manor. Los Angeles, CA 464.3375.

Youth Unlimited Outreach. San Diego, CA 461.85.

First Presbyterian Church. Colorado Springs, CO 461.2875 466.2875.

First Presbyterian Church. Lakeland, CO 169.505 171.045 171.905.

Full Gospel Interdenominational Church. Manchester, CT 463.925.

Christ Episcopal Church. Watertown, CT 33.40.

Evangelical Temple. Washington, DC 151.685 151.775 151.835 151.865 151.895.

Metropolitan Baptist Church. Washington, DC 464.8625.

Protestant Episcopal Cathedral. Washington, DC 463.225.

Morning Worship Service of Trailer Haven. Cobb, FL 170.305.

Grace Lutheran Church. Key West, FL 30.84 33.14 trunked 861.8625 thru 865.8625.

Holy Cross Church. Sarasota, FL 464.175.

First Baptist Church of Westwood Lake. Miami, FL 461.775.

Presbyterian Center. Atlanta, GA 151,895.

Church of God. Dalton, GA 463.90.

Grace Baptist Church. Charlton, IA 33.14.

Catholic Television. Chicago, IL 463.90 464.50.

St. John Missionary Church. Chicago, IL 464.575.

Evangelical United Methodist Church. Bloomington, IL 154.60.

So. Baptist Theological Seminary. Louisville, KY 151.995 464.825.

Calvary Temple. Ft. Wayne, IN 463.50 463.775.

Hour of Harvest, Inc. Beattyville, KY 463.25.

World of Faith Temple. New Orleans, LA 464.60.

Westminster Presbyterian Church. Sulphur, LA 170.305.

Christian Camp Meeting Assn. Craigville, MA 154.54.

Christian Prison Ministries. Frederick, MD 461.65.

Grace Fellowship Church. Towson, MD 151.925.

Radio Bible Class. Grand Rapids, MI 464.50 469.50 469.7125.

Charismatic Church of God. Mt. Pleasant, MI 30.84.

Pentecostal Church of America. Joplin, MO 153.17 947.875 948.125.

Church of Nazarene World HQ. Kansas City, MO 461.625.

Presbyterian Camp & Conference. Starkville, MO 151.865.

First Baptist Church. Jackson, MS 464.925 464.975.

Power House Church. Summerfield, NC 461.525.

Grace United Methodist Church. Greensboro, NC 171.105.

Christian Communications. Albuquerque, NM 461.70.

World Zionist Organization. New York, NY 461.7625 461.9875 462.0125.

World Life Fellowship. Pottersville, NY 42.96.

Baptist General Convention of Oklahoma. Edmond, OK 151.895.

Methodist Theological Seminary. Delaware, OH 464.875.

American Christian Television Svc. Lima, OH 461.525.

Holy Trinity Catholic Church. Columbia, PA 170.305.

Sunrise World Ministries. Nationwide 151.625.

Last Chance Forever, Inc. San Antonio, TX 154.515.

Lakewood Church. Houston, TX 151.775 151.865 154.57 154.60.

Lutheran Outdoors Ministries of Texas. La Grange, TX 151.625.

Faith Mission Int'l. Del Rio, TX 151.925.

Christ For The Nations. Dallas, TX 464.375.

Fred Jordan Missions. Dallas, TX 154.57 154.60.

Congregation Rodet Sholom. Waco, TX 170.305.

World Evangelism, Inc. Nationwide 464.50 464.55.

Southern Baptist Convention. Nashville, TN 461.45; Memphis, TN 463.65.

Church of Living Waters. Olympia, WA 461.825.

Paul VI Pastoral Center. Wheeling, WV 170.305.

Latter Day Saints (Mormon Church). Salt Lake City, UT 461.20 463.225 463.5125 463.775 464.00 464.225 464.775 468.5125; Provo, UT 151.835; Boise, ID 464.375; Bellevue, WA 464.325; Sandy Springs, GA 461.0625 461.1125 463.6375 466.0625 466.1125; Torrance, CA 151.835.

Jehovah's Witnesses. Brooklyn, NY 152.90 154.60 462.275 462.35; Pine Bush, NY 152.975 157.56; Wallkill, NY 151.895 153.035; Patterson, NY 151.895 152.945 154.49; Houston, TX 151.655 151.685 151.715 151.745 151.775 151.805 151.835 151.865 154.515 154.54.

Table 4. Frequency guide to the electronic church.

churches. In fact, any Business Radio Service frequency can be licensed for low power devices. See Table 3 for favorite frequencies and bands.

It appears that the FCC may have dedicated the wireless microphone frequency of 170.305 MHz almost exclusively to churches. Relatively few fast-food restaurants and others are licensed on this frequency.

No license is required to operate with low power in the 49.67 to 49.99 MHz band. A church in my town operates a tie-clip mike here on 49.845 MHz.

The General Listings section of Table 4 includes a small but representative sampling of local churches and religious organizations to give you some idea of the frequencies and bands in actual use.

As you'd expect, the behind the scenes chatter relating to the activities at your local churches are hardly likely to offer anything in the way of scandal or startling revelations —except perhaps for a candid opinion of the sour notes played by the organist.

Behind The Smiles

On the other hand, if headlines are to be believed, it appears that what goes on behind the televangelist scenes could differ from what's seen and heard on TV. If you're within scanning range, it's possible that you might well learn that things really are sweetness and light, as they have been presented. Yes, the majority of televangelists are sincere in their beliefs and are seeking to do good. But we know from experience that this isn't universally true. You could be rocked right out of your socks when a slip of the tongue lets you catch someone in the act of shearing their TV flock—or trying to pull the wool over your eyes! ■

Callsign Facts, Fads, Fallacies, & Folklore

Return To The Days When Every Little Letter Had A Meaning All Its Own

BY ALICE BRANNIGAN

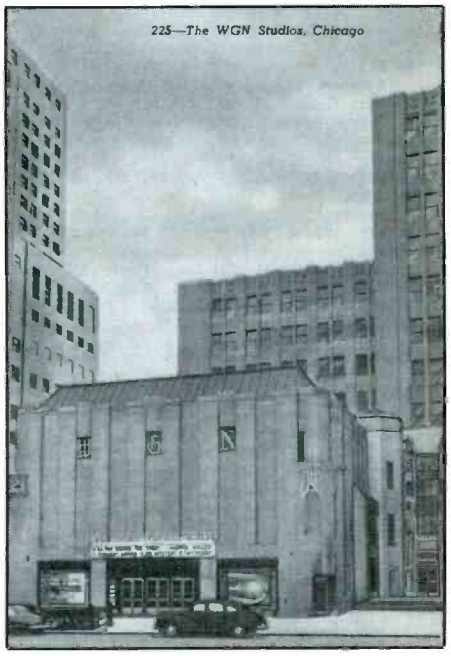
Some listeners complain that radio is beginning to sound as if the majority of broadcasters identify their stations by slogans utilizing words like *classic*, *light*, *quad*, *magic*, *soft*, or *kiss*. Maybe they use some other slogan, but chances are that it's equally uninspired. In all too many instances, the station's actual call letters are given no more than the minimum attention required by regulations, and maybe not even that.

Let's go back to the days when broadcasters considered their call letters the most important image they had to give their listeners. The days when call letters were an important part of the folklore of broadcasting; the stuff of legends. The days when stations held contests for listeners to come up with slogans using the letters in their stations' callsigns. There was a time when many members of the public thought that all call letters were intended as initials that actually had meanings. And, remember when singing jingles with those call letters were played between every record spun?

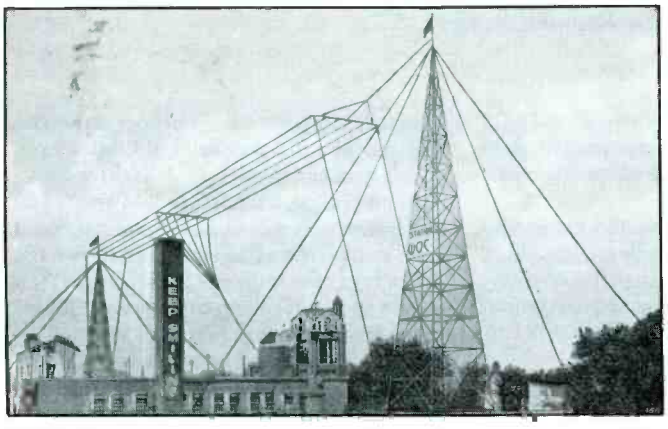
In the early days of broadcasting, the Dept. of Commerce, predecessor agency to the Federal Radio Commission and FCC, in granting U.S. radio licenses, formulated its plan to assign call letters beginning with the letter "K" only to stations west of the Mississippi River, and the letter "W" to stations east of the river. Before that program went into effect, a few pioneer stations were licensed with what later came to seem like inappropriate call letters. That's how KDKA got to be in Pittsburgh, Penna. That's how WOC ended up in Davenport, Iowa.

WOC started up in 1922, and was founded by Dr. B.J. Palmer, who ran the Palmer School of Chiropractic. The call letters suited Palmer just fine, and the station let it be known that those letters stood for *Wonders Of Chiropractic*. This is what probably kicked off stations attempting to match their call letters with a specific product or service, natural local feature, an owner's name, a city or state name. Specific call letters could even be requested and obtained to fit in with this concept.

In the folklore of broadcasting, one published (apocryphal) tale concerns a station in Des Moines, Iowa, that supposedly went on the air without any call letters in 1924. Listeners kept wanting to know who they were, so the station took the call letters WHO. Nice story, but, the station was originally put on the air by Bankers Life Co., an insurance firm,



Chicago's WGN said its call letters stood for "World's Greatest Newspaper." The station was owned by the Chicago Tribune.



WOC, Davenport, Iowa, was owned by a chiropractic school. The call letters suited them just fine, so the story goes.

One tale, possibly fanciful, reports that famous Des Moines station WHO got its call letters because listeners wanted to know who they were.

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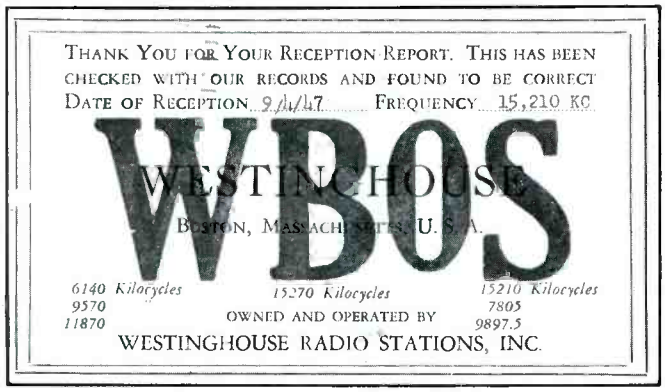
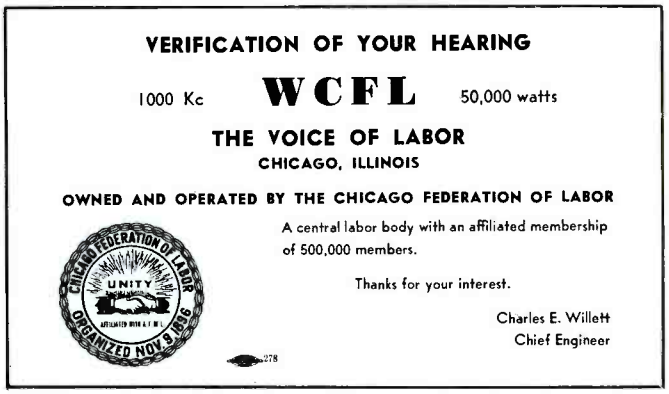


The call letters WBOS have always belonged to one or another stations in Boston. This QSL is from 1947 when WBOS was a short-wave broadcast station in Boston.



WCFL put their initials in their call letters and made no bones about being owned by the Chicago Federation of Labor. They even put the union seal and membership total on this 1956 QSL card. You didn't know whether to send a reception report or pay your dues.

and in 1925 they were saying the call letters stood for their company slogan, *We Help Others*. By 1924, broadcasting had become too popular to try getting away with a 500 watt unlicensed station in a large city. Indeed, WHO is listed as being licensed and assigned those call letters in 1924. Good story, though.

Another previously published piece of call letter folklore relates to Boston's WHDH. The rumor has long circulated around Boston that the letters stand for *We Have Dead Haddock*. According to one 1989 source at WHDH, the story dates back to the 1920's when the station began as WEPS, a 100 watt transmitter in Gloucester used by Capt. John J. Matheson to send messages to his commercial fishing fleet. He later changed the call letters to WHDH and increased the power to 1 kW.

The story goes that when market prices rose, Matheson would use the station to summon the fishing fleet back to port with their catch. When market prices fell, Matheson would tell his fleet to dispose of all of their fish at sea. Hence, *We Have Dead Haddock*.

Others at WHDH have scoffed at this colorful story, saying that when Matheson moved the station from Gloucester to Saugus, he originally wanted to keep the WEPS call letters, but later he canceled his request. The government then assigned the station WHDH, instead. The WEPS callsign had represented Matheson's wife's name, Ethel Pearl Stevenson.

A true folklore tidbit we like relates to WATD-FM, at Marshfield, Mass. Local residents kept giving the station owner hassle about where he could build his transmitter. There were so many delays that it took five years to settle on a site in order to get a construction permit from the FCC. The only local spot that nobody complained about for the transmitter was on a 6 acre site next to the town dump. The station's frustrated owner was thereupon inspired to request the FCC to assign his station the call letters WATD, meaning *We're At The Dump*. Ed Perry, the station owner, confirmed the truth of this story in *The Boston Globe*.

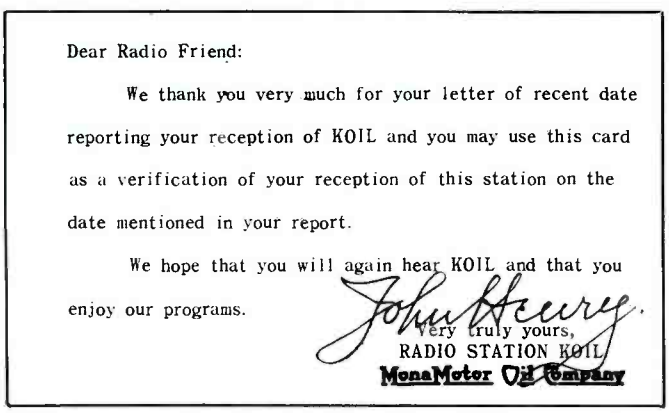
Ted Turner wanted the call letters WTBS for his Atlanta TV station, so the letters could stand for Turner Broadcasting System. But the letters weren't available because they were already assigned to another broadcaster. Turner paid the other station $50,000 to release the call letters. Similarly, when Washington, D.C., station WTOP wanted those letters to represent their 1500 kHz spot, then at the top of the AM dial, they had to ask a police station to give them up. The FCC will no longer recognize private arrangements between two licensees to transfer callsigns in this manner.

In looking over callsigns, we see well known stations like WGN, WLS, and WSB. Those letters have come down in broadcasting history as *World's Greatest Newspaper*, *World's Largest Store*, and *Welcome South, Brother*. What could be more potent an image than these, or WIOD (Miami, Fla.) and their spectacular slogan, *Wonderful Isle Of Dreams*?

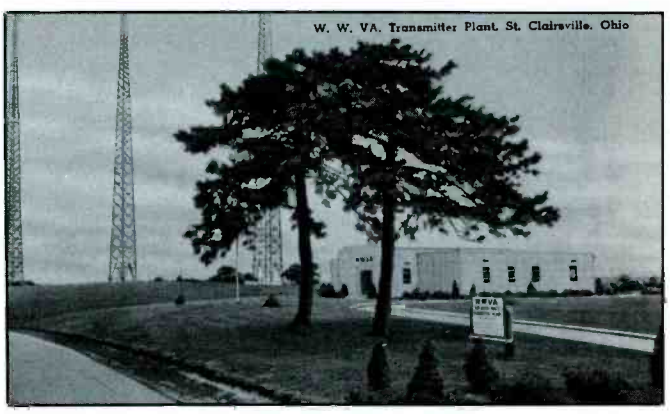
Denver's old KFEL (later KIMN) was originally owned by a flamboyant Rocky Mountain character named Gene O'Fallon. Denver citizens used to speculate that the call letters of his station stood for *Kan't Find Enough Liquor*. Get that image in your mind!

City names, or parts of them, are favorites in call letters. A few that come to mind are WACO (Waco, Texas); WBAL (Baltimore); WEAU (Eau Claire); WNYC (New York City); WBOS (Boston); KSOO (Sioux Falls); KSL (Salt Lake City); WWVA (Wheeling), and KCMO (Kansas City).

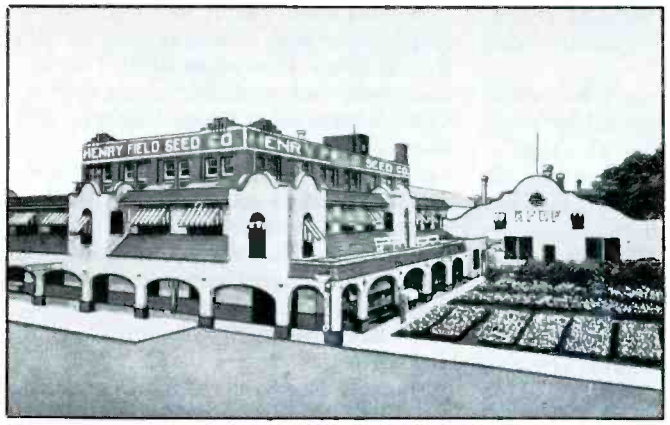
Call letters that spell out words are excellent memory triggers. That's why they've always been popular and plentiful. From the early years (and to the present) creative stations have actually had call letters that spelled out WHAM, KICK, WORD, KROW, KLUK,



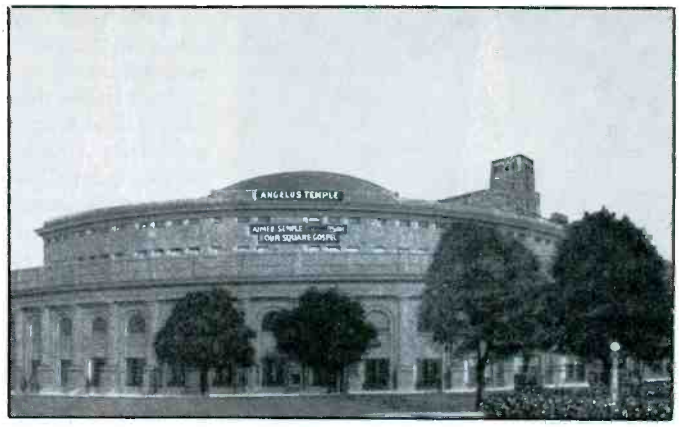
KOIL was owned by Omaha's MonaMeter Oil Company. They found a good way to remind listeners of this fact.



WWVA, Wheeling, West Virginia, simply used the initials of its location for its call letters. That makes it easy to remember!



KFNF, which was a station owned by a large seed company, said its call letters meant "Known For Neighborly Folks." In this photo, the station is in the building to the right of the seed company offices.



The Four Square Gospel Tabernacle, Los Angeles. Home of station KFSG, and Sister Aimee Semple McPherson. She eloped with the station's married engineer and caused one of the biggest scandals of decades past.

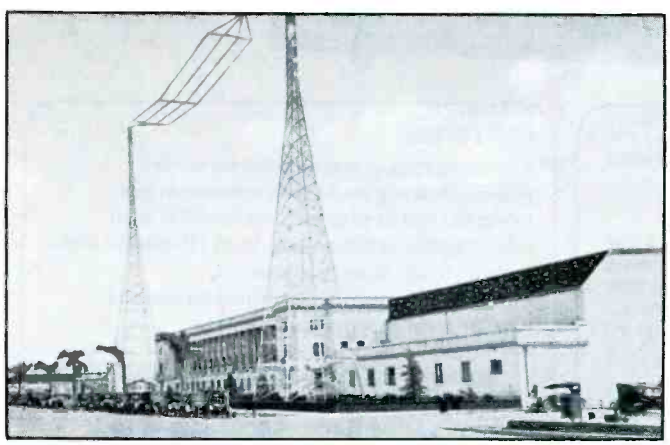
WING, WREN, KART, WOOF, KATS, KNOT, WIND, WAVE, WAVY, WAVZ, KLAM, WHEE, KOPY, KLIK, KLUE, KEYS, WORK, WAGE, KASH, KOIN, WAIT, KID, KEEP, WARY, WISE, KLUB, WASH, KOFF, KOOL, KOLD, WARM, KING, WHIZ, WILD, WHIP, WISH, WHEW, KIND, KNOW, WHAT, WHEN, KLAW, KRAB, WINE, KORK, WARN, WINS, KUTE, KRIB, KIDS, KORN, WEED, KRAK, KEEN, WEEP, WANT, KLAY, WINK, WIFE, KISS, KNIT, KLAN, KLOK, WAKE, WALK, WOW, WASP, WIGS, WOOD, WITH, WHOA, WHEW, and dozens of other words. What vivid images they summon up. We even find a KOOK, a KUKU, a WAKY, a WORM, a WEAK, a WREK, and would you believe, a WART? Creativity does have its limits, though. In 70 years, the airwaves never had a single licensed broadcast station willing to depict itself as WORN, or a KRUD, a KUSS, a WILT, a WARP, a KLOD, a WONK, or a WIMP. No KOWS or KOPS, either.

Then there are the topical or commercial call letters. A few samples are in order. Like the oil company that had the call letters KOIL. And stations in Las Vegas clever enough to capitalize on the city's major industry. What about Las Vegas' stations like KLUC, KENO, KFUN, and KBET? Station KFWB, in Los Angeles, was put on the air by Warner Brothers, so they were known as *Keep Filming, Warner Brothers*. During WWII, this was modified to *Keep Fighting, Warner Brothers*. In New York City, William Randolph Hurst owned WHN, but when it was sold to Metro-Goldwyn-Mayer, they changed the call letters to WMGM. When MGM sold the station, the new owners turned it back into historic WHN. This has presently evolved into a sports station with the call letters, WFAN. Speaking of sports, the old Madison Square Garden, in New York City, was once home to a station with its initials included, WMSG.

Newspapers were early radio station owners, hence call letters that let listeners know of those ties. This brought about WTHT (The Hartford Times); WSBT (South Bend Tribune); WBEN (Buffalo Evening News); WESG (Elmira Star Gazette); KPDN (Pampa Daily News); WTMJ (The Milwaukee Journal); WTCN (Twin City News); and CFPL (Free Press, London), plus others.

Let's not forget stations named in honor of individuals, like WEVD (labor and socialist leader Eugene V. Debs), KWKH (station owner and merchant W. K. Henderson, although he insisted the call letters stood for Kill Worry, Keep Health), WDWF (millionaire station owner Dutee W. Flint); WAHG (radio manufacturer A. H. Greebe)—or those with call letters reminding listeners of their ownership by commercial groups. Some examples: KRSC (Radio Sales Corp., Seattle, Wash.); KSMR (Santa Maria Valley Rail Road Co., Santa Maria, Calif.); KASA (Casa Grande Hotel, Elk City, Okla.); WABC (Asheville Battery Co., Asheville, N.C.); WBRL (Booth Radio Labs, Tilton, N.H.); WCFL (Chicago Federation of Labor, Chicago, Ill.); WEBH (Edgewater Beach Hotel, Chicago, Ill.), WFRL (Flatbush Radio Labs, Brooklyn, N.Y.).; and WSM (We Shield Millions, slogan of the National Life and Accident Insurance Co., Nashville, Tenn.). There have been hundreds of similarly oriented call letters.

There have been call letters centered on schools. Examples include KOAC (Oregon Agricultural College); KOCW (Oklahoma College for Women); WMBI (Moody Bible Institute); WPSC (Penn State College); WSUI (State University of Iowa). These are



KFWB, in Hollywood, was put on the air by Warner Brothers. They said the call letters meant, "Keep Filming, Warner Brothers."

WHBF, in Rock Island, Ill., reported its call letters stood for "Where Historic Blackhawk Fought."

W. K. Henderson, flamboyant businessman, was the founder of Shreveport's KWKH. When people asked if he thought it was conceited to name a radio station after himself, he would reply the letters actually stood for "Kill Worry, Keep Health."

just a couple of examples from the 1920's, but dozens upon dozens of call letters have used this theme.

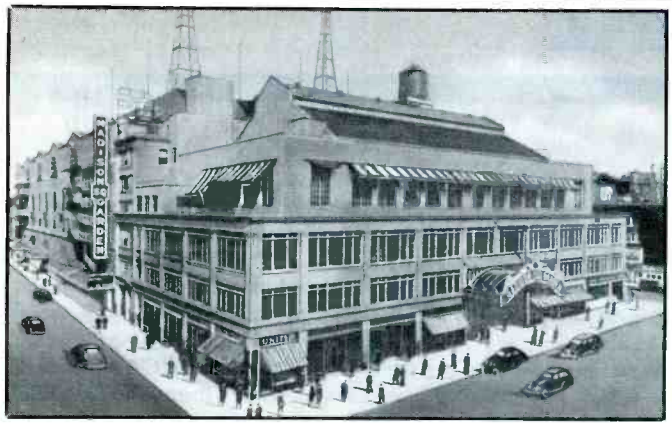
Don't forget that religious broadcasters have found ways of using call letters to publicize the names of their churches or religious groups. Some have turned their call-signs into religious slogans or messages. Here are some religious station identifications: KFSG (Four Square Gospel Tabernacle, Los Angeles, Calif.); KHOF (King's Herald Of Faith, Los Angeles, Calif.); KPOF (Pillar Of Fire, Denver, Colo.); WGPR (Where God's Power Radiates, Detroit, Mich.). There's a popular rumor in Boston that WGBH-FM's call letters stand for *God's Broadcasting Headquarters*. Another version has it, *God Bless Harvard*. Nothing so spiritual. The call letters stand for Great Blue Hill, which happens to be the WGBH-FM transmitter site.

There are call letters that have been used to publicize industries, historic events, and tourist attractions. What about Doc Brinkley's KFKB (Kansas First, Kansas Best, Milford, Kans.); WHBF (Where Historic Blackhawk Fought, Rock Island, Ill.); Florida's WSUN (Why Stay Up North); WBT (World's Best Textiles, Charlotte, N.C.); WOS (Watch Our State, Jefferson City, Mo.); WLBL (Wisconsin, Land of Beautiful Lakes); WQAM (Wonderful Qualities Advertise Miami, Fla.); WPG (World's Play Ground, Atlantic City, N.J.); and KFNF (Known For Neighborly Folks, Shenandoah, Iowa). There have been loads of these.

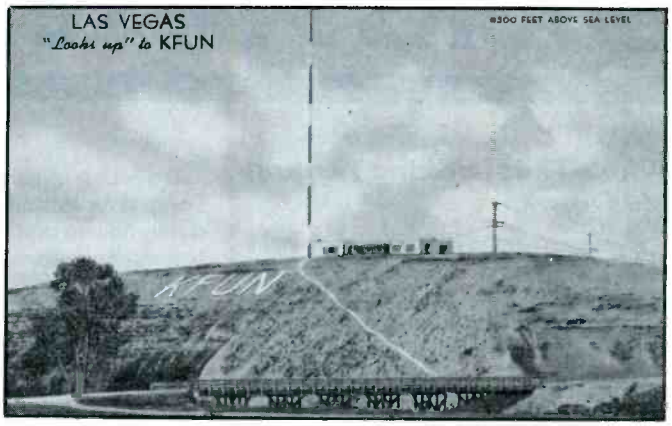
We like when catchy and appropriate slogans have been created to coincide with the call letters. How about WEBT, Dayton Cooperative Industrial High School, Dayton, Ohio (Worthy Effort Brings Triumph)? We liked WRR, the Dallas station that (in 1925) said its call letters meant *Watch Radio Radiate*. What do you think of WGBF, run by the Finke Furniture Company, Evansville, Ind. In the 1920's, they said their call letters meant, *We're Gon'a Be Friends*. Around the same time, WEBA, which was operated by The Electric Shop, New Brunswich, N.J., was advising its listeners, *We Electrify By Appointment*. During the Great Depression, nobody could feel down with WJKS, (Where Joy Kills Sorrow, Gary, Ind.) or WKBI (We Kill Blues Instantly, Chicago, Ill).

What fun to look back at those letters that were made into slogans which today look obscure, awkward, dumb, or totally dorky. A few favorites from the early days of radio include: WBBM, Chicago, Ill. (We Broadcast Broadmore Music); WCAY, located in a hotel in Milwaukee, Wisc. (We Can Accomodate You); WDBE, owned by a radio sales company in Martinsburg, W. Va. (We Distribute Better Equipment); WEBE, owned by Roy Waller, Cambridge, Ohio (Waller's Evening Broadcast Entertainers); WDBO (Way Down By Orlando, Fla); and we couldn't leave out WTAS, Elgin, Ill. (Willie Tommy Annie Sammy).

Canadian stations were into making slogans out of their call letters, and in much



New York City's second Madison Square Garden once housed a radio station with the call letters WMSG. Note the towers on the roof.



What better place to have a station called KFUN than Las Vegas?

the same ways as stations in the States. Examples include CFCA (Canada's Finest Covers America), and CFCO (Coming From Chatham, Ontario).

We aren't saying that there are no longer broadcasters who still regard call letters with the care, reverence, respect, and prominence in which they once were held. Surely there are such renaissance men in radio, but their numbers are ever decreasing in favor of station owners who prefer to have their stations identified as some kind of a *mix*, or a *zoo*, or a *light* this or that.

The FCC was at one time very fussy about broadcast station call letters, lest they spell out something that might be considered offensive or somehow blue. In the early 1960's, the FCC added to its responsibilities the task of arbitrating disputes when one station thought another local broadcaster had taken upon itself a callsign that was too similar to its own.

As stations began putting less emphasis on their FCC call letters, and more on totally unrelated slogans, the FCC backed away from these positions. Ten years ago they decided that their responsibilities would end with the issuance of available callsigns. They felt that advertiser and community standards would prevent stations from using callsigns that spelled out anything that would go too far overboard. Also, the FCC decided that the civil courts were to henceforth settle the usually silly spats between stations about whether one station's call letters were too similar to another's. Soon after the revised regulations, stations showed up on the air with call letters like WYNO, KOKE, and WSEX, indicating that the art of the descriptive call letters still had at least *some* life left in it.

But, sad to say, major old-line AM stations have recently begun casually ditching their historic and famous call letters. Cleveland's great WGAR (started 1930) not long ago became nondescript WKNR; Philadelphia's unforgettable WCAU (1922) recently became forgettable WOGL, while that city's appropriate WFIL (1922) turned into anonymous WEAZ. New York's WHN (1930) emerged from the past as sportscaster WFAN. Baltimore's WFBR (1922) now calls itself WJFK. In Los Angeles, KHJ (1922) now operates as KKHJ, while KFAC (1931) has transmutated into KWKW. It's catching on all over the nation. Maybe it's because broadcasting is becoming run more by impersonal corporate conglomerates than it is by actual broadcasting people.

Surprisingly little has been written about the fascinating historical aspects of broadcast call letters. The most often cited reference is Kneitel's *Radio Station Treasury (1900-1946)*, published by CRB Research Books, Inc. The Los Angeles Times ran an good story on call letters, by Penny Pagano, on December 31, 1983. The Boston Globe had an informative story on the topic by Susan Bickelhaupt in the edition of December 29, 1989.

We liked the sparkle and fun that call letters lent to the golden era of radio broadcasting, and the many wonderful and varied guises they could assume to hawk a station's image. It's all fading into history now. We were pleased to share with you a brief look at some of the picturesque station identifications popular in days gone by.

Thank you for your terrific help and support in 1992. We look forward to your old time QSL's, station photos, post cards, station directories, and questions. Keep them coming. And the best of Christmas and Chanukah holidays to our many friends.

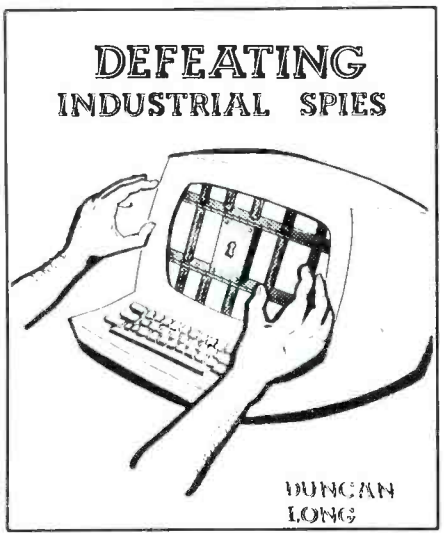
I'll be on vacation for the January issue, but I'll be back again in February. While I'm gone, the January issue will present a fascinating visit to Nauen, the cradle of German broadcasting and shortwave. The story tells of the historic 1909 experiments from the site, plus later activities leading to the present day. Photos, too. ■

BOOKS YOU'LL LIKE

BY R.L. SLATTERY

Who's That Looking Through My Door?

It's always helpful (and good business) to know what your competition is up to. But some people get a bit obsessed with this notion. Not only would they do anything to do away with the competition, they would pay good money, and go to any extremes, to obtain certain information about other business people.



What information? Legal and financial problems they may be facing. If they pay their bills on time. Who their customers are, and what they are paying. Who their suppliers are, and what they are charging. Any violations of government regulations or codes. The secrets of their manufacturing processes, and the contents of their formulas. Payroll information. What new products are in the works, and if any products are to be discontinued. Marketing plans. Your imagination can add more things to this list.

When you think about it, this information isn't of interest to competitors alone. Others who might find it of value are customers, suppliers, those being asked to extend credit, investors and prospective investors, creditors, and governmental agencies. Chances are that from this motley collection, at any given time, at least one or two individuals, companies, or agencies are seriously interested in obtaining inside industrial information about a given company.

Obtaining this data could mean something as simple as taking the trash left out in the dumpster and then digging through it, piece by piece. It could mean bouncing a laser beam off a window pane to pick up critical office conversations. It could mean paying disloyal employees to leak information. It might involve rifling through computerized files. Very easily, it could be a combination of these techniques, plus many others.

Defeating Industrial Spies, by Duncan Long, is an illustrated 132 page book that shows how to protect the confidentiality of business operations. It covers every aspect of information security, including physical plant, employees, guards, computers, bugs and wiretaps, and more.

Chapters include an explanation of who spies, and why; low-tech spying; physical security systems; security guards; computer security; closed circuit TV; night vision devices; bugging and wiretapping; visual techniques; plus other aspects of the topic.

Long's book is quite thorough, and written with a good understanding of what's involved—both from the aspect of what they want and how they can try to get it, to how to stop them from being successful.

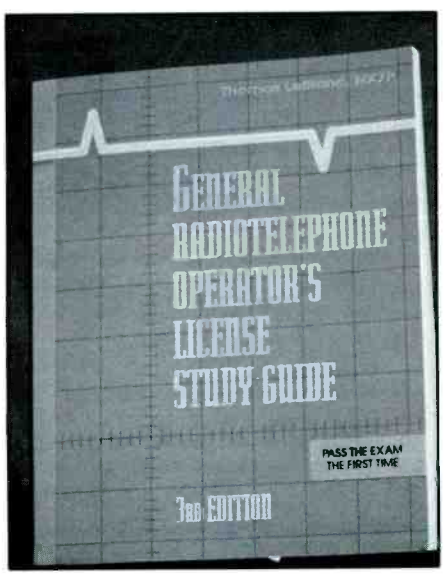
Defeating Industrial Spies is available for $16.95, plus $3 shipping, from Loompanics, P.O. Box 1197, Port Townsend, WA 98368. Washington State residents please add 7.8 percent tax.

Study For That Commercial Phone Ticket

The FCC sometimes changes the questions in its license exams. This is not only to keep the public from becoming too certain of which specific questions are going to be asked, but also to bring into play new developments that are relevant to the licenses for which the exams are given.

However, the FCC isn't going out of its way to trip up applicants with sneaky or trick questions. The agency does offer sample tests and answers so that applicants can study for the exams and pass them. The hope is that those who take the exams will actually understand the questions and answers, and will go on to pass because of this knowledge.

The FCC has changed its exam for the General Radiotelephone Operator's exam. That has brought about the 3rd Edition of the *General Radiotelephone Operator's License Study Guide*, by Tom LeBlanc, NX7P.



Stressing mastery of concepts rather than rote memory, the 322 page book is designed to prepare the applicant to passing the exam on the first try. More than just Q&A material, the book even contains numerous insightful exam-taking tips. Still, there are plenty of questions, along with the answers.

Among the topics in this book are frequency tolerance and power loss calculations; effective radiated power calculations; avionics; semiconductors; transmitters; as well as motors and generators. There are plenty of charts and diagrams to help explain things.

General Radiotelephone Operator's License Study Guide, by Tom LeBlanc, is $17.95, plus $3 shipping ($5 outside USA), from TAB Books, Blue Ridge Summit, PA 17294-0850. Add applicable state and local sales tax. Order book number 4075.

Eye In The Sky

Once the exclusive tool of governments, satellite technology is now available to anyone. As you know, ham operators have been able to communicate via OSCAR satellites for many years. A fascinating book by Harold Hough, *Satellite Surveillance*, uses actual satellite photos (many in dazzling full color), helpful diagrams and simple language to explore the numerous commercial and other uses for satellite imagery.

In Hough's excellent 196 page book, there's a revealing history of overhead visual surveillance and the space program, and how satellites have played a vital role in international espionage. Now, the public and governments are accessing this same technology, and putting it to use in connection with the war on drugs, mapping, land/sea navigation, tax assessment, zoning, land use and planning, road building, bridge/dam construction, commodity investing, oil/gold exploration, pollution control, environmental monitoring, forest growth, land/sea treasure hunting, locating archaeological sites, rainforest monitoring, soil erosion, geologic activity, habitat creation and protection, weather prediction, organizing disaster relief, fighting forest fires, crop damage assessments, pest control, private intelligence investigations, the search for MIA's, and much more.

Satellite Surveillance gives *you* access to this powerful technology. You will learn where to buy regular and infrared satellite images. You will learn how to enhance and interpret them to bring out the exact information you need. And, yes, you'll even learn how it's possible to hide from "the eye in the sky."

This fully illustrated book (photos, charts, graphs) is indexed, has a glossary, and a bib-

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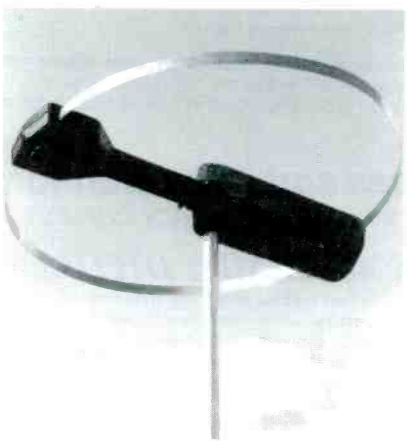

PK-232MBX DIGITAL MULTI-MODE CONTROLLER.
It can receive eight different types of data signals, including Morse code, Baudot, ASCII, Time Division Multiplex (TDM), WEFAX, NAVTEX, Packet and AMTOR. Also featured is SIAM which automatically identifies many types of digital signals, excellent software support for PC compatibles, Macintosh and Commodore 64 & 128 computers. This unit is essential for the serious digital listener.

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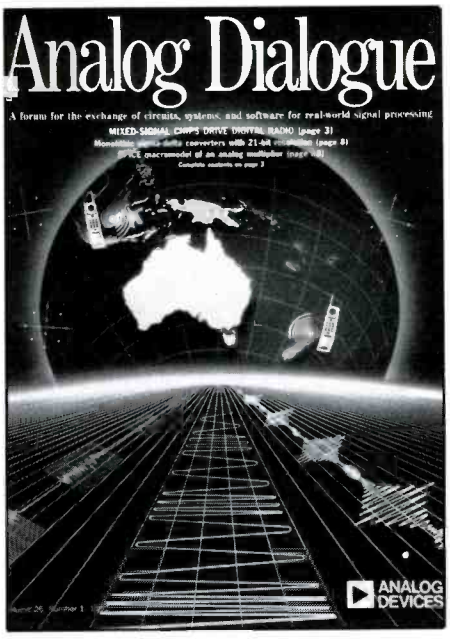
liography. It's the essential reference for satellite and space buffs, as well as civil engineers, farmers, city planners, insurance companies, environmentalists, geologists, freight carriers, investigators, and the news media. We think it will fascinate all persons interested in the uses and abuses of a technology capable of snapping a photo of one single building, taken from a vantage point more than 20,000 miles in space, then radioing the photo to a ground station on the other side of the planet! Sure opens up many possibilities.

This is *not* a textbook or a dry technical treatise. Hough knows his stuff, and he presents it in a non-technical manner. He writes in an easy-to-read style that should be understood by all. It held our attention all the way through. There is particularly fascinating information presented on deliberate deception methods that have been used to fool the satellites so they think they're seeing things that aren't really there, and vice versa. Amazing!

Satellite Surveillance, by Harold Hough, is $21.95, plus $3.50 for UPS shipping (sent via 1st Class Mail to AK, HI, VI, PR, GU, Canada, and military addresses). New York State residents please add $2.17 tax. Order it from CRB Research Books, P.O. Box 56, Commack, NY 11725. *VISA* and *MASTERCARD* orders may be mailed, or phoned in to 1-(516)-543-9169 (M-Tu-Th-F, 10 to 2 Eastern Time).

Analog Stuff

Analog Dialogue is a quarterly tech journal on circuits, systems, and software for real-world signal processing. In Vol. 26, No. 1, which contains 24 pages, there is information on a pair of monolithic I/O chips providing critical functions for digital mobile radio. The AD7001 and AD7002 are featured in a feature entitled "I.F. Stages Are Going Digital For Both Analog & Digital Signals." This classy publication brims over with wonderful high-tech delights, but is obviously intended



for persons having a working familiarity with circuits and communications technology. Nothing against you, but if you are still winding RF coils on Quaker Oats cardboard containers, *Analog Software* might be beyond your ken. We saw no price marked on the copy, so it might possibly be available just for the asking. Why not try? It came to us from Analog Devices Literature Center, 70 Shawmut Road, Canton, MA 02021. Try sending a request by FAX to (617)-821-4273. ■

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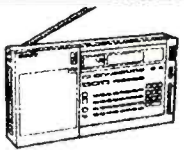
32 memory channels



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You can use the full power of your IBM type computer to control any function available through the keyboard of an AR3000 or AR2500 wide band receiver. Plus, you can log the active frequency information and signal strength from the receiver's display. Control up to 4 receivers per computer. Control over long distances. Unique Spectra Graph feature functions like a storage spectrum analyzer. Optional Doppler direction finding and CTCSS & DTMF decode functions. Thousands at $295. Yours only $89.95 when purchased with an AR3000 or AR2500. Act now, limited time offer! See inside back cover for AR3000 and AR2500 information.

Free Stuff

Demo disk of SCS software as above. Call toll free to order; or download it from our BBS at 317 579 2045. Also, Free from your fax machine: Allocation chart of all voice frequencies, plus shortwave, mil air & more freq info Dial FaxFacts#999,989,979

Mobile Scanners

Bearcat 760XLTM
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100 Channel
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Five banks of 20 channels each. Covers 29-54, 118-174, 406-512 and 806-954MHz (with cell lock). Features scan, search, delay, priority, memory backup, lockout, service search, & keylock. Includes AC/DC cords, mtng brkt, antenna. Size: 7 3/8 x 6 15/16 x 1 5/8. Wt: 7.5lbs. Fax fact document #550.

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Compact, digital programmable unit covers 29-54, 136-174, and 406-512MHz. Features scan, WX search, delay, priority, memory backup, lockout, review,& auto delay. Includes AC/DC cords, mtng brkt, antenna. Size: 7 3/8 x 6 15/16 x 1 5/8. Wt: 2.5lbs. Fax fact document #560.

Trident TR-2C
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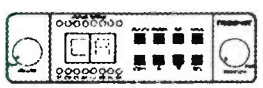

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Five scan banks 5 search banks. Covers 29-54, 118-174, 406-512 and 830-950 MHz (no cell lock). Features scan, search, delay, priority, memory backup, lockout, service search, & keylock. Includes AC/DC cords, mtng brkt, antenna. Size: 7 3/8 x 6 15/16 x 1 5/8. Wt: 7.5lbs. Fax fact document #650.

Bearcat 200XLTN
$229.95 200 Channels 800 MHz
Keyboard Programmable.

Ten scan banks plus search. Covers 29-54, 118-174, 406-512 and 806 956MHz (with cell lock). Features scan, search, delay, 10 priorities, mem backup, lockout, WX search, & keylock. Includes NiCad & Chrgr. Size: 1 3/8 x 2 11/16 x 7 1/2. Wt. 32 oz. Fax Facts # 450

Bearcat 100XLTN Now $159.95
100 Channels, Keyboard Programmable.
Similar to 200XLTN above without 800MHz. Fax facts #460

Bearcat 70XLTP Only $139.95
20 Channels Keyboard Programmable.
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10 Band with LCD. Requires 5AA's. Fax facts #480

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Bearcat 172XLM Only $124.95
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LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

We seem to be getting close to the arrival of some long-awaited newcomers to the shortwave bands, in fact, they may be in operation by the time you read this.

This new Costa Rica relay station for Radio Exterior de Espana has run some tests so it should be in regular operation now, or very soon. The Costa Rica relay will carry six or seven hours of REE programming per day in Spanish only. Several other hours per day will be used by the Costa Rican government for its own programming from Radio Nacional de Costa Rica. There are three 100 kilowatt transmitters here, which will use frequencies in the 60, 49, 31 and 25 meter bands.

On a side note comes the news (which most had already figured) that the REE relay base in the Canary Islands is no longer operational. The Canary Islands program carried by REE is not transmitted from there. REE is considering rebuilding the site.

Radio Copan International, a Honduran station with connections to Jeff White's Radio Miami International, is also supposed to be on the air now. It has carried out some tests on 15675 and will probably also use 9950. Check between 1700-1900 or 1800-2200.

All India Radio's long-planned facility at Boa Belem in what used to be Portuguese Goa are also supposed to be on the air by now. This facility is a pair of 250 kW units which will be used for broadcasts to East Africa and the Persian Gulf. The radio country list of the North American Shortwave Association counts this as a separate radio country so it'll be a new one for nearly all of us, including yours truly who never snared it when it was still Goa. Use of the shortwave transmitter was discontinued after India took over Goa.

Reports of a coming international service for Moldova (formerly the Moldavian SSR) continue. Supposedly, it will be on the air in English at 0130 on 11675 and 11730, 1200 on 15430 and 17800, and at 1830 on 13640 and 15315. We've not seen any loggings of this yet, however.

BRT in Belgium is airing a special broadcast for Belgian peacekeeping troops in Croatia, airing on 11695 at 1700-1755 in Dutch and French.

We are told that the 500 kW transmitters of Radio Federal Yugoslavia, which are situated just inside Bosnia-Herzogovina) are out of service, leaving the station with just the much less powerful site near Belgrade. This is reported to be operating on 7200. The Federal Republic radio is supposedly carrying "UNPROFOR," produced by the information services of the UN Peace Forces.

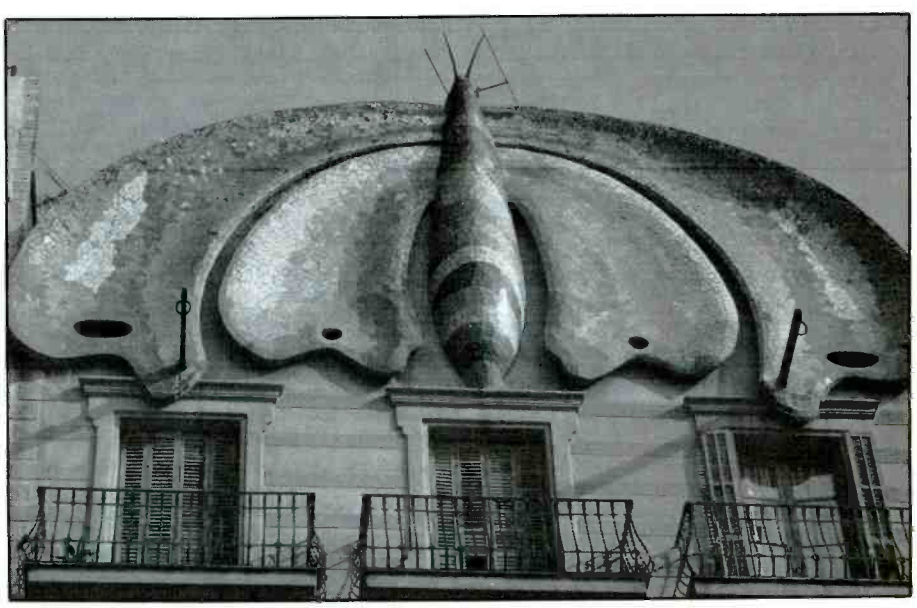
Arthur Cushen in New Zealand says that

Nashville's WWCR will have a third 100 kW transmitter on the air by the end of 1992.

ELWA, Liberia, which was destroyed in civil war there, plans to return to shortwave with a pair of 10 kilowatt transmitters to serve some 25 West African "language groups." There is an FM installation already in operation.

Argentina's Radio Nacional outlet on 6060 is inoperable and apparently will remain off the air. There's still some interesting Argentine catches available via a military transmitter which is relaying local stations Radio del Plata on 26139 and Radio El Mundo on 26099 at various times.

The government station in the Sudan is said to have opened up a 100 kilowatt transmitter on 7200. Check at 0300 for possible sign on. The station has not been an eager



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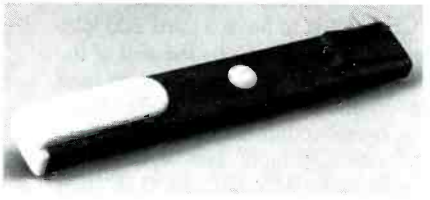

AC Voltage Sensor. Detects broken connections, blown fuses, defective grounds, open breakers, more. Indicates presence of AC voltages from 70 to 440VAC. Replaceable battery.
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TECHLINE 18-Piece Hex Key Set. Ideal for engine and machinery work. Heavy-duty steel alloy. Standard sizes.
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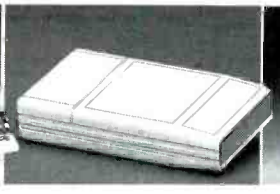
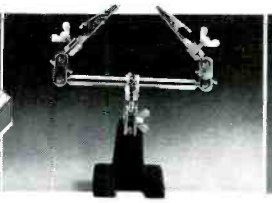


IR Transmitter Project Case. For beeper or remote. 9V battery compartment. Molded 7/8 x 2 3/8 x 4 1/4" enclosure.
#270-294 . . . . . **4.49**



Project Holder. Alligator-type clamps adjust to hold work in any position. Solid cast-iron base prevents tipping.
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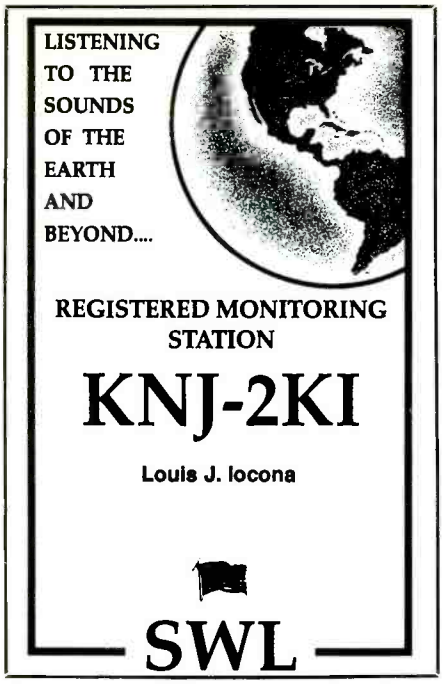


This attractive SWL card comes from Louis J. Iocona in New Jersey.

QSL'er in recent years but they are asking for reports to Radio Omdurman, PO Box 572, Omdurman, Sudan.

Tom Meyer, host of Radio Netherlands' "Happy Station" program has resigned after some 22 years with the program—which first went on the air in 1928! The program continues with a new host, Pete Myers.

WWCR intends to have a third 100 kilowatt transmitter on the air by the end of the year. The station invites radio clubs to send information about any special events, conventions, membership drives for free mentions on the air. Contact Adam W. Lock Sr., Program Director, WWCR, 1300 WWCR Avenue, Nashville, TN 37218.

Your letters, questions, comments, spare QSL's and other station literature, schedules and such are always wanted. Shack photos are in short supply. Why not send yours in?

Here are this month's logs. All times are in UTC (0000 equals 7 PM EST). Broadcast language is English unless noted otherwise (SS = Spanish, FF = French, AA = Arabic, etc.)

SWBC Loggings

Algeria: RTV Algerienne, 9685 at 2109 in FF with mideast music, IDs. (Lamb, NY)

Antigua: Deutsche Welle relay, 6040 at 0134, ID 0137. (Tucker, GA)

Argentina: RAE, 11710 in SS at 0300. (Scheurell, PA)

Ascension Island: BBC relay, 11860 at 0733 to Africa. (Lamb, NY) 15260 at 2245. (Low, TX)

Australia: Radio Australia, 6020//6080//9710 in Pidgin to the Pacific at 1037. 7240 in Pidgin at 0828. 9560 in CC at 1419; 9770 in Indonesian at 1005 and 11795 in EE at 0229. (Lamb, NY) 9580 at 1405. (Hampton, IL) 17795 at 0410. (Watts, KY) 21740 at 0136. (Tucker, GA) 25750 with tests 0800-0900 daily. (Cushen, NZ)

VNG time station, 5000 at 1007 with time pips, ID, address at 1014, under WWV and YVTO. (Lamb, NY)

Austria: Radio Austria International, 13730 at 0200 with ID, news. (Scheurelle, PA)

Bolivia: Radio Fides, 4845 with continuous SS music to 0600 sign off on a Sunday. (Cushen, NZ)

Botswana: VOA relay, 15600 at 0632. (Lamb, NY)

Brazil: Radio Nacional da Amazonia, 11780 at 2042 in PP with Brazilian pops, IDs, dedications, "Calendario Historico." (Lamb, NY)

Radio Inconfidencia, 6010 in PP at 0701 with station promos, Lettermen-style pop vocals. (Lamb, NY)

Radio Bandeirantes, 6090//9645//11925 at 0709 in PP with Brazilian pops, mx, IDs, commercials. (Lamb, NY)

Radio Brazil Central, 4985 in PP with accordion music, IDs, bird calls at 0734. (Lamb, NY)

Radio Cancao Nova, 6105//9675 at 0720 in PP with IDs, Christian music, religious talk. (Lamb, NY)

Radio Timbira do Maranhao, 4975 at 0754 in PP with talks, jingles, IDs, religious talks over "Ave Maria" and "Silent Night." (Lamb, NY)

Radio Cultura, Sao Paolo, 6170 in PP at 0806 with local music, IDs. (Lamb, NY)

Radio Universo, 6060//9565 at 0648 in PP with IDs, mention of Curitiba, political talks. (Lamb, NY)

Canada: Radio Canada International, 9755 at 0054 with schedule, address, music, sign off. (Hampton, IL)

CFRX/CFRB, 6070 at 0143, commercials, talk show. (Tucker, GA)

China: Radio Beijing, 9690 (via Spain) at 0300. (Scheurell, PA) 11680 via Fr. Guiana at 0435. (Tucker, GA) 11755 at 1028 with ID, news, features. (Lamb, NY) 15170 at 2113. (Low, TX)

CPBS-1, 11330 at 1119 with what sounded like a children's program, in CC. "My Darling Clementine" sung in Chinese! (Lamb, NY)

Abbreviation Used In Listening Post

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

Colombia: Radio Nacional, variable 17870 in SS at 0234 with merengues, talks with music, ID. (Lamb, NY)

Congo: RTV Congolaise, 4765 with West African music and disc jockey in FF at 0410. News at 0502. (Watts, KY)

Costa Rica: Radio For Peace International, 7375 at 0111 with talks and features on program from the Feminist Radio Endeavor (FIRE). (Hampton, IL) 13630 USB at 1522 in SS. (Low, TX)

Faro del Caribe, TIFC, 5055//9645 at 0433 in SS with Christian music, talk, ID 0444 just before BBC Antigua came on 9640. (Lamb, NY)

AWR Costa Rica, 9725 at 1400, in SS. (Scheurell, PA)

Cuba: Radio Havana Cuba, 9620 at 2209 with news; 11950 at 0020 in return to an old frequency, 17770 at 1818 with Cuban news in SS. (Tucker, GA)

Radio Rebelde, 3366 in SS with reggae music at 0432. (Low, TX)

Radio Czechoslovakia, 7345 in SS at 0100. (Scheurell, PA)

Denmark: Radio Denmark, via Radio Norway, 15165 at 2330 to North America, in Danish. (Vaage, CA)

Dominican Republic: Radio Barahona, 4930 at 0157 in SS with Latin big band music, ID, slogan. Lost suddenly at 0210. (Lamb, NY)

Ecuador: Radio Centinela del Sur on new 4870 at 0328 in SS with pops, ID, closing announcement, anthem and off at 0355. (Lamb, NY)

Radio Centro, 3290 at 0816 in SS with talks, Ecuadorian music, train whistle. (Lamb, NY)

HCJB, 9745 at 0000 in EE. (Scheurell, PA) 11925 with DX Party Line program at 0528. (Tucker, GA) 17790 at 1950 with DX Party Line. (Hampton, IL)

England: BBC, 15070 at 2330. (Vaage, CA) 17640 at 1441 with call-in program. (Hampton, IL)

Finland: Radio Finland International, 15400 at 1133 with news and commentary, press review. Off 1150 (Tucker, GA)

France: Radio France International, 11680, via Gabon, in FF at 0717. (Lamb, NY) 15365 at 1230. New frequency for North America. ID, news, French press review. (Tucker, GA)

Gabon: Africa Number One, 17630 at 1400 in FF. (Scheurell, PA)

Georgia: Georgian Radio, 11760 at 2030 in EE with IS, ID, choral music, news. (Lamb, NY)

Germany: Deutsche Welle, 11865 at 0142 with GG language lessons. (Hampton, IL) 15105 at 2301, followed by program in SS on Sunday. (Vaage, CA) 15410 in GG at 2200. (Scheurell, PA)

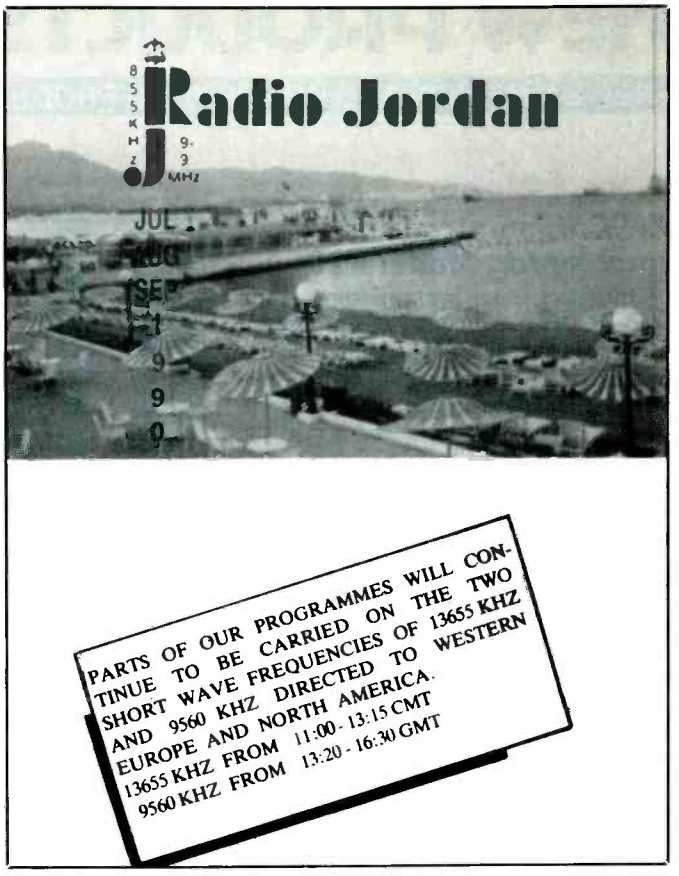
Sudwestfunk, 7265, in GG at 0200. ID "SWF-3." (Scheurell, PA)

Bayerischer Rundfunk, 6085, in GG at 0200. ID "Bayern-1." (Scheurell, PA)

Ghana: GBC, 4915 at 0600 with news in EE. (Watts, KY)

Greece: Voice of Greece, 9395 in FF at 1929, into German at 1939. (Lamb, NY) EE news at 0131. (Tucker, GA) 9420 at 0100. (Scheurell, PA) 11645 at 0041 in Greek. (Hampton, IL)

Radio Nacional's 6060 transmitter is kaput.



Check 9560 or 13655 for Radio Jordan and be prepared to do battle for a QSL.

Guatemala: Radio Buenas Nuevas, 4800 at 0330 under La-N (Dominican Republic) with ID, sign off announcement, anthem. SS. (Lamb, NY)

Hungary: Radio Budapest, 9835 at 0200 with ID, contest news. (Scheurell, PA)

Iran: VOIRI, 9022 at 0100 in SS with news, ID. (Scheurell, PA)

Iraq: Radio Iraq International, 15210 at 1811 in AA with Koran, local music, ID. (Lamb, NY) 2148 with features, news. Into AA at 2159. (Tucker, GA)

Israel: Kol Israel, 15640 at 2147 with Israeli pops, "Postmark" stamp program, news brief, sign off at 2158. (Tucker, GA)

Japan: Radio Japan, 5960 (via Canada) at 0100 and 9770 via England at 0509. (Tucker, GA) 11735 via Gabon at 2330. (Hampton, IL) 11865 with general service at 1059. (Vaage, CA) 1555 in FF at 0635. (Lamb, NY)

Kuwait: Radio Kuwait, 15505 in AA at 2235. (Low, TX)

Luxembourg: Radio Luxembourg, 6090 at 0100 in GG with ID, music, news. (Scheurell, PA)

Madagascar: Radio Netherlands relay, 11955 at 1408 in Dutch with IDs, soccer match. (Lamb, NY)

Morocco: Radio Mediterranean, 9575 at 0035 in AA with music, talk. (Hampton, IL)

Netherlands Antilles: Radio Netherlands, 6165 at 0105. (Tucker, GA) 9590 at 0345. (Low, TX) 11835 at 0000. (Scheurell, PA)

New Zealand: Radio New Zealand International, 9700 at 1124 carrying BBC programming to 1130 close, explaining that early sign off was due to need to conserve power during water shortage. (Tucker, GA) 0415 in presumed Maori on 17770. (Watts, KY)

Nigeria: Radio Nigeria at Kaduna, 4770 with news in EE at 0510. (Watts, KY)

Voice of Nigeria, 7255 at 0535 with African, Nigerian news. (Tucker, GA)

North Korea: Radio Pyongyang, 6540//6560//7580 in JJ at 1019; 6576//9977 in KK at 1019; 11335 in EE at 1103. (Lamb, NY)

Norway: Radio Norway International, 15165 with EE sign off at 2329; 15305 at 2232 in NN. (Vaage, CA)

Palau: Voice of Hope for Asia, 9830, with EE/CC IDs at 1145. (Watts, KY)

Paraguay: Radio Encarnacion, 11945 in SS at 2121. (Low, TX)

Radio Nacional, 9735 at 0100 in SS. (Scheurell, PA)

Peru: Radio Ancash, tentative, 4990 at 0339 in SS with LA pops, talk in SS, possible ID. (Lamb, NY)

Radio Eco, 5013 at 0157 in SS with local folk music, mentions of Iquitos, ID. (Lamb, NY)

Philippines: FEBC, 11690 at 0902 with religious talk, Christian rock and rap, sports and Computer Corner. (Lamb, NY)

Portugal: Radio Portugal, 9570 at 0257. Music, station frequency given in PP, anthem, ID, sign off at 0300. (Tucker, GA)

Poland: Polish Radio, 9525 at 1944 in EE with jazz ID, news. First time noted in local afternoon. (Lamb, NY)

Russia: Radio Galaxy, new 11880 in EE at 2003 with RR pops, commercial for western investors, address, promo. (Lamb, NY)

Adventist World Radio, via Samara, 15125 at 0429 in EE with IS, ID, "Your Story Hour." (Lamb, NY)

Radio Aumshinrikya, via Radio Moscow, (a program from a Japanese religous group) on 12040 at 0432 in EE with religious talk, commercial for books, JJ language Christian music with EE translation, address (Radio Aumshinrikya, 381-1 Hitonna, Fujinomiya, Shizuoka 418-01, Japan) 15355//15485//15500//17695 at 2032. (Tucker, GA; Lamb, NY)

Radio Moscow, 11170 at 0045; 11840 (via Cuba) at 1430. (Hampton, IL) 12040 at 1254; 15290 at 0143; 15375 at 1806 and 15560 at 0136. (Tucker, GA) 15485 with Russian By Radio at 2232. (Low, TX)

Singapore: BBC relay, 11955 at 0844 with "Anything Goes." ID, news. (Lamb, NY)

South Africa: Radio RSA, 7230 in FF at 0508 with African music, US pops, IDs, news. New 15250 at 0555 in FF with music, IDs, news, "Dimanche Afrique." (Lamb, NY)

Spain: Radio Exterior de Espana, 9530 at 0015 with sports roundup. (Hampton, IL) 12035 at 2057, SS music, ID. (Tucker, GA)

Switzerland: Swiss Radio International, 12035, 0200 with world news, ID, news magazine. (Hampton, IL)

Syria: Radio Damascus, 12085//15095 at 2047. (Tucker, GA) 15095 at 2100 with ID, news, talk, march and AA music. (Hampton, IL)

Tahiti: Radio Tahiti, 15170 at 0315 in FF and Tahitian. (Watts, KY)

Ukraine: Radio Ukraine International, 12040//12060 at 0030 with "Ukrainian Diary," ID 0027. (Tucker, GA) 15135 at 2115, greetings to U.S. listeners. (Hampton, IL)

United Arab Emirates: UAE Radio, Abu Dhabi, 15305 at 2332 with press review, "The Arab In History," ID, UAE press review. (Tucker, GA)

UAE Radio, Dubai 13675 at 0211 with AA music, IS, ID anthem, Koran reading. (Hampton, IL) 21605 at 1616 with address, ID, music. (Tucker, GA)

United States: VOA Bethany, test, 5745 USB at 0253 with open carrier followed by test tones. No ID but they QSL'd it in a week! (Lamb, NY)

Vatican: Vatican Radio, 15090 at 0155 with international religious news, ID, IS. (Lamb, NY)

Venezuela: Radio Tachira, 4830 at 0335 with "Novela de Misterio" radio drama, commercials, IDs. Off at 0355. (Lamb, NY)

Radio Capital, 4850 at 0238 in SS with Latin pops, US rock and rap, IDs, commercial for Coke Classic. (Lamb, NY)

Radio Continental, 4940 at 0205 in SS with LA pops, IDs. (Lamb, NY)

Yugoslavia: Radio Federal Yugoslavia, 11870 at 0040 with news. IS and sign off at 0058. (Tucker, GA) 0151 with Yugo ballads and soft rock, ID, frequencies, schedule. (Hampton, IL)

And the crowd roars its appreciation to the following: Arthur Cushen, Invercargill, New Zealand; Bjorn F. Vaage, Granada Hills, CA; Marie Lamb, Brewerton, NY; Evelyn Hampton, Chicago, IL; Brad Low, Jacksonville, TX; Andreas M. Scheurell, Pittsburg, PA; R.C. Watts, Louisville, KY and Robert E. Tucker, Savannah, GA.

Thanks to all and, until next month, good listening!

NEW PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

FM Communications Interceptor, Model R10

Optoelectronics Inc., announces the Model R10 FM Communications Interceptor. Conceived initially for the communications test market, it will have significant impact in security, counter-surveillance and recreational communications monitoring markets. FCC classified as a communications test instrument to measure deviation (wide and narrow band), relative signal strength, signalling tones (CTCSS), and any measurement requiring demodulated FM. The R10 is ideal for testing VHF, UHF and Cellular transmitters and can be a low cost highly portable substitute for a service monitor in some applications.

The Communications Interceptor is a new concept. Unlike a conventional radio receiver or scanner, the Interceptor responds to any strong signal present. Conventional receivers are stabilized and tuned to a particular frequency by an internal oscillator. The interceptor is stabilized by the signal it is receiving. The advantage of this process is that the Interceptor does not have to be tuned to a frequency

in order to receive a signal. Any FM signal from 30 MHz to over 2 GHz can be intercepted without any gaps in coverage. The Interceptor is completely automatic for hands free operation.

The Interceptor operates best in the Near-Field, the region surrounding a transmitter where the signal strength is high but falling off rapidly with increasing distance. The corresponding Far-Field is where signal strength is relatively low but falling off slowly with increasing distance.

The actual distance from which the Interceptor can detect a transmission will vary depending upon the RF Floor and the presence of other strong signals. Initial tests indicate that distances of 200 and 400 feet from a 5 Watt UHF or VHF transmitter are typical. This makes the Interceptor one of the most sensitive Near-Field detectors available. This great sensitivity to Near-Field signals makes the Interceptor ideal for RF security and counter surveillance applications. The signal strength bargraph is useful in locating stuck transmitters or listening devices concealed in a room or automobile.

Unlike the scanners and receivers that must be tuned to a specific frequency or scanned through a fixed frequency range, the Interceptor will provide an exciting new dimension to recreational monitoring with near instant response to strong signals. Communications monitoring hobbyists will be able to take the Interceptor on cruise ships, to military bases, theme and amusement parks, zoos, airports, to space shuttle launches, parades, sporting events, car races, and where ever else two way FM communication is used.

The Interceptor is small enough (5.1"L × 2.8"W × 1.5"D) to be carried in a pocket. For test applications, demodulated audio output is available from a stereo phone jack. The Interceptor also has a built in speaker. An optional earphone as well as personal stereo headphones are available for discrete monitoring. A thumb wheel volume control/power switch is mounted on the top of the instrument. Audio output is maintained down to 50Hz for tone measurements with a counter. A thumb down squelch control is mounted in parallel with the volume adjust pot.

A lock release push-button frees the Interceptor to lock on to a different signal. This functions very useful when several relatively large signals are present. Most Near-Field instruments can only lock to one strong signal while the INterceptor is able to be released to intercept additional signals.

Dual 10 segment bar graphs provide deviation and relative signal level indication. A push-button switch selects wide band or narrow band bargraph calibration. In addition to a power LED indicator there is also a lock indicator to indicate signal interception.

The Interceptor is supplied with a telescoping whip antenna with a BNC connector. Optional antennas include VHF, UHF and Cellular rubber duck types and an 800 MHz ground plane antenna. For increased pick up distance an active pre-selector and a cellular amplifier/filter are available. Pick up distances can be increased by as much as 10 times by using the appropriate antenna with pre-selector or filter.

An internal NiCd battery pack is supplied and will provide up to 6 hours of operation before recharge becomes necessary. An optional NiMH battery pack with double the battery capacity is planned. An AC wall plug charger is supplied that will also permit operation from the AC power line.

The Model R10 FM Communications Interceptor is priced at $359 complete. Availability is from stock.

For more information on the Interceptor, contact: Optoelectronics, Inc., 5821, NE 14th Avenue, Fort Lauderdale, FL 33334, or circle 101 on our Readers' Service.

SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

It's the time of year when scanner listeners start thinking about what accessories they'd like as gifts during the holiday season. An antenna with better gain might be a good choice for installation during warmer weather. How about a filter to eliminate the interference you receive from a nearby paging transmitter? Or even a new scanner or receiver! Whatever wishes you want to drop with your loved ones, make sure they are specific so you don't wind up with some inferior product you wouldn't buy yourself.

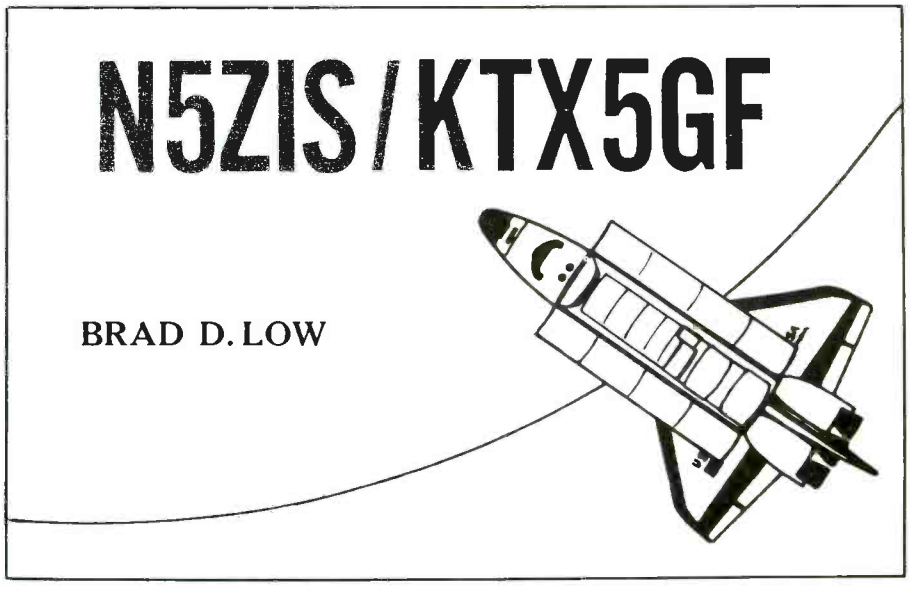
Brad Low, ham call N5ZIS and Registered Monitor KTX5GF, of Jacksonville, Texas, passes along some ham repeater frequencies of interest in his area: 147.380, 146.800, 145.490 and 444.900, Jacksonville; 146.920, Mount Enterprise; 145.330 and 147.340, Rusk; 147.080, Palestine; and 147.000 and 146.960, Tyler. Another frequency of interest Brad wishes to pass along is 151.340, which is used by the Texas State Railroad in Rusk and Palestine.

Brad also passes along a news clipping that describes how nurses are now using fast-food radio technology in their work. You've seen and probably tuned into the radio systems fast-food restaurants use to take drive-through orders from customers. The systems allow an order taker, for instance, to go out and sweep floors when the drive-through lane isn't busy, and still be responsive to an arriving customer.

Several hospitals have purchased a system that allows a nurse to wear a belt-mounted communicator connected to a microphone and speaker that attaches to the nurse's uniform. The system still leaves nurses hands and ears free for instruments such as a stethoscope. The system is set up so the nurse can communicate with the nurses' station or the entire staff on a unit. For instance, a nurse can push an all-call button to report that a patient is having chest pains and that help is needed from additional staff. In addition, the nurse can communicate with the nurses' station to check on doctors' orders. Hospitals using the system report that intercom noise has dropped off by at least 90 percent, and patients surely have noticed, too.

Greg Martinez from Hauppauge, New York, says he recently purchased a Realistic PRO-2006 scanner. He says that Chuck Robertson wrote in the April issue of *POP'COMM* that 167.3575 is a frequency possibly used by state law enforcement. Greg says he tried to enter this frequency into his PRO-2006, however, the radio defaults to 167.355 when he enters it in a channel.

First of all, the default spacing on the PRO-2006 on VHF high band is 5 and 12.5 kilohertz. Only frequencies that can be divided by 12.5 or 5 kilohertz can be entered. For instance, you could enter in frequencies such as: 167.350, 167.355, 167.360, 167.3625. The scanner will automatically default to the closest allowable frequency if you enter one that it won't accept. For all practical purposes, the frequency the scanner accepts is close enough that if the frequency were to be in use, you'd hear activity on it. Some more expensive receivers such as the ICOM R7000 or R7100 will allow you to enter any exact frequency without rounding off. It should also be noted that most scanners have a default of 5 kilohertz frequencies on VHF high band. For instance, you'd only be able to enter 167.350, 167.355, 167.360, 167.365. Again, remember that if the frequency is off by less than 5 kilohertz, your scanner should allow you to hear it even though your receiver is slightly off frequency. So, go look for those hidden channels now!



This is the QSL card used by Brad Low of Jacksonville, TX. Because it shows both his ham call as well as his Registered Monitor call, it serves for both transmitting and listening purposes!

Sean Sudol of Barrie, Ontario, says that he read in *POP'COMM's Communications Guide* that police radar use VHF-UHF frequencies readily available to scanners. Sean says that because radar detectors are illegal in Ontario, wonders whether it is possible to use a scanner to detect radar.

First of all, let's clear the air. No, police radar does not operate on conventional VHF-UHF frequencies. Most police radar operates on 10525 and 24150 megahertz. I don't think you'll find any receivers readily available that can receive signals that high. What you can hear on a scanner related to radar is the frequencies that police radar teams use to catch speeders. In many states, state troopers have specific frequencies in their two-way radios allocated specifically for radar patrols. For instance, Pennsylvania State Police use 154.755, their car-to-car channel, for catching speeders. Units can be on the ground as well as in the air in an airplane. In Iowa, 155.505 is set up as an "air" channel and is used to catch speeders from Iowa State Patrol airplanes. Knowing these frequencies and listening to them while mobile will tip you off as to where radar patrols (a/k/a "speed traps") are set up. That's how you can use a scanner to find out where radar is up the road.

Darwin McDonald of Madison Heights, Michigan, wrote to the Coast Guard requesting a list of frequencies used in the Great Lakes area. Here is a list that was sent to him: 156.800, calling and distress, Channel 16; 156.300, intership communications, Channel 6; 156.600, port operations, Channel 12; 156.650, bridge to bridge; Channel 13; 157.050, Coast Guard working, Channel 21; 157.100, Coast Guard working, Channel 22; 157.150, Coast Guard working, Channel 23; 157.075, marine environment operations, Channel 81; 157.175, Coast Guard Auxiliary, Channel 83. Some additional non-marine frequencies used include: 121.500, aeronautical emergency; 243.000, aeronautical calling and distress; 381.800, Coast Guard aeronautical; 27.065, emergency, CB Channel 9. For those with shortwave receivers, the Coast Guard's HF operations can be monitored in conjunction with their VHF operations. Listen to: 5692 kilohertz, primary aeronautical for Coast Guard

airplanes and helicopters; 8980, secondary aeronautical rotary-wing; 3120, tertiary rotary-wing; 5696, primary fixed-wing; 8984, secondary fixed-wing; 11201, tertiary fixed-wing;2182, calling and distress; 2670, calling and distress working.

If you live near the ocean or a major lake or river, you can be sure to hear plenty of Coast Guard communications.

Philip Wirshing III of Walterboro, South Carolina, writes in with a couple of questions. First, he says his city police department and county sheriff's department have received federal funding for drug surveillance equipment. Quite noticeably, he's seen that deputies can switch to a "tact" channel that seems to be a new frequency. It probably is, and the only way you'll find it is to quickly search as soon as they switch. Since your law enforcement agencies use 460 MHz for their communications, it's likely to be found from 460-460.650, or perhaps on the mobile side from 465-465.650. Don't rule out a search of the local government mobile band from 458-459, either. It's close enough in frequency to possibly be used.

Police in Washington, D.C., use a similar scheme for their secure channels. If the country licensed itself on the new frequency, it would eventually get into FCC records. The next annual edition of your area scanner guides would probably have the frequency listed. The only other way to find the information from FCC records directly could prove quite costly through a private service that would search the records for you. However, it should be noted that police agencies can use certain frequencies without obtaining a license if their power output is kept low and they don't interfere with another user. This would allow radios to be used for surveillance purposes without licensing the frequencies being used. By not licensing the frequencies, they wouldn't appear in the FCC's data base or in any scanner directories (unless they are overheard using a frequency and a scanner guide's editor publishes the information!).

Philip also notes that deputies are heard saying that they are switching to the "coded" channel and all he hears is what sounds like unsquelched noise, like if he adjusted his squelch control so static came in on his scanner. This means that your county law team now is using digital encryption. The digitally scrambled signals are converted from analog voice to digital signals and can be decoded only with another radio set up with the right digital code.

Don't think about getting such a radio and trying the possible codes, however. There are millions of possible digital codes and you could easily spend a lifetime trying all the possible codes until you found the correct one in use. And even if you did find the correct code, the department's radio technicians have the capability of sending out a signal on the air to change the digital code of all radios on the air. That way if a radio is stolen, they can effectively stun the radio so it can't be used to eavesdrop on the digitally encrypted signals.

Philip asks another question. He wonders how NOAA weather alert radios work. He says he has a Uniden Bearcat 950XLT with the CTCSS tone board and was wondering whether it could be set up to receive the weather alerts sent out by the National Weather Service. It can't. Several years ago, Regency manufactured a scanner, the Touch 16K, which could decode the weather alerts. However, doing such meant that you couldn't scan at the same time. The weather service sends out a 1000-hertz tone when it wishes to activate alert receivers. The touch 16K, as well as weather alert receivers, are equipped with devices that respond to the 1000-hertz tone. When the 1000-hertz tone is heard, the receiver opens. The tone is transmitted first by the weather service and then the message is read over the air.

Weather alert receivers are quite inexpensive, and if you want to be able to monitor their alerts, I'd recommend you buy such a unit.

We welcome your questions, frequency lists, photos and QSL cards to share with readers of Scanning VHF/UHF. Send your information to: Chuck Gysi, Scanning VHF/UHF, Popular Communications, 76 N Broadway, Hicksville, NY 11801. ■

SATELLITE VIEW

BY DONALD E. DICKERSON, N9CUE

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

Freedom Lost

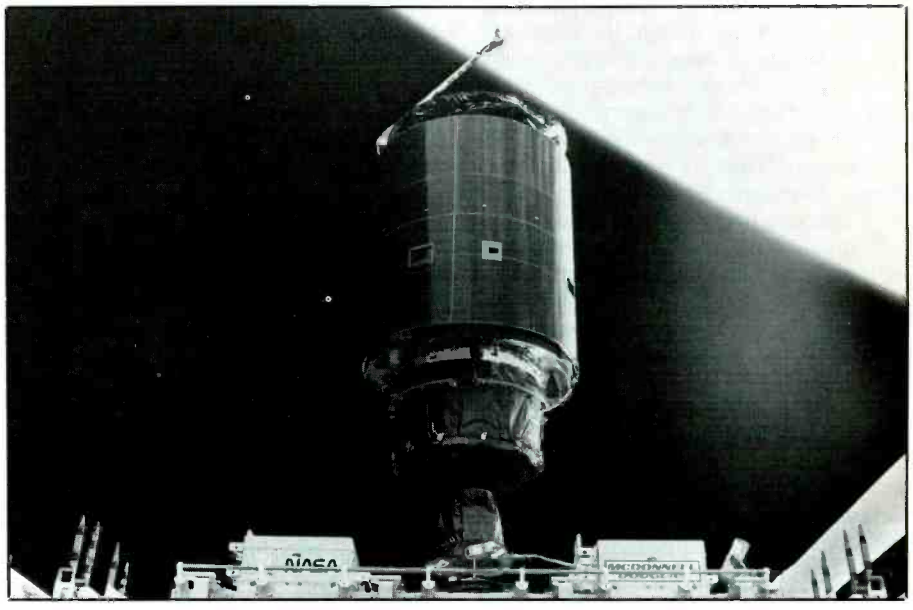
Freedom Lost, much like Paradise Lost, is not a happy tale. But the truth is the US can no longer afford to build a space station. The proposed space station, Freedom, has been on the drawing board now for almost 15 years. It has taken longer to settle on a design for the station than it did to decide the shape of the table for the Paris Peace Conference. Those of you who are old enough to remember Vietnam will know what I am talking about. With all the changes and redesign we have done and the millions already invested we still have nothing to show for it. In the early 60's it only took us 8 or 9 years to reach the moon starting from scratch.

I think it's time to face some realities as a nation. We simply can't afford to build a space station. Several specialists in aerospace claim the station we have designed will be of little use considering the downsizing we have had to do and the unusual orbit we have chosen.

The new political reality is this. The world does not need a second space station. The East Bloc and USSR are gone. The world can not afford a second space station, the unnecessary duplication of hardware and outrageous cost. The estimates for Freedom range from 20 to 60 billion, depending on which version of the station you are talking about.

It's time to start thinking internationally. The new world order, whatever ungodly schemes that may include, should address the issue of an international space organization. Now is the time to move aggressively in that direction. The Soviets have even offered to sell us their station. I suggest we simply add a US space module to the MIR space complex. Better yet make it a truly international venture and have our old NATO allies, at least the space faring ones, contribute to the effort. For a fraction of the cost we can have a space station and contribute to the peaceful use of space on an international scale. It would facilitate the standardization of space equipment, both safety and communications being the most important, and operational hardware, space docking ports, etc.

Why haven't we taken advantage of these opportunities? In fact we have shown little interest in it. Why? Because like all military hardware, space equipment is very profitable to manufacture. In fact the profiteering and price gouging the American tax payer has been made to endure during the last 15 years is more than obscene, it's unfathomable. That's part of the reason for the delay in the Freedom project. Every design change and postponement simply adds millions to the taxpayers bills. It's time to cut our losses and run. We simply can't afford it! If you don't believe it just look at the Gulf war. We had to go hat in hand to our allies to ask their help in paying for the war, which we should have done on principle but had to do out of necessity. Even then we doubled—DOUBLED—our national debt by going to war.



Here is a photo of the Intelsat VI F-3 Comms Satellite disengaging from the Endeavor. (Photo courtesy NASA.)

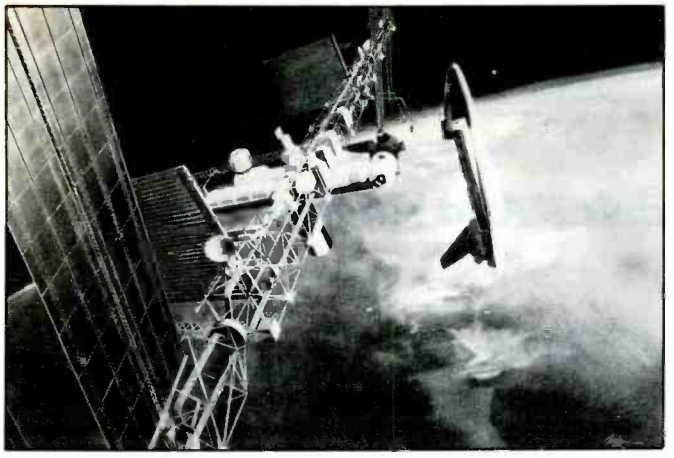
Space hardware is getting like military hardware. It's unreliable as well as over priced. The space shuttle was the first piece of space equipment to prove this in a most dramatic way. Look at the recent crop of high tech-weapons failure that have come to light in recent years, not to mention $1,500 coffeemakers and $900 hammers. The Shuttle, the Hubble, anti-aircraft guns, personnel carriers are among them. During the Gulf War finding replacement parts for aircraft became a challenge. The Apache attack helicopter was virtually useless except in limited incidents. Crew members complained of radios not working, guns not working and the fiberglass prop blades had an uncanny habit of coming apart. They were laminated blades and simply came unglued. Pilots finally used duct tape to try to keep the helicopters air worthy. It would appear the defense industry, has learned perhaps too much from Detroits auto makers. They have learned by building an inferior or less than quality product you can actually make as much or more money on replacement parts and repairs as you can on the initial sale. The profit motive is a wonderful thing, don't you agree?

We really don't need any reasons to do the smart thing when it comes to space exploration and now we have plenty of practical and cost effective reasons for moving toward an International Space Agency. Since the US and USSR space programs have taken different courses their accumulated knowledge and expertise is complementary. It's time to unify. . . 2001 here we come.

News

The FCC has granted Echostar Satellites request to provide Direct Broadcast Satellite (DBS) service. Their first satellite will be located at 119°W. Time will tell if Echostar is able to meet the rest of the FCC's requirements before proceeding with satellite production.

Pan American Satellite has been given the approval of the FCC for a hybrid international communications satellite (PAS-4). This satellite will be expanding its service to the Pacific Ocean region. The satellite will be stationed at 192°W and in full service by 1994. PAS-4 will be a high-power, state-of-the-art satellite. It will operate both C and Ku-bands with 24 C-band transponders and 16 Ku-band transponders. It will provide international service between the west coast of the US and all areas



An artist's rendition of enhanced configuration of Space Station. (Courtesy NASA.)

The Patriot missile in action as it is fired to intercept a Lance missile. (Photo courtesy the U.S. Army.)

of the Pacific Basin. PAS-1 is currently providing data and video services between Europe, Latin America and the US from a position of 45°W.

The FCC has given NBC news permission to modify its C and Ku-band satellite earth station located at Charlotte, North Carolina. The Stations callsign is E920383 (C-band) and E920366 (Ku). The station will be modified to communicate with TDRS-41, Morelos, Anik and PAS-1 satellites.

A year ago the FCC granted VITA, approval for operations of a LEO satellite system for medical, scientific and emergency communications in the third world and the Antarctic. The satellite uses Packet and the system currently consists of one satellite, a UoSat of AMSAT-UK design. VITA is the first service of its kind.

The Korean Advanced Institute of Technology (KAIST), with the help of AMSAT-UK and the University of Surry, England, have built a Packet Satellite. The satellite is similar to the current UoSat 14 and 22. Additionally, it will carry a charge-coupled device (CCD) imager with a ground resolution of 400 meters. The satellite is also equipped with a multi-lingual voice synthesizer as was the DOVE spacecraft. KITSAT-A will have two uplinks for its Packet operation, 145.850 and 145.900 MHz. The downlink is on 435. 175 MHz.

AMSAT-Israel has plans to launch a Packet/data satellite in 1993. This unique satellite will have a single downlink on 29 MHz, two on 435 MHz. Each of the following bands will have 5 uplinks; 145, 1260 and 2400 MHz.

Greenpeace, the environmental group, is using a unique satellite system on board the ship, *Rainbow Warrior,* to get video pictures of their confrontations with the French, and other governments. As most Ku TV systems are cost prohibitive, Greenpeace uses a system developed by a British company called Skylink. It uses the Inmarsat service. For TV signals to be sent via Inmarsat the signals must be compressed and sent at a reduced rate. A personal computer with Skylink software stores the video while it is sent at the reduced rate with no loss of information. While operating in the Pacific TV signals are routed to Inmarsat and downlinked to California before being sent to London via telephone lines. I would like to thank Danny B. of Arkansas for the Greenpeace information.

YOU SHOULD KNOW

INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

BY HARRY HELMS, AA6FW

Cheap Advice And Angry Readers

Doing this column each month is no picnic.

Every so often, something I write gets someone stirred up. Soon a letter informs me I'm stupid, biased and evil. My usual response to such letters is "you think I don't already know that???" Sometimes such letters do give me an idea for a column—like this month.

The letter that started me thinking was from a reader who took exception to my column on phantom signals, such as those produced by receiver images and overloading. In that column, I said that images are a by-product of receiver design and there isn't a great deal that can be done about them outside of making sure your receiver is properly aligned. This reader came out with his guns blazing—*you are wrong!!* There's a device, he wrote, called a *preselector* which will do what I said couldn't be done! And he uses a preselector which he feels will take care of image problems!

What we have here is called a quandary, folks. I'll present my side of the case.

What's a Preselector?

The word "preselector" has a good sound to it. It seems contemporary and high tech. But it's actually been around for several decades. In fact, several of the best known receivers of the 1950's, 1960's, and 1970's included a preselector control. Among the better-known receivers equipped with preselectors were almost everything manufactured in that era by Collins and Drake, as well as some early Japanese models like the Yaesu FRG-7. Tuning one of these receivers involved setting the main tuning dial to the desired frequency and then tuning the preselector for maximum signal strength.

The way the preselectors on such receivers were tuned gives you a good clue what a preselector actually is: it's a *tuned RF amplifier*. Such a circuit will boost the strength of an incoming signal, but it must be tuned for maximum gain on the frequency you want to boost. The tuning circuit was usually a parallel LC circuit similar to that used to tune the receiver itself, and the preselector had a tuning dial calibrated by frequency. The gain of most preselectors really drops when you are more than about 100 kHz from the frequency it's tuned to, so the preselector circuit in those receivers acted as a sort of "filter" (as do all parallel LC circuits) to reject signals on frequencies above and below the one you're interested in.

If preselectors were so great, why aren't they still included in all receiver designs? In the late 1970's, the trend in receiver design shifted to *broadband* RF amplifiers. These circuits could give high gain across a wide frequency range—say from 100 kHz to 30 MHz—with high gain and without the need to "repeak" preselector tuning as you moved through the bands. It was a lot more convenient to go with a broadband amplifier, and that's why today preselectors aren't seen except on older receivers and as separate accessories for boosting receiver gain.

Those separate accessories are a lot like the preselectors in older receivers. They have a tuning dial calibrated by frequency, and usually a control to vary the gain of the RF amplifier circuit. Like the old preselectors, they do help reject signals on frequencies other than the one they're tuned to.

But true preselectors therefore are *active* circuits. Active circuits require a source of power (like a battery) and can do things—like amplify a signal. Passive circuits are devices like antenna tuners; they are "powered" by the signal that passes through them. A passive circuit *always* introduces some signal loss. (if for no other reason than simple resistance in the circuit.) A passive circuit can never amplify, nor can a passive tuned circuit ever be as selective or tune as sharply as an active tuned circuit.

The device cited by my reader requires no external source of power. So, by definition, *it can't be a true preselector*. Even if it were a true preselector, it still wouldn't help reduce images!

Images

Back in the May, 1992 of *POP'COMM*, I covered what images are. The key point of that column was this: *images are produced internally by a receiver*. Images occur because receivers convert all received signals to a single, fixed frequency, known as the *intermediate frequency* (IF), for amplification and detection. Some better receivers convert received signals to two or even three different IF, and these receivers are known as *double* or *triple conversion* receivers.

One of the unwanted by-products of converting signals to an IF is an image. An image is a false signal that appears *above* and *below* the actual signal frequency. The image is equal to *twice* the intermediate frequency. Going back to my example in the May, 1992 column, there may be a strong signal on 9600 kHz. The most common in-

termediate frequency is 455 kHz, so twice that would be 910 kHz. Thus, images of that station could be found on 8690 and 10510 kHz. Receivers that are double or triple conversion are less affected by images, and this is a big reason why all premium receivers today are "multiple conversion" types.

Now let's use some common sense. How could a preselector—or any other device external to the receiver—help reduce images if images originate *within* the receiver? Even if you expand the traditional definition of preselectors to include passive devices, one still couldn't reduce images.

But Can A Preselector Really Help With Phantom Signals?

Yes, to an extent. But not with images, in any case.

Phantom signals can be produced in a receiver through *mixing* problems. Mixing is the process by which two or more signals are combined together (or "beat against" each other) to produce a new frequency. As I've said before in this column, some mixing is intentional in every receiver; that's how intermediate frequencies are produced. But unintentional mixing is a growing problem as more and more powerhouse signals are found in today's crowded shortwave bands.

True preselectors—that is, active devices—can sometimes help by providing an extra tuned circuit before the signal from your antenna reaches your receiver, especially if one of the signals creating the mixing problem is more than 100 kHz away from the signal you want to hear. However, you'll have to tune the preselector carefully and watch the gain of the preselector: if it's too high, you can worsen mixing problems. Sometimes the best way to use a preselector to reduce mixing problems is to crank its gain down as low as possible, re-tune every time you shift frequency more than 25 kHz or so, and rely on the gain of your receiver instead of the preselector's amplifier. And you have to know what you're doing when using a preselector. If you mistune it, you can actually increase mixing problems instead of reduce them.

There's another category of spurious signals known as *birdies*. Birdies, like images, are produced inside you receiver and are most common in synthesized tuning receivers using phase-locked loop (PLL) circuitry. Birdies sound like weak unmodulated carriers but are of constant amplitude, with no fading. You can determine if your receiver has birdies by disconnecting all antennas and then tuning through the bands. The weak signals you hear will be birdies. Even kilobuck receivers will have some, and usually they're no big deal. but can a preselector help with these? Again, the answer is no.

True preselectors are most useful for adding extra gain when you're chasing weak DX signals, and it's worth having one in your shack for that purpose. They can sometimes help with mixing problems. They are impotent against images and birdies.

Again, if anyone out there doubts that last statement, run a test and prove I'm wrong.

But What Is It?

But if the device referred to by my reader isn't a true preselector, what is it?

I haven't used that particular device, but I can take a pretty good guess as to what it really is. I've already mentioned that it requires no external power source, which means it is a passive device. That alone greatly narrows down the range of possibilities. It has two tuning controls. One moves in "step" increments, while the other one is continuously tunable. From the front panel controls, description, and overall appearance, it looks a great deal like a random wire antenna tuner. And that is precisely what I think it is—an antenna tuner designed to match a random wire antenna to a 50Ω receiver antenna input.

Such a device is useful. In fact, I have a similar unit in my shack. It will provide a much stronger signal level to any receiver with a 50Ω antenna input. I've recommended using an antenna tuner many times before in this column. Can it help with images and birdies? No. Is it really a "preselector" as that term is usually defined? No.

Perhaps that, by being tunable to allow for better reception on those frequencies to which it is adjusted, some people could come to feel that these devices are a type of preselector. This is a broader definition than most comms techs will readily accept. ■

POP'COMM'S
World Band Tuning Tips
December – 1992

Freq.	Station/Country	UTC	Notes
2390	LV de Atitlan, Guatemala	0300	SS
2410	R. Enga, Papua New Guinea	1100	
3200	Trans World Radio, Swaziland	0300	
3205	R. Sanduan, Papua New Guinea	1000	Pidgin
3215	R. Oranje, South Africa	0300	EE/Afk
3235	R. Clube Marila, Brazil	0200	PP
3245	R. Gulf, Papua New Guinea	1200	Pidgin
3250	R. Luz y Vida, Honduras	0230	SS
3260	R. Madang, Papua New Guinea	1100	
3270	Ecos del Oriente, Ecuador	1030	SS
3275	R. So Highlands, P/New Guinea	1200	
3295	INBS, Iceland	0630	Icelandic
3300	R. Cultural, Guatemala	0200	SS
3315	SLBS, Sierra Leone	0600	
3320	R. Orion, South Africa	0245	
3225	R. Maya, Guatemala	1100	Ind. langs
3360	LV de Nahuala, Guatemala	0305	s/off, indian
3377	R. Nacional, Angola	0500	PP
3380	R. Chortis, Guatemala	0230	SS
3385	R.E. New Britain, P/New Guinea	1100	pidgin
3395	R. East. Highlands, P/New Guinea	1200	
3500	LV de Guainia, Colombia	1030	SS
3880v	R. Free Bougainville	0800	
3945	R. Vanuatu	0630	
4000	RRI, Kendari, Indonesia	1100	II
4331	R. Horizonte, Peru	1100	SS
4419	R. Frecuencia Lider, Peru	0200	SS
4509	R. Horizonte, Peru	0830	SS
4649	R. Santa Ana, Bolivia	0100	SS
4697	RKIP, Surabaya, Indonesia	1200	II
4719	RRI, UjungPandang	1200	II
4750	Iraqi Radio	0205	AA
4760	R. Frontera, Venezuela	0130	SS
4765	R. Integracio, Brazil	0200	PP
4775	Portal da Amazonia, Brazil	0200	PP
4800	Radio Lesotho	0300	Sesotho
4805	R. Villarica, Peru	0245	sign off, SS
4825	LV de la Selva, Peru	1000	s/on, SS
4832	R. Reloj, Costa Rica	0100	SS
4850	CRTV, Cameroon	0430	FF/EE
4860	AIR, India	1300	
4865	R. Verdes Florestes, Brazil	0230	PP
4875	Super Radio, Brazil	0235	PP
4875	V of Jinling, China	1100	CC
4879	Ondas del Ortegueza, Colombia	1000	SS (ex-4975)
4890	R. France Int'l, Gabon relay	0400	FF
4890	NBC, Papua New Guinea	1100	
4900	R. Centinela del Sur, Ecuador	1000	SS
4904.5	R. National, Chad	0427	sign on, FF
4910	ZBC, Zambia	0400	unid language
4915	R.Cora, Peru	1000	SS
4920	R. RICA, Nicaragua	1030	SS
4930	R. Barahona, Dominican Rep.	0130	SS
4940	R. Continental, Venezuela	0200	SS
4945	R. RSA, South Africa	0357	sign on
4955	R. Cultura, Brazil		PP
4960	R. Federacon, Ecuador	0059	close, SS
4975	Super Radio Tupi, Brazil	0000	PP
4980	Ecos del Torbes, Venezuela	0200	SS
4990	R. Ancash, Peru	0300	SS
4990	Hunan PBS, China	1200	CC
5005	R. Libertad, Bolivia	0100	SS
5020	LV de Sahel, Niger	0500	FF
5020	Ecos del Atrato, Colombia	0330	SS
5030	AWR, Costa Rica	0100	
5047	RTV Togolaise	0600	FF
5055	TWR, Swaziland	0400	GG/EE
5062	R. Progresso, Ecuador	0230	SS
5075	Caracol, Bogota, Colombia	0400	SS
5085	Croatian Radio, Croatia	0300	//6210
5700	R. Netherlands	0030	
5850	R. Patria Libre, anti-Colombia	0030v	SS+
5882	Vatican Radio	0000	
5935	R. Riga, Latvia	0300	Latvian
5960	R. RSA, South Africa	0400	
5975	BBC relay, Antigua	0400	
6000	R. Guaiba, Brazil	0930	PP
6010	R. Inconfidencia, Brazil	0700	PP
6015	R. Union, Peru	0800	SS, ex-6115
6025	R. Amancer, Dominican Rep.	2300	SS
6030	R. Globo, Brazil	0000	PP
6045	R. Polyus, Russia	0400	RR
6050	R. Nigeria, Ibadan	2230	
6055	R. Tanpa, Japan	1130	JJ
6060	R. Universo, Brazil	0600	PP
6080	R. Anhanguera, Brazil	0000	PP
6085	Deutsche Welle, via Canada	0530	GG
6115	R. Universidad, Mexico	0500	SS
6120	R. Globo, Brazil	0900	PP
6130	CHNX, Canada	24hrs	
6135	R. Aparecida, Brazil	2330	PP
6135	Swiss Radio Int'l	0230	
6150	Caracol, Colombia	0100	SS
6165	Swiss Radio Int'l	0415	
6180	R. Nac. Amazonas, Brazil	2200	PP
6180	R. Havana Cubs	0400	EE
6210	European Christian R., Italy	0630	
6210	Croatian Radio	0000	Croatian/EE
6230	TWR, Monaco	0340	GG
6275	Radio Patria Libre	0115	Col. cland.
6300	R. Venceremos, El Salvador	0230	SS
6560	Iraq Republic Broadcasting	0130	AA
6560	R. Pyongyang, N. Korea	1000	JJ
6754	R. La Merced, Peru	0130	SS
6910	R. Dublin Int'l, Ireland	0730	
6940	Yunan PBS, China	1130	CC
7105	RTVC, Congo	0600	FF
7110	V of Ethiopia	0330	local lang.
7160	RTM, Malaysia (Sarawak)	1100	
7190	Rep of Yemen Radio, Aden	0300	sign on, AA
7200	R. Omduran, Sudan	0300	AA
7220	All Union Radio, Russia	0100	RR
7235	Deutsche Welle, Germany	0400	AA, via Malta
7230	R. RSA, South Africa	0500	FF
7240	R. Australia	0800	pidgin
7255	V of Nigeria	0500	s/on
7260	Sudwestfunk, Germany	0100	GG
7265	VOA Relay, Botswana	0300	sign on
7275	ELBC, Liberia	0652	sign on
7365	KNLS, Alaska	0800	
7370	R. Ala, Russia	2330	RR
7390	Deutsche Welle	1200	via USSR
7400	R. Yerevan, Armenia	0338	
7400	R. Belarus, Belarus	0030	Byelorussian
7465	Reshet Bet HS, Israel	0100	Hebrew
7475	RTV Tunisienne, Tunisia	0400	AA
7490	WJCR, Kentucky	0300	
9022	VOIRI, Iran	0030	EE
9115	R. Continental, Argentina	0030	SS feeder
9265	Icelandic Ntl Bc Svc	0730	EE
9280	Voice of Asia, Taiwan	1000	CC
9345	R. Pyongyang, N. Korea	1300	
9395	V of Greece	1900	GG
9425	KFBS, Saipan	1500	RR
9445	Voice of Turkey	2330	TT
9475	R. Australia	0900	
9475	R. Cairo, Egypt	0200	
9480	TWR, Monaco	0645	
9505	R. Record, Brazil	2300	PP
9505	R. Yugoslavia	2230	to Europe
9515	R. Novas de Pas, Brazil	2330	PP
9525	Polish Radio	1930	
9535	Trans World Radio, Bonaire	0300	
9540	R. Educadora da Bahia, Brazil	0930	PP
9545	R. Tirana, Albania	0530	sign on
9555	R. Portugal	0230	
9560	FEBC-Russia	0900	RR
9560	R. RSA, South Africa	1630	
9570	R. Korea, S. Korea	1400	

Freq.	Station/Country	UTC	Notes
9580	R. Yugoslavia	0130	
9580	R. Tirana, Albania	0230	
9585	HCJB, Ecuador	0600	German
9595	R. Tanpa, Japan	1000	JJ
9605	Vatican Radio	0230	
9610	R. Norway Int'l	0200	
9615	R. Veritas Asia, Philippines	1433	sign on
9615	R. Cultura, Brazil	2330	PP
9640	Ecos del Torbes, Venezuela	1000	SS
9645	Faro del Caribe, Costa Rica	0400	SS
9655	R. Australia	0920	
9665	R. Marumby, Brazil	2300	PP
9670	Deutsche Welle, Germany	0530	via Antigua
9685	RTV Algerienne, Algeria	2100	FF
9700	R. New Zealand	1030	
9705	R. Portugal	0230	
9710	Radio Australia	0727	s/on
9725	Adventist World R., Costa Rica	1250	
9735	R. Oman	1945	AA
9735	R. Nacional, Paraguay	2300	SS
9745	R. Cairo, Egypt	0200	
9746	R. Bahrain	2000	AA QRM-HCJB
9750	R. Korea, S. Korea	1200	
9750	R. Kiev, Ukraine	0300	
9755	R. Monte Carlo, Monaco	0400	AA
9760	R. Tirana, Albania	0130	Albanian
9760	VOA relay, Philippines	1330	
9770	R. Beijing, China	0000	via Mali
9810	R. Czechoslovakia	0300	
9830	Croatian Radio	0600	
9830	Voice of Hope-Asia, Palau	1100	
9835	AWR, Russia	2300	
9870	BSKSA, Saudi Arabia	2000	AA
9870	R. Ukraine	0100	
9877	R. Santiago, Dom. Rep.	0356	s/off, SS
9885	Swiss Radio Int'l	0200	
9905	BRT, Belgium	0900	
9950	All India Radio	2200	
9930	BRT, Belgium	2355	close
10330	AIR, India	1300	
11520	R. Ukraine	0200	
11550	RTT Tunisia	1800	AA
11580	KNLS, Alaska	1330	
11620	All India Radio	2000	
11635	R. Netherlands via Madagascar	0100	
11645	V of Greece	0140	
11650	KTWR, Guam	1500	
11680	Radio France Int'l, via Gabon	0700	FF
11705	R. Sweden	2330	
11710	RAE, Argentina	0100	
11715	R. Beijing, China	0330	via Mali
11715	R. Korea, S. Korea	1030	via Canada
11720	R. Sofia, Bulgaria	0300	
11725	R. Korea, S. Korea	1000	SS
11735	R. Japan, via Gabon	2300	
11745	R. Norway Int'l	2300	EE/NN
11745	Radiobras, Brazil	1200	
11755	R. Finland Int'l	0130	
11760	R. Tbilisi, Georgia	2130	RR/EE
11780	Deutsche Welle, Germany	0600	
11780	Radio Austria Int'l	1530	
11790	Radio Ukraine Int'l	1530	
11795	R. Denmark, via Norway	2300	
11800	RAI, Italy	0100	
11810	R. Korea, S. Korea	0600	
11810	R. Jordan	1400	AA
11815	R. Brazil Central	0800	PP
11820	R. Tirana, Albania	0330	s/on
11827	R. Tahiti	0500	FF/TT
11830	Radio Romania Int'l	0158	sign on
11830	New Wave Radio, Russia	0700	
11850	R. Tbilisi, Georgia	0445	
11855	R. Beijing	1300	
11865	R. Japan	1400	
11870	R. Yugoslavia	0040	
11880	R. Galaxy, Russia	2130	
11895	Voice of Turkey	2330	
11905	RAI, Italy	0230	II
11910	R. Budpest, Hungary	0200	
11920	RTV Marocaine, Morocco	1930	FF
11925	R. Bandeirantes, Brazil	0000	PP
11945	R. Space, Russia	1500	RR
11945	Iraq. Republic Broadcasting	0030	AA
11955	Voice of Turkey	0400	TT
11955	BBC relay, Oman	0130	
11960	R. Sweden	1130	
11960	RTV Malienne, Mali	0900	FF
11965	V of the UAE	1800	AA
11970	R. Havana Cuba	0130	
12000	R. Ukraine	0030	
12015	R. Ulan Bator, Mongolia	1200	part EE
12040	R. Aumshinrikya, via R. Moscow	0430	EE
12105	Voice of Greece	2230	Greek
13620	R. Kuwait	2000	
13625	KHBI, Saipan	1400	
13635	Swiss Radio Int'l	2130	
13640	Croatian Radio	0130	EE
13650	R. Pyongyang, N. Korea	0000	
13655	BRT, Belgium	2330	
13660	R. Havana Cuba	0200	USB, EE
13675	UAE Radio, Dubai	2000	AA
13685	Swiss Radio Int'l	0700	
13720	KSDA, Guam	1800	
13755	R. Australia	1600	
13855	INBS, Iceland	2000	Icelandic
15050v	R. Patria Libre	0045	SS, cland.
15070	BBC	1400	
15084	VOIRI, Iran	0430	Farsi
15090	Vatican Radio	2245	s/on
15100	Kol Israel	2130	EE
15115	R. Pyongyang, N. Korea	0000	
15125	AWR, Kuybishev, Russia	1700	
15135	R. Ukraine Int'l	2100	
15150	Iraq Republic RAdio	0030	
15170	R. Beijing	2200	
15185	R. Finland Int'l	2300	
15195	R. Japan	0500	
15200	R. Bangladesh	1230	EE
15208	R. Bangladesh	1230	
15210	Radio Iraq Int'l	1830	EE
15235	V of Great ARab Homeland, Libya	2000	AA
15260	VOIRI, Iran	0230	sign on
15265	Radiobras, Brazil	1800	
15305	UAE Radio, Abu Dhabi	2300	
15330	R. Sofia, Bulgaria	1830	
15340	Iraq Rep. Broadcasting	0230	EE/AA
15340	R. Iraq Int'l	0230	AA
15345	Trans World Radio, Bonaire	1230	
15345	RTM, Morocco	1400	Berber
15350	R. Luxembourg	0100	
15365	R. France Int'l	1230	
15400	Radio Finland Int'l	1500	
15425	SLBC, Sri Lanka	2330	Mon.
15450	RTT, Tunisia	2300	AA
15475	Africa No. One, Gabon	1500	FF
15476v	R. Nac. Archangel, Antarctica	2230	SS
15480	V of the UAE	1600	s/on, AA
15495	Ukrainian Radio	0600	Ukrainian
15505	R. Kuwait	2245	AA
15530	R. France Int'l, via Hungary	0630	FF
15550	Central People's Bc Stn, China	0230	CC
15585	Kol Israel	2130	
15640	Kol Israel	2130	
15750	R. Russia	1800	RR
17500	RTT Tunisienne, Tunisia	0500	AA
17565	R. Australia	1600	
17605	R. Yerevan, Armenia	0300	Armenian
17650	France Int'l, via China	1430	
17690	R. Minsk, Belarus	0030	
17705	R. Pakistan	0200	Urdu
17725	V of the Great Homeland, Libya	2100	AA
17730	Vatican Radio	0628	s/on
17730	R. Alma Ata, Kazakstan	1830	
17740	R. Federal Yugoslavia	1200	
17740	R. Sweden	1300	EE
17740	R. Iraq Int'l	2330	
17760	BSKSA, Saudi Arabia	0500	AA
17770	R. Jamahiriya, Libya	2300	AA
17815	R. Tashkent, Uzbekistan	1200	EE
17815	R. Cultura, Brazil	2330	PP
17870v	R. Nacional, Colombia	0200	SS
17860	Qatar Bc Service	1300	AA
17890	UAE Radio, Dubai	0215	
17890	Spanish National Radio	1200	
17895	HCJB, Ecuador	24hrs	SSB
21505	BSKSA, Saudi Arabia	1530	AA
21515	Radio Portugal	1630	
21675	R. Kuwait	1600	AA
21640	R. Australia	0100	
21810	R. RSA, So. Africa	0230	

BY DON SCHIMMEL

COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Norm Pihale, MN sent in a list of the current USAF Primary HF Global Communications Frequencies.

6738—Albrook, Ascension, Anderson, Croughton, Elmendorf, Hickam, Incirlik, Lajes, Loring, MacDill, McClellan, Offutt, Thule, Yokota.

8967—Anderson, Andrews, Elmendorf, Lajes, McClellan, Offutt, Thule, Yokota.

8993—Incirlik, MacDill, Yokota.

11176—Albrook, Andrews, Anderson, Ascension, Croughton, Hickam, Elmendorf, Incirlik, Loring, MacDill, McClellan, Offutt, Thule.

13201—Anderson, Croughton, Elmendorf, Hickam, McClellan, Thule, Yokota.

15015—Albrook, Ascension, Croughton, Lajes, Elmendorf, Incirlik, Loring, MacDill, McClellan, Yokota.

17975—Andrews, Croughton, Elmendorf, Incirlik, McClellan, Offutt, Thule, Yokota.

D'arcy Brownrigg, Canada said he was just getting into VLF listening. "The VLF converter is from Palomar, the radio an upgraded FRG-7. My antenna is an all-wave 8 trap dipole of 45′ and is at a height of 30′, due east-west. There is a nearby high tension power line that creates havoc with the reception especially when the local weather is damp."

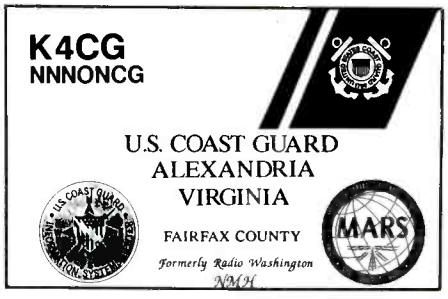
Another monitor North of the Border is Steve Yachesyn of Canada who writes, "I have been a reader of *POP'COMM* since 1984. It is only within the last two months that I started to monitor Ute stations and I find it very interesting. The radio I use is a ICOM R71A with an AN-1 Sony Power antenna in my apartment window."

Douglas H. Stingley, OR sent in some loggings and said he is now much more serious about monitoring Utility transmissions.

Tom Sevart, APO, England reported that he noticed a lot of jamming recently. He observed White Noise jamming on 5422.5, 6329, and 9060 kHz. He also logged nine Warble jammers—5598, 5620, 5720, 6220, 6280, 6739, 7190, and 9570 kHz.

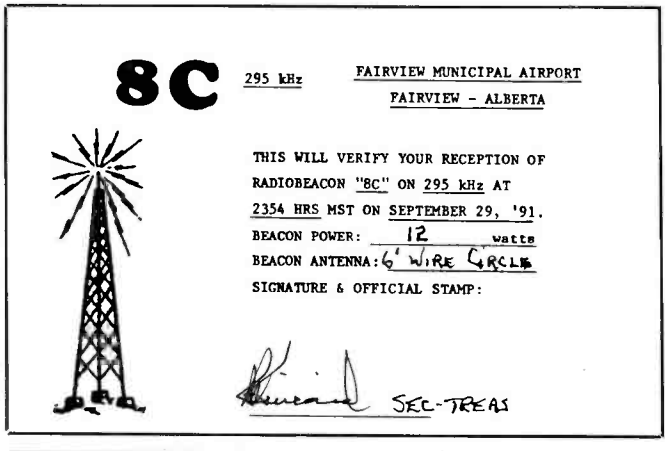
Charles Cavanaugh, TX had a query regarding a longwave signal he heard with the strongest occurrence at 173 kHz. He described the signal as a series of "hiss hiss etc." He did not identify the receiver he was using but did state it could only receive AM transmissions on the LW band. Charles, from your description I would conclude you were hearing a GWEN signal. GWEN stands for Ground Wave Emergency Network which is a system developed by the US Air Force Electronic Systems, Division. The system is to provide for the transmissions of critical warnings and response traffic that would not be interrupted by electromagnetic pulses caused by a nuclear explosion. A list of the GWEN stations shows there is a station located at Summerfield (near Westway/Hereford) in Texas which operates on 171.875 kHz. Perhaps this is the signal you heard.

Photos No. 1 to 4 are of a communications installations. They were provided by Doyle Wenzel, WA who also supplied the identification of the installation. "The photos show a group of antennas used for Comet Scatter dust communications. The 20 antennas are located in a farmer's field near Shelton,



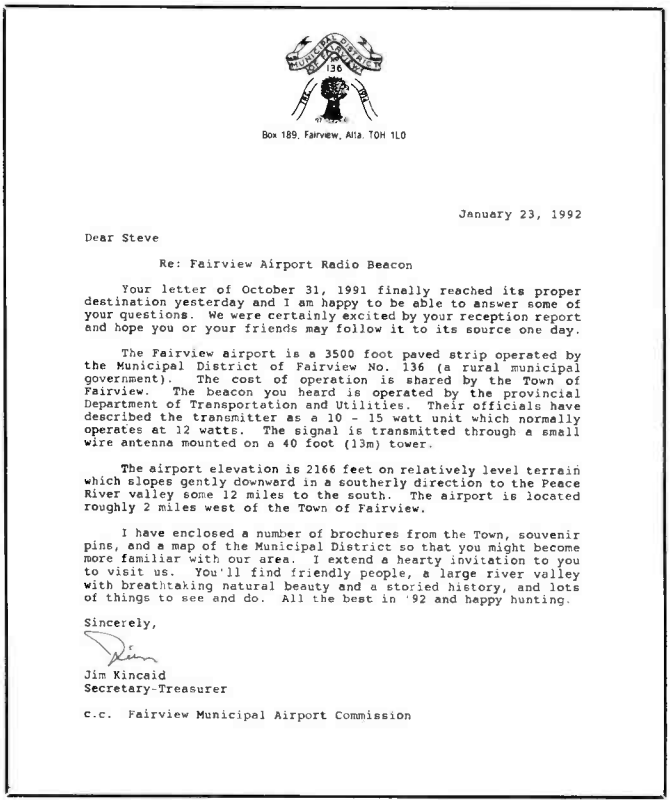
This Coast Guard QSL was received by Russ Hill, MI.

When his PFC was returned, Steve McDonald, Canada also received an informative letter describing the Fairview Airport Radio Beacon.


8C 295 kHz FAIRVIEW MUNICIPAL AIRPORT
FAIRVIEW - ALBERTA

THIS WILL VERIFY YOUR RECEPTION OF
RADIOBEACON "8C" ON 295 kHz AT
2354 HRS MST ON SEPTEMBER 29, '91.
BEACON POWER: 12 watts
BEACON ANTENNA: 6' WIRE CIRCLE
SIGNATURE & OFFICIAL STAMP:

SEC-TREAS


Box 189, Fairview, Alta. T0H 1L0

January 23, 1992

Dear Steve

Re: Fairview Airport Radio Beacon

Your letter of October 31, 1991 finally reached its proper destination yesterday and I am happy to be able to answer some of your questions. We were certainly excited by your reception report and hope you or your friends may follow it to its source one day.

The Fairview airport is a 3500 foot paved strip operated by the Municipal District of Fairview No. 136 (a rural municipal government). The cost of operation is shared by the Town of Fairview. The beacon you heard is operated by the provincial Department of Transportation and Utilities. Their officials have described the transmitter as a 10 - 15 watt unit which normally operates at 12 watts. The signal is transmitted through a small wire antenna mounted on a 40 foot (13m) tower.

The airport elevation is 2166 feet on relatively level terrain which slopes gently downward in a southerly direction to the Peace River valley some 12 miles to the south. The airport is located roughly 2 miles west of the Town of Fairview.

I have enclosed a number of brochures from the Town, souvenir pins, and a map of the Municipal District so that you might become more familiar with our area. I extend a hearty invitation to you to visit us. You'll find friendly people, a large river valley with breathtaking natural beauty and a storied history, and lots of things to see and do. All the best in '92 and happy hunting.

Sincerely,

Jim Kincaid
Secretary-Treasurer

c.c. Fairview Municipal Airport Commission

Scanners/Shortwave/CB/Radar

COMMUNICATIONS ELECTRONICS INC.

Emergency Operations Center

We're celebrating our 24th anniversary with special pricing on Scanners/Shortwave/CB and Radar. Hurry, offer ends March 31, 1993.

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Frequency range: 29-54, 118-174, 406-512, 806-956 MHz.
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FBE-C Uniden Eastern Frequency Directory
FBW-C Uniden Western Frequency Directory
ASD-C Air Scan Directory
TSG-C Top Secret Registry of U.S. Govt. Frequencies
TTC-C Tune in to Telephone Calls
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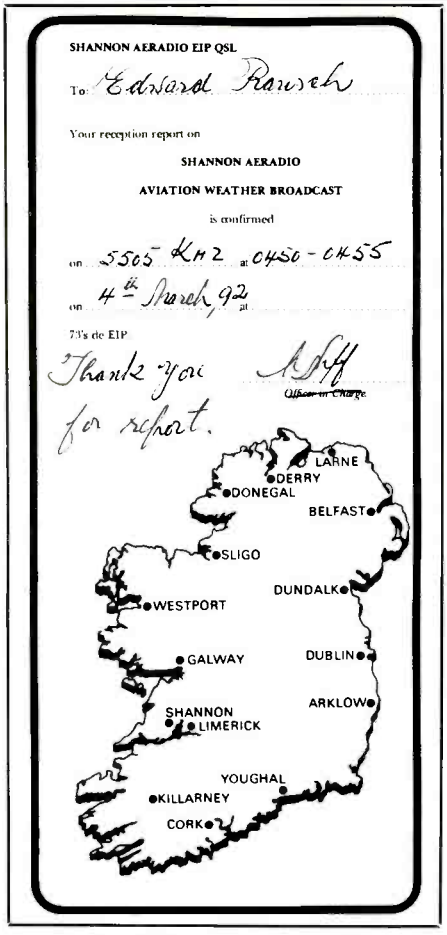


Here is the QSL received from Shannon Aeradio by Edward Rausch, NJ.

Washington. The western Washington station transmits around 49 MHz using a 10 kW transmitter to another station located near Bozeman, Montana. While most transmitters of this nature use digital communications, this unit is experimenting with voice. Photos show the array used for receiving and the four transmit antennas. Additional information can be obtained from Meteor Communications Corp., 6020 S. 190th, Kent, WA 98032. They were most willing to answer any questions that I asked."

Thanks Doyle for the information and the photos. I checked my Jane's Military Communications to see if there was any equipment listed for Meteor Communications Corporation and I found two entries. One was the MCC540 Meteor Burst Communications Terminal which is a complete stand-alone meteor burst communications terminal with an 8000 character message buffer, on-line editing, an RS-232C interface part and battery back-up. The operating frequency is 40 to 50 MHz.

The second entry was the MCC 540B Meteor Burst Communications Terminal. This unit offered a 10,000 character message buffer and on-line editing facility. It likewise operates in the 40 to 50 MHz range and the transmitter has an output power of 300 watts and a data rate of 2.4kbits/s. The status for both equipment items was indicated as being in military use.

About a year ago, Bob Nichels, IL reported logging operator chatter where the equipment in use was referred to as Delta Mike Delta Golf. At the time it appeared that the equipment was a type designed primarily for Tactical Fire Control. The information I had was rather sparse so I kept digging and just recently found a listing in Jane's Military Communications for a KY-879/P Digital Message Device Group and this equipment may very well be the one mentioned in the operator chatter heard by Bob. The Jane's book describes the equipment as a lightweight, portable digital burst message terminal which is militarized for use in tactial environments and can be mounted in vehicles or carried with a combat net radio. A built-in 32 character display provides message reading capability, which can be augmented by a miniature printer. The data rate is up to 1200 baud and the modulation is FSK, baseband. The equipment is manufactured by Racal Communications, Inc., Rockville, MD.

I want to thank all past contributors and I wish all readers Happy Holidays and good listening in the coming year.

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)**

Ute Intercepts. All Times UTC.

219: Beacon GEO, Georgetown, OH. No time given. (Freeman, KY)

223: Beacon CDI, Cambridge, OH. No time. (Freeman, KY)

227: Beacon SJY, San Jacinto, CA at 1041. (Vaage, CA)

231: Beacon BU, Buffalo, NY. No time. (Freeman, KY)

245: Becon LUA, Lurray, VA at 0158. (Schimmel, VA)

250: Beacon UGS, Athens/Albany (Ohio University), OH. No time. (Freeman, KY)

253: Beacon UR, A/P in Burbank, CA at 1044. (Vaage, CA)

257: Beacon LKA, Chino, CA at 1046. (Vaage, CA)

260: Beacon HAO, Hamilton, OH. No time. (Freeman, KY)

265: Beacon XPZ, Mt. Weather VIP Facility, VA at 2321. (Schimmel, VA)

272: Beacon MMY, Many, LA, Hrd at 1607. (Low, TX)

274: Beacon CQI, Council Municipal, ID at 1135. (Vaage, CA)

278: Beacon OS, Los Angeles International, CA at 1107. Beacon XSD, Tonopah, NV at 1053. (Vaage, CA)

278: Beacon HOC, Hillsboro, OH. No time. (Freeman, KY)

293: Beacon MP, Montauk Point LS, NY at 0424. (Vylasek, VA); Beacon TOR, Torrington Municipal, WY at 1110. (Vaage, CA)

300: Beacon LAP, La Paz International, Baja California, Sur, Mexico at 1117. (Vaage, CA)

302: Beacon L, Point Loma LS, CA at 1118; Beacon V, Point Vicente light, CA at 1120. Each on one min foll by one min of silence. (Vaage, CA)

305: Beacon RO, Roswell, NM at 1121; Beacon ONO, Ontario, OR at 1122. (Vaage, CA)

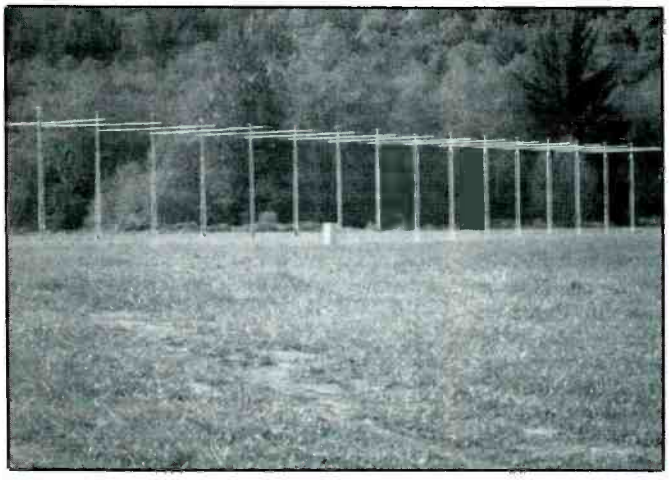


Photo 1

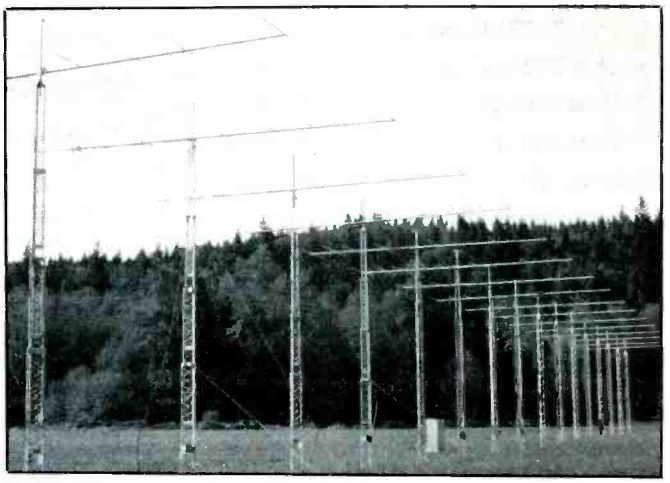


Photo 2

314: Beacon VM, Ventura Marina, South Jetty Light #2, CA at 1124. (Vaage, CA)

317: Beacon EPM, Epsom, UK in MCW at 1240. (Sevart, England); Beacon MB, Mission Bay North Jetty, Light #1, CA at 1126. (Vaage, CA)

320: Beacon TY, Tyler, TX at 1501. (Low, TX); Beacon A, Point Arena Light Ship, CA at 1151. (Vaage, CA)

326: Beacon MCY, Mercury, Desert Rock, NV at 1200; Beacon MA, Midland, TX at 1132. (Vaage, CA)

335: Beacon LIQ, Athens, TX at 1845. (Low, TX)

337: Beacon NA, Santa Ana, John Wayne airport, CA at 1134. (Vaage, CA)

344: Beacon CGQ, Corsicana, TX at 1848. (Low, TX)

356: Beacon VES, Versailles, OH. No time. (Freeman, KY)

371: Beacon HNO, Henderson, TX at 1850. (Low, TX)

373: Beacon PMH, Portsmouth, OH. No time. (Freeman, KY)

375: Beacon PSN, Palestine, TX at 1456. (Low, TX); Beacon SH, Staunton, VA at 0204. (Schimmel, VA)

407: Beacon IL, Wilmington, OH. No time. (Freeman, KY)

440: OST, Ostend, Belgium in CW at 0006 w/tfc list. (Sevart, England)

530: "Oklahoma's First Construction Radio Station" in AM at 1923 w/traffic info on rebuilding of Northwest Highway in Oklahoma City. No call letters given. Announced it was "sponsored" by the Oklahoma Department of Transportation. Very difficult to copy—apparently two xmtrs in use and the message on one was 20-30 secs ahead of the other one, and not that much lower in signal strength. (Leatherock, OK)

2500: WWV, Fort Collins, CO, Time Signal station at 0426. (Low, TX)

3060: Sierra November, RAF Mildenhall, England. USAFE Cemetery net in USB at 0135 w/rdo checks to GH, LO, SF, IU, KB, BB, CQ, UJ, & KS. (Sevart, APO, England)

3067: Croughton AFB, UK in comms w/un-id a/c at 0433. (Low, TX)

3150: YL/EE announcing PCD2 in AM at 2301. (Benson, Germany) This is a Mossad bcst. (Ed.)

3302: U/i stn sending msgs in CW at 2320. Groups have nbrs & unusual characters. Dualing w/3700 kHz, still going at 0300. (Sevart, APO, England)

3413: Shannon Volmet in USB at 2319 w/Meteo Dusseldorf, Frankfurt, Degaulle, Lisbon, Madrid, Amsterdam, & Santa Maria. (Benson, Germany)

3452: NATO enciphered speech tfc in USB at 2327. (Benson, Germany)

3830: Strange two-tone beeping signal at 2327. Had wide bandwidth from 3830 to 3845 kHz. (Sevart, England)

3875: 53E1 and tone rptd in CW at 0002. (Sevart, England)

3916: Tone at 2334 would be steady for about 3 secs, then approx 10-15 quick dashes for secs. Sounded like the space carrier of an FSK signal when keying quick dashes but it was not an FSK signal. Very strange. (Sevart, England)

4369: Offshore forecast for Gulf of Mexico from KMI, Dixon, CA marine radio at 0601. (Pihale , MN)

4426.67: NMC, USCG, New Orleans, LA at 0422 w/offshore forecast. (Low, TX)

4477.3: Hopalong, Ballboy, Knee, Headache in USB at 0504. Hopalong is NCS and sent mixed ltr/fig msg and net then terminated. (Benson, Germany)

4625: Buzzer in AM at 0159 w/one continuous two-tone buzz. Then stopped and went back to regular buzz at top of hour. (Sevart, England)

4660: Signal sounds like dripping water at 2204. Sig has wide bandwidth, was hrd from 4625 to 4710 kHz. I usually hear this around 6750 kHz. I have no idea what this is. (Sevart, England) Nor do I but I am checking. (Ed.)

4779: Music box "Swedish Rhapsode" tune in AM at 2102, then YL/GG w/5F grps. (Sevart, England)

5301: OLX, Prague, Czechoslovakia w/CW mkr VVV DE OLX. Hrd at 0155. at 0200 YL/Czech in AM w/5F grps. (Sevart, England)

5320: NIK, COMMSTA Boston, MA in CW w/ice report at 0125. (Sevart, England)

5680: Plymouth Rescue, Plymouth, England in USB wkg Rescue 193, 51, 52, 115, 177, 135 and others starting at 0910 and lasting throughout the day. Rescue op was for Trawler Siborn. Rescue 51 said boat totally in flames and they had observed several explosions. Rescue

U.S. Department of Transportation
United States Coast Guard

Commander
Coast Guard Group

MAILING ADDRESS:
P. O. Box 385
Mayport, FL 32267
904-247-7301

2000
March 17, 1992

Dan R. Grote

Dear Mr. Grote,

Thank you for sending us your informative letter of January 18, 1992. A review of our radio logs confirm the transmissions on January 16, 1992. Your method of reception is both impressive and ingenious. GOOD WORK !!

The following information is about our station and communications gear.

Unit: Coast Guard Group Mayport
Location: Mayport Florida
Call Sign: **NMV**
Unit Communicating with: NOAA SHIP OREGON II
Description: Search and Rescue case concerning flare sighting
Time of Communication: 0620 - 0632 GMT
Frequency: 2670 khz
Antenna type: CDWF-V-33085
Power out: 100 watts

The report of reception and your kind letter is most appreciated.

Sincerely,

G. K. HARRIS
Radioman First Class
U. S. Coast Guard
RADIOMAN-IN CHARGE
By direction of the Commander

Dan R. Grote, IL received this QSL letter from CG Group Mayport, FL.

115 took four casualities from another ship on the scene. (Sevart, England)

5696: Rescue 2120 wkg Commsta Miami w/flight ops. A/c stated he delivering pump to vessel "Frog." Hrd at 0439. (Pihale, MN)

6708: YL/GG rptng 007 007 007 36889 039 from 2000-2007. After five tones into 5F grps. Pronounces fig 9 as "noyner." Also on 7375 kHz. (Mason, England)

6388: EBA, Madrid naval radio, Spain w/NAVAREA III warnings in CW at 1950. Gave details re traffic scheme in the Strait of Messina during work on overhead power cables above the strait. (Sevart, England)

6761: Super 70 wkg Rams Head (KC-135) at 1617. Exxon 76 wkg Rams Head at 1618. (Pihale, MN)

7335: CHU, Canadian Time Signal station at 2343. (Low, TX)

7375: MCW stn sending 234 234 234 37 37 555 555 555 between 1900-1905. Then speeded up and went into 5F grps. (Mason, England)

7695: YL/EE w/1-0 count and 579 from 2100-2110. After ten tones Count 210 and into 3/2F grps. (Mason, England)

7735: OM/RR rptng 841 841 841 000 between 2105-10. (Mason, England)

7990: YL/EE rptng 35768 at 2051 in AM at 2055. Ready ready 21 21 and into 21 grp 5F msg. Carrier off at 2058. (Sevart, England)

8002: 5L grps (cut nbrs using ANDUWRIGMT) in CW at 0502. (Margolis, IL)

8984: CG Rescue 1709 on scene of SAR wkg CAMSAC San Francisco. Unknown nbr of persons in life raft. Unable drop rescue gear at this time due poor visibility. Only a light on the raft was visible. Hrd at 0355. (Rausche, NJ); Rescue 1790 (HC-130H) wkg Comsta Kodiak, AK w/position info for Airsta Kodiak re vessel in trouble that has no fresh water. Also NOJ wkg Rescue 1708 (another HC-130H) w/posit report. (Pihale, MN)

9023: Steam Car wkg various a/c in training mission in USB at 1543. Dragnet Yankee & Dragnet Uniform w/comms in the clar & scrambled in USB at 1556 on another day. (Margolis, IL)

9090: YL/EE at 2100 w/043 043 043 & count 1-0 foll by ten multitone bursts. At 2100 785 785 & into 5 grp msg of 5F grps. (White, ME)

9151: Christmas Carol (USAF) wkg Acrobat on LSB at 0342. (Margolis, IL)

9230: YLEE announcing EZI (Mossad) at 2230 w/9 grp phonetic msg. (Sevart, England)

9302: Architect, Upavon, England wkg NATO 30 in USB at 1817. (Sevart, England)

10177: YL/GG rptng Oscar Alfa between 1900-05. Then into 5F grps for addresses 122 and 820. (Mason, England)

10478.3: SE (net control) conducting radio checks w/DP, DE, SE, AG & YM in USB at 0025. (Benson, Germany)

10890.5: WWJ40, FHWA, Washington, DC in USB at 1958 w/WWJ42, FHWA, Providence, RI. (Margolis, IL)

11107: YL/GG in AM at 0000 w/callup Papa November. Sends 5F grps til 0015. (Rausch, NJ)

11173: Possible Italian Diplomatic comms at 0200. Ref noted to "Ambassadore Italiano de Monte Carlo to New York. Non Classificado." TDR & BJ (callsigns?) mentioned frequently. At 0210 switched between RTTY & USB voice. (Rausch, NJ)

11233: CanForce 7157 wkg Trenton Military, Canada w/selcal check and ETA for arrival in Zagreb, Yugoslavia.

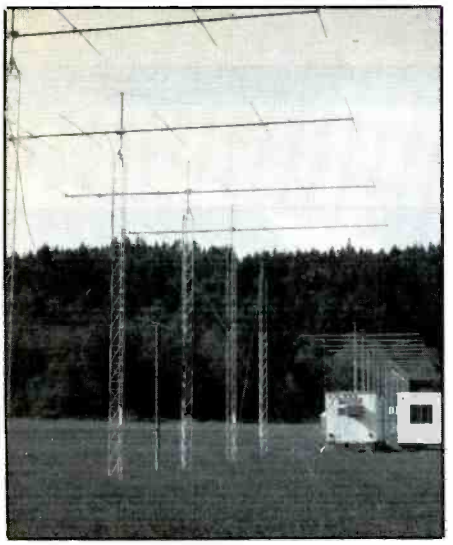


Photo 3

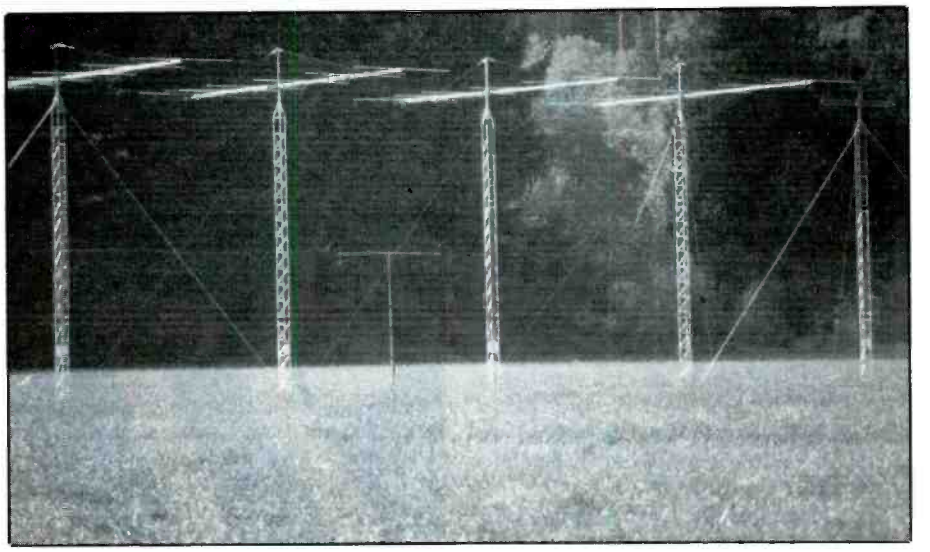


Photo 4

Hrd at 0345. (Pihale, MN)

11239: MAC 38081 wkg McClellan w/pp to McChord CP & Meteo at 1610; MAC 67952 wkg McClellan w/pp to Travis Meteo at 1658. (Pihale, MN)

11453: KKN50, Dept. of State, Wash., DC w/QRA mkr at 2010. (Low, TX)

12245: Very powerful carrier on at 2000. At 2020 OM/EE w/RR accent w/821 callup. At 2025 796 x2 32 x2 and into 5F grps. Two weeks later w/same callup but foll by 615 x2 34 x2. The next week had 490 x2 35 x2 after 821 callup. Every Thursday in AM double sideband mode. Ends w/00000. (Mason, England)

12353: WKZ, Tampa, FL wkg Tug Bayou Bandit at 1930 w/position report, wx and eta San Juan; Sport fishing vessel wkg Billfish Tournament control at 1900 re rules concerning Marlin scoring. (Rausch, NJ)

12551: A busy ship CW clg freq. Coastal stns hrd one night between 0145-0245 were DAN, HCG, SVT, PPL, WCC & KRS. (Margolis, IL)

12985: Time pulse stn in AM, no id. Same freq as old Aussie Navy timer in Canberra. Lowered pulse level at minute mark. Hrd at 0425. (Stingley, OR)

13155: Delta 8 Quebec wkg Hotel 1 Foxtrot at 0342. Stepped on by hysterical Hispanic YL. (EastPac USN HICOM). (Pihale, MN)

13200: MAC 21 clg Ontario Center (Ontario AF Station, CA) in USB w/complaint re long flight, bad food & exhaustion of crew. Hrd 0445-0510. (Stingley, OR) This was possibly a pp thru Hickam AFB, HI. (Ed.)

13241.5: Jaibait in USB at 1630 passed two msgs each having 20 characters of mixed ltrs/nbrs. (Bensen, Germany)

13270.5: New York radio in USB at 0243 w/Meteos for Philadelphia, Washington National, Washington, Dulles, Newark, Boston, Freeport, NASA, Bermuda & Miami. Down at 0249. (Benson, Germany)

13325: OM/RR at 2015 rptng 804 804 804 00000 then off. (Mason, ENgland)

13385: YL/GG w/458 458 458 1 from 2050-2054. Then 668 51 668 51 and into 5F grps. Same addressee hrd 3 years ago. (Mason, England)

13471: KGA64, unknown location, USA clg KKN39, Dept of State, Wash., DC in CW at 1747. At 1803 KKN39 tells KGA64 to QSY 17660 kHz. (Margolis, IL)

14487: "Vive la Compagnie" tune & YL/EE callup hrd on USB at 1602. Sig was very weak and QRM covered. (Margolis, IL)

14564: 5BC68, Nicosia, Cyprus w/OM giving a voice mirror in GK & EE on USB at 1859. Said QSX freq is 16326 kHz. (Margolis, IL)

14750: YL/EE rpts Victor Lima Bravo 2 on AM, 1745-1750, 1845-1850, 1945-1950, 2045-2050, 2145-2150, etc. Israeli Mossad. (Margolis, IL)

15450: YL/EE at 1500 w/1-0 count. Then 121 x3 rptng for 10 mins. At 1510 tones for 15-30 secs, Count 221 x2 and into 3/2F grps. (Low, TX)

15610: YL/GG rptng Hotel Sierra from 1130-1135. Then 5F grps for addressees 969 and 344. (Mason, England)

15704: Pips, 1 every 2 secs., hrd at 1503 on ISB. Pips speeded up to 1 per sec at 1510 and slowed back to 1 every 2 secs at 1513. (Margolis, IL)

16036: YL/EE w/3-2F grps on AM at 2115. (Margolis, IL.

16084: YL/EE rptng 12568 at 1700 in between "Lincolnshire Poacher" tune. At 1710 into 200 5F grps. Also on 14487 & 15682 kHz. (Mason, England)

17299: WOO, High Seas Radio, Manahawkin, NJ (on CH 1620) w/tfc "Ooh-La-La" at 2125. (Low, TX)

17925: Delta 50 in LSB clg Honolulu Radio at 0430 indicating "readout does not work." Honolulu said "will contact Seoul, they will assist with problem." (Stingley, OR)

17975: CG 1703 (HC-130) wkg McClellan. Switched to Elmendorf w/pp to telephone nbr at Sacramento Air re maintenance problem onboard a/c (#3 engine). (Pihale, MN)

18019: Caddo 94 (KC-135Q) wkg Ascension w/pp to /Furious & Howard AFB Meteo for landing wx. This freq not prev listed for Ascension GCCS. (Pihale, MN)

20198: NASA air/ground audio relay (via Huntsville, AL) w/launch of STS-50 at 1612. (Low, TX)

20226: NMN, USCG Portsmouth, VA in CW at 1556. (Low, TX)

20365: YL/EE (strong Australian accent) in USB at 0335 w/5F grps. Sig was slightly under-modulated, w/some QRM but generally very good. Clsed w/"End." (Stingley, OR)

22397.5: KPH, San Francisco, CA w/TELEXs at 1519. (Low, TX)

27245: Two OM/SS in comms in LSB at 0431. (Low, TX) ■

BROADCAST DX'ING

BY ROGER STERCKX, KVT1JH

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

What's In A Name?: Readers frequently write to complain that certain stations heavily promote their station slogans or nicknames to the point of overkill, yet they practically never announce their official call letters or locations. This doesn't make it easy for DX'ers, many of whom are now wondering if AM and FM stations are even required to announce their assigned call letters any longer, so long as they give their nicknames or slogans.

We won't argue that there are numerous stations that repeat their slogans and nicknames so often that it drives some listeners to the point of distraction. The deejays are instructed to repeat those slogans as often as possible to continually promote the station's image as well as it's slogan. They are also aware that the station may be being played over PA systems in stores, malls, or other public places, and it's a way of making certain that those audiences remember what station to tune in when they listen in their cars or homes. The fact is, stations are not limited to the maximum number of times they can indoctrinate their listeners with their identification nicknames and slogans. They can announce these things dozens of times each hour, and many stations do just that.

The continual repetition of a station slogan or nickname can easily give the impression that this is the station's official identification, and that such announcements satisfy the station identification requirements established for broadcasters by the FCC. Not so. Maybe there are so many slogan and nickname announcements given that, by comparison, it can actually seem that other identification is practically never provided. Unless the station is operating in violation of the FCC regulations, though, the station's officially assigned FCC identification must be given in accordance with definite rules.

The station's official identification consists of its call letters and the name of the community (or communities) shown on its license. The operating frequency may be given, but it's optional. The station must give this information when going on the air and when signing off. The official identification is also supposed to be given as close to the top of each hour as possible, such as when there is a natural break in the programming (between musical selections, commercials, programs, etc.). In actual practice, this might be a couple of minutes before or after the hour. The official identification can be given as often as desired, but these are the *minimum* requirements.

So long as the minimum requirements are met, then a station can overload listeners with any nickname they want to be called. There are many stations that deliberately bury their official identification announcements because they want to be known only by a particular slogan or nickname. Therefore, you may have to listen hard for this information sandwiched between a couple of commercials before or after the hour.

WOXY/97.7, Oxford, Ohio, offers this striking bumper sticker. This unorthodox station was made famous in the film "Rain Man." (Courtesy Jason B. Harper, N8UPD, Ohio.)

In days gone by, every station's call letters were announced and showcased with pride. They were a capsulized image of what the station was all about, its service to listeners, its total image. Often the letters in the callsign were initials that meant something relevant to the station or its community. This is still true of some stations, but the trend is changing as so many broadcasters now regard broadcast call letters as little more than useless leftovers from a past era. I suggested to *POP'COMM's* archivist, Alice Brannigan, that station callsign meanings during radio's earlier days would be a good topic for her to write about. She agreed, so be sure to look elsewhere in this issue to see what she dug up.

Remember Major Networks? Just to keep you abreast of the current status of major national commercial radio networks, we thought it would be of interest to give you a bit of a rundown on which ones presently exist.

Unistar has eight full-time satellite-delivered program formats. These include news, C&W, oldies, and rock music. Their air networks are Super, Power, Ultimate, and CNBC.

Westwood One owns NBC Talknet, NBC Radio Network, The Source, Westwood One Radio Network, and Mutual Broadcasting System.

CBS Radio Networks owns CBS News Radio, CBS Hispanic Radio Network, CBS Radio Network, CBS Radio Programs, and CBS Spectrum Radio Network.

ABC Radio Networks consists of ABC Contemporary Network, ABC Entertainment Network, ABC FM Network, ABC Rock Network, ABC Information Network, and ABC Direction Network. There are eleven music formats delivered by satellite by the ABC Satellite Music Network.

American Urban Radio Networks runs the SBN Sports Network, SPM Urban Network, STRZ Entertainment Network, and the Urban Public Affairs Network.

Latest on HDTV Allocations: Have you been wondering about where they're going to carve out all of the spectrum space for frequency-hungry High Definition TV? Rest easy, it looks as though no non-broadcast services will be inconvenienced. Looks as

Requested Changed AM Call Letters

Now	Seeks	
WAMQ	WJRV	Loretto, PA
WARB	WAFU	Covington, LA
WFXN	WSSG	Goldsboro, NC

Changed AM Call Letters

New	Was	
KARW	KDOX	Longview, TX
KAWA	KKAP	Floydada, TX
KCHL	KMMZ	San Antonio, TX
KGPL	KXSA	Dermott, AR
KMTT	KTAC	Tacoma, WA
KPHP	KLVS	Lake Oswego, OR
WGBB	WKAJ	Saratoga Sprgs, NY
WGVU	WMAX	Kentwood, MI
WKOP	WBNK	Binghamton, NY
WLKJ	WCOW	Sparta, WI
WRIP	WVLC	Lake City, SC
WZCC	WOBS	New Albany, IN
WZKC	WYWR	Campbell, OH
WZMC	WFKB	Colonial Hts., TN
WZZN	WFYV	Jacksonville, FL

Applications For New AM Stations

CA	Greenfield	88.5 MHz	1.4 kW
CO	Glenwood Spgs.	91.9 MHz	220 watts
KS	Andover	93.9 MHz	25 kW
MO	Gallatin	101.7 MHz	15 kW
MO	Malta Bend	97.5 MHz	3.4 kW
MS	Saucier	91.7 MHz	52 kW
MS	Sumrall	97.3 MHz	3 kW
ND	Bismarck	97.5 MHz	100 kW
NY	Lake George	98.5 MHz	
NY	Olivebridge	88.3 MHz	100 watts
PA	Galeton	100.7 MHz	14.5 kW
TN	Baxter	93.7 MHz	25 kW
VA	Kenbridge	90.9 MHz	1 kW
WI	Ashland	83.3 MHz	100 kW

Deleted Or Cancelled

KHUA	Seward, AK	88.1 MHz	Low Power
WPHD	Tioga, PA	93.3 MHz	1.7 kW
WZWA	Clarksburg, WV	90.1 MHz	1.5 kW

Changed AM Facilities

KFIT	Lockhart, TX	1060 kHz	Moved to Sunset Valley.
KTCD	Eureka, CA	1200 kHz	Moved to Cottonwood, run 2.5 kW nites.
WCRM	Ft. Myers, FL	1359 kHz	Increased days to 5 kW.
WUST	Washington, DC	1120 kHz	Increased days to 20 kW.

Changed FM Frequency

KIBL-FM	Beeville, TX	104.9 MHz	Moved to 105.7 MHz.

Permits Granted To Construct New FM Stations

AZ	Williams	96.7 MHz	1 kW
CA	Thousand Palms	94.7 MHz	510 watts
CO	Grand Junction	104.3 MHz	100 kW
IA	Vinton	107.1 MHz	6 kW
IN	Austin	92.7 MHz	3 kW
MI	Manistee	107.9 MHz	3 kW
MO	Springfield	88.3 MHz	12 kW
NE	Chester	89.9 MHz	50 kW
NM	Carlsbad	106.1 MHz	50 kW
NY	Essex	101.3 MHz	487 watts
NY	Westport	102.5 MHz	6 kW
TX	El Paso	91.1 MHz	250 watts
WI	Adams	106.1 MHz	6 kW
WI	Portage	95.9 MHz	6 kW

Permit Granted To Construct New AM Station

FL	Jupiter	1000 kHz

Applied To Changed FM Frequencies

KFMU	Oak Creek, CO	103.9 MHz	Seeks 104. 1 MHz, 2.3 kW.
KPYN	Atlanta, TX	99.3 MHz	Seeks 100.1 MHz, 50 kW.
WJGF	Romney, WV	89.7 MHz	Seeks 88.1 MHz.

though HDTV will be allocated frequencies within the regular 470 to 890 MHz UHF-TV band. Those channels can use better utilization, so let's get on with this technology now that we have found a place for it to exist.

Hobby Spirit: When you send a reception report to a broadcaster, or an SWL report to a ham or *ute* station, you like to think that you will get a reply. Often you get one, but not always. That's the way the hobby goes. You take your chances. If you get a good response percentage, you consider yourself lucky and you figure that your technique is good. If you get a poor response, then you'd be well advised to figure out what you're doing wrong and see how you can improve your response percentage. That's what I call hobby spirit.

Swapping station decals and bumper stickers is a fine sideline of the broadcast listening hobby. From time to time, readers write in and tell us about their participation in the decal swapping hobby. They may ask us to run their name and address, which we gladly do. Although we don't know the extent to which any of these people are involved in decal swapping, according to letters of appreciation that have subsequently come in, our efforts have put numerous a few swappers and collectors into contact with one another.

What really surprised us was the letter from Mike Yohnicki, of London, Ontario. He wrote that he's "ticked off" that he has written to "several" (2 to be precise) persons we mentioned as being swappers, and none returned decals. He says, "If they trade, then where are my decals?" Further, Mike demands, "Either stop printing those requests since they don't trade, or make it known that you have one annoyed swapper who does."

All we can say is that 0 for 2 swappers isn't much of a test, and hardly reason to go into orbit. It definitely isn't reason enough to get us to stop printing names and addresses. Not when so many others are enjoying the swapping hobby. Imagine if we stopped mentioning certain broadcasters on the basis of one reader reporting that they didn't QSL!

Mike's perception of the hobby, his hobby spirit, and his attitude are very different from ours. It's also possible that Mike's swapping technique or approach needs some fine tuning. I wouldn't take such a negative view if I were Mike. If readers have thoughts on this, let's hear them.

Good Riddance: One of the worst things

Requested Changed FM Call Letters

WEWZ	WIVM	Elwood, IN

Changed FM Call Letters

New	Was	
KDDK	KEZQ-FM	Jacksonville, AR
KEZQ	KXIX	Sheridan, AR
KFLL	KKAP-FM	Floydada, TX
KGSC	KBXQ	Tremonton, UT
KID-FM	KMXE	Idaho Falls, ID
KMMX	KLSC	Lamesa, TX
KMIT-FM	KMTT	Tacoma, WA
KOHT	KXMG	Maranz, AZ
KYKC	KZDB	Byng, OK
KZTO	KHUM	Ottawa, KS
WATJ	WMGG	Columbus, OH
WCFB	WWLV	Daytona Beach, FL
WEVH	WWYB	Hanover, NH
WFGR	WXJI	Grand Rapids, MI
WFLP	WEHN	North East, PA
WGKS	WCOZ-FM	Paris, KY
WJMR	WHYB	Peshtigo, WI
WKKY	WDON	Geneva, OH
WQRB	WPHQ	Bloomer, WI
WRLP	WGSI	Russell, PA
WUBU	WMXH	South Bend, IN

New FM Call Letters Issued

KCQV	Arthur, ND
KIKR	Asbury, IA
KKWM	Winfield, KS
KNCD	Columbia, MO
KNWY	Yakima, WA
KWAN	Gualala, CA
KWDA	White Hall, AR
KWXA	Durango, CO
KWDX	Asbury, MO
KWXH	Sun City, IA
KWXN	Texico, NM
KWXP	Megalia, CA
WBIN-FM	Benton, TN
WCOU	Warsaw, NY
WEHC	Emory, VA
WRPJ	Pt. Jervis, NY
WSLJ	Watertown, NY
WWOG	Cookeville, TN
WWXX	Ocean Springs, MS
WXAA	Smithville, GA
WXAB	McClain, MS
WXBC	Hardinsburg, KY
WXEJ	Conklin, NY
WXYQ	Manistee, MI

"The Mighty 690," of San Diego, Calif., is one of those stations that doesn't promote its call letters as much as its station slogan. (Courtesy C.A. Luse, Calif.)

about applying for an FM broadcast station license has been what the FCC calls its "hard look" policy. That has meant what appears to most people as an innocent, and minor and/or insignificant application error or omission has been regarded by the FCC with a combination of grave concern and bureaucratic annoyance. If it weren't for the fact that this invariably causes the flawed application to be permanently relegated to the wastebasket by the FCC, it could almost be humorous. It became like dealing with a federal-level Dept. of Motor Vehicles, except worse (if such a thing could be imagined).

The "hard look" policy was recently relaxed. Applicants are now given two 30-day chances to make amendments, corrections, and minor changes in their applications after the FCC spots problems, but before the agency rips up all of the papers and flings them out the office window into the dumpster.

There are limitations to their good will. Applications that fail to contain at least the most basic information will be returned without a chance to use the *White Out*. This basic information includes the applicant's name, city, station frequency, station class, and transmitter site. Also, there must be a signature. Apparently they figure anybody who can't let them know this much may not have enough smarts to be a broadcaster.

Ownership Limits: As this is being written, there is still some question as to the final number of radio stations a single licensee will be able to own. The FCC has one thing in mind, Congress has a different view. The FCC's concept was for 30 AM and 30 FM stations nationally, with as many as 6 stations in larger markets.

A revised plan making the rounds calls for 18 AM and 18 FM stations now, but increased to 20 and 20 in 1995. There were other stipulations to further cut into the FCC's original 30/30 concept. The problems center around the belief of some that single licensee ownership of many stations isn't in the public interest should the combined audience reach above 25 percent.

This, of course, is a flawed philosophy. What percent of the public is reached by running Presidential speeches on all network TV channels simultaneously? What percent of the public is reached with saturation ad campaigns run at the same instant on all local radio or TV stations? It's done all the time.

What Cost Broadcasting?: A dealer in used broadcast transmitters sent us a listing of his wares. Just for kicks, do you think you know what these things sell for? A 1 kW FM transmitter listed in excellent condition is $7,500, although one in fair condition is $3,500. An excellent condition used 3 kW FM rig runs $12,000 to $14,000, while we're talking $25,000 for a 25 kW rig in that condition.

When it comes to used AM broadcast transmitters, a 1 kW job in fair condition could be had for $2,500, but in good condition for $8,000. Add another $1,000 for excellent condition. For a 5 kW AM transmitter in very good condition, expect to pay $12,000 to $14,000. The 10 kW transmitter in excellent condition was $16,500, while an excellent 50 kW job was $49,000. Add transportation to these prices, and some may need parts replaced.

And remember, a station still needs other broadcast equipment—console, exciter, cart machines, microphones, antenna, and more. Not a business to enter unless you have a rich uncle or aunt.

Hidden Costs: Once a station is operating, there are all sorts of hidden expenses that pop up. The FCC notified the licensee of San Francisco FM'er KMEL that the station is apparently liable for a forfeiture of $25,000 for broadcasting indecent material during Rick Chase's show last year.

It wasn't so much what was broadcast, the FCC said, but when it was sent out over the airwaves. The programming was aired during daytime hours when there was "a reasonable risk" that children might be listening. That's what brought about the FCC's wrath and demand for payment.

An expensive lesson in censorship for KMEL, and a wonderful lesson for children of all ages as they witness the tragedy of a federal agency ignoring the First Amendment. The FCC should remember that radios have tuning knobs and on/off switches so the public can tune out programming it deems offensive. The public must have that free choice. Community moral standards shouldn't be dictated by committees, bureaucrats, or federal agencies.

We will get down off our soap box just long enough to wish you a safe and happy holiday season. Let us hear from you. ■

PIRATES DEN

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

We're off—with another bumper crop of reports and notes on the pirate radio scene.

Several reported an apparent new pirate—EBO. Chris Thompson of Connecticut heard a transmission at 0315 on 7415USB. He notes that it's a mostly musical format, with comments about the FCC and other pirate stations. Tom Zojdel in Ohio got 'em at 2045. After the broadcast they went into a Morse code conversation with "Charlie Brown."

EBO was the first pirate logged by Michael Schmehl in Pennsylvania, who notes they were claiming to transmit from Paris Island, South Carolina and giving the PO Box 452, Wellsville, NY 14895 address. Michael thinks there was also a mention of tapes being available.

Pat Murphy in Virginia had it also, at 2130 to 2149 sign off, on both LSB and USB, identifying as "EBO Radio, Fogmore, SC" and mentioning "no engineer, operating on low power" and frequent mentions of it being a test broadcast from a "country club."

Pat logged one of the rare appearances of the Voice of Bob, of the Subgenious Foundation," surely one of the stranger and longer-running stations on the air. This was on 7415 at 0203-0244. They aired what Pat describes as "very elaborate, well produced skits" using lots of voices and sound effects. ID as "The Voice of Bob, accept no substitutions, only slack accepted here."

Schmehl heard some involved goings on at 0132 on 7416 with a station playing segments of the "Baby Elephant Walk" and mentioning "This is Radio Blah Blah." Then Captain Willie and the Voice of the Loon showed up, moving into a conversation with the first station which Michael terms the "Ohio Hilltop," more VOL programming, more two-way conversation and yet a third station, The Voice of Sex. VOL signed off at 0348. Zojdel in Ohio heard this at 0300. (Incidentally Tom, I hope I've read your last name correctly!) Tom has a message for pirate ops, too: he prefers broadcasts in the AM mode, saying SSB is harder to tune when music is being played.

Another Schmehl log was Rock and Roll Radio, heard once at 0617 on 7416USB and once at 0321 on 7414.7USB with many IDs on a loop tape, fake commercials, rock music and such. Oddly, this broadcast also contained a bit of the Baby Elephant Walk.

Skip Harwood in California had a new west coast station, Anarchy One, on 7415 at 0300-0314 and again from 0345-0358, with Captain Anarchy and a talk about "what is an anarchist." They gave an address of 770 Sycamore Avenue, Suite 193, Vista, CA 92083.

A different but similarly named station, Radio Anarchy, was heard on 7419 at 0330 with punk rock and flute music. Skip estimates this station is on about 100 times a year, using a power of only 15 watts and broadcasting from northern Washington state.

For a guy who just logged his first pirate Michael Schmehl is really pulling them in. Yet another log was of Radio USA, at 0225 on 7413. The program included many fake commercials and "public service announcements." There was a commercial for Radio USA T-shirts and a "Billy Bob" routine. They announced the Wellsville address.

Rev. Dennis Myhand in Arizona got his first pirate log, KRNA—Radio North America, also giving the Wellsville address. This was 2334 on 7415. Program was made up of music and comedy, including songs by the Sons of the Pioneers. Dennis notes that the signal was strong but the announcer's voice was "horribly overmodulated."

What might be the same station was heard as RKNA by Pat Murphy, on 7415 at 2324 to 2341 close with a slogan as "the rock of North America."

Pat heard WCYC at 0205 on 7415USB playing "innaghaddadavida" (what the heck's that, Pat?) and experiencing transmitter cutouts. Eventually they went into a QSO.

The Secret Mountain Laboratory was another Murphy log, at 0108 on 7415 with music and spoof commercials, including one on "Master of the slide whistle."

Pat also logged WARI-Alternative Radio International, at 0435 to 0407 close on 7415 with requests for mail and music requests be sent to the Wellsville address.

Keep those great reports coming into the column, and I'll get as many in as I can each month. Station ops—a reminder that I'm always interested in hearing from you about your stations and plans. Photos and QSL copies are much wanted also. ■

Skip Harwood in California got this QSL from Radio Anarchy. He notes that this and the Voice of Anarchy are two different stations.

TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

The FCC keeps moving towards making new personal communications services (PCS) a reality. The agency has recently proposed new rules relating to possible spectrum allocation, regulatory and licensing schemes for PCS, and was seeking comments on how to make the new family of PCS available to the public as soon as possible.

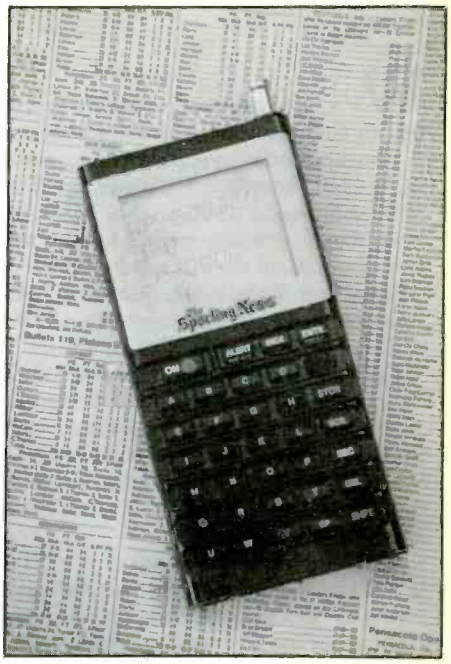
This grouping of PCS will consist of an assortment of new mobile and portable services and technologies, including small, lightweight telephone handsets that may be used anywhere (home, office, streets). There are also portable, wireless FAX'es, wireless PBX's, and wireless E-mail services, and other devices.

Values that the FCC says will come into play when they decide upon allocating spectrum and establishing regulations for these devices include competition in the delivery of services; speed of deployment; universality; and diversity of services.

Thusfar, there's a proposal for a broadband PCS service in the 2 GHz (2000 MHz) band. This hangs on how present users of the 2 GHz band feel about the new services showing up on their doorstep. There are also some 900 MHz band allocations under consideration.

This PCS concept is actually quite complex, incorporating numerous facets. This includes a proposed broad definition of PCS service, including the entire family of related services ranging from voice to digital. They proposed allocating 901 to 902 and 940 to 941 MHz to PCS (currently allocated to the General Purpose Mobile Service).

Mathias Bergendahl, standing by his sailing vessel, "Half Moon," places a cellular call during a stop at New York City. The vessel is a recreation of the one used by explorer Henry Hudson. (Photo courtesy NYNEX Mobile Communications).



The Sporting News came up with this fine handheld sports information terminal, and it's all done by radio!

There is a proposal for 2 GHz band PCS licensees to have blocs of 20, 30, or 40 MHz each (preferred option of 30 MHz). Licensees on the 900 MHz PCS frequencies would each be given between 50 kHz and 1 MHz of spectrum to use.

The FCC proposed that for PCS purposes, the nation be divided up into licensing areas. This would consist of 187 "basic trading areas," and 49 "major trading areas, 184 LATA's, and nationwide licenses. Each local area would have a certain number of PCS licenses issued (minimum of 3 to 5). It's possible that lotteries could be used to award the licenses.

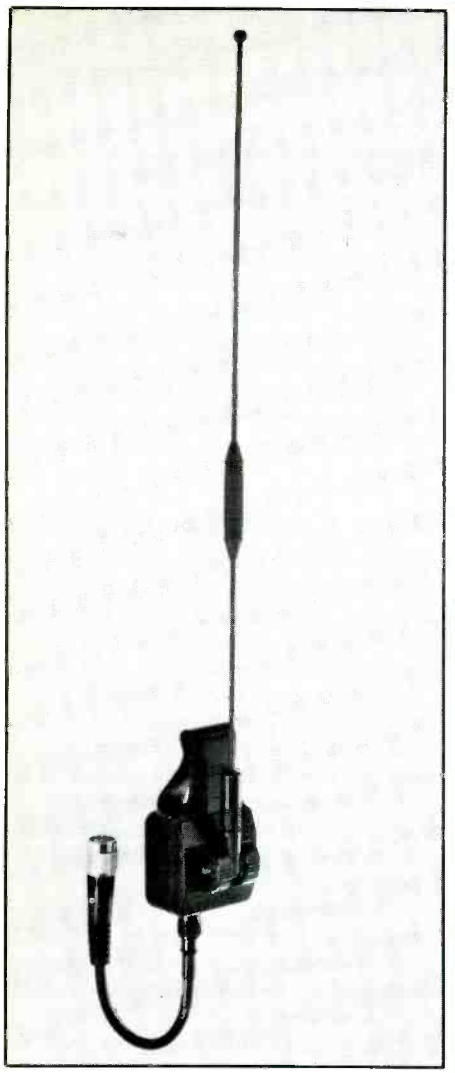
Looks like there is still some question as to whether cellular service suppliers would be eligible to hold PCS licenses in areas where they operate cellular systems. The new PCS services, however, may be cause to liberalization of the cellular service rules to allow better use of existing frequencies.

Also, there's the question as to whether PCS should be regulated as a common carrier or a private service, and whether PCS should be given the federally protected right to interconnect with the public switched network.

Technical standards must be established, too. So, there's a lot to be done before these services become reality. But they are on the way, from every indication at this point.

Sporting Chance

Sports fans, pros, marketers, and agents



One way to get your handheld cellphone's signal beyond the limits of your enclosed vehicle is to use this antenna that clips onto the top of any open car window. It's from The Antenna Company.

can have all the sports news they can handle, literally right at their fingertips. *The Sporting News* announced that it will offer the latest revised scores, stats, pre-game injury reports, odds, and game weather conditions from all over the sporting world. This information will be arriving to subscribers via handheld receivers made to process *The Sporting News SporTrax*.

This gismo is about the size of a handheld video game. It has a screen that accommodates ten characters across and four lines high, a keypad, and the receiver portion of the equipment. Scores and news briefs are updated all day and night by a team of professional sports analysts, who then send out the information over *SporTrax*.

According to the explanation given by *The Sporting News*, transmissions go "over a satellite and FM side-band to 38 major U.S. and Canadian cities." Translated, what this means is that the data is uplinked to a satellite, then downlinked where it is received at 38 FM

broadcast stations. Each FM station then sends out the *SporTrax* signals via its audio subcarriers, which can't be detected without special *SporTrax* equipment.

Using the keyboard, the subscriber can enter different codes to bring up a variety of menu pages or access an endless stream of other information. For example, to find out the score of the Syracuse/Penn State college football game, you punch in CF, which is the code for college football. Then you enter the code letters for the two teams you want. At that point, you get several screens of information, including current score, individual player stats, and assorted game notes. The menu pages can also be used to access all scores in a league or sport.

Wouldn't it be great if this thing would announce pro wrestling match winners in advance of the events? Nah—looks as though they don't bother with pro wrestling, but they do cover all major pro sports as well as 400 of college football and basketball's top teams.

In addition, you can create a "hot list" of several favorite teams you want the device to continuously track. The *SporTrax* will then continually scan for all bits of information about those teams, storing the data for immediate recall. You can change the teams on the "hot list" at any time. Like, I asked my *SporTrax* to let me know first thing when the Dodgers return to Brooklyn. I thought the machine snickered. The question was later withdrawn.

The start-up fee and monthly service charge cost for *SporTrax* is a lot less than a month of calls on the average sports 900-number. Also, it offers much more information on a wider range of subjects, and you aren't paying by the minute. The handheld unit, itself, costs about $495. Monthly subscriber charges are $60 per month if you sign up for a year. Or, you can subscribe on a month-to-month basis for $79 per month. These rates, of course, are subject to change at any time.

If you'd like more information on this, call *DataSport* at (415)-377-3500.

Cellular Marches On

Last June, Calgary, Alberta, became the first Canadian city to provide digital TDMA (Time Division Multiple Access) cellular service. The cellular phones used for this are Hughes Network Systems M6100 dual mode (analog/digital) units.

As digital service begins to become implemented, it will first be made available on several channel pairs. As time goes on, and digital increases in popularity (while analog decreases), the percentage of digital channels is increased as the analog channels are phased out.

Centel Cellular Co. says it's the first American cellular carrier to commercialize Motorola's Narrowband Advanced Mobile Phone Service (NAMPS) following a test run in Las Vegas, Nevada. NAMPS is a digitally enhanced analog technology that allows Centel Cellular to triple the capacity of its current analog system, offer digital messaging services, and ease the migration to a digital cellular network. Motorola NAMPS cellular phones are dual mode, so they can also operate in standard AMPS analog cellular systems. Centel has been offering them in Las Vegas since October of 1991.

NYNEX Mobile Communications presently has 340 cell sites in New England and New York State. By 1994, this will grow to more than 700 sites. NYNEX feels that the site expansion is necessary in order to provide adequate service in light of emerging digital modes, plus the increasing popularity of portable phones, as well as new microcellular technologies that bring wireless coverage inside of buildings and other hard-to-reach places.

Here Comes The Clipper

The Antenna Company came out with the *K2 + KLIP* mobile cellular antenna. This clips over the top edge of any open vehicle window so that it can be used with portable or transportable phones. As you know, if you try to call on a portable or handheld cellphone with its built-in antenna used inside the vehicle, you don't always get optimum results unless you're right on top of a cell site. In fact, with your antenna completely enclosed inside of a metal vehicle, you could lose up to 90 percent of your car phone's potential performance.

This antenna gives you a convenient way around the problem. It has an elevated coil design to extend the antenna above the vehicle's roof line for optimum omni-directional performance.

This comes from The Antenna Company, 2525 Braga Drive, Broadview, IL 60153.

Overseas Echoes

Motorola will supply the cell site equipment for the TU-KA Cellular Tokyo digital system in Japan. This system will operate on 1.5 GHz (1500 MHz).

AmeriCom Corporation their networking technology will be used by Intercel Telecomunicacoes, Ltda., of Lages, Brazil, to provide mobile comms in 31 cities throughout the state of Santa Catarina.

This is to be a trunked system used mostly for telephone interconnect, with additional facilities for dispatch and rural telephone service.

AmeriCom Corporation is based in Atlanta, Georgia. Majority interest in the company is held by the E. F. Johnson Company, of Minneapolis.

Come Again

Come see us in January. We are always looking for press releases from manufacturers, service suppliers, and others in the cellular, radiopaging, marine radio, and related personal communications fields. We also welcome news clippings sent in by readers, plus comments, questions, and suggestions. ■

THE HAM COLUMN

BY KIRK KLEINSCHMIDT, NT0Z
AMERICAN RADIO RELAY LEAGUE HQ

GETTING STARTED AS A RADIO AMATEUR

Diversity Among Friends

The stereotypical ham is a "mad" scientist type, isolated in a dungeon-like ham shack, or a nerdy-looking guy sporting a pocket protector and horn-rim glasses, right? Well, not exactly! Ham radio operators are more diverse than those old-time stereotypes. You never know who you'll talk to when you pick up the mike, key, or whatever.

In this month's column, guest author Robert Halprin, K1XA, profiles Phillip "Grover" Cleveland, WT6P, an active VHF and HF ham operator, civil war expert, firefighter and movie actor. How's that for diverse?

The best part is that there are lots of people like Phillip on the bands today. The codeless Technician license has attracted tens of thousands of new hams to our hobby, many from nontraditional backgrounds. And they're just waiting to talk to *you*. So without further ado, let's learn more about WT6P, a "modern" ham radio stereotype.

Remember the hospital scene at the beginning of the hit movie *Dances With Wolves*, the one where the Union Army surgeons are getting ready to slice-and-dice Lieutenant Dunbar's (Costner) injured leg? Well, the doctor on the left, drinking the cup of coffee, is WT6P.

And how did it feel making his big-screen debut with a first-time director?

"Costner was an absolute perfectionist," Phillips said, "he was completely professional in every way. He is personable and very easy to talk to—no stuffiness or sense of superiority. Kevin believed in this film, and it shows in the care he gave it."

Cleveland isn't a Hollywood regular, though. For years he's been a member of the National Civil War Association (NCWA) reenactment group, playing the part of the Confederate surgeon.

"I originally saw the NCWA perform one of its reenactments in 1986. After the 'battle,' there was a medical demonstration. I watched with fascination as the 'doctor.' (David Smoot, who later became a good friend) explained the various instruments and their uses. At the time, I said to my wife Lindsey, 'I've got to do that.' 'Not a chance,' she replied, 'you don't need *another* hobby!' "

But Cleveland was not to be denied.

"By the next year, I had joined the organization and begun a collection of medical instruments as part of my role as a surgeon for the Confederate side."

In the movie, the close-up shot of some rather gruesome-looking antique medical instruments featured treasures from Cleveland's personal collection.

WT6P ambivalently describes his overall experience with the film as "fun, different, boring, exciting . . . and it's hard work."

And he's no stranger to hard work, adverse conditions or being around "VIP's" for that matter—Phillip is an active volunteer in the Volunteers—In—Prevention program for the California Department of Forestry and Fire Protection (CDF), the world's largest fire department.

VIP hams provide emergency communications to support the CDF's wildfire suppression efforts, helping to link CDF field personnel with the Fire Information Center. Firefighting comms have been WT6P's principal Amateur Radio activity for the past ten years (although he does like to hang out on the 30-meter CW subband with his QRP rig).

"My friend Ron Menet, N6AUB, and I have put together a very effective communications network via VHF packet radio (including portable digipeaters) to back up the regular CDF circuits during emergencies."

Cleveland's home is a 24-acre hilltop in Penn Valley, California (near Sacramento), where he lives with his wife and two daughters, plus an extended family of animals, including a rooster that reportedly speaks in Morse code every morning around 4 AM).

Grover runs a Yaesu FT-7B and an ICOM IC-751 to a commercial multiband Windom and a triband Yagi. "I bought the place with ham radio in mind—good radio horizon, low QRN and no deed restrictions.

For the past ten years, WT6P has been employed by the Grass Valley Group (a manufacturer of broadcast television equipment), where his present title is instructional design engineer. His main responsibility is to develop courseware for customers (television networks and stations worldwide) who can't attend the formal classroom courses offered at the company's Grass Valley facility.

Grover was born in England during WWII; his family immigrated to this country in the '50's. As a teenager, he was a shortwave listener and a member of his high school radio club (and it was in high school where his classmates gave him the nickname "Grover," no doubt thanks to the 22nd and 24th president of the United States), but his non-citizen status barred him from obtaining a ham ticket.

He ultimately became an American citizen in 1962, and was licensed in 1973. His ham radio interests encouraged him to study for the FCC First-Class Radiotelephone license, and that in turn helped him to begin a career in television.

Grover would jump at the chance to work with Costner again, but it won't be as a Civil War surgeon. He's traded his antique surgical instruments for a telegraph key—appropriate for an active ham operator who is a member of the Morse Telegraph Club (an organization of ex-railroad, Western Union and Postal telegraph operators, with many hams on its roster).

"My interest in historical telegraph actually predates my interest in the Civil War. I wanted to do something different, and very few people are doing telegraph. This is a chance to expand the breadth of the historical presentation of the NCWA. Youngsters are always amazed—they have never heard a telegraph sounder before. A few hams always stop by to say hello, but none so far have been able to copy the American Morse coming from the sounder!"

He himself had to learn the American (landline) Morse, which uses a different alphabet that the International Morse code used in ham radio. Becoming "bilingual" in both codes took a lot of practice, which he approached with the same determination as Civil War medicine. "I studied so much I was beginning to think in American Morse!"

Grover Cleveland's obvious passion for history and teaching compliments his appreciation for Amateur Radio. "I welcome the younger hams; I enjoy their enthusiasm and energy. But we are members of a fraternity that dates back nearly a century, and we owe it to ourselves and to our brothers and sisters now departed to keep up that spirit of service and that love of experimentation that gives substance and meaning to our hobby. I see clearly all the threads that tie us ham radio operators back to the beginnings of electronic communications. It's fascinating!"—*Robert J. Halprin, K1XA.*

Phillip "Grover" Cleveland, WT6P, is obviously far removed from the stereotypes mentioned earlier. If we follow his lead we'll preserve the best of Amateur Radio tradition while we move forward into ham radio's future. Let's go!

Send your letters and photos to me at ARRL, Department PCN, 225 Main St., Newington, CT 06111. ■

CB SCENE

27 MHz COMMUNICATIONS ACTIVITIES

BY BILL SANDERS, SSB-295

Here's an inexpensive approach to CB'ing, it's from Radio Shack and known as their Realistic TRC-477. At $59.95, you get a decent rig with pushbutton up/down channel selection, large LED readout, and an ANL.

Sometimes readers ponder over whether they should put a rig in that second car that doesn't get a lot of use. They can't see shelling out $150 to add CB to the vehicle. We usually suggest rigs in this price range as being worthy of consideration. Maybe they don't have all the bells and whistles, but when you press the mike button they put you in contact with other stations.

This particular rig is especially good for the money. Not only that, but by using the instructions for the TRC-477 in CRB's new *CB Radio Hacker's Guide* we tweaked and peaked this little rig to bring up its output power and sharpen its squelch action.

You might want to give this low priced rig a look next time you're at Radio Shack.

If you want an inexpensive, no-frills CB rig for your second car, this Realistic TRC-477 could solve your problem.

Dennis Atkinson, in Maine, sent us a photo of his mint condition Demco Satelite base station. It's a real collector's item, being almost 30 years old.

Channel Hopping

Channel 19 has long been unofficially used as the truckers' channel, while Channel 9 is the place for motorist's information and assistance. Did you know that Channel 13 has long been used by RV owners as a monitor channel? In Washington State, logging trucks monitor Channel 14 so they don't meet one another coming around the bend of a narrow mountain road. And Sidebanders like to consider Channels 36 through 40 as their own exclusive territory.

CB has long had any number of national and regional channels that are used to facilitate 27 MHz comms and make things convenient for operators. It occurred to us that it would be a good idea to round up all of these by asking our readers to let us know any other designated or dedicated channels that they know about. If and when we get enough information along these lines, we'll do something useful with it.

Don't tell us about any we have already mentioned (above), but if you know of other national or regional CB channels regularly used for a particular purpose, or by a specific group, those are the ones we want to know about. Just jot them down on a postcard, showing the channel number and usage. Put as many as you want on the same card, then sign your name and address. Send it to CB Scene, Popular Communications, 76 North Broadway, Hicksville, NY 11801.

In The Mail Sack

A note from Jack S. Smith, Jr., KC4FDU, Rt. 1, Box 148-L, Leesburg, GA 31763, advises that he has picked up two non-functional linears. One is a Kris 300-M, and the other is a Maco 750. He wonders if there are operating manuals or schematics for either of these units. Beats me, Jack. I haven't heard Kris' name mentioned since the 1970's, and Maco's name since the early 1980's. If anybody can help Jack, get in touch with him directly.

In recent issues we mentioned old time Demco and Sampson modular base stations. We noted that the stations produced by these companies were excellent, and that they looked similar to one another. That brought in a photo of a 1963 Demco Satellite base station presently owned by Dennis Atkinson, who hails from Maine. Dennis guesses that the same factory must have produced both the Demco and Sampson equipment because they look so much alike. Regardless, that beautiful Demco station Dennis must be quite valuable as a collector's item.

Trevor Fletcher, of Edmonton, Alberta, Canada, tells us that when his photo ran in these pages a while back it made him a bit of a local celebrity. Trevor likes our CB coverage and hopes it can get more space in the magazine. He would like to see more information from Canadian readers (so would we).

QSL from Affonso, 5-AT-146, of Caracas, Venezuela. He was part of the DX'pedition to Grenada last August.

What's The "QQ" Code?

Every once in a while we receive an inquiry asking us to explain the meaning of code signals such as QQD, QQJ, and others in this series. These inquiries invariably come in from those who have been on the receiving end of one or more of these unofficial barbs which have been drifting around from time to time since 1978. They were originally cooked up by Tom Kneitel, and they seem to surface among Sidebanders from time to time.

One we always liked was QQA, which roughly means, "You've tried the upper side. You've tried the lower side. Even tried both sides. Hope you're satisfied. Now will you please shut up so someone else can use the frequency?"

Or, what about QQB, meaning, "Best thing about hearing you on Sideband is that with only one sideband, you sound twice as dumb as you did on AM with two sidebands."

There are a lot more, but you get the idea. A complete listing is in *Tomcat's Big CB Handbook*.

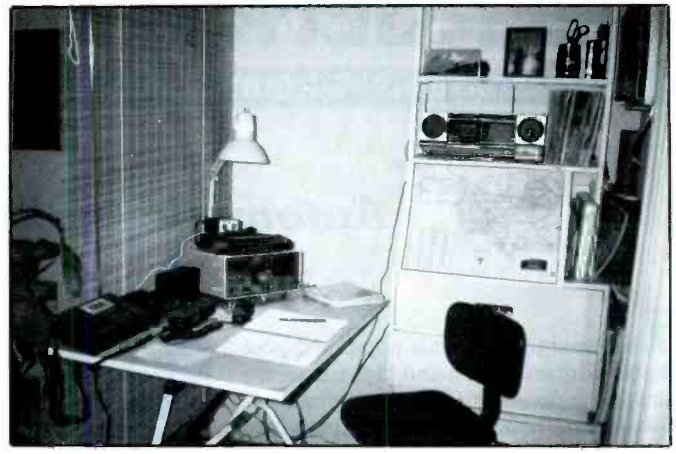
DX'pedition To Grenada

The *Alfa Tango* gang from Venezuela went on a DX'pedition to the Caribbean island nation of Grenada last August 25 to 30. You may have heard them if you listened on the upper frequencies around 27.580 MHz (USB). Their ID was 25-AT-0 for this event.

Their equipment consisted of a Kenwood TS-450, Uniden HR-2510, a 3-element beam, a DC power supply, and a generator. The Venezuelan operators were Pierluis, Francisco, Alfonso, Gustavo, and (from Argentina) Miguel Angel. These operators received full permission from the government of Grenada for this activity, including frequency, power, equipment, and ID.

This information came directly from Alfon-

Here's the man, Mark S. Spatny, of Los Angeles, Calif. During the riots last spring, Mark spent many hours at his station monitoring the CB, ham, and scanner bands.

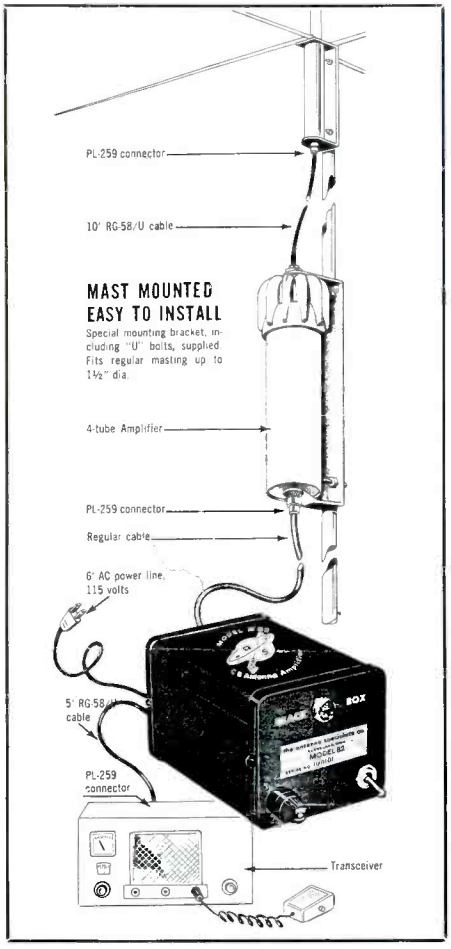


A view of Mark S. Spatny's station, minus the operator. Good looking installation there, Mark.

so, 5-AT-146, who tells us that he's a fanatic *POP'COMM* reader and supporter.

The Old Black Box

Walt Schivo, KB6BKN, of Novato, Calif., goes back to the early days of CB radio when he held CB callsign KLA5245. He reminded us about a curious piece of equipment that was available in 1962 and asked if we would give it a mention here. That was the Antenna Specialists *Black Box*, Model M-82.



The Antenna Specialists M-82 "Black Box" was a clever 1962 CB accessory that was a mast mounted full power transmitter final, plus a receive amplifier. It gave muscle to the average CB rig. For a while it was legal.

It was like a base station legal antenna amplifier. There was a black box that you hooked to the antenna output of your transceiver. You ran your coaxial cable from the black box. The antenna-end of the cable terminated in a weatherproof housing that mounted at the antenna's feedpoint via a 10 ft. length of cable.

Inside the housing was a four tube amplifier that increased the effective transmitted modulation gain by 10 dB, also increased received gain by 20 dB. It virtually eliminated line losses, and you got the maximum possible legal transmitter power right at the antenna, no matter how little your rig was putting out. Basically, your rig was being used as no more than something to drive what amounted to an antenna-mounted add-on final amplifier running 5 watts input, which was the maximum legal power then.

This was a good idea. It was legal, and everybody said it did a fine job. But after a while, the FCC rules were changed so that this device wasn't legal any longer for CB use. CB'ers knew that an idea as clever and effective as this one was just looking to get itself killed off by the FCC. *Drat!* Nice try, though.

Trapped By An An Indoor Antenna

Douglas E. Trapp, KC6ZOF, of Easton, Maryland, sent in a good idea for a CB antenna for those who live in an apartment complex. It will also load up on the 10 meter (28 MHz) ham band, although we don't suggest trying to run a lot of power into this indoor dipole.

In a few simple steps, Doug suggests:

1. Cut 2 lengths of No. 12 copper or coated wire to 8 ft. long each.
2. Solder one piece to the center of an SO-239 plug (no slack).
3. Solder (wrap tight) the ground end to the ground of the SO-239 ground section.
4. Use 3 lamp hooks.
5. Strap from the center of the room corner one lamp hook.
6. Measure 3 ft. from each corner.
7. Run one length of wire along one wall (wrap around hook at 7 ft.).
8. Run second length along other length of wall (wrap around hook at 7 ft.).
9. The 2 dipole legs should be 90 degrees to one another at ceiling level.
10. Feed signals to the antenna using RG-58/U.

Remember that signals from this antenna will be horizontally polarized. Most CB operators use signals that are vertically polarized, so this will not be a plus for your operations. On the other hand, it should provide you with some local coverage and that may be preferable to none at all.

Just Getting Back

Lon Reynolds, of Texas, writes to say that he has been out of 27 MHz activities for a number of years. Once he was very active on SSB, and now he's buying a new transceiver and it's like beginning from scratch. He thinks he remembers most of the basic operating procedures for Sideband operating, but he has two main things he wants to know about.

First, what about an FCC license. Second, he managed to forget how to get in contact with the SSB Network, which he recalls as being a group that was vital to his happiness as a Sidebander. Can we help, he asks.

There are no more individual FCC licenses required for CB'ers, so that's one less thing to deal with. The SSB Network is still at P.O. Box 908, Smithtown, New York, NY 11787. Membership information available to any and all 27 MHz Sidebanders upon receipt of a long SASE (US 29-cents). This group has been going strong since Sidebanding began on 27 MHz in the 1960's.

Catch you on the flip-flop. Have a happy holiday season. Pass along your CB shack photos, QSL's, comments, and questions.

EMERGENCY

COMMUNICATIONS FOR SURVIVAL

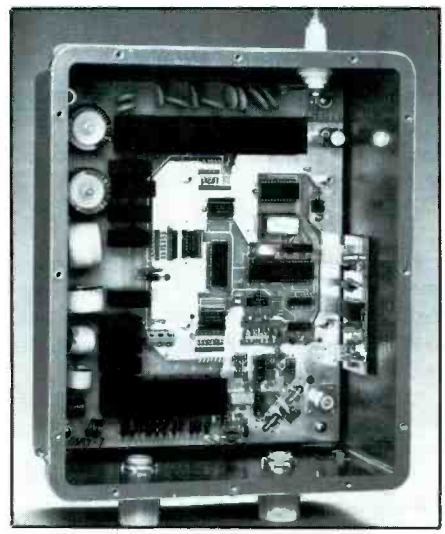
BY GORDON WEST, WB6NOA

Automatic Built-In Antenna Tuners

The emergency mobile command post should contain at least one high frequency amateur radio unit for disaster communications. Even though the incident may only cover a small geographic area within a community, high-frequency, long-range communications may be essential. The American Red Cross, MARS and RACES H.F. links, Civil Air Patrol high-frequency allocations, the United States Coast Guard and Amateur radio emergency traffic nets are some of the groups that may need to be contacted during a catastrophe.

Most disaster response units may use an RV, step van, or converted bus as their command center. The roof is usually covered with an assortment of VHF, UHF, and TV-receive antennas. There is usually a side-mounted ball mount where individual band whips may be screwed in for high-frequency operation. This is an excellent way to go because each high-frequency band requires its own pre-tuned whip.

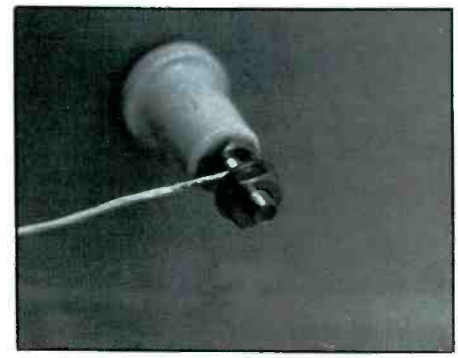
While it would be nice to have a 100-inch, stainless steel whip to handle everything from 2 MHz to 30 MHz, the stainless steel whip into an automatic type of antenna tuner cannot equal the performance of a single, pre-tuned, H.F. whip. Automatic antenna tuners from SGC, Kenwood, Yaesu, ICOM, Hull, and Motorola can all tune into a single stainless steel whip, the performance of the incoming and outgoing signal is many S-units less than a direct feed to a pre-tuned antenna like Hustler, Hamstick, Valor, Mobile Mark, and the popular multi-band series from Spider. For an automatic end-fed "long wire" antenna tuner to do its best, it must see at least 20 feet or more of unloaded wire to equal or improve the performance over conventional, inexpensive, pre-tuned, H.F. whips.



An inside look at the fully automatic longwire auto-coupler.

Built-in automatic antenna tuners may be found in the following small mobile transceivers: Kenwood TS-440 and 450; Yaesu FT-890; and an ICOM IC-765 (a larger unit than Kenwood or Yaesu).

All three companies also market long-wire, end-fed, automatic antenna couplers, too.



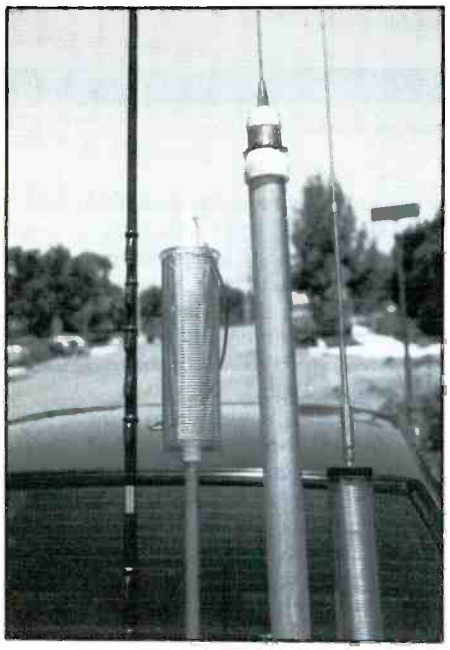
Only the remote mounted coupler offers automatic longwire tuning.

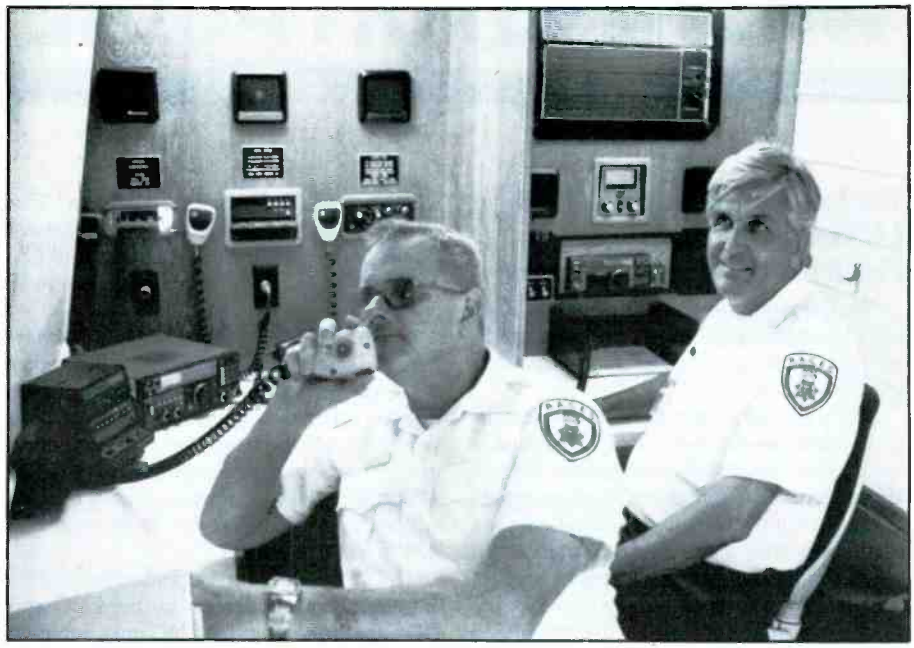
This auto-tuner built into the TS-440 will do a good job into a 50 ohm load.

But as we said before, these couplers only work well when you have more than 20 feet of wire attached.

The job of the built-in automatic antenna

Yaesu and Kenwood—two of the available rigs with built-in auto tuners.





An HF whip for each band of operation will insure solid contacts from the command center.

tuner is to fine-tune pre-tuned H.F. mobile whips, loops, Yagis, and dipoles. For the built-in antenna tuner to operate properly, the far end of the coaxial cable run must be properly terminated for the antenna system to achieve an approximate 20-70 ohm match. It's also important that the antenna system to be tuned with the built-in automatic antenna tuner be relatively resonant on the frequency of your choice: Single-band dipole; Multi-band G5RV; Single- or multiple-band H.F. whips; or Multi-band Yagi, quads, and loops.

During recent tests of the Yaesu FT-890 built-in automatic tuner, it was *the* answer to operating on 80 meters and 40 meters where we wanted to go up and down the band without having to go out and fine-tune the center-loaded tip whip. As long as we had a pre-tuned antenna system somewhat close to the band of desired operation, the FT-890 tuner, as well as the Kenwood 440 and 450 built-in tuner, worked extremely well. In less than a second, the tuner goes whrrr, the SWR drops to zero, the power pops up to maximum, and you are fine-tuned and on the air. Sure beats going out there and making small adjustments of your antenna system during radio contacts requiring QSY.

We also tried to load into non-resonant antenna systems, like sailboat insulated backstays, CB whip antennas on 20 and 40 meters, and random wires. All three built-in automatic antenna tuners sometimes found a match, and sometimes didn't. If the SWR was higher than 5 to 1, most would continue to hunt until they automatically cycle down after 30 seconds of gear-grinding. The built-in tuner is only designed for "pre-tuned" antenna systems that need a little touching up—they are not like a full-blown, remote-mounted, automatic tuner that can load up anything from a piece of wet spaghetti to a 300-foot long wire.

So start out your communications vehicle with pre-tuned H.F. antennas, one for each band of operation. Do consider a transceiver with built-in automatic antenna trimming capabilities. Then consider the remote-mounted automatic antenna coupler for some incredible performance if you can string a lot of wire out there, flapping in the breeze.

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Technical Standards And Licensing Procedures For Aircraft Earth Stations

The Commission amended Part 87 of its rules to establish technical standards and licensing procedures for aircraft earth stations (AESs).

AES's are mobile stations in the Aeronautical Mobile-Satellite Service or the Aeronautical Mobile-Satellite (Route) Service located aboard aircraft. Survival craft and emergency position-indicating radiobeacon stations may also participate in this service. It can be used to provide communications to support domestic and international air traffic, including air traffic control. The Route service is for aeronautical communications related to the safety and regularity of flights primarily along national and international civil air routes.

The new rules set technical standards for radio frequency transmitter output power, modulation, bandwidths, emission limits, frequency stability and emission types. They also contain provisions governing interoperability and priority and preemptive access to satellite communications for safety purposes, and licensing procedures.

The adoption of appropriate technical standards will foster the rapid introduction of new aircraft radio communication equipment, allowing aircraft to participate extensively in the benefits of satellite communications and assisting U.S. industry to remain internationally competitive.

AES's aboard aircraft will dramatically enhance communication capability. Aircraft on long flights, particularly over water, must generally rely on HF communications which tend to have poor reliability. Satellite communications are much more reliable and will therefore improve safety communications (air traffic control and regularity of flight information). Satellite communications provide for significant savings on aircraft operations and provide public correspondence for the passengers and crew. Use of satellite communications also has the potential to relieve some of the communications congestion in the HF and VHF bands.

FCC And Canadian Department Of Communications Reach Understanding On Cross-Border Roaming

The Federal Communications Commission (FCC) and the Canadian Department of Communications (DOC) reached a mutual understanding on cross-border roaming of satellite newsgathering (SNG) units. The understanding was achieved during bilateral discussions held at the FCC on April 23, 1992, and was set forth in an exchange of letters.

For the purposes of the agreement, international satellite newsgathering is defined as the use of transportable earth station terminals by SNG operators engaged in coverage of an event requiring occasional or short-term temporary transborder transmission via satellite of audio or television and auxiliary signals, which are not intended for direct reception by the general public.

The understanding is intended to facilitate expeditious authorization by the FCC and DOC for the roaming of SNG units between the two countries. The FCC and DOC believe that this understanding will allow entities engaged in the coverage of events requiring occasional or short-term temporary transborder use of SNG units, to deploy their equipment with a minimum of delay and a maximum of operational flexibility. This should facilitate the timely flow of information.

As a result of this understanding, U.S. broadcasters and their affiliates will be permitted to take their own SNG equipment and personnel into Canada as opposed to leasing SNG service from a Canadian provider, as they currently must do. In addition, U.S. and Canadian applicants may obtain preclearance for non-site-specific technical and eligibility requirements to allow for quicker review and approval of SNG applications.

Permit Facsimile And Data On Marine Public Correspondence Channels In The 156-162 MHz Band

The Commission acted to amend Part 80 of its rules to permit the use of facsimile and data communications on marine public correspondence channels in the 156-162 MHz band (marine VHF) for communications between public coast stations and ship stations.

Public coast stations provide for the business, operational, and personal communications needs of ship personnel. Initially, because of the large size of the shipboard radio equipment and the specialized training required to send and receive manual Morse code, these communication services were available only to large ships. Advances in radio communication technology, however, have changed the service from one based on manual morse code to a more economical and convenient integrated system that uses voice and data communications. This has made it easier for more ships to equip with radio equipment and has resulted in public coast stations offering a wide range of communications services to all ships irrespective of size. Certain automated systems have been authorized to transmit facsimile and telegraphy data communications on the Mississippi River since 1981 and in the Great Lakes region since 1986.

Packet radio, a specialized form of data transmission, has been permitted by the Commission under these rule amendments, although transmissions have not been restricted to any specific protocol. The Commission has not allotted a nationwide VHF channel dedicated to packet radio, nor has it acted to permit packet radio transmissions on the MF or HF Narrow Band Direct Printing channels. Additionally, ship-to-ship data communications on public correspondence frequencies in the 156-162 MHz band will not be permitted. The Commission noted that permitting intership communications on VHF public correspondence channels could result in channel congestion and co-channel interference.

U.S. And Mexico Sign Telecommunications Agreements

Federal Communications Commission (FCC) Chairman Alfred C. Sikes and Mr. Andres Caso Lombardo, Mexican Minister of Communications and Transport signed 10 major bilateral telecommunications agreements outside Mexico City, Mexico.

The agreements were signed at the third annual meting of the U.S.—Mexico Consultative Group on Communications which was held August 7-12, 1992. This was the first time Minister Caso Lombardo attended the meeting. Chairman Sikes signed similar agreements in 1991 at the second meeting, in Chestertown, MD.

Sikes hailed the agreements saying, "These agreements will allow for improved radio service in the AM and FM bands along the border, and facilitate advanced mobile communications services such as cellular, paging, land mobile, and wireless cable. These agreements are in harmony with the North American Free Trade Agreement (NAFTA) as they make substantive progress toward compatibility and complementary usage of communication media between the U.S. and Mexico, clearly important to facilitating trade."

Specifically, the parties agreed to:

(1) An allotment plan and technical procedures for implementation of additional channels at the upper end of the current AM broadcasting band.

(2) Replacement of the 1972 agreement on FM broadcasting to take into account new

technology and provide for low power stations and short spaced stations that provide equivalent protection.

(3) The introduction of MMDS (wireless cable systems) within 80 km (48 miles) of the border and a list of coordinated stations along the border in eight cities.

(4) The introduction of narrowband (5 kHz) spectrum-efficient mobile radio systems. This band could be used for nationwide tracking of packages and the Department of Transportation's (DOT) Intelligent Vehicle Highway System.

(5) A Memorandum of Understanding to use the bands 896-901 and 935-940 MHz for specialized land mobile systems (SMRs).

(6) An exchange of letters on the adoption of procedures to allow users of cellular radios to roam back and forth across the border and receive service from U.S. and Mexican cellular systems.

(7) A Notice of Intent to formalize a Memorandum of Understanding signed by U.S. and Mexican delegations at the World Administrative Radio Conference (WARC 1992) on the sharing of the 17.7-17.8 GHz band by the fixed services and the broadcasting-satellite service.

(8) A Notice of Intent to sign at the upcoming meeting of the Bi-National Commission, a Memorandum of Understanding on the allocation of additional spectrum for cellular radio systems.

(9) A Memorandum of Understanding on the allocation of additional spectrum for cellular radio systems outside the frequency bands covered by the 1982 agreement.

(10) Establish a preliminary understanding on the use of additional spectrum for common carrier paging systems and identification of channels for use by Mexico.

The AM and FM treaties will expand service in these bands, and will allow the FCC to fully license stations along the border in accordance with FCC priorities.

The agreements will also allow users of cellular telephones to roam on either side of the border. This cross border traffic will be permitted through compatible channels in the U.S. and Mexico.

Short-Spacing Of Specialized Mobile Radio Stations

The Commission affirmed its decision to permit Specialized Mobile Radio (SMR) stations to locate their facilities closer than the current minimum co-channel mileage separation without requesting a waiver.

The Commission, however, in response to several petitions for reconsideration filed by the National Association of Business and Educational Radio, Inc. (NABER), the American Mobile Telecommunications Association, Inc. (AMTA), Commercial engineering Corporation (CEC), and Francis J. DiRico (DiRico) modified certain rules that govern the short-spacing of co-channel transmitters.

On July 19, 1991 the Commission adopted a Report and Order in PR Docket No 90-34 that permitted SMR stations to short-space without a waiver of established co-channel mileage separation standards. Pursuant to the new rules governing short-spacing, applicants can locate their co-channel transmitters closer than current mileage separation standards without seeking a waiver by submitting an application that evidences the consent of all affected co-channel licensees or conforms to mileage separations set forth in a "Short-Spacing Table." The mileages in the Short Spacing Table are based on the separation distances required to avoid overlap of the existing station's 40 dBu service contour and the proposed station's 22 dBu interfering contour. The Commission also provided that, alternatively, applicants could seek a waiver of current mileage separation standards based on a technical showing demonstrating non-overlap of the existing station's 40 dBu service contour and the proposed station's 30 dBu interfering contour. The petitioners sought reconsideration of several aspects of the criteria established to govern co-channel short-spacing of SMR facilities.

In response to the petitions for reconsideration, the Commission extended from 10 days to 30 days the time period for an existing licensee to evaluate waiver requests. The Commission also adopted a directional method for calculating the antenna height above average terrain when an applicant uses the Short-Spacing Table, and expanded the

Short-Spacing Table to include columns for 500 watts and 300 watts.

The Commission, however, declined to modify the existing co-channel interference criteria used to evaluate waiver requests, retaining use of the 40 dBu contour of the existing station and the 30 dBu contour of the proposed station to determine whether a waiver is appropriate and nothing that any modification in this criteria would necessarily result in a change in the fixed-mileage separation.

The Commission also affirmed its decision to require short-spacing applicants to use an existing station's maximum permissible power and antenna height rather than the station's actual parameters when using the Short-Spacing Table stating that all stations, once licensed, are afforded the same protection. The Commission further affirmed use of the Short-Spacing Table in certain regions of Southern California and Washington State reasoning that use of the Short-Spacing Table in these areas is consistent with use of the normal fixed mileage separation. Finally, the Commission declined to impose a two-year moratorium on short-spaced applications.

Private Radio Interference Complaints

The FCC realigned its enforcement activities in the Private Radio Services. Responsibility for addressing or resolving complaints of interference in the Private Radio Services previously handled by the Private Radio Bureau has been transferred to the Field Operations Bureau. You should contact your local field office for assistance.

Should assistance be necessary, be prepared to inform the field office of the characteristics of the interference, usual time of day it occurs, and what you have done to resolve the problem. They will advise you of further actions you might be able to take and what they can do to help.

For further information contact Wayne T. McKee at 202-632-7059.

Radiofrequency Radiation And The Environment

The National Environmental Policy Act of 1969 requires all federal agencies to ensure that the environment is given appropriate consideration in agency decision-making. In 1985 the Commission decided that human exposure to radio frequency (RF) radiation was a proper environmental concern of this agency and specified that the "Radio Frequency Protection Guides" adopted in 1982 by the American National Standards Institute (ANSI Guidelines) would be used for determining the significance of such exposure.

Since January 1, 1986, applications for new broadcast stations, modifications of existing stations, and renewals must contain *either* an environmental assessment that will serve as the basis for further Commission review and action, or an indication that operation of the particular station will not have a significant environmental impact. See 1.1307(b) of the Commission's rules. Most applicants, after appropriate analysis, certify that their operations will not have a significant environmental impact, which includes a determination that humans will not be exposed to RF radiation in excess of the ANSI guidelines.

It has come to the FCC's attention that some licensees either may not understand their responsibilities or may not be diligent in protecting humans from excessive RF radiation, particularly in cases where maintenance and repair work must be performed on or near antennas, tuning elements and transmitters. The obligation to protect humans from excessive RF radiation does not permit any exceptions. If, for example, it is necessary that a tower crew work on or near an antenna, the power to the antenna must be reduced for as much and as long as necessary to avoid exposing the tower crew to RF radiation in excess of the ANSI guidelines. The licensee may not refuse to reduce the power on the grounds that it could result in a temporary loss of audience or advertising revenue. Further, the licensee may not avoid complying with the ANSI guidelines even if a particular tower crew is willing to accept high RF exposure levels.

The FCC recognizes that multiple radiators located on the same or nearby towers present a special problem. Nonetheless, all licensees are jointly responsible for complying with the ANSI guidelines and, therefore, must coor-

dinate their maintenance and repair activities and take any other appropriate steps necessary to ensure that no humans are exposed to radiation in excess of the recommended limits.

The Commission considers that representations made during licensing proceedings with respect to safeguarding humans from exposure to excessive RF radiation are continuing obligations. Exposure of workers to RF radiation in excess of the ANSI guidelines and failure to comply with representations to the Commission in that regard are serious matters and may warrant further Commission action including imposition of sanctions.

For further information contact William Hassinger at (202) 632-6460 or Robert Cleveland at (202) 653-8169.

Customs Service And Federal Communications Commission Expand Automated Interface

The U.S. Customs Service and the Federal Communications Commission announced that an automated interface they have been jointly testing in San Francisco since April was expanded nationwide on November 23.

The computer-to-computer interface through the Customs Automated Broker Interface (ABI) permits electronic transmission of data previously provided by importers on FCC Form 740 (Statement Regarding the Importation of RF Devices Capable of Causing Harmful Interference). The data are transmitted to the FCC on a weekly basis for review and follow-up enforcement.

FCC rules require that a Form 740 accompany each imported RF Device and that importers and consignees ensure that such devices comply with the FCC's technical requirements. Most of the information collected on Form 740 duplicates information already collected by Customs, and since under the new electronic filing Customs and the FCC will share this information, the agencies can dispense with the 740.

ABI users at the expansion ports will participate in the interface on a voluntary basis for a one-year period. After that time, participation will become mandatory. When fully operational, the interface will drastically reduce the paperwork burden on the importing community.

This project results from Customs' working with the Office of Management and Budget in developing automated interfaces with a number of government agencies to electronically collect, process, and disseminate the additional information they need.

The goal is to provide sufficient information for the other agency to monitor shipments of specific merchandise which are now tracked by paper documentation, thus eliminating the need for paper forms.

The focus for this undertaking is on the what Customs calls "the fast track agencies," so designated because they represent the highest volume of entries requiring paper documentation. In addition to the FCC, they are the Fish and Wildlife Service, Food and Drug Administration, National Highway Traffic Safety Administration/DOT, and the Food Safety and Inspection Service/USDA.

Eliminate Licensing Requirements For Low-Power Medical Devices In The 450-470 MHz Band

The Commission will no longer require the separate licensing of low-power medical devices that operate on the 450-470 MHz offset frequencies if hospitals or healthcare institutions utilizing such devices are licensed for other radio facilities.

Operation on these frequencies is limited to a transmitter output power of two watts on a secondary basis to primary operation in the 450-470 MHz band. Among the users of the offset frequencies are over 3000 hospitals and healthcare institutions nationwide that operate low power devices to remotely monitor the vital signs of their patients. These devices generally transmit with output powers of between two and five milliwatts and require separate licensing.

The FCC has, in the past, eliminated the separate licensing requirement for certain radio transmitters where the operator of those transmitters is also licensed for other radio facilities. For example, local government entities may operate any number of radar speed detection devices as part of their base/mobile communications systems.

The Commission stated that this licensing requirement imposes a significant burden on individual hospitals, healthcare institutions and the Commission staff. Eliminating this requirement will thus serve the public by substantially reducing the time and administrative costs currently associated with licensing each of these devices individually.

To allow flexibility in the future design and use of these devices, the Commission will permit this licensing option for medical devices transmitting at power levels of up to 20 milliwatts. ■

RTTY

BY ROBERT MARGOLIS

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

A utility station in Peru and another in Cuba made their appearances possibly for the first time over shortwave radio with RTTY communications last July. These stations—the Ministry of Foreign Affairs, Lima, Peru, and the International Committee for the Red Cross, Havana, Cuba—are not listed in past or current frequency directories.

On July 24, MFA, Lima, Peru, sent a lengthy text in Spanish that covered a wide gamut of topics, from the leftist terrorists in Lima to that country's upcoming celebration of 171 years of independence, which was held four days later. It was logged on 14377.8 kHz at 1347 UTC, 170/45R.

Seeing an ARQ mode selcal of CUBA-CUBACUBACUBA . . . led to the discovery of the Cuban Red Cross station on 13916.3 kHz. The selcal was spotted at 1416 UTC on July 29. It ran for a couple of minutes and then the station went off the air. About 25 minutes later the station returned, briefly sending the same selcal.

A greeting in Spanish suddenly appeared, followed by the body of some text which began, "De cruz roja cubana. Para: cruz roja haitiana. Ciudad de la Habana . . ."

The text said some Haitians were being treated for illnesses in Cuban medical clinics. It appeared they were fleeing Haiti for the United States when they were picked up in weak condition near Cuba.

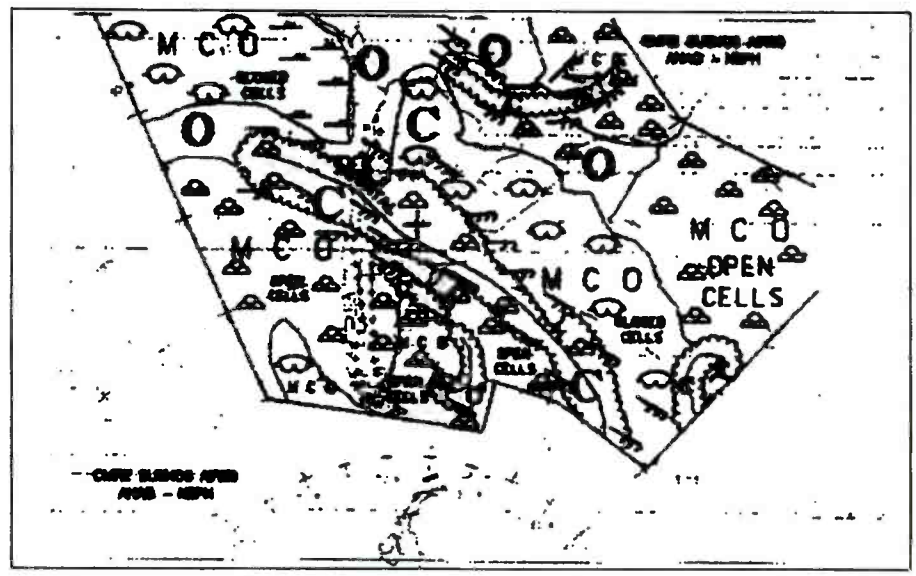
It was a chore to get a printout of all of the text because no carriage returns or line feeds ever were used during the entire time. Instead, whenever a sentence ended, about five spaces were typed before the beginning of the next sentence. Reading the text on the video monitor was much easier than getting a hard copy of it. I obtained a legible printout only by manually manipulating the printer during the entire 10-minute transmission.

The end of the text came at 1453 UTC. The Haitian and Cuban stations then went to upper sideband on 13915 kHz, where they talked for a couple of minutes on radiotelephone.

Tom Kneitel's book, *Guide to Embassy & Espionage Communications*, lists the Haitian Red Cross station with the callsign HHR88. The Cuban Red Cross station is not mentioned in any standard references.

The U.S. Army has been operating a linkup to Central and South America for a long time on the 20 MHz band, using voice comms along with ARQ and FEC RTTY, and Morse Code.

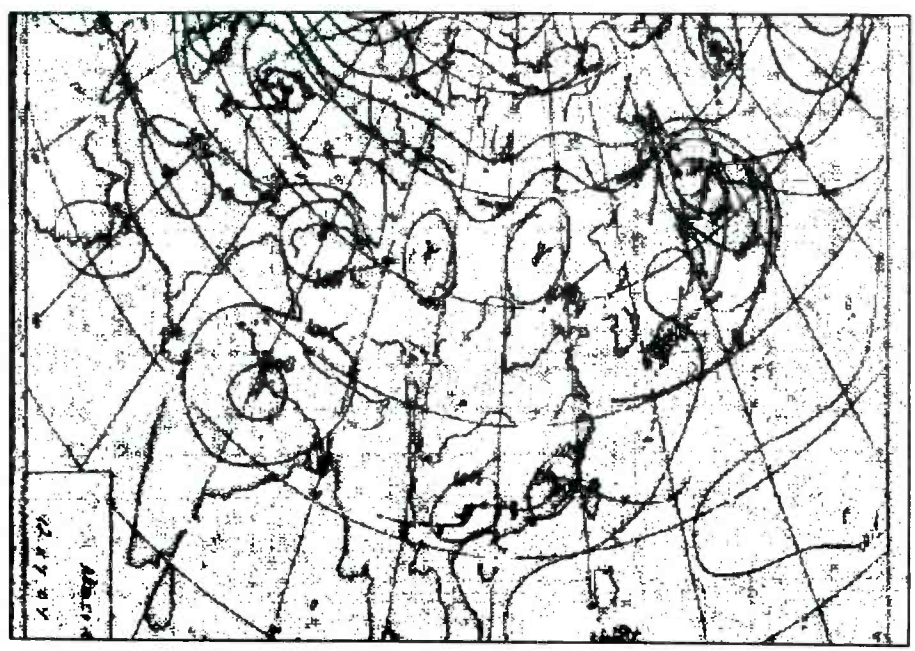
The net is headed by ACC60, Fort Detrick, Maryland, with upper sideband voice communications on 20146 kHz, Morse Code on 20147 kHz, and RTTY on 20148.2 kHz. All comms are in Spanish. Another mode used is facsimile, which appears to be run via landline from a personal computer and not over the radio. This mode was mentioned in some transmissions.



No, this is not a sketch of a prison camp where inmates had escaped from their "open cells." It is a weatherfax chart from LRO84, Buenos Aires Meteo, Argentina.

The Central and South American stations are LTR46, Buenos Aires, Argentina; CPEM, La Paz, Bolivia; PTO2, Brasilia, Brazil; San Jose, Costa Rica (no callsign); HIR4, Santo Domingo, Dominican Republic; and HCE24, Quito, Ecuador.

Also, HK3EJC, HK3EMC, and HK3SIM, Bogota, Colombia; DECA2 and DECA3, Guatemala City, Guatemala; CVL5D, Montevideo, Uruguay; YWH3, Caracas, Venezuela; ACA5, Corozal, Panama; SAL1, San Salvador, El Salvador; HR2, Tegucigalpa, Honduras; HTGN1, Managua, Nicaragua; CAWZJ, Santiago, Chile; HPGN, Panama City, Panama; ZPQ5,



Weatherfax chart from Moscow Meteo, Russia. (Submitted by Aris Giannarelis of Greece)

```
PTO2 DE YWH3 PARA EL CONTACTO     ACC60 DE YWH3 PARA EL CONTACTO
              HK3  DE YWH3 PARA EL CONTACTO     CPEM  DE  W 3? 0-4-
EL CONTACTO                  K
  AZ
PTO2 DE YWH3 PARA EL CONTACTO     ACC60 DE YWH3 PARA EL CONTACTO
               K3  DE YWH3 PARA EL CONTACTO     CPEM  DE YWH3 PARA
   C NTACTO

 FZ
PTO2  ACC60  HK3  CPEM DE YWH3 PARA EL CONTACTO .. ..KKKER

 PTO2  ACC60  HK3  CPEM DE YWH3 PARA EL CONTACTO ..KKER
```

Figure 1

Asuncion, Paraguay; and PRU65, Lima, Peru.

Figure 1 shows one of the many transmissions that ran on the net. It is from Caracas and ran at 1343 UTC. Does anyone have any details pertaining to this net? Please share it with us.

Nearby this net, on 20155.4 kHz, an unidentified station was heard doing some manual typing on July 31 at 1435 UTC. My decoder was not able to automatically tune in this station, so I had to manually find the baud, shift, and polarity, which were found to be 325/75R. Text in English appeared (see Figure 2). Then the radio operator put the modem on automatic and the pretyped portion of the text, which was encrypted, was sent, followed by the same English words that just a moment before had been manually typed. Some kind of message came after that and was sent twice. At this point, a second station came up and typed the bottom line signoff which ended the transmission.

```
MORE THAN 60 YEARS.
DISCLOSE ANY DETAILS. (POSTKV
OIX
HOLDING CO HAS
V
'''THE INDUSTRAIL DISTRIBUTION
LGA TQKK' X
[illegible]Y4EG+LX
STHSK7E
ASK 6CFY4EG+LBFG XR-AOGROJFCFGR N -GHY4EG1PAFQK1VE
[illegible]EC6AE14 X
BFG YPDV AST PDV YEZFRHG+IHFHSER OGR5HXRCEQRMFR7E
[illegible]QNFGRKJE
[illegible]Z4OJFHSKLIGN1P
 216-7700 (O
MG
 216-7716
[illegible]YAZEG-BGNGG
[illegible]CTXIO
:FM
[illegible]XX
STWST1VEY
JNT
EQN-R 662 662.
5
CF
(QYXX
ST
ST1VEY
JNT
EQN-R 662 662
[illegible]
OK OK OK TKS TKS TKS BI BI
```

Figure 2

"Curiouser and curiouser," said Alice in Lewis Carroll's "Alice's Adventures in Wonderland." Had she been around today, she might be saying the same words about one of the U.S. Air Force's packet radio nets on HF radio. These stations, AFA01, Washington, DC; AFA02, Key West, FL; AFA03, Bonita Springs, FL; and AFA05, Homestead AFB, FL, have been mentioned in recent RTTY columns.

It's odder to see a packet radio transmission (Aug. 1, 1435 UTC, 14648.3 kHz) from AFA01 to "beacon" that reads, "esta es la estacion SITFAA AFA01 (ECR), Wash. D.C." And it gets even more curiouser as AFA02 sends "esta es la estacion SITFAA AFA02, Key West, FL. USA NA" to "AFQ." Topping it off was a message from AFA01 to AFA02 that said, "no hay mensajes para usted."

What's with the Spanish? Are these transmissions being beamed to South America? It may be so, seeing that AFA02 said he was located at Key West, Florida, USA NA, the "NA" standing for North America. Why South America? What's going on here? Curiouser and curiouser.

In the August RTTY column I asked for the identity of a station using the call letters "FDE" on 12616.3 kHz, with its ARQ & Morse Code transmissions. A few weeks later, I found the callsign in an old utility station guide while looking up something else. FDE is the callsign of the French Air Force, Villacoublay, France.

In the same column, I talked about a station using the callsign "AAA" in a packet radio transmission on 2110.3 kHz. That callsign belongs to Fort Monroe, Virginia. Another frequency used by Fort Monroe for packet radio is 7962.7 kHz.

In September's column, I mentioned a Spanish-language station running an unusual encryption scheme in ARQ mode on 21831.5 kHz, and said I suspected the transmission was from Mexico. I now have an ident on this one and it's not from Mexico.

I've monitored this frequency for the past three or four years, always hearing a station idling in the ARQ mode. Once in a great while there might be just a few brief words in Spanish in acknowledgement to the station it was connected to, but nothing more. An ident was impossible to make.

Finally, on July 16, at 1630 UTC, an ident was learned. It is the Spanish Embassy, Tegucigalpa, Honduras. The circuit is to MFA, Madrid, Spain, and the selcal is QVTQ. A Telex sent from Honduras at that time solved the puzzle. In addition, upper sideband voice comms were held on 21835 kHz.

The main naval communications centers in Argentina and Brazil may have moved recently from one city to another, extensive RTTY monitoring shows. LOR, Puerto Belgrano Naval Radio, Argentina, may be hand-

ling the communications functions formerly handled by LOL, Buenos Aires Naval Radio, and PWX33, Brasilia Naval Radio, Brazil, may have replaced PWZ33, Rio de Janeiro Naval Radio.

Less and less of LOL and PWZ33 has been seen over the RTTY circuits the past couple of years, and more and more of LOR and PWX33. LOR, especially, was quite active on more frequencies during 1992 than was seen in previous years.

On another matter concerning LOR, it sent a whole slew of five-letter-group coded messages during the late Summer. In every case all of the groups began with the pentagram "ZSYNZ" and ended with "ZENDZ." Remove the Z's and you'd have SYN for "synchronize" and END for "end synchronization."

In the messages, every row contained 10 columns of 5-letter groups. The second through ninth columns in the first row seemed to provide the keys to breaking the code. After the first column, which was the pentagram "ZSYNZ," came the second and third columns containing a thrice repeated trigram, always followed by the letter "G," i.e., ABCAB CABCG. Columns four and five were then repeated exactly in columns six and seven, and then in columns eight and nine. The tenth columm doesn't fit any pattern that I can determine.

Questions to our readers in the intelligence community: If a group of five letters in an encoded message is called a pentagram, what is a group of five numbers called? Is it pentarithmos? My cryptography tomes don't provide the answer.

We need some expertise to determine the station or stations that use ersatz callsigns such as YBU, BPA, VKX, KRN, etc., in callups preceding RTTY transmissions of five-letter and five-figure groups. Sometimes these broadcasts take place on frequencies close by those used by Cuba's diplomatic, press, and PTT stations, and sometimes they don't. So there's nothing conclusive about a Cuban link.

On July 29, "KRN" came up on 18196.3 kHz with RY's and announcing that two coded messages would follow (see Figure 3). The first message had 33 blocks of five-letter groups, and the second has three blocks of five-figure groups. The 75-baud transmission ended at 1738 UTC.

Whozit?. . . A strange transmission ran July 30 at 1218 UTC, on 18454.9 kHz, 425/50N (see Figure 4). Before this year the frequency was occupied by the Tass and APN news agencies in Moscow, Russia. Neither is around any more (Tass is now called Itar-Tass). I first thought that this was news in Arabic, but upon review I noted the frequent use of the number 3, and the letters D, F, H, T, V, and Y, probably making this a Romanization of some other language. Is this a news broadcast, a Telex, or a circular? Can anyone provide an answer? Let's hear from you.

About three years ago, most Interpol RTTY communications began to be encrypted, so I stopped monitoring its frequencies except for the few occasions when I needed to relieve fits of boredom. Sometimes there was traffic in the clear from the Asian Interpol stations, but none from the European ones. It was a great surprise to find on July 29 that Interpol headquarters in Paris, France, was sending "routine" messages in the clear while still encrypting the more sensitive material.

I spent a couple of hours reading stuff such as missing persons reports with great delight. They were coming in a steady stream,

```
  2/38
4646464646464646464646464646464646464646464646464646464646464646
KRN KRN KRN   2/38    KRN EN
E
UIEI    KRN KRK
7::883(O-YBFIWYBXPYBYPQYBXCYYBYAERYRYRYRYRYRYRYRYRYRYRYRYRYRY
KRN KRN KRN   2/38    KRN KRN KRN   2/38    KRN KRN KRN   2/38
4646464646464646464646464646464646464646464646464646464646464646
KRN KRN KRN   2/38    KRN KRN KRN   2/38    KRN KRN KRN   2/38
4646464646464646464646464646464646464646464646464646464646464646
KRN KRN KRN   2/38    KRN KRN KRN   2/38    KRN KRN KRN   2/38
11177 00178 91355 28105 00349
JPNEG VEPFV CMBVI JHELH CMRDM WMCCO CXZMH FKUME MMPVQ SLJQV
UWKLF JHCDW VDYQD UUIZH VBUAK TGAER KGESB XGVWQ ZSTCB RTQKC
UWRIJ QVVQS ESNJG QHBKA IMSUG ARSCF TPWEN AOFAA GJBKO VPWEI
AIQBW DRYKA UAOZI

11199 00178 00000 29106 00049
18197 43250 48204

QRU  QRU  SK SK
```

Figure 3

```
25198 +
 )+137112
 301148 VMK GOW
 NNNP
   ZCZCAF094 1 VRAUWAQ BFXX EL365 FHC HQ FHC
 F5
 WCFO13
      30.7?92 FHC?002
      BDY
               BTH3FYV OH' SFHTRFCDV:3FY BDY

      XFVYADHC' FHCTYGHTXV QFCFH QF)=: /) QF3FXBFYV T
 HXXBFYV XFQCFYFRVW YVYDKCVYLF3V IHZFYV UFY2F U3DVDVC, DHBT
 KYT / FQFY BTH3FY', 25?HL FYUFC BTV DVYTWF YHF KYYL3FY
 FFYLFRFY LFH2FK BDYFRKBFTDV:3DVY'= FLEXBT /VY. TRT HFXBFYV T 5
 QF3FXBFYV UHFRFY QFXFHFRF3YDV:3FY YTHRF3FWDVWVNYTH, QFOFHFDH
 BTFHV SYFRVNYTH, Q3DHTH :SVVXVVW, THTFYVW , CDBFRF
 IHZFYYTHVW=
      BDTV CFXYFRVWYTHVY DZDVYTW QF3FXBFYV QFYHFGTBDV:3FY
 UTHFUDV6 01)= 6071= ?5FRF FHF XFQFR3FY'= YF FXFW, DH
 HFXBFY' BTH3FYV QFCFH LFH2F SFYFXBTKFRFY YTHIYNFSDFV OHHFY, DH
 YF DHLVFRFY XVHD /H RFGFK F3L THRHV QTB , VXR ID:=/ DVX:FTDV
 ,,'Y2TYFDH',, GDTCV YFPFSFYV YHF 7:66=:3DVY' QFCFHDVC /
 FUDV3YYTHVW CTR'= FHF XFQFR3FY' FYRTK IYDHQFRFDV:3DVY QF3BYTW HFW (DDHLVY , QFYH
 FGTBDV:3FY TRFFHDV:3FY' FQFY BTH3NYV QVIFBFRS GQGFYTDV QFCFH=
      BDYFRFBFHDM:3FLU TDV3: DVYTWFT BH3( 346?:DO36= ?6OHTY
 MFFPJZ=,67:3FY'+UHYTH THDV(FY BTH?UDVFY3FY' .(O3FMBFY.,
 XTLF XTFY' .SDVFHVF,, STYVR XT37FY'.HFXBFY. 5 DIHVIYTH.

 HCTY6HTRY, 3D0BDVVXV


      251941 ZD 88  13712
 30115 VMK 92
 NNNN
   ZCZCWNFO95 1 VRA 01)3 7:(())590 FHC  HQ FHC
 NHC3
 WCFO14
      BB:7?92 BHC?003
 )176=: 56 'DH'

      ? IFQDVC3FYV T CFHBFRTHBV IHZFYYTHVW SYFUF:FJAHV CV
 CTK PDVCS O:TFYT / FYF2DHDVC= NYF3FK VHTYW SYFRFHFYF3VY YT
 GF3CFYYTHVY FQDWDHWVEH' XVHD Y 'YLDVYT VHW
 QF3HTYFRVWYHVY= CV1Y DVHV CFQQFY3FYV 'YBFYVY 'YLDVYT / 21
 AYFPXBFRFYV=

 PHYFUF:FKYTHV BTFDHCFY, YHFYWXDWVFJ46 4=YTH' QDUFDV
 UDHK' RFOCRTHGFK QDVYV CTZ LYTDV QFCF FFF3VY PDHQDVHL
 QFCFPCSDVC / QVCYFHR?2TYFHRDV:3DVYYTHV QYFHFDHDV:3DVYYTH'= BDVYDVBTVW, VYNVW DHI
 FK CFHLRFYW BTFDHDVC TY
 QFYHFRFWFHFYYTHDVC, QFYUXB3FY BYTHDVC, QFYUH,/=:N PUYDVC
 Y3DV:FRX T SFHD3FGTX=

 GQBDJTB CDXVY396  55FY, 30
 QVWV:2?  .FHCTYG XV XTA) ::
      251944 ZE 88  571:301155 VMK 92
 HNNNV
```

Figure 4

```
 242
 ::::: 
 v5g v5g v5g msg nr 243 qfp 6 fr p all/ rpt fr p all/
 circulara nr. 17/2098
 29 iulie 1992
       domnule sef de misiune,
    in deschiderea conferintei de presa a purtatorului de cuvint
 al mae, din 29 iulie a.c., dl traian chebeleu a prezentat
 declaratia m.a.e. privind situatia din golf:
 ''in ultimele trei saptamini, un nou moment de tensiune, de natura
 sa ingrijoreze serios opinia publica internationala, s-a creat
 datorita refuzului autoritatilor irakiene de a permite accesul
 comisiei speciale a onu in cladirea ministerului agriculturii de
 la bagdad, pentru a verifica existenta in acest ,local a unor
 documente si materiale legate de activitati interzise prin rezo-
 lutia 687 a consiliului de securitate.
    in urma unor eforturi diplomatice deosebite din partea
 onu, in special a secretarului general, s-a ajuns la evitarea
 acestui conflict. solutia convenita intre natiunile unite si
 autoritatile irakiene la 27 iulie a.c. permite comisiei speciale
 sa verifice localul amintit, in exercitarea mandatului pe care
 il are din partea consiliului de securitate de a controla prin
 inspectii la fata locului distrugerea capacitatilor biologice,
 chimice si de rachete ale irakului.
   noua confruntare dintre irak si onu si rezultatul ei conduc
 la concluzia ca numai prin aplicarea stricta a rezolutiilor
 consiliului de securitate se poate ajunge la normalizarea si-
 tuatiei din golf, la iesirea irakului din starea de izolare
 in care se afla si la ridicarea sanctiunilor instituite de
 consiliul de securitate ca raspuns la agresiunea impotriva
 kuweitului.
   aplicarea rezolutiilor consiliului de securitate privind irakul
 inseamna, de fapt, in acest stadiu, desfasurarea hestingherita
 a activitatii comisiei speciale a onu, clarificarea situatiei
 cetatenilor kuweitieni luati prizonieri in timpul ocuparii
 kuweitului, cooperarea cu comisia irakiano-kuweitiana pentru
 :::::        - 2 -
 probleme de frontiera, ca si infaptuirea rezolutiilor 706
 si 712 ale consiliului, prin care se permite, ca un prim
 pas spre ridicarea sanctiunilor, exportul de catre irak a unor
 cantitati considerabile de petrol in vederea importului unor
 produse alimentare, medicamente si altor marfuri de prima
 necesitate pentru populatia irakiana.
     in acest fel, s-ar ajunge la eliminarea unei´serioase
 surse de tensiune, ceea ce este evident, nu numai in interesul
 major al irakului, ci si al pacii si securitatii in zona golfului
 persic, al pacii si securitatii mondiale´´.
```

Figure 5

marked as being from the Interpol office in Ankara, Turkey, at 1046 UTC., in the ARQ mode on 18190 kHz. It appeared that the broadcast was from Paris because I would hear its call letters in Morse Code periodically between transmissions.

All of the circulars I've seen so far from MFA, Bucharest, Romania, always began with a repeating "V5G" (see Figure 5). Is this a new callsign for MFA, Bucharest? My files show the callsign as being "YPM." It sure would be confusing if this station ran a test transmission consisting of RY's and the "V5G" ident, because the French Embassy at Libreville, Gabon, uses the same callsign. The printout in the illustration ran on July 29, on 14681.2 kHz at 1045 UTC, ROU-FEC/ 164.5.

There's finally evidence that the North Korean Embassy, Havana, Cuba, has a RTTY transmission on shortwave radio. While it was conjectured for a long time that the communications station existed, the proof was lacking. Until now transmitter sites were known to be in Managua, Nicaragua, and San Jose, Costa Rica.

The Cuban transmitter was heard on July 29 on 16240.5 kHz at 1600 UTC. The Romanized Korean text, at 1000/50N, mentioned "GGUBA" several times in news about the island nation. The embassy went to CW mode from 1606 to 1609 UTC to end the transmission.

An unidentified RTTY mode was unsuccessfully monitored on July 24, at 1936 UTC, on 14416.3 kHz. The asynchronous signal ran at 200 baud with a 500 Hz shift, and was in blocks of 40 bits. Does anyone know anything more about this mode? Please inform us.

Robert Hall of the Republic of South Africa wrote us a while back saying the the Autospec RTTY mode reportedly had been used by government agencies in his country but it appears that it is no longer being used. He asked if this was true.

First I must say, Bob, that I'm sorry I didn't answer sooner but it took time to research the answer. If you're asking whether your government still uses Autospec mode, I don't know. If, however, you're asking whether anyone is still using the mode, the answer is yes. I remembered monitoring two such stations around June or July of 1991. The November 1991 RTTY Intercepts section listed them using Autospec at 68.5 baud,

spread 51. They were Manaus, Brazil, on 18176 kHz at 1125 UTC, to Brasilia, Brazil, on 18219 kHz. More recently, a British magazine reported oil rigs using Autospec/68.5, with an 85 Hz shift, on 3331.4 and 3331.9 kHz.

Another unlisted frequency for radiofax transmissions—there's been been a lot of them lately—was heard on July 16. It was on 16186.5 kHz, with weather charts from Nairobi Meteo, Kenya, at 120/576. Times of transmissions were 1900, 1923, 1942, 2100, 2150, 2225, 2242, 2258, 2315, and 2327 UTC.

This just in to our newsroom . . . the following stations moved to satellite earlier this year: DCF30, DPA, Bad Vilbel, Germany; DCF45, VWD, Mainflingen, Germany; and DCF39, DPA, Mainflingen, Germany. DCF30 sent news bulletins on 110.55 kHz in the F7B RTTY mode at 300 baud. DCF45 was on 129.1 kHz with news bulletins, F7B at 300 baud. DCF39 ran radiofax press photos from several news services on 139.0 kHz. We now return you to our regularly scheduled RTTY Intercepts feature.

Abbreviations Used In The RTTY Column

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

RTTY Intercepts

129.5: SOA212, Radom Meteo, Poland, w/coded wx at 0010, 50 baud. (Ary Boender, NLD)

3229.0: AFS, Offutt AFB, Elkhorn, NE, w/KAWN wx data at 0305, 75 baud. (Ed.)

3714.0: ONA20, Interpol, Brussels, Belgium, w/IP BX selcal & encrypted msgs, ARQ at 1918. (Boender. NLD)

3951.0: Un-ID w/RYRY + "de Gunfire test test test" & foxes, 50 baud at 2140. (Boender, NLD) I sure got a "bang" out of your intercept—Ed.

4258.3: MTO, Royal Navy, Rosyth, Scotland, w/an availability report, 75 baud at 1914. (Boender, NLD)

4570.0: HZN46, Jeddah Meteo, Saudi Arabia, w/coded wx at 2220, 100 baud. (Boender, NLD)

4788.0: TJK, ASECNA, Douala, Cameroon, w/coded wx, 50 baud at 0712. (Ed.)

4853.5: AFS, Offutt AFB, Elkhorn, NE, w/KAWN wx data at 0654, 75 baud. (Ed.)

5240.2: 4OC2, Tanjug, Belgrade, Yugoslavia, w/nx in EE, 50 baud at 0347, (Ed.) and at 1935. (Boender, NLD)

5345.0: RSW71, Arkhangelsk Meteo, Russia, w/coded wx at 2209, 50 baud. (Boender, NLD)

5380.3: Un-ID w/RYRY, 75 baud at 0359. (Robert Hall, RSA)

5851.3: WHF814 in ARQ mode at 0031. Advertises as being a private coastal sta. (Harold Manthey, NY). The only listing I find for WHF814, which may be out of date, is for some guy in Kansas who is licensed under this c/s on 156.425 & 156.800 MHz—Ed.

6348.0: LOR, Puerto Belgrano Navrad, Argentina, w/5L msgs at 0000, 100 baud. (Fred Hetherington, FL)

7355.3: TZH, ASECNA, Bamako, Mali, w/a test tape, 50 baud at 0418. (Hall, RSA)

7512.0: ZRO2, Pretoria Meteo, RSA, w/a test tape at 0430, 75 baud. (Hall, RSA)

7524.1: TYE, ASECNA, Cotonou, Benin, w/???, ARQ-M2/96 at 0434. (Hall, RSA)

7626.1: TZH, ASECNA, Bamako, Mali, w/??? at 0438, 50 baud. (Hall, RSA)

7822.3: CCS, Santiago Navrad, Chile, w/5L msgs to KJQB, 100 baud at 0110. (Hetherington, FL)

7996.0: YZD9, Tanjug, Belgrade, Yugoslavia, w/nx in EE at 1700, 50 baud. (Takashi Kuroda, Japan)

8304.0: LOR, Puerto Belgrano Navrad, Argentina, w/5L grps at 0228, 75 baud. (Ed.)

9133.0: ZAA6, ATA, Tirana, Albania, w/nx at 0925, 50 baud. (Boender, NLD)

9190.0: ROZ75, Moscow Meteo, Russia, w/coded wx at 0932, 50 baud. (Boender, NLD)

9287.0: TLO, ASECNA, Bangui, Central African Republic, w/coded wx, 50 baud at 0136. (Ed.)

10150.0: SUA246, MENA, Cairo, Egypt, w/nx in AA at 2213, 75 baud. (Ed.)

10183.1: "C5KMB," unknown sta., w/RYRY, foll by msg in EE headed w/"ACC Londres (London—Ed.) info Paris Hamburg," 75 baud w/QRT at 0117. (Joe Palkovic, FL, via Hetherington, FL)

10200.0: JAE50, Jiji, Tokyo, Japan, w/RYRY, 50 baud at 1055. (Mark Burkart, LA)

10385.0: BAA21, Tianjin Meteo, China, w/coded wx, 50 baud at 1512. (Kuroda, Japan)

10408.0: ANSA nx in EE from the Singapore relay sta., 50 baud at 1825. (Kuroda, Japan)

10443.3: CCS, Santiago Navrad, Chile, w/5L grps to GOCU, 100 baud at 0119. (Ed.)

10515.3: SRI news agency, Schwarzenburg, Switzerland, w/RYRY & sked at 2020 (Manthey, NY), & w/nx in FF at 0043, 50 baud. (Ed.)

10579.5: HMF46, KCNA, Bosong, North Korea, w/RYRY at 1003, 50 baud. (Ed.)

10894.0: LRB39, Telam, Buenos Aires, Argentina, w/nx in SS at 1939, 50 baud. (Hall, RSA)

11080.0: SANA, Damascus, Syria, w/nx in FF & EE, 50 baud at 1840. (Manthey, NY)

11138.8: PWN33, Natal Navrad, Brazil, w/RYRY & SGSG to PWXE, 75 baud at 0200. (Ed.)

11453.0: IMB3, Rome Meteo, Italy, w/coded wx at 1930, 50 baud. (Kuroda, Japan)

12186.0: Jana, Tripoli, Libya, w/nx at 1735, 50 baud. (Boender, NLD)

13054.0: UJY, Kaliningrad R., Russia, w/telegram tfc to ships, 50 baud at 1542. (Ed.)

13409.0: Un-ID sta., possibly in RR, w/a badly garbled xmsn at 1230, 75 baud. S/off w "tks" & "73" at 1233. Nothing listed on this freq. in any ute guideboooks. (Ed.)

13419.3: Un-ID w/encryption. ARQ-E/288 at 0010. (Ed.)

13524.0: YIO72, INA, Baghdad, Iraq, w/nx in EE re the repairs to structures damaged in Baghdad during the Persian Gulf war. One structure nearly rebuilt, a power station, "was attacked 13 times during the U.S.-led war, more than any other power plant," the report said. Was 50 baud at 1241. (Ed.)

13563.0: 3MA22, CNA, Taipei, Taiwan, w/RYRY & office address, 50 baud at 1343 (Ed.), and w/nx in EE at 1445. (Manthey, NY)

13580.0: HMF36, KCNA, Jungsan, North Korea, w/nx in FF, 50 baud at 1256. (Ed.)

14395.0: AJE, USAF, Croughton AB, England, w/EGWR wx data, 75 baud at 1616. (Ed.)

14531.0: AFQ371 (USAF—Ed.) in packet radio mode at 1716. ("Gal of Liberia." Italy)

14578.0: RFFXL, French Forces, Beirut, Lebanon, w/"controle de voie." le bricks, & RYRY at 2230, ARQ-E/72. (Ed.)

14646.4: PI9STC, Staelduin, The Netherlands, w/RY's, foxes, & 10 count, packet at 1736. ("Gal of Liberia," Italy)

14677.2: DFZG, MFA, Belgrade, Yugoslavia, w/a domestic report in SC, 2329-2343, FEC-A/144. (Ed.)

14681.2G," MFA, Bucharest, Romania, w/world nx in Romanian, ROU-FEC/164.5 at 1025. (Ed.)

14699.0: YIX70, INA, Baghdad, Iraq, w/nx in AA, 50 baud at 1041. (Burkart, LA)

14765.3: A9M70, GNA, Manama, Bahrain, w/nx in AA, 75 baud at 1857. (Ed.)

14970.0: SAM, MFA, Stockholm, Sweden, w/a coded msg at 0700, SWED-ARQ. (Boender, NLD)

15544.0: BZS25, Xinhua, Yuryumqi, China, w/nx in EE at 1515, 75 baud. (Kuroda, Japan)

15566.0: RTC26, Novosibirsk Meteo, Russia, w/coded wx at 0034, 50 baud. (Manthey, NY)

15705.0: YZJ6, Tanjug, Belgrade, Yugoslavia, w/nx in FF at 1310, 50 baud. (Manthey, NY)

15834.3: HET5, SRI, Schwarzenburg, Switzerland, w/nx in EE, 50 baud at 1735. (Hall, RSA)

15922.4: PIAB, Bonn, Germany, w/nx in GG at 2100, FEC-A/96. (Ed.)

15960.0: Un-ID w/foxes & 10 count, 1149-1500, 75 baud. (Ed.)

16081.7: Un-ID Egyptian diplo w s/off in AA, FEC at 1908. (Ed.)

16111.0: HBD66, Swiss Embassy, Ottawa, ON, Canada, w nx items in FF & GG at 1359, ARQ. (Ed.)

16195.5: IPG20, MFA, Rome, Italy, w/msgs in II & 5L grps, 1400-1500, ARQ. (Ed.)

16203.0: RCF, MFA, Kupavna, Russia, w/RYRY & ID, 1440-1443, 75 baud. (Manthey, NY)

16243.4: PWX, Brasilia Navrad, Brazil, w/coded wx & tfc in SS, 75 baud at 1704. (Hall, RSA)

16265.0: SAG, Goeteborg R., Sweden, w/an ARQ phasing sig & "SAG/MARITEX" in CW at 1623. (Boender, NLD)

16812.6: NRV, USCG, Apra Harbor, Guam, w/tfc at 1633, ARQ. (Hall, RSA)

16821.1: VPS82, Victoria Harbor R., Hong Kong, w/tfc at 1620, ARQ. (Hall, RSA)

16839.6: UFN, Novorossisk R., Russia, w/tfc at 1630, ARQ. (Hall, RSA)

17444.0: Un-ID w/5F grps, 75 baud at 1515. (Manthey, NY)

17451.5: CCF, unknown Chilean sta., w/RYRY at 2350, foll by world nx in SS at 0000, 50 baud. (Hetherington, FL)

17472.0: RPFN, Monsanto Navrad, Portugal, w/RYRY & foxes to RPTI, 75 baud at 1500. (Manthey, NY)

17502.5: Un-ID German Embassy w/encryption, ARQ-E/96 at 0310. (Kuroda, Japan)

17551.0: RFTJF, French Forces, Port Bouet, Ivory Coast, w/5L grps & routine msgs in FF, ARQ-E3/192 at 1952. (Ed.)

18013.0: Un-ID w/96-baud synchronous sig that was very weak & suffered severe QSB, at 1620. (Ed.)

18030.0: OMZ, MFA, Prague, Czechoslovakia, w/nx in Czech, 100 baud at 1154. Un-ID, possibly a Czech diplo, w/1,708 5F grps at 1654, 100 baud, foll by s/off in CW at 1701. (Ed.)

18033.5: French Embassy, Fort de France, Martinique, w/5L grps to Bogota, Colombia at 2237, ARQ6-90/200. (Ed.)

18035.5: ZRH, Capetown Navrad, RSA, w/extremely garbled RYRY & foxes to LOL, 75 baud at 1207. (Ed.).

18209.8: KUP, Jamba, Angola, w/nx re an assassination plot, 50 baud at 0938. (Hall, RSA) Haven't heard about this station for a long time. Thought they became history—Ed.

18280.5: LOR, Puerto Belgrano Navrad, Argentina, w/5L grps, 100 baud at 1542 & 2313. (Ed.)

18322.0: OMZ, MFA, Prague, Czechoslovakia, w/tfc in Czech, 100 baud at 1405. (Manthey, NY)

18454.9: Un-ID w/nx in AA, 50 baud at 1218. (Ed.)

18458.1: MKK, RAF, Stanbridge, England, w foxes, 10 count & RYI's, 50 baud at 2029. (Hall, RSA)

18537.7: MKD, RAF, Akrotiri, Cyprus, w/RYI's & foxes, 50 baud, VFT, at 1616. ("Gal of Liberia," Italy)

18871.9: BZR68, Xinhua, Yuryumqi, China, w/RYRY, foll by nx in EE, 75 baud at 1028. (Ed.)

19117.5: MFA, Jakarta, Indonesia, w/tfc in Indonesian, ARQ at 1450. (Manthey, NY)

19747.0: 6VU79, Dakar Meteo, Senegal, w/coded wx, 50 baud at 1425 (Burkart, LA), and at 1655. ("Gal of Liberia," Italy)

19865.0: YZJ4, Tanjug, Belgrade, Yugoslavia, w/nx in SS polled from other nx agencies, 50 baud at 1645 ("Gal of Liberia," Italy), and at 1748. (Burkart, LA)

20022.4: DGU20, PIAB, Elmshorn, Germany, w/nx in GG, FEC-A/96 at 1400. (Manthey, NY)

20119.7: Un-ID w/text in AA, ARQ at 1354. (Ed.)

20249.1: "6XM8," w/RYRY & foxes to "C37A," 100 baud at 2135. (Hetherington, FL)

20286.5: SNN299, MFA, Warsaw, Poland, w/statistics of some sort, POL-ARQ at 1454. Also heard 2 days later w/nx in Polish at 1414, FEC. (Ed.)

20298.1: Un-ID w/foxes ("jumps over a lazy dog" variation), 10 count & "test," 75 baud at 2305. (Hetherington, FL)

20306.7: Un-ID in EE w/Polynesian or Oriental names & abbrevs, ARQ, 0126-0212. (Palkovic, FL, via Hetherington, FL)

20340.0: "V5G," MFA, Bucharest, Romania, w/nx in Romanian, Spread 51/102.75 at 1445. ("Gal of Liberia," Italy)

20372.3: IRS23, Ansa, Rome, Italy, w/nx in FF at 1630, 50 baud. (Ed.)

20402.3: YWM1, Maracaibo Navrad, Venezuela, w/tfc to CCS, 75 baud at 1542. (Ed.)

20431.0: Gecamines, Lubumbashi, Zaire, w/msgs in FF to Brussels, Belgium, ARQ-M2/96, both channels, at 0800. (Hetherington, FL)

20494.5: CXR, Montevideo Navrad, Uruguay, w/RYRY, SGSG & foxes to YWM1, 75 baud at 1955. (Ed.)

20555.5: MKK, RAF, Stanbridge, England, w/a service msg at 1530, piccolo. ("Gal of Liberia," Italy)

20560.0: 5AQ88, Jana, Tripoli, Libya, w/nx in EE at 1605, 50 baud. (Ed.) Ditto. (Burkart, LA)

20699.9: SAM, MFA, Stockholm, Sweden, w/crypto, SWED-ARQ at 1355. (Hall, RSA)

20715.0: RFTJD, French Forces, Douala, Cameroon, idling at 1555, ARQ-E3/48. ("Gal of Liberia," Italy)

20972.0: MKK, RAF, Stanbridge, England, w/RYI's, foxes, & 10 count, 50 baud, VFT, at 1555. ("Gal of Liberia," Italy)

20977.0: Pakistani Embassy, Jakarta, Indonesia, in ARQ at 0340. (Kuroda, Japan)

21284.1: UMS, Moscow R., Russia, w/crypto & not Cyrillic, 50 baud at 1654. (Hall, RSA) "Verrrry interesting," as comedian Arte Johnson used to say as the German soldier on the old "Rowan and Martin's Laugh-In" TV program—Ed.

22353.0: Possibly DHS, Ruegen R., Germany, w/nx in GG, FEC at 1455. (Hetherington, FL)

22380.5: CBV, Valparaiso R., Chile, w/nx in SS, ARQ at 2130. (Hetherington, FL)

22445.0: Un-ID w/5L msgs, each w/"VVH" in the header, 75 baud at 1120. (Hetherington, FL)

22709.0: Un-ID w/encryption, ARQ-E/192 at 1201. (Kuroda, Japan)

22900.0: GPA7, Portishead R., England, idling in ARQ mode, & w/an ident in CW, at 1059. ("Gal of Liberia," Italy)

23017.0: PWN33, Natal Navrad, Brazil, w/msgs in PP, 75 baud at 1900. (Hetherington, FL)

23305.2: FUV, French Navy, Djibouti, w/crypto, ARQ-M2-342/200, on both channels, at 1340. ("Gal of Liberia," Italy)

23370.0: HZN50, Jeddah Meteo, Saudi Arabia, w/coded wx, 100 baud at 1334. ("Gal of Liberia," Italy)

23697.7: DGX69, PIAB, Elmshorn, Germany, w/nx in GG, FEC-A/96 at 1500. (Manthey, NY)

24790.0: ISX24, ANSA, Rome, Italy, w/RYRY at 1507, 50 baud (Manthey, NY), and w/nx in EE at 1517, 50 baud. (Burkart, LA)

25227.0: HBD20, MFA, Geneva, Switzerland, w/5L grps, ARQ at 1630. (Burkart, LA)

25437.0: OXZ, Lyngby R., Denmark, idling in ARQ & w/a CW ID, at 1051. ("Gal of Liberia," Italy)

BY GERRY L. DEXTER

CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

There's a new anti-Burmese government broadcast on the air and it originates from the highly unlikely source of Radio Norway! The Norwegian government, sympathetic to the opposition in Burma (called Myanmar by the current military government), is making time available for a program called "The Democratic Voice of Burma." Initially the program is half an hour in length (at 1430 UTC) but this is expected to increase to an hour, beginning at 1400 or at 1430. The program will feature news censored by the military government, along with culture and commentary in the several vernacular languages used in Burma. The frequency is believed to be 17840. We do not have an address for the program's producers but we expect you'd have no trouble getting Radio Norway to put your letter into the proper hands.

The Angolan station operated by Jonas Savambi's UNITA group is using a new ID. A Voz do Resistencia do Galo Negro (Voice of the Resistance of the Black Cockerel) now IDs as a Voz de VORGAN (VORGAN would seem to be an acronym for the station name in Portuguese). 7100 seems to have been dropped in favor of 7290 and, with 6045 and 9700, is in use between 0445 and 0830. Note that 6045 was once used by the mysterious and now silent "Cubanos en Africa" station.

Cuba is jamming some of the broadcasts of the Voice of the Cuban-American National Foundation, which are aired via WHRI Tuesdays through Sundays between 0000 and 0500 on 9495. But, oddly, the morning broadcasts on 9850 between 1000 and 1300 are being left alone.

The anti-China Voice of Democracy station made a few brief appearances around the anniversary of the crushing of the democratic movement in Tienanmen Square three years ago. It would seem that significant Chinese anniversaries such as this would be prime times to check for this station, although reception in North America promises to be very tough. 8057 is the frequency usually used. Broadcasts don't run even half an hour in length, often even briefer, and air at various and changeable hours, such at 1200, 1300, 1400, etc.

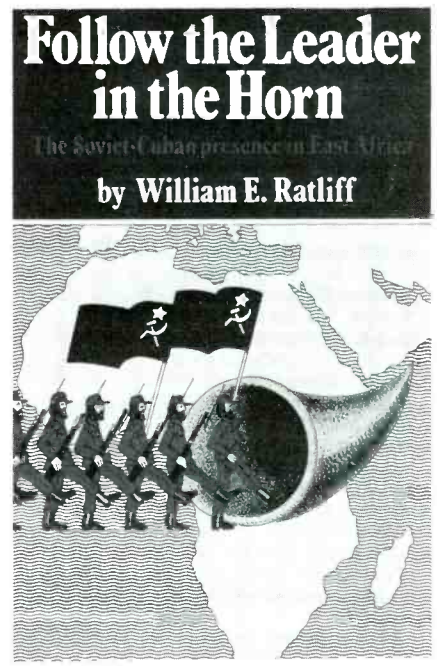
The station operated by the Sudan People's Liberation Army, Radio SPLA, has moved from 11700 to 11200 but continues its 1300-1400 broadcast, the first half of it in English. And here's that old mournful tune again: still no clues as to an address for this station or the group which runs it!

Saddam Hussein continues to stick all manner of quasi-clandestine programs or "services" on the Iraqi government radio. Currently, Homeland Medina Radio is airing from 1600-2000 on 11860. Another, The Call of the Kinfolk is aimed at Iraqi prisoners of war in Saudi Arabia and airs between 1000-1600 on 11860.

The anti-Hussein Voice of Revolutionary Iraq broadcasts on 8010 (sometimes 8000) in Arabic and Kurdish between 0330-0600, 1130 to 1400 and 1630-1900. The 0330 broadcast offers the best reception opportunity for North American listeners.

Hans Johnson of Maryland says you can get a 60 minute tape of a broadcast of the Voice of Free (Harriat) Kashmir for $5 from Muhammad Munawar Naeem, Government Pilot Secondary School, Wahdad Colony, Lahore 54600, Pakistan.

The fascinating political situation on Bougainville Island in the North Solomons continues, and so do the broadcasts from Radio Free Bougainville, operating from the island. Several North American clandestine hunters have now heard this. The frequency, 3880, is best received around 0900 or 1000 UTC. Most, if not all of the programs are in English.



Cuba's military presence in Africa was the target of a station called "Cubanos en Africa." Its frequency is now used by the Voice of the Black Cockerel. A DX'er in Africa says the 6045 transmitter sounds the same, so perhaps the Black Cockerel transmitter, located in southern Angola, may have been used for "Cubanos en Africa."

Speaking of QSL's, if you haven't yet verified the now legit Radio Venceremos, here is an address that recently got the job done: El Salvador Media Project, 335 West 38th St., New York, NY 10018, attention Anita Campos. Reports from European listeners can be sent to SRV Press Bureau, Scharnorststr. 6, 5000 Koln 60, Germany.

The Voice of Palestine program is currently airing via Radio Damascus, Syria, between 1530 and 1730 on 12085 and 15095, all in Arabic, of course.

Remember that your informational input is always very welcome. We seek logging information on clandestine stations and programs, copies of QSL's or other literature sent by stations or the groups which run them, newspaper clips relative to the above, address information and so on. We look forward to hearing from you!

Until next month—good hunting! ■

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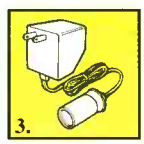

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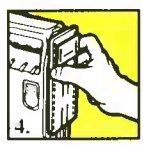

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CIRCLE 169 ON READER SERVICE CARD

MAILBAG

LETTERS TO THE EDITOR

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

Snooping Dept.

In the July issue, you printed a letter from a new reader who felt that the book *How To Get Anything On Anybody, Book II* shouldn't be available or publicized because it encourages snoopers. I disagree with this opinion for two reasons. First, we live in a nation where free press is guaranteed by the Constitution. Secondly, the book is not necessarily going to be used to victimize people. Most people will use the information to preserve their privacy. By being aware of snooping techniques and equipment, a person can establish an effective line of defenses in the event they feel their privacy is being invaded. Objecting to the book is as much of a fallacy as believing that the ECPA stops anybody from listening to cellular phone calls. They key here is that those who want cellphone privacy are required to, and should be willing and able to, protect that privacy. Those who want truly private phone calls will have to buy voice scramblers, or else park their cars and use landline phones. Telling others not to listen isn't going to do the trick.

Larry Seabury,
Lake Worth, Fla.

You should be aware that criminals are now outdoing the feds by using new microwave bugs. I mean that the crooks are now using bugs well up into the microwave satellite TV bands between 3 GHz and 12 GHz, and above. I know it for a fact because it happened to me. A local drug gang thought I was a a police informant and then bombarded me with custom made bugs operating above 12 GHz. I asked the FCC and other fed agencies for help and they told me I was crazy. The FCC claimed they had no equipment to monitor these frequencies. The FBI said it wasn't their problem, and that it was only a local misdemeanor, anyway. Evidently bugging a single phone is a federal matter, but the entire house (except the phone) is not of interest to them. What people need is a simple microwave bug detector. It doesn't need to be more than an LED and a beeper. I'm convinced the bad guys are winning because of universal law enforcement arrogance. Don't the federal agencies care about protecting the ordinary citizens any longer? Every time I try to contact a FCC field engineer from my nearest office, I'm told he's taking long lunches with the Chief Engineers at different radio stations.

(Name withheld)
N.Y. State

The person who submitted this letter is a licensed ham operator. He requested that in the event his letter was published, we not use his name or city. —Editor ■

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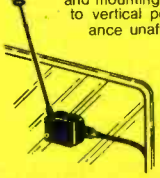

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Beaming In *(from page 4)*

noble tradition going back more than a hundred years. That's when the first partyline telephones were installed. Everybody with a phone realized that all other subscribers sharing their partyline were local busybodies who were monitoring their every phone call, and usually repeating all of the juiciest tidbits to their friends. For those who had early telephones, eavesdropping on the partyline was the preferred way of passing time. Nobody made any big fuss about this eavesdropping. It was a fact of life and part of having a phone.

Every sainted white haired granny living on a farmstead kept current on local news and gossip via eavesdropping on partyline phone calls, than going to weekly sewing circles where friends could exchange news obtained by monitoring their own partyline phones. That lasted into the 1940's when partyline phones began phasing out. From the 1950's until the early 1980's, there was never any question about privacy on carphone or ship/shore phone calls. But after cellphones came in, about ten years ago, listening to easily accessible radiophone conversations started degrading into what some now like to call a perversion. Granny won't need the smelling salts at that news, she's too busy with her scanner!

You may have realized that I'm not buying all of the sanctimonious garbage I hear from so many people moaning about voyeurism. There are those calling this monitoring terrible names, and some saying the calls are boring.

I'll grant you that a lot of these conversations are boring and totally uninteresting. But that still doesn't take away from the fact that a certain percentage of the calls are guaranteed to be shocking, sizzling, hilarious, or otherwise completely beyond any description that could be offered here. These are the calls that have rolled up a large and enthusiastic body of cellular and cordless phone monitoring fans who assiduously eavesdrop despite the Electronic Communications Privacy Act that forbids listening to cellphones.

Yet, we are a folk addicted to gossip and soap operas. Some who look down their noses at listening to cellphones and cordless calls are fans of these TV soap operas. It has always seemed strange to me that these people can get wrapped up in the preposterous fictional stories of TV romances and other dramas, with actors spouting memorized lines. On the other hand, they can so easily put down listening to rich human drama—illicit romance, scandals, shouting matches, comedy, intrigue, sneakiness, dealing, crime—that is actually happening, and in real time, with real people.

Last August, a tape recording turned up purporting to be a British cellphone call of an intensely personal conversation alleged to have taken place between Princess Diana and a gentleman. Stories about the conversation and its contents made newspaper headlines on two continents, along with word-for-word transcripts of what was said. TV news played excerpts from the tapes—even though it couldn't be said with absolute certainty that it was Princess Di speaking. Within a few days, a taped Fergie phone call hit the international media.

In truth, we, the public, wallow in listening to people's innermost thoughts, their problems, adventures, and whatever. Call us all the terrible names you may. We are addicted to being nosy. In London, a tabloid newspaper put the presumed Princess Di taped cellular conversation on a toll telephone line at 95 cents per minute. The toll number received more than 70,000 calls the first two days, with callers spending as much as $22 each!

The human mini-dramas monitored on cordless and cellular phone calls don't come from memorized scripts. There are no breaks for commercials. There are no network censors, no corny story lines about handsome physicians who are actually espionage agents for the Imperial Throne of Danzig. After you weed out all of the the dull and routine cordless or cellphone calls, there are still enough juicy ones left to hold the attention at any hour, day or night.

Many scanner owners who don't consider these calls their primary monitoring interest like to tune the frequencies from time to time to see what they have to offer. Few have reported being disappointed.

Just about every visitor whom I have ever given an earful of this chatter for the first time has immediately found it to their liking. Not one person has ever told me they felt anything remotely like "cheaply titillated and slightly soiled." I suspect that such condescending words are the things that snobs say when they secretly enjoy listening, but are embarrassed to admit it to anybody. It somehow gives them a boost when they try to make others feel slimey for doing the same, though. Same people who boast they own a TV set, but only to watch PBS—and you just know they never miss *A Current Affair* and *Lifestyles Of The Rich And Famous*.

So many people knew nothing of the communications hobby, and never even heard of scanning, but ran right out and purchased scanners solely on the basis of once being exposed to cellular and cordless phone calls. They scarcely bother with police, fire, and all of the other interesting things their radios are capable of receiving. Ask a scanner dealer.

In the August 31st edition of *Newsday*, Risa Palazzo wrote a very clever and humorous short feature entitled "Listening In." In it, Palazzo frankly admitted, "I am an incurable snoop. I sneak peeks into other people's medicine chests. It's awful, I know, but even Steve Martin did it in *Father of the Bride*. I check out wall calendars to see what my friends do with their days . . . I dream of getting my hands on some secret directory of everyone's codes. Then I could eavesdrop on everyone's calls."

Is this like most people? Definitely! Nosy? Yes! Human nature? Sure! But, not it's not voyeurism. Is it different than overhearing a conversation held by people who happen to be seated next to you in a theatre or restaurant, or standing next to you in an elevator? Hardly!

Using the label of voyeurs is no more than an attempted put down. It was started by those who don't want anybody to listen to these fantastic conversations. It's an effort to try and turn scannists off, feel guilty, and appear sleazy to others.

A recent AP national news report was carried about those who listen in on the aired conversations of others. In it, Norman Black, described as a spokesman for a cellular phone industry association, called us "technocreeps." Ho boy! Another bad name! *Wow!* That hurt. Like sticks and stones. Apparently this name calling campaign is the latest cheap and dirty attempt by the cellular industry to achieve comms security by smoke and mirrors. Somehow I don't think it's going to work. Do you?

But, say, just in case scanner monitoring is, indeed, voyeurism, my hope is that it's the one of the better kinds. Certainly, scanner owners should be the best at everything we do. Just think what might happen the next time the military draft starts up. What about all of the people who will show up at the Draft Board with scanners, asking for medical exemptions—those who tell the sergeant they're incurable voyeurs!

Really . . . voyeurs? Technocreeps? *Nah!* Nobody here but us plain folks. ■

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IF:	750.00, 45.0275, 5.5MHz 455KHz
Increments:	5,12,5,25 KHz
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Power:	Input 13.8 V. DC 300mA
Antenna:	BNC
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Options:

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- **DCK-1** DC cable kit for 12 volt DC use.

R-5000:

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Optional Accessory

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