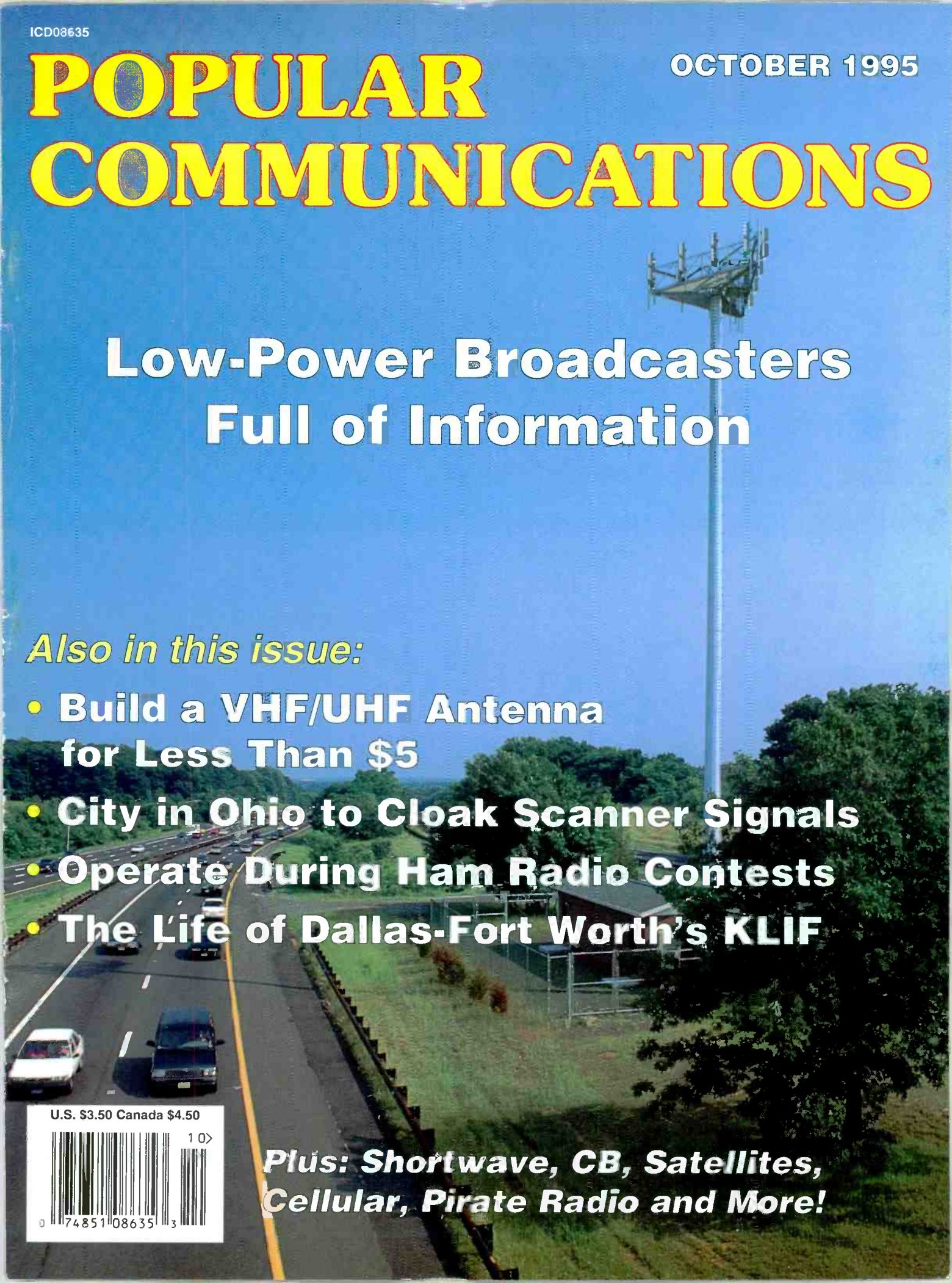
POPULAR COMMUNICATIONS

OCTOBER 1995



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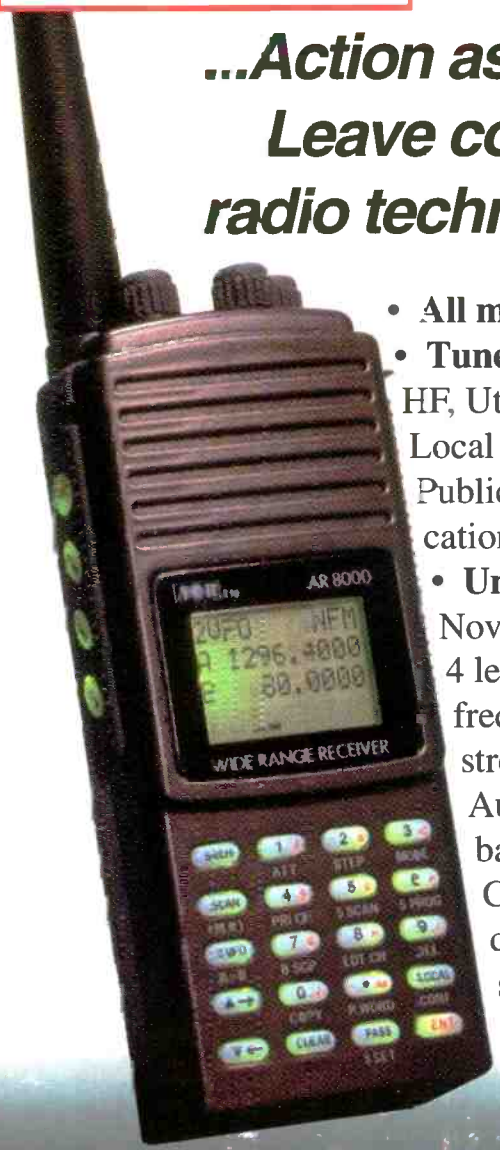

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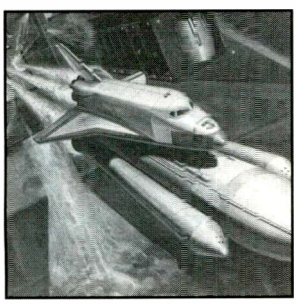

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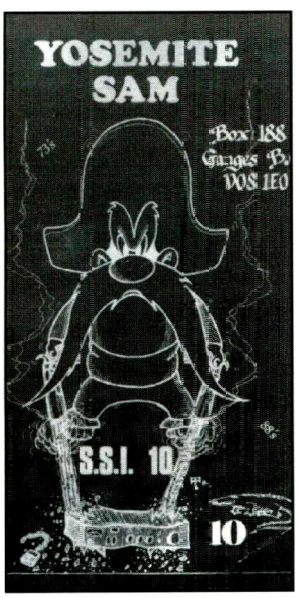

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FEATURES

COLUMNS

DEPARTMENTS

This month's cover: *Motorists can get a lot of information from low-power AM broadcast stations along the nation's highways. This cellular tower helps with phone calls along the busy Garden State Parkway in Hazlet, N.J. Photo by Larry Mulvehill, WB2ZPI.*

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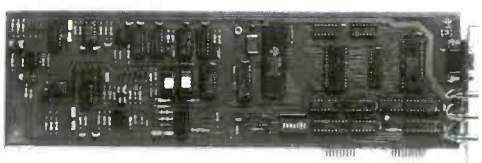

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THOUGHTWAVES

AN EDITORIAL

Radio Fests Need a Closer Look

Typically they are called hamfests. But they aren't just for hams. While these shows cater not only to those with amateur radio licenses, they also attract listeners, computer users and electronics hobbyists.

I've been going to "hamfests" since I was a kid back in junior high school. I remember looking over all the radios for sale and wondering which CB rig to buy. But my cautious and accompanying father warned me that it was caveat emptor in these situations. And I have had my share of lessons in that department over the years.

The ultimate hamfest, of course, is the annual Dayton HamVention at the Hara Arena in Dayton, Ohio. I've been to the big show twice—in 1986, when I spoke at one of the forums, and this year, when I joined several of my *Popular Communications* and *CQ* co-workers in staffing one of two booths we operated. Dayton can be a big moneymaker for some of the exhibitors, not only inside the arena buildings, but also outside in the flea market areas. I didn't give the flea market the time it deserved this year, but there were plenty of good finds.

Sometimes you see something you'd really like and you pass it up hoping to come back later and buy it. That can be a big mistake, especially when I walked past the vintage and excellent condition Hallicrafters tunable VHF high-band handheld radios that were being sold. I never got back to the lot. But I was just starting my walk in the flea market area when I spotted those radios and I decided it wasn't worth carrying them around for a while, especially because the seller was near the door I would use to return to the booth inside the arena.

The Dayton show and other hamfests always have stuff you need, stuff you want, and stuff you'll get in trouble over if you bring it home! I've dragged home my share of boat anchors (and resold them at another hamfest to some other fellow enthusiast) and non-working rigs that looked like they just needed a part or two to return them to service. Some still sit waiting for those promised repair jobs: like the tub of pagers I got for $10 at the end of one show. One of these days, I'll clean them up and sell them at another hamfest. (In my spare time, if you know how that works.)

But the one thing I've noticed over the past several years in particular is that more and more radio listeners—scanner monitors and shortwave listeners—as well as CBers are coming out to these hamfests. A lot of the larger hamfests now offer forums for radio listeners, too, and that helps drag out an additional element through the front gates.

I suppose part of the reason, too, is that a lot of our listener radio hobbyists also are going out and getting their amateur licenses, not only as technician, but also technician plus, general and on up to even advanced and extra. There's something to be said about the close relationship the hobby of scanning has with those who get their technician class ham licenses. For one thing, they can carry a dual-band amateur transceiver for 2 meters and 440 MHz and also be able to receive their favorite VHF high-band and UHF stations while chatting on local repeaters or simplex frequencies. And with some of those handheld radios also offering VHF aero and 800 MHz receive capability, the dual-band handheld is as good as a handheld scanner—that transmits, too!

Anyway, I love bumping into fellow radio enthusiasts at the hamfests I attend. Some have their ham licenses, others don't. But the reason we go is to get together. Sometimes we have our forums for listeners; other times we just plan on trying to run into each other in the flea market areas. Sometimes we call each other on ham frequencies, if we're so licensed; other times we may use GMRS on 462 MHz to reach out for each other.

The point is that it seems more of the non-ham hobbyists are attending these radio fests anymore and they probably need a good look under the microscope by the clubs that sponsor them. I've helped out with hamfests over the years. I've been a ham and member of ham clubs—and I've run a few hamfests myself. But there is something wrong with these shows. There is an imbalance in the money side of things. In all honesty, why should you pay $4, $5 or even as much as $8 or $10 to attend these shows, just to look at a bunch of used gear or commercial vendors' displays? The persons and companies with tables at these shows are the ones making money off those who browse the aisles. And the imbalance is that at some shows, the ticket for admission is half the price of a rented table to sell wares. Why should a browser pay to look at all the goodies, especially when the vendors and sellers are making money off the participants? And, how many of you have stayed away from a radio fest only because the admission price was just too darn high (especially if your only reason for attending was picking up a few connectors or a repeater directory)?

It is no secret that the clubs running these radio fests make a fair share of their annu-

(Continued on page 82)

MAILBAG

LETTERS TO THE EDITOR

Each month we select representative reader letters for our Mailbag column. We reserve the right to condense lengthy letters for space reasons. All letters submitted must be signed and show a return mailing address or e-mail address. Upon request, we will withhold a sender's name if the letter is used in Mailbag. Address letters to: Chuck Gysi, N2DUP, Editor, Popular Communications, 76 N. Broadway, Hicksville NY 11801-2953, or send e-mail via the Internet to POPCOMM@aol-.com.

False Security

I feel the captions under the photos in the article on cellular phone cloning in June's *POP'COMM* are misleading. These captions imply that if you talk on your cellular phone, it may be susceptible to cloning. The truth is that if you have the phone turned on (to receive calls) but not actually talking on it, it still can be cloned. It is my understanding that each time you move to within range of a new cell site, you transmit to identify yourself to the system even though the phone is not in use. Thus, you are fair game for a cellular criminal cloner.

Let me illustrate: I live in suburban Boston and own a handheld cellphone through which I subscribe to NYNEX. If my phone is turned on while driving into Connecticut, my phone displays "ROAM," then soon it rings. SNET (Southern New England Telephone) calls me, welcomes me to their system, advises me of all the features of their system, and invites me to use it frequently while in the area. This is a free call, but they know exactly where I am.

I suspect these clone criminals (not scanner users as NYNEX propaganda states) place their receivers near a handoff point to the adjacent cell sites and can intercept any phone that is merely turned on, not only those through which conversations are in progress.

I think *POP'COMM* should clarify this to its readers.

K1UCY is right in his comments. All cellular users should be alert to possible criminal activity with their cellular identification numbers. Let's hope that the PCS industry that is developing a new cellular-like service just below 2 GHz takes into consideration things like encryption (if cellular had back in 1983, we wouldn't have all these crazy anti-scanner laws now) and security of electronic serial numbers, which is what the crooks use in cloning to make their free calls to Colombia and everywhere else.—Editor

Allan Dunn, K1UCY
Holbrook, MA
(via the Internet)

Testing Tesla

This letter is in regard to the article by John W. Wagner, "Nicola Tesla, The Real Inventor of Our A.C. Power System and of Radio," which appeared in *Popular Communications* in June. Wagner claims Tesla has not been properly recognized by the media and the Smithsonian for his contributions to the development of practical radio communications equipment.

Wagner's argument seems based solely on his claim that a Marconi patent—No. 763,722 dated June 28, 1904—was overturned by the Supreme Court in 1943 in favor of two Tesla patents—No. 645,576 of March 20, 1900, and No. 649,621 dated May 15, 1900.

According to another source (a 1944 book by Orrin Dunlap Jr.), Marconi's original U.S. patent on wireless equipment design was No. 586,193, granted on July 13, 1897, and reissued on June 4, 1901, as No. 11,913. The later Marconi patent cited by Wagner is not mentioned at all in Dunlap's book, so I have no idea what it might have been about.

John Wagner gives no hint that he is aware of these earlier Marconi patents, and he certainly doesn't tell us what the later patent fight was about. It may be significant to his argument, or it may not be.

As matters stand, I continue to believe that Tesla should be given credit for the squirrel-cage induction motor, AC power distribution, and the Tesla coil, but not any credit at all for the development of practical wireless communication equipment.

Dick Rucker, KM4ML
Fairfax, VA
(via CompuServe)

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A super combination of hardware and software for the receiving and decoding of **ACARS** (Aircraft Communications Addressing and Reporting System). This format is used to transmit data between aircraft and airport ground stations. This information is transferred via VHF to the **ACARS** ground station. When using the Air Master software with your PC and an air-band receiver, you'll be able to view the **ACARS** messages as they are received. The package includes the MS-DOS software for use with a 386 or higher PC, the computer interface and manual.

WRTVH RECEIVER OF THE YEAR!

HF 225

IBS★★★★

Rated 4 stars by Passport's Larry Magne

- Multimode, AM, SSB, CW • 30 Memory Channels • Optional AM Synchro & FM • Filter for all Modes: 2.2, 4,7, 10kHz 200Hz audio CW filter
- Built-In Speaker, Ext. Speaker, Rec. Jacks
- 10-15VDC .15A (.3A MAX) AC/Nicads Opt.
- Size 10"W x 4.2"H x 8"D; 4.18 lbs.

HF 225E EUROPA

A "Turbocharged" HF225 for the dedicated DXer! Same high performance features of the HF225 plus these additional features:

- 7, 4.5 & 3.5kHz replacement filters for excellent selectivity
- Reduced residual noise thru shielded coils and switching diodes
- Synchronous detector (D225) & KPAD1 standard on Europa version

SEE YOUR DEALER FOR DETAILS!

HF 235

Top of the line rack version of the HF225, with similar specs. A professional communications receiver for the discriminating user, with high stability OSC & opt. computer RS232.

Keypads for the HF150 and HF225, Carrying Cases, Mounting Brackets, and a Computer Control Interface are just a few of the extras which can give you optimum performance of your LOWE product. Contact EDCO for the dealer nearest you!

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EDCO

CIRCLE 130 ON READER SERVICE CARD

Micro-Power Broadcasters!

The Task of TIS Stations

BY PATRICK M. GRIFFITH

The Denver metro area is alive with Travelers Information Stations, thanks to the Colorado State Department of Highways (CDOT) and a major construction project involving both the I-25 and I-70, and the I-25 and I-76 interchanges.

The CDOT is operating six TIS stations in Denver (see chart 1); the CDOT refers to these as HAR stations (Highway Advisory Radio). All Denver stations use 10-watt transmitters operating on 530 kHz with the call sign WNSV510. The system is tied in to the I-25 Hotline which also is accessible by telephone (303-573-ROAD) and provides construction and road closure information for the I-25 corridor.

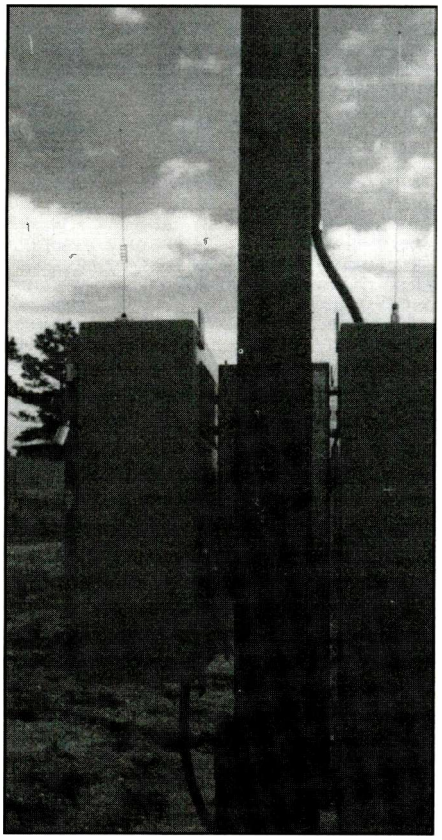
The headquarters for this system is in a construction trailer located at the I-70/I-25 interchange. Each HAR transmitter site is equipped with the AM transmitter feeding a center loaded monopole antenna, an electronic recording device which holds the continuous taped messages, and a cellular telephone interlink. The system operator is able to dial the individual transmitter sites by telephone and, using a special set of access codes, enter the individual recorded messages for that particular site. Persons traveling on I-25, I-70, I-76, or US 36 are advised by large roadside signs to listen to the HAR transmitters for current construction and detour information.

Information sign for construction.

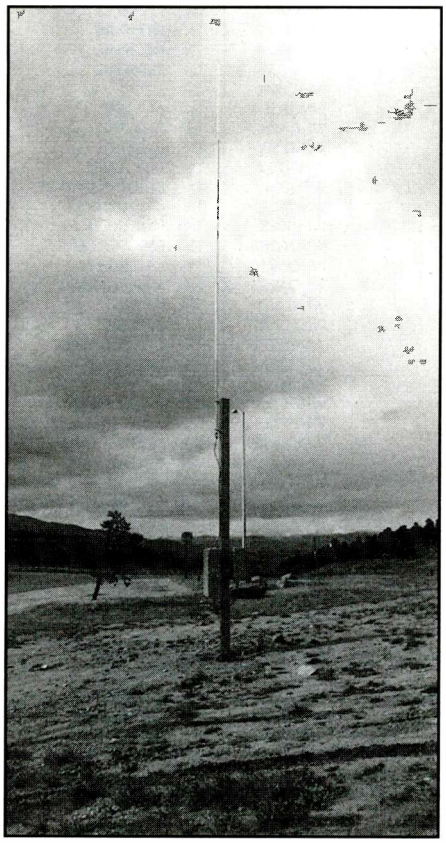
There are plans for the HAR system to remain intact after the construction project is complete. It also is to become part of the planned CDOT Traffic Operations Center providing real time traffic information to

Transmitter control boxes and antenna base.

Information sign next to transmitter site.



Transmitter and control boxes.



Overview of antenna and control boxes.

Chart 1.

CDOT Denver Station 1	I-25 near 136th Ave.
CDOT Denver Station 2	I-76 at SH-51
CDOT Denver Station 3	I-70 at Gun Club Rd.
CDOT Denver Station 4	I-25 at Lincoln Ave.
CDOT Denver Station 5	I-70 at Genesee
CDOT Denver Station 6	US-36 at SH-121

daily commuters throughout the metro Denver area.

An additional TIS station, also on 530 kHz, was in operation at Stapleton International Airport for several years. This station, provided traffic and parking information for the area in and around Stapleton Airport, was operated by the City and County of Denver. The transmitter site was located adjacent to westbound I-70 just west of the airport tunnels and used a top loaded monopole antenna.

TIS stations seem to be enjoying an increasing popularity throughout the U.S. While some other stations may still exist on 1610 kHz, this frequency will be eliminated with the new AM band plan. However, many new stations are popping up constantly on 530 kHz. Give it a listen and see what's on the air in your area. You may be surprised how far those low-power transmitters can be heard. ■

Here is a listing of Travelers Information Stations licensed by the FCC on 1610 kHz:

State	City	Licensee	Callsign
AZ	PHOENIX	PHOENIX, CITY OF	WXK790
CA		CALIFORNIA, STATE OF	KNEC996
CA	BAXTER	CALIFORNIA, STATE OF	WNQS653
CA	BERKELEY	BERKELEY, CITY OF	WNZV591
CA	BURNEY	CALIFORNIA, STATE OF	WPFK506
CA	BUTTONWILLOW	CALIFORNIA, STATE OF	WNXK966
CA	CHILCOOT	CALIFORNIA, STATE OF	WPFK508
CA	CHULA VISTA	CHULA VISTA, CITY OF	WNUB568
CA	DESCANSO	CALIFORNIA, STATE OF	WNDQ665
CA	FAIRFIELD	CALIFORNIA, STATE OF	WPBW809
CA	FAIRFIELD	CALIFORNIA, STATE OF	WPBW809
CA	GILROY	GILROY, CITY OF	WNKB689
CA	GOLD RUN	CALIFORNIA, STATE OF	WNQS653
CA	GREENFIELD	CALIFORNIA, STATE OF	WNXK966
CA	HILT	CALIFORNIA, STATE OF	WNJR464
CA	IDYLLWILD	IDYLLWILD FIRE PROTECTION DISTRICT	WNKI578
CA	LANCASTER	CALIFORNIA, STATE OF	WPEA446
CA	LOS ALTOS HILLS	FOOTHILL DEANZA COMMUNITY COLLEGE DIST	KNIP553
CA	LOST HILLS	CALIFORNIA, STATE OF	WNXK966
CA	MC FARLAND	CALIFORNIA, STATE OF	WNXK966
CA	MILPITAS	MILPITAS, CITY OF	WPFE596
CA	MONTEREY	MONTEREY, CITY OF	WNHN752
CA	MORGAN HILL	MORGAN HILL, CITY OF	WNUU667
CA	MOUNT SHASTA	CALIFORNIA, STATE OF	WPFK506
CA	NEWARK	NEWARK, CITY OF	WNMQ214
CA	NOVATO	CALIFORNIA, STATE OF	WPBW721
CA	OLD RIVER	CALIFORNIA, STATE OF	WNXK966
CA	RED BLUFF	CALIFORNIA, STATE OF	WPFK506
CA	REDDING	REDDING, CITY OF	WNQM848
CA	REDWOOD CITY	CALIFORNIA, STATE OF	WPBW813
CA	SAN BRUNO	SAN FRANCISCO, CITY AND COUNTY OF	WNXY470
CA	SAN DIEGO	SAN DIEGO, CITY OF	WNPF405
CA	SAN LEANDRO	SAN LEANDRO, CITY OF	WNSV220
CA	SAN RAFAEL	CALIFORNIA, STATE OF	WPBW721
CA	SAN RAMON	SAN RAMON, CITY OF	WNUW920
CA	SANTA CLARITA	CALIFORNIA, STATE OF	WPET708
CA	SARATOGA	SARATOGA, CITY OF	WNWN392
CA	SODA SPRINGS	CALIFORNIA, STATE OF	WNQS653
CA	SPRINGVILLE	CALIFORNIA, STATE OF	WPDU922
CA	SUSANVILLE	CALIFORNIA, STATE OF	WPFK508
CA	TEHACHAPI	KERN, COUNTY OF	WNYD243
CA	VALLEJO	CALIFORNIA, STATE OF	WPBW809
CA	YREKA	CALIFORNIA, STATE OF	WPFK506
CA	FULLERTON	CALIFORNIA STATE UNIVERSITY FULLERTON	WNZF285
CA	PEBBLE BEACH	PEBBLE BEACH COMMUNITY SERVICES DISTRICT	WNZA955
CO	BLANCA	RIO GRANDE COUNTY TOURISM PANEL	WPDE484
CO	GYPSUM	COLORADO, STATE OF	WNFN793
CO	NEW CASTLE	COLORADO, STATE OF	WNFN793
CO	SOUTH FORK	SAN LUIS VALLEY TOURISM COUNCIL	WPDE843
CT	WINDSOR	CONNECTICUT, STATE OF	WPBX388
FL		FLORIDA, STATE OF	WNNC526
FL	CAPE CORAL	LEE, COUNTY OF	WNZG591
FL	LAKELAND	LAKELAND, CITY OF	WPEP788
FL	SAINT AUGUSTINE	FLORIDA, STATE OF	WPAC848
FL	SUNRISE	SUNRISE, CITY OF	WPDA943
FL	TAMPA	HILLSBOROUGH COUNTY AVIATION AUTHORITY	WYZ235
FL	MIAMI	MONROE, COUNTY OF	WPDP219
FL	MIAMI	MONROE, COUNTY OF	WNZI289
GA		GEORGIA, STATE OF	WPBN694
GA	COLUMBUS	COLUMBUS, CITY OF	WNQB789
GA	COLUMBUS	COLUMBUS, CITY OF	WNQB789
GA	COLUMBUS	COLUMBUS, CITY OF	WNQB789
IA	AMES	IOWA, STATE OF	WNKX409
ID	STANLEY	IDAHO, STATE OF	WPBF213
IL	ADDISON	ILLINOIS, STATE OF	KNIG426
IL	BLOOMINGTON	MCLEAN COUNTY BLOOMINGTON NORMAL AREA	WPFE400
IL	CHICAGO	ILLINOIS, STATE OF	KMB824
IL	CHICAGO	ILLINOIS, STATE OF	KNAP828
IL	CHICAGO	ILLINOIS, STATE OF	WNHX776
IL	HILLSIDE	ILLINOIS, STATE OF	KNIG425
IL	MORRIS	ILLINOIS, STATE OF	WPCK899
IL	NAPERVILLE	NAPERVILLE, CITY OF	WPFP929
IL	NAPERVILLE	NAPERVILLE, CITY OF	WPFP929
IL	NORTHFIELD	ILLINOIS, STATE OF	KMH441
IL	PRINCETON	BUREAU, COUNTY OF	WPBC251
IL	UTICA	ILLINOIS, STATE OF	WPCE615
IL	BENSENVILLE	BENSENVILLE, VILLAGE OF	WNWZ910
IL	GLEN ELLYN	GLEN ELLYN, VILLAGE OF	WNYB218
IN	BLOOMINGTON	INDIANA UNIVERSITY	WPCD785
IN	FORT WAYNE	FORT WAYNE ALLEN COUNTY AIRPORT AUTH	WPDM638
IN	NASHVILLE	INDIANA, STATE OF	KNJ419
IN	WESTPORT	WESTPORT, TOWN OF	WPEW774
KS	BONNER SPRINGS	KANSAS TURNPIKE AUTHORITY	WPFT994
KY		JEFFERSON, COUNTY OF	WPCI801
KY	CORBIN	KENTUCKY. STATE OF	WPAB672
KY	ERLANGER	KENTON, COUNTY OF	WXT613
KY	GEORGETOWN	LEXINGTON FAYETTE URBAN COUNTY GOVT	WNSK323
KY	HEBRON	KENTON, COUNTY OF	WZM835
KY	HORSE CAVE	HART, COUNTY OF	WNZM566
KY	PADUCAH	PADUCAH, CITY OF	WNWU238
KY	SHEPARDSVILLE	BULLITT, COUNTY OF	WPDU908
KY	SLADE	POWELL, COUNTY OF	WPFJ380
MA		MASSACHUSETTS TURNPIKE AUTHORITY	WPBJ564
MA	FALMOUTH	MASSACHUSETTS, COMMONWEALTH OF	WNSX853
MA	WELLFLEET	WELLFLEET, TOWN OF	WPBZ578
MD	ARNOLD	MARYLAND, STATE OF	WNQA286

MD	BALTIMORE	MARYLAND, STATE OF	WNVP742
MD	BALTIMORE	MARYLAND, STATE OF	WPCT627
MD	BALTIMORE	MARYLAND, STATE OF	WPCT627
MD	BRADSHAW	MARYLAND, STATE OF	WNVY509
MD	CAMBRIDGE	MARYLAND, STATE OF	WPED444
MD	CUMBERLAND	MARYLAND, STATE OF	WNQA284
MD	DENTON	MARYLAND, STATE OF	WNQA288
MD	DORSEY	MARYLAND, STATE OF	WNVY506
MD	ELKTON	MARYLAND, STATE OF	WPEP712
MD	HANOVER	MARYLAND, STATE OF	WPEI224
MD	MYERSVILLE	MARYLAND, STATE OF	WNQA287
MD	OCEAN CITY	MARYLAND, STATE OF	WPFJ882
MD	PINEY GROVE	MARYLAND, STATE OF	WNQA285
MD	QUEENSTOWN	MARYLAND, STATE OF	WNQA289
MD	SALISBURY	MARYLAND, STATE OF	WNQA283
MD	WILLIAMSPORT	MARYLAND, STATE OF	WNSL338
MI	HALE	IOSCO, COUNTY OF	WNZT718
MI	IRONWOOD	GOGEBIC, COUNTY OF	WNVK872
MI	MACKINAW CITY	MICHIGAN, STATE OF	WNHC787
MI	MONROE	MICHIGAN, STATE OF	WNLH734
MI	OSCODA	IOSCO, COUNTY OF	WNZT718
MI	OSCODA	IOSCO, COUNTY OF	WNZT718
MN		MINNESOTA, STATE OF	WPBX286
MN		MINNESOTA, STATE OF	WNMQ215
MN	CALUMET	MINNESOTA, STATE OF	WNAN940
MN	CHISHOLM	MINNESOTA, STATE OF	WNAN940
MN	EVELETH	MINNESOTA, STATE OF	WNAN940
MN	GRAND RAPIDS	MINNESOTA, STATE OF	WNAN940
MN	WOODBURY	WISCONSIN, STATE OF	WNVK825
MO	KANSAS CITY	MISSOURI, STATE OF	WPBE684
MO	KANSAS CITY	KANSAS CITY, CITY OF	WQI284
MS	VICKSBURG	VICKSBURG, CITY OF	WNMV556
MT	DARBY	MONTANA, STATE OF	WNUI261
NC	CHAPEL HILL	UNIVERSITY OF N CAROLINA AT CHAPEL HILL	WNJW446
NC	GREENSBORO	GREENSBORO, CITY OF	WPED201
NC	MORRISVILLE	RALEIGH DURHAM AIRPORT AUTHORITY	WNBR326
NC	NEW BERN	NORTH CAROLINA, STATE OF	WNHQ550
NC	SUPPLY	NORTH CAROLINA, STATE OF	WNHQ550
NE	LINCOLN	LINCOLN, CITY OF	WNQF965
NE	LINCOLN	LINCOLN, CITY OF	WNQF965
NH	FRANCONIA	NEW HAMPSHIRE, STATE OF	WNCF832
NH	GILFORD	BELKNAP, COUNTY OF	WNLV527
NH	LINCOLN	NEW HAMPSHIRE, STATE OF	WNCF832
NH	NASHUA	NEW HAMPSHIRE, STATE OF	WNUE384
NJ		NEW JERSEY TURNPIKE AUTHORITY	WPAS759
NJ	BORDENTOWN	NEW JERSEY TURNPIKE AUTHORITY	WPFP978
NJ	CARNEYS POINT	NEW JERSEY TURNPIKE AUTHORITY	WPEI435
NJ	CRANBURY	NEW JERSEY TURNPIKE AUTHORITY	WPAS758
NJ	ELIZABETH	NEW JERSEY TURNPIKE AUTHORITY	WPAS758
NJ	JAMESBURG	NEW JERSEY TURNPIKE AUTHORITY	WPFP986
NJ	MOORESTOWN	NEW JERSEY TURNPIKE AUTHORITY	WPAS758
NJ	RUNNEMEDE	NEW JERSEY TURNPIKE AUTHORITY	WPEI435
NJ	WOODBRIDGE	NEW JERSEY TURNPIKE AUTHORITY	WPFQ441
NJ	NORTH ARLINGTON	NORTH ARLINGTON, BOROUGH OF	WNWN396
NY		NEW YORK, STATE OF	WPCP724
NY		NEW YORK, STATE OF	WPCP724
NY		NEW YORK, STATE OF	WPCP724
NY		NEW YORK, STATE OF	WPFM233
NY		NEW YORK, STATE OF	WPFI377
NY		WESTCHESTER, COUNTY OF	WNZV592
NY	ALBANY	NEW YORK, STATE OF	WNVV205
NY	BLASDELL	NEW YORK STATE THRUWAY AUTHORITY	WPAN997
NY	BOWMANSVILLE	NEW YORK STATE THRUWAY AUTHORITY	WPAN997
NY	BUFFALO	NEW YORK STATE THRUWAY AUTHORITY	WPAN997
NY	BUFFALO	NEW YORK STATE THRUWAY AUTHORITY	WPAN997
NY	NIAGRA	NEW YORK STATE THRUWAY AUTHORITY	WPAN997
NY	RYE	WESTCHESTER, COUNTY OF	WNZY224
NY	TONAWANDA	NEW YORK STATE THRUWAY AUTHORITY	WPAN997
NY	WHITE PLAINS	WESTCHESTER, COUNTY OF	WNZY224
NY	ROOSEVELT ISLAND	ROOSEVELT ISLAND OPERATING CORP	WNZE748
OH		AKRON, CITY OF	WNZD692
OH	BATAVIA	CLERMONT, COUNTY OF	WNWC842
OH	DUBLIN	DUBLIN, CITY OF	WNXY474
OH	ELYRIA	LORAIN, COUNTY OF	WNXM360
OH	MARYSVILLE	UNION COUNTY AIRPORT AUTHORITY	KNCK692
OH	TOLEDO	TOLEDO, CITY OF	WNMJ728
OK		OKLAHOMA, STATE OF	WNWU499
OR	ALBANY	ALBANY, CITY OF	WPBS250
OR	BERRY BOGS	OREGON STATE UNIVERSITY	WPFI870
OR	CASCADE LOCKS	IDAHO, STATE OF	WPCF304
OR	REEDSPORT	OREGON, STATE OF	WNLA427
OR	THE DALLES	THE DALLES, PORT OF	KNAX787
OR	THE DALLES	IDAHO, STATE OF	WPCA547
OR	VINEMAPLE	OREGON STATE UNIVERSITY	WPED431
PA		PENNSYLVANIA, COMMONWEALTH OF	WPDX549
PA		PENNSYLVANIA, COMMONWEALTH OF	WPEA856
PA	CLARKS SUMMIT	PENNSYLVANIA, COMMONWEALTH OF	WPEX992
PA	CRANBERRY	PENNSYLVANIA, COMMONWEALTH OF	WPFK879
PA	DALEVILLE	PENNSYLVANIA, COMMONWEALTH OF	WPEX992
PA	HAZLETON	PENNSYLVANIA, COMMONWEALTH OF	WPBG740
PA	PHILADELPHIA	PHILADELPHIA, CITY OF	WPCA647
PA	PHILADELPHIA	PHILADELPHIA, CITY OF	WPCD802
PA	WASHINGTON	PENNSYLVANIA, COMMONWEALTH OF	WPFS415
PA	WILKES BARRE	PENNSYLVANIA, COMMONWEALTH OF	WPEX992
SC	CHARLESTON	CHARLESTON, CITY OF	WPAA521
SC	FLORENCE	SOUTH CAROLINA, STATE OF	WNWM882
SC	GREENVILLE	GREENVILLE, COUNTY OF	WPDY958
TN	CHARLESTON	TENNESSEE, STATE OF	WPED202
TN	MEMPHIS	MEMPHIS SHELBY COUNTY AIRPORT AUTHORITY	WNDX581
TN	MEMPHIS	MEMPHIS SHELBY COUNTY AIRPORT AUTHORITY	WNDX581
TN	MEMPHIS	MEMPHIS SHELBY COUNTY AIRPORT AUTHORITY	WNDX581
TX		TEXAS, STATE OF	WNQU737
TX	AUSTIN	AUSTIN, CITY OF	WNGV539
TX	AUSTIN	LOWER COLORADO RIVER AUTHORITY	WPEZ840
TX	BASTROP	LOWER COLORADO RIVER AUTHORITY	WPEZ840
TX	BAYTOWN	BAYTOWN, CITY OF	WNZF322
TX	BUCHANAN DAM	LOWER COLORADO RIVER AUTHORITY	WPEZ840
TX	GLEN ROSE	SOMERVELL, COUNTY OF	WNPD413
TX	HOUSTON	HOUSTON, CITY OF	KON247
TX	KINGSVILLE	KINGSVILLE, CITY OF	WPDP335
TX	LA GRANGE	LOWER COLORADO RIVER AUTHORITY	WPEZ840
TX	MARBLE FALLS	LOWER COLORADO RIVER AUTHORITY	WPEZ840
TX	PECOS	PECOS CITY, TOWN OF	WPDG260
TX	PRESIDIO	PRESIDIO, CITY OF	WPBZ896
TX	SAN ANTONIO	SAN ANTONIO, CITY OF	KNDX476
TX	VAN HORN	VAN HORN, CITY OF	WNMM758
TX	CHANNELVIEW	CHANNELVIEW, CITY OF	WPAM217
UT	PANGUITCH	GARFIELD, COUNTY OF	WPBE828
VA		VIRGINIA, COMMONWEALTH OF	WPDF247
VA	HARRISONBURG	VIRGINIA, STATE OF	WNYU723
VA	PETERSBURG	PETERSBURG, CITY OF	WNVV209
WA	CLE ELUM	WASHINGTON, STATE OF	KNEF687
WA	ELLENSBURG	WASHINGTON, STATE OF	KNEF687
WA	FIFE	TACOMA, CITY OF	WNAN648
WA	HYAK	WASHINGTON, STATE OF	KNEF687
WA	MONROE	WASHINGTON, STATE OF	WNHC788
WA	NORTHBEND	WASHINGTON, STATE OF	KNEF687
WA	OTHELLO	OTHELLO, CITY OF	WPEA526
WA	PORT ANGELES	PORT ANGELES, CITY OF	WNVQ843
WA	SEATTLE	SEATTLE, CITY OF	WPAM591
WA	SPOKANE	SPOKANE, COUNTY OF	WNHL839
WA	SPOKANE	SPOKANE, COUNTY OF	WNHL839
WA	TOUTLE	WASHINGTON, STATE OF	KNFG751
WI	HAMMOND	WISCONSIN, STATE OF	WNVK825
WI	KENOSHA	WISCONSIN, STATE OF	WNQD828
WI	LAKE DENTON	WISCONSIN, STATE OF	WPBS303
WI	MILWAUKEE	MILWAUKEE, COUNTY OF	WNKP332
WI	MILWAUKEE	MILWAUKEE, COUNTY OF	WNUC908
WI	OAKDALE	WISCONSIN, STATE OF	WPBS303
WY	SHERIDAN	SHERIDAN, COUNTY OF	WNII729

Here is a listing of Travelers Information Stations licensed by the FCC on 530 kHz:

State	City	Licensee	Callsign
AL	BURKVILLE	LOWNDES, COUNTY OF	WNZB547
CA		CALIFORNIA, STATE OF	KNEC996
CA		OREGON, STATE OF	KD40826
CA	BURBANK	BURBANK GLENDALE PASADENA AIRPORT AUTH	WNCM749
CA	CASTAIC	LOS ANGELES, COUNTY OF	WNWZ660
CA	CORONADO	CORONADO, CITY OF	WNAG556
CA	ESCONDIDO	NORTH COUNTY TRANSIT DISTRICT	WNRS426
CA	JACKSON	JACKSON, CITY OF	WNYJ775
CA	LIVERMORE	ALAMEDA, COUNTY OF	WNXY861
CA	LIVERMORE	ALAMEDA, COUNTY OF	WNXY857
CA	LOS ALTOS	LOS ALTOS, CITY OF	WNUT422
CA	LOS ANGELES	LOS ANGELES, CITY OF	WNHV296
CA	MARTINEZ	MARTINEZ, CITY OF	WNWN611
CA	MILL VALLEY	MILL VALLEY, CITY OF	WPCA648
CA	MILL VALLEY	MILL VALLEY, CITY OF	WPBX287
CA	NEWPORT BEACH	NEWPORT BEACH, CITY OF	WNRG513
CA	OAKLAND	OAKLAND, CITY OF	WNSA852
CA	OCEANSIDE	NORTH COUNTY TRANSIT DISTRICT	WNRS428
CA	ORINDA	CONTRACOSTA, COUNTY OF	WNZP312
CA	PASADENA	PASADENA, CITY OF	WNNL841
CA	PASADENA	PASADENA, CITY OF	WNNL840
CA	PASADENA	PASADENA, CITY OF	WNNL839
CA	PISMO BEACH	PISMO BEACH, CITY OF	WNQV784
CA	PLACERVILLE	CALIFORNIA, STATE OF	KNIG427
CA	SACRAMENTO	SACRAMENTO, COUNTY OF	WNIG247
CA	SAN BERNARDINO	CALIFORNIA, STATE OF	KNCN250
CA	SAN JOAQUIN	CALIFORNIA, STATE OF	WPFK507
CA	SAN JOSE	SAN JOSE INTERNATIONAL AIRPORT	WNPZ947
CA	SAN YSIDRO	CALIFORNIA, STATE OF	WNSB415
CA	SARATOGA	SARATOGA, CITY OF	WNUU828
CA	SIMI VALLEY	SIMI VALLEY, CITY OF	WNHI810
CA	SOUTH DOSPALOS	CALIFORNIA, STATE OF	WPFK507
CA	SUNNYVALE	SUNNYVALE, CITY OF	WNSA851
CA	TEHACHAPI	KERN, COUNTY OF	WNYD244
CA	TRUCKEE	CALIFORNIA, STATE OF	KNEU564
CA	VISTA	NORTH COUNTY TRANSIT DISTRICT	WNRS427
CA	WEST LAKE VILLAGE	WEST LAKE VILLAGE, CITY OF	WNUE976
CO		COLORADO, STATE OF	WPDF598
CO	AURORA	COLORADO, STATE OF	WNPC752
CO	AURORA	COLORADO, STATE OF	WNSV510
CO	AURORA	COLORADO, STATE OF	WNSV510
CO	BLACKHAWK	CENTRAL, CITY OF	WPBN521
CO	BRECKENRIDGE	BRECKENRIDGE, TOWN OF	WNLB703
CO	BRIGHTON	COLORADO, STATE OF	WNSV510
CO	BROOMFIELD	COLORADO, STATE OF	WNSV510
CO	COLORADO SPRINGS	COLORADO, STATE OF	WNVN816
CO	CORTEZ	COLORADO, STATE OF	WNUB567
CO	DENVER	DENVER, CITY AND COUNTY OF	KNID798
CO	GEORGETOWN	COLORADO, STATE OF	WNPZ394

CO	GOLDEN	COLORADO, STATE OF	WNSV510
CO	LOVELAND	COLORADO, STATE OF	WPCB931
CO	MANITOU SPRINGS	MANITOU SPRINGS, CITY OF	WNWQ728
CO	MONTROSE	COLORADO, STATE OF	WNPH810
CO	PUEBLO	COLORADO, STATE OF	WNVS403
CO	THORNTON	COLORADO, STATE OF	WNSV510
CO	DENVER	DENVER, CITY AND COUNTY OF	WPDI548
CT	EAST HARTFORD	CONNECTICUT, STATE OF	WNQN649
CT	NEW LONDON	NEW LONDON, CITY OF	WPBX693
CT	PORTLAND	CONNECTICUT, STATE OF	WNUS412
DC	WASHINGTON	METROPOLITAN WASHINGTON AIRPORT AUTH	WPEZ462
DE		DELAWARE, STATE OF	WNRZ656
FL		FLORIDA, STATE OF	WNNC526
FL	FLORIDA CITY	HOMESTEAD, CITY OF	WPAC338
FL	FORT MYERS	LEE COUNTY PORT AUTHORITY	WNXF933
FL	LAKE CITY	COLUMBIA, COUNTY OF	WNMY250
FL	MIAMI	MIAMI INTERNATIONAL AIRPORT AUTHORITY	WNQM383
FL	SUNRISE	SUNRISE, CITY OF	WNUJ665
FL	TALLAHASSEE	FLORIDA STATE UNIVERSITY	WPBR674
GA		GEORGIA, STATE OF	WPBN694
GA	BRUNSWICK	GEORGIA, STATE OF	WRD946
GA	BRUNSWICK	GEORGIA, STATE OF	WRD945
ID	CASCADE	IDAHO, STATE OF	WPAN862
ID	POCATELLO	BANNOCK, COUNTY OF	WPBA586
ID	POCATELLO	BANNOCK, COUNTY OF	WPBA586
ID	TWINFALLS	TWIN FALLS, CITY OF	WPET783
IL	ARCOLA	ARCOLA, CITY OF	WNVH545
IL	CHICAGO	ILLINOIS, STATE OF	WNRU667
IL	CHICAGO	ILLINOIS, STATE OF	WNRU669
IL	CHICAGO	ILLINOIS, STATE OF	WNRU666
IL	CHICAGO	ILLINOIS, STATE OF	WNRU668
IL	CHICAGO	ILLINOIS, STATE OF	WNIE334
IL	CHICAGO	ILLINOIS, STATE OF	WNIE334
IL	FAIRVIEW HEIGHTS	ILLINOIS, STATE OF	WNLN710
IL	HAMEL	ILLINOIS, STATE OF	WNLN710
IL	JOLIET	ILLINOIS, STATE OF	WNPT254
IL	MARINE	ILLINOIS, STATE OF	WNLN710
IL	MASCOUTAH	ILLINOIS, STATE OF	WNLN710
IL	MORRIS	ILLINOIS, STATE OF	WNPT254
IL	TROY	ILLINOIS, STATE OF	WNLN710
IL	UTICA	ILLINOIS, STATE OF	WNPT254
IL	WOODRIDGE	ILLINOIS, STATE OF	WNPT254
IN	CHESTERTON	INDIANA, STATE OF	WPDJ629
IN	HIGHLAND	LAKE, COUNTY OF	WNXY485
IN	MERRILLVILLE	INDIANA, STATE OF	WPCM815
IN	MICHIGAN CITY	INDIANA, STATE OF	WPCC899
IN	NOBLESVILLE	HAMILTON, COUNTY OF	WNZJ340
KS	CASSODAY	KANSAS TURNPIKE AUTHORITY	WPFT994
KS	ELDORADO	KANSAS TURNPIKE AUTHORITY	WPFT994
KS	WELLINGTON	KANSAS TURNPIKE AUTHORITY	WPFT994
KS	WICHITA	KANSAS TURNPIKE AUTHORITY	WPET707
KY	ELIZABETHTOWN	ELIZABETHTOWN TOURISM AND CONVENTION BUR.	WPCC677
KY	FRANKFORT	KENTUCKY, COMMONWEALTH OF	WNPM473
KY	LEWISPORT	HANCOCK, COUNTY OF	WNQM850
KY	LOUISVILLE	JEFFERSON, COUNTY OF	WNPQ955
KY	MOUNT VERNON	ROCKCASTLE, COUNTY OF	WNZD775
KY	WILLIAMSBURG	WILLIAMSBURG, CITY OF	WNPY751
LA	ARABI	ST. BERNARD, PARISH OF	WPBB491
LA	CHALMETTE	ST. BERNARD, PARISH OF	WPBB491
LA	KENNER	NEW ORLEANS, CITY OF	WNKX209
LA	MERAUX	ST. BERNARD, PARISH OF	WPBB491
LA	MERAUX	ST. BERNARD, PARISH OF	WPAC340
LA	NEW ORLEANS	NEW ORLEANS, CITY OF	WNSU867
LA	POYDRAS	ST. BERNARD, PARISH OF	WPBB491
LA	ST. FRANCISVILLE	ST. FRANCISVILLE, TOWN OF	WNQU735
LA	ST. FRANCISVILLE	ST. FRANCISVILLE, TOWN OF	WNQU735
LA	VERRET	ST. BERNARD, PARISH OF	WPBB491
LA	YSCOLSKEY	ST. BERNARD, PARISH OF	WPBB491
MA		MASSACHUSETTS TURNPIKE	WPBE367
MA	TYNGSBOROUGH	NEW HAMPSHIRE, STATE OF	WNUE384
MD		MARYLAND, STATE OF	KNJX865
MD	ARNOLD	MARYLAND, STATE OF	WNQA286
MD	BALTIMORE	MARYLAND, STATE OF	WNAL785
MD	BALTIMORE	MARYLAND, STATE OF	WNVP742
MD	BERWYN	MARYLAND, STATE OF	WNQI569
MD	BRADSHAW	MARYLAND, STATE OF	WNVY509
MD	CAMBRIDGE	MARYLAND, STATE OF	WPED444
MD	COOKSVILLE	MARYLAND, STATE OF	WPEW741
MD	CUMBERLAND	MARYLAND, STATE OF	WNQA284
MD	DARGAN	WASHINGTON, COUNTY OF	WNRZ820
MD	DENTON	MARYLAND, STATE OF	WNQA288
MD	DORSEY	MARYLAND, STATE OF	WNVY506
MD	DOWNSVILLE	WASHINGTON, COUNTY OF	WNRZ820
MD	EASTON	MARYLAND, STATE OF	WNQA290
MD	ELKTON	MARYLAND, STATE OF	WPEP712
MD	ELLICOTT CITY	MARYLAND, STATE OF	WNVP741
MD	FOURLOCKS	WASHINGTON, COUNTY OF	WNRZ820
MD	FREDERICK	MARYLAND, STATE OF	WNVY510
MD	KENT NARROWS	MARYLAND, STATE OF	WNAL786
MD	LARGO	MARYLAND, STATE OF	WNVY508
MD	MYERSVILLE	MARYLAND, STATE OF	WNQA287
MD	OCEAN CITY	MARYLAND, STATE OF	WPEW740
MD	OCEAN CITY	MARYLAND, STATE OF	WPFJ882
MD	PINEYGROVE	MARYLAND, STATE OF	WNQA285
MD	QUEENSTOWN	MARYLAND, STATE OF	WNQA289
MD	REISTERTOWN	MARYLAND, STATE OF	WPEW742

MD	ROCKVILLE	MARYLAND, STATE OF	WNVY507
MD	WILLIAMSPORT	MARYLAND, STATE OF	WNSL338
MI	CLIO	MICHIGAN, STATE OF	WNLH734
MI	HOLLAND	HOLLAND, CITY OF	WNMQ279
MI	OSHTEMO	KALAMAZOO, COUNTY OF	WPAM594
MI	ST. IGNACE	MICHIGAN, STATE OF	WNHC787
MI	SENEY	SENEY, TOWNSHIP OF	WPBQ958
MN		MINNESOTA, STATE OF	WPBX286
MN		MINNESOTA, STATE OF	WNZM463
MN	ALBERTVILLE	MINNESOTA, STATE OF	WPAL378
MN	FARIBAULT	MINNESOTA, STATE OF	WNSC295
MN	HINCKLEY	HINCKLEY, CITY OF	WNPZ434
MO	ARNOLD	ILLINOIS, STATE OF	WNLN711
MO	PEARLESS PARK	ILLINOIS, STATE OF	WNLN711
MO	ST. CHARLES	ILLINOIS, STATE OF	WNLN711
MO	TOWN AND COUNTRY	ILLINOIS, STATE OF	WNLN711
MT	BOZEMAN	MONTANA, STATE OF	WPEY666
MT	BUTTE	MONTANA, STATE OF	WPEY666
MT	HAMILTON	MONTANA, STATE OF	WNUI261
MT	KALISPELL	MONTANA, STATE OF	WNPI850
MT	LIBBY	MONTANA, STATE OF	WNPI850
MT	LIVINSTON	MONTANA, STATE OF	WPEY666
MT	MISSOULA	MONTANA, STATE OF	WNXE301
MT	NOXON	MONTANA, STATE OF	WNPI850
MT	ST. REGIS	MONTANA, STATE OF	WNYA375
MT	TROY	MONTANA, STATE OF	WNPI850
MT	WHITEHALL	MONTANA, STATE OF	WPEY666
NC	CHARLOTTE	CHARLOTTE DOUGLAS INTERNATIONAL AIRPORT	WNNV615
NC	CHIMNEYROCK	LAKELURE, TOWN OF	WNQZ543
NC	COVE CREEK	NORTH CAROLINA, STATE OF	WNZD779
NC	CROOKED OAK	NORTH CAROLINA, STATE OF	WNZD779
NC	GILLESPIE GAP	NORTH CAROLINA, STATE OF	WNXE972
NC	GROVER	NORTH CAROLINA, STATE OF	WNZD779
NC	HICKORY	HICKORY, CITY OF	WNQC672
NC	INGALLS	NORTH CAROLINA, STATE OF	WNXE972
NC	MARION	MCDOWELL, COUNTY OF	WNSH541
NC	MCDONALD	NORTH CAROLINA, STATE OF	WNZD783
NC	RALEIGH	RALEIGH, CITY OF	WNSS719
NC	SPRUCEPINE	NORTH CAROLINA, STATE OF	WNXE972
NC	TRYON	NORTH CAROLINA, STATE OF	WNZD779
NC	WARRENTON	NORTH CAROLINA, STATE OF	WNZD779
NC	WELDON	NORTH CAROLINA, STATE OF	WNZD783
NC		NORTH CAROLINA, STATE OF	WPBJ465
NC	CHARLOTTE	NORTH CAROLINA, STATE OF	WNZD779
ND	WEST FARGO	CASS, COUNTY OF	WNWM881
NE	OGALLALA	OGALLALA, CITY OF	WNNV876
NJ		PORT AUTHORITY OF NEW YORK & NEW JERSEY	WNRM770
NJ		NEW JERSEY TURNPIKE AUTHORITY	WPAS759
NJ	ALLAMUCHY	NEW JERSEY, STATE OF	WNPX698
NJ	CAMDEN	DELAWARE RIVERPORT AUTHORITY	WPBN697
NJ	MOUNTAINVIEW	NEW JERSEY, STATE OF	WNPX698
NJ	NEWARK	PORT AUTHORITY OF NEW YORK & NEW JERSEY	WNDF923
NJ	PARAMUS	NEWJERSEY, STATE OF	WPAM592
NJ	ROSELAND	NEWJERSEY, STATE OF	WNPX698
NM	CARLSBAD	NEW MEXICO, STATE OF	WNXJ364
NM	CENTRAL	NEW MEXICO, STATE OF	WNXE619
NM	CUERVO	NEW MEXICO, STATE OF	WNWU971
NM	LAS CRUCES	NEW MEXICO, STATE OF	WNXE619
NM	LORDSBURG	NEW MEXICO, STATE OF	WNXE619
NM	POJOAQUE	NEW MEXICO, STATE OF	WNWU971
NM	PORTALES	NEW MEXICO, STATE OF	WNWU971
NM	RATON	NEW MEXICO, STATE OF	WNWU971
NM	ROSWELL	NEW MEXICO, STATE OF	WNWU972
NM	SAN ANTONIO	NEW MEXICO, STATE OF	WNXE619
NM	SAN JUAN	NEW MEXICO, STATE OF	WNWU971
NM	SAN TAFE	NEW MEXICO, STATE OF	WNRO290
NM	TAIBAN	NEW MEXICO, STATE OF	WNWU972
NM	TAOS	NEW MEXICO, STATE OF	WNWU971
NM	TRUTH OR CONSEQUENCE	NEW MEXICO, STATE OF	WNXE619
NM	TULAROSA	NEW MEXICO, STATE OF	WNXE619
NV	CARSON CITY	CARSON CITY, CITY OF	WPFM427
NV	LAS VEGAS	CLARK, COUNTY OF	WNRM758
NY		PORT AUTHORITY OF NEW YORK & NEW JERSEY	WNRM770
NY		WESTCHESTER, COUNTY OF	WNUC547
NY	ALBANY	NEW YORK, STATE OF	WNVL392
NY	BIG FLATS	CHEMUNG, COUNTY OF	WNMM725
NY	ELMIRA	CHEMUNG, COUNTY OF	WNMM725
NY	LOWMAN	CHEMUNG, COUNTY OF	WNMM725
NY	NEW YORK	PORT AUTHORITY OF NEW YORK & NEW JERSEY	KNAA585
NY	SPRING VALLEY	NEW YORK, STATE OF	WNYG610
NY	SYRACUSE	SYRACUSE HANCOCK INTERNATIONAL AIRPORT	WNYS687
NY	TARRYTOWN	NEW YORK, STATE OF	WNYG610
NY	TARRYTOWN	NEW YORK, STATE OF	WNYS574
NY	WEST NYACK	NEW YORK, STATE OF	WNYG610
NY	WHITE PLAINS	NEW YORK STATE THRUWAY AUTHORITY	WPFD964
NY		NEW YORK, STATE OF	WPFI377
OH	DAYTON	MONTGOMERY, COUNTY OF	WNGE271
OH	DUBLIN	DUBLIN, CITY OF	WNSQ909
OH	FREMONT	SANDUSKY, COUNTY OF	WNWR930
OH	PIQUA	OHIO, STATE OF	WNML971
OK		OKLAHOMA, STATE OF	WNWU499
OK	HASKELL	WAGONER, COUNTY OF	WPDD388
OR		OREGON, STATE OF	WNFP221
OR	ASTORIA	ASTORIA, CITY OF	WPBX496
OR	CURTIN	OREGON STATE UNIVERSITY	WPFI870
OR	GOVERNMENT CAMP	CLACKAMAS, COUNTY OF	WNSQ450
OR	JEWELL	OREGON, STATE OF	WPAF800
OR	NEWPORT	NEWPORT, CITY OF	WNVN277
OR	WALTERVILLE	OREGON, STATE OF	WNSQ948
PA		PENNSYLVANIA, COMMONWEALTH OF	WPDX548
PA		PENNSYLVANIA, COMMONWEALTH OF	WPEA856
PA	BEDFORD	BEDFORD, COUNTY OF	WPAM593
PA	DELAWARE WATER GAP	MONROE, COUNTY OF	WNZS755
PA	FRANKLIN TOWNSHIP	PENNSYLVANIA, COMMONWEALTH OF	WNRW290
PA	MOUNT COBB	PENNSYLVANIA, COMMONWEALTH OF	WPEX992
PA	PHILADELPHIA	DELAWARE RIVER PORT AUTHORITY	WPBN697
PA	WASHINGTON TOWNSHIP	PENNSYLVANIA, COMMONWEALTH OF	WNRW290
PA	WILKES BARRE	PENNSYLVANIA, COMMONWEALTH OF	WPBG740
PR	SAN JUAN	SAN JUAN, CITY OF	WNXW737
SC	CHARLESTON	CHARLESTON, CITY OF	WNKW629
SC	CHARLESTON	CHARLESTON, COUNTY OF	WNVZ342
SC	CLEMSON	CLEMSON, CITY OF	WNPI486
TN	CHARLESTON	TENNESSEE, STATE OF	WPED202
TN	MONTEAGLE	TENNESSEE, STATE OF	WNRU474
TX		TEXAS, STATE OF	WNVF737
TX	BEAUMONT	TEXAS, STATE OF	WPAX200
TX	DEER PARK	DEER PARK, CITY OF	WNVI202
TX	DENTON	UNIVERSITY OF NORTH TEXAS	WNQQ964
TX	HOUSTON	HOUSTON, CITY OF	WNLZ915
TX	LANGTRY	TEXAS, STATE OF	WNLV768
TX	NEW BRAUNFELS	NEW BRAUNFELS, CITY OF	WNQT264
TX	PORT ARANSAS	TEXAS, STATE OF	WNKS900
TX	PRESIDIO	PRESIDIO, CITY OF	WPDY853
TX	VICTORIA	VICTORIA, CITY OF	WNUH548
US		NEW YORK, STATE OF	WPCP724
US		NEW YORK, STATE OF	WPCP724
US		NEW YORK, STATE OF	WPCP724
UT	ALTA	ALTA, TOWN OF	WNVF736
UT	ALTA	ALTA, TOWN OF	WNVF736
UT	ST. GEORGE	WASHINGTON, COUNTY OF	WPBF898
UT	SALT LAKE CITY	UNIVERSITY OF UTAH	WPED203
VA		VIRGINIA; COMMONWEALTH OF	WPDF247
VA	ASHLAND	VIRGINIA, COMMONWEALTH OF	WQC883
VA	CARMELS CHURCH	VIRGINIA, COMMONWEALTH OF	WQC884
VA	CHESAPEAKE	VIRGINIA, COMMONWEALTH OF	KNJR838
VA	CHINCOTEAGUE	CHINCOTEAGUE, TOWN OF	WPDY959
VA	DOSWELL	VIRGINIA, COMMONWEALTH OF	WQC885
VA	HAMPTON	VIRGINIA, COMMONWEALTH OF	KNJR839
VA	HERNDON	METROPOLITAN WASHINGTON AIRPORTS AUTH.	WNPM480
VA	HERNDON	METROPOLITAN WASHINGTON AIRPORTS AUTH.	WNPM480
VA	HERNDON	METROPOLITAN WASHINGTON AIRPORTS AUTH.	WNPM480
VA	MANASSAS	PRINCE WILLIAM, COUNTY OF	WNHQ463
VA	NEWMARKET	VIRGINIA, COMMONWEALTH OF	WPBM597
VA	NEWPORT NEWS	VIRGINIA, COMMONWEALTH OF	KNJR837
VA	NORFOLK	VIRGINIA, COMMONWEALTH OF	WNAN682
VA	POTOMAC MILLS PROJECT	PRINCE WILLIAM, COUNTY OF	WNBZ973
VA	RICHMOND	VIRGINIA, COMMONWEALTH OF	WYR507
VA	RICHMOND	RICHMOND, CITY OF	WNWW277
VA	RICHMOND	VIRGINIA, COMMONWEALTH OF	WYR509
VA	RICHMOND	VIRGINIA, COMMONWEALTH OF	WYR508
VA	RICHMOND	VIRGINIA, COMMONWEALTH OF	WYR510
VA	VIRGINIA BEACH	VIRGINIA, COMMONWEALTH OF	KNJR840
VA	VIRGINIA BEACH	VIRGINIA, COMMONWEALTH OF	KNJR841
WA		WASHINGTON, STATE OF	WNVA814
WA	BELLEVUE	WASHINGTON, STATE OF	KNEZ390
WA	FRIDAY HARBOR	WASHINGTON, STATE OF	WPEZ424
WA	GIG HARBOR	GIG HARBOR, CITY OF	WPAE812
WA	LACEY	OLYMPIC AIR POLLUTION CONTROL AUTHORITY	WPBX206
WA	LYNNWOOD	WASHINGTON, STATE OF	WNHC789
WA	MOSES LAKE	MOSES LAKE, CITY OF	WNVQ844
WA	NEWPORT	PENDOREILLE, COUNTY OF	WPDY708
WA	NEWPORT	PENDOREILLE, COUNTY OF	WPDW646
WA	RITZVILLE	RITZVILLE, CITY OF	WNYD255
WA	SEATTLE	WASHINGTON, STATE OF	KNEZ390
WA	SEATTLE	WASHINGTON, STATE OF	KNEZ390
WA	SEATTLE	WASHINGTON, STATE OF	KNEZ390
WA	TACOMA	TACOMA, CITY OF	WNAN648
WA	TUKWILA	WASHINGTON, STATE OF	KNCL518
WA	VASHON	WASHINGTON, STATE OF	WNRI857
WI	BARABOO	WISCONSIN, STATE OF	WNPI485
WI	BELOIT	WISCONSIN, STATE OF	WNPD487
WI	EDGERTON	WISCONSIN, STATE OF	WNPP716
WI	GREENBAY	BROWN, COUNTY OF	WNSA667
WI	HUDSON	WISCONSIN, STATE OF	WNPD487
WI	HURLEY	WISCONSIN, STATE OF	WNQD828
WI	JANESVILLE	WISCONSIN, STATE OF	WNPP716
WI	KEILER	WISCONSIN, STATE OF	WNPD487
WI	LA CROSSE	WISCONSIN, STATE OF	WNPD487
WI	MADISON	WISCONSIN, STATE OF	WNZG592
WI	MADISON	WISCONSIN, STATE OF	WNZG592
WI	MARINETTE	WISCONSIN, STATE OF	WNQD828
WI	MAUSTON	WISCONSIN, STATE OF	WNRW907
WI	OSHKOSH	WINNEBAGO, COUNTY OF	WNQN692
WI	POYNETTE	WISCONSIN, STATE OF	WNPP716
WI	PRAIRIE DUCHIEN	WISCONSIN, STATE OF	WNPD487
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CIRCLE 114 ON READER SERVICE CARD

Cleveland to Disappear

City's New 800 MHz Digital Trunked System Won't Be Heard on Scanners

BY STEPHEN BELLAMY, AA8MX

Scanner listeners in Cleveland, Ohio, are facing the reality that soon they will be unable to monitor any radio traffic of the city's 20 municipal divisions, including police, fire and EMS.

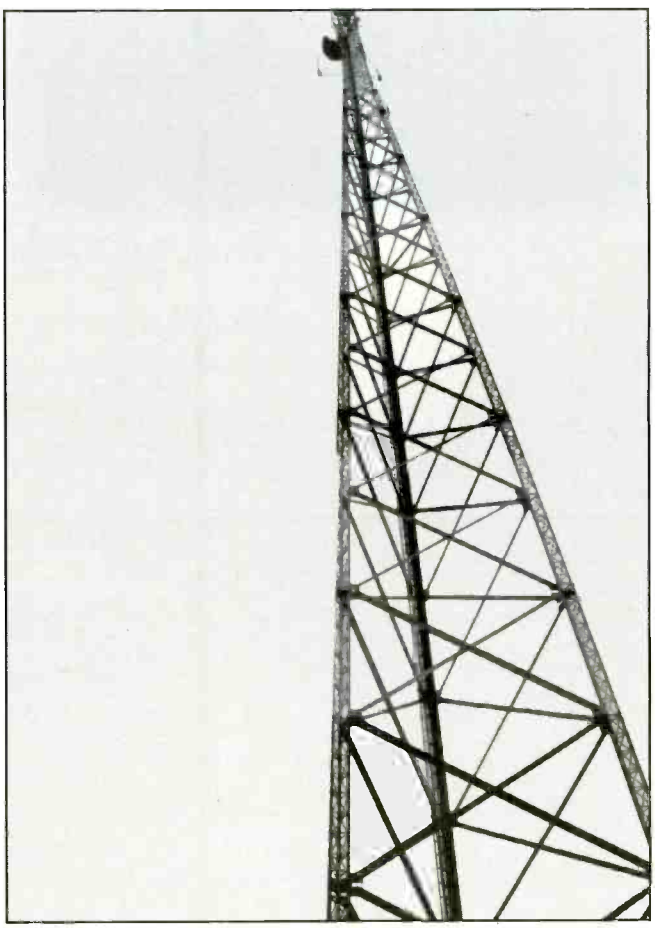
Many of the divisions already are using the city's new 800 MHz digital, trunked, simulcast system, which will become the only radio system used by all city departments. The Division of Fire was to have joined the system late this year. Nagah Ramadan, The Water Department's capital program director, is in charge of the project that has to meet the individual needs of each of 20 city divisions that are used to control their own systems. The 800 MHz system provides communications over some 360 square miles.

The Water Department was given the task of building the system because it has experience dealing with large capital projects, and has the greatest coverage needs that extend outside the county.

Cleveland is the first city to implement digital processing, simulcasting and trunking in a single system that will be utilized by all departments, according to Wayne Stack, project engineer for the consulting firm of RAM Communications Consultants Inc. of Cleveland. Unlike cities that use an analog, trunked system that conventional scanners can monitor with some difficulty, Cleveland's system uses a digital transmission mode. The only way to monitor will be with a Motorola unit specifically programmed with proprietary software available to authorized users only. Secure communication talk groups for police and fire have the option of using encryption to add further security.

The most visible elements of the 800 MHz system are eight tower sites that flank

The tower in the background is one of the eight 800 MHz trunked, simulcast system towers. Note the microwave dishes for system linking. (Photo by Stephen Bellamy)



Tower at one of the eight 800 MHz trunked, simulcast system sites. Note the microwave dishes for system linking. (Photo by Stephen Bellamy)

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AOR AR2700

Wide-Band Radio Receiver **$399**

What an amazing breakthrough in value for under $400!! This full featured unit combines the important features of wide band coverage, auto-mode bandplan data (with override), fast scan/search rates & ease of operation with the latest innovations of optional computer control, and clone of data. There is even an option available that records 20 seconds of audio directly off the air for playback! This receiver covers the frequency range from 500 kHz to 1300 MHz* and gives you 500 channels to put those frequencies in! Features: Auto-Mode tuning, AM, NFM & WFM, Optional voice recording, computer control, and data clone between sets.

* 870-890 MHz blocked

Options:

AOR RU-2700 Voice Recording Chip $89.95
OptoElectronics CX-12AR Computer Control Interface $99

JIM M75

GaAs FET VHF/UHF Scanner Pre-Amp **$99**

State of the art surface-mount technology coupled with features not found on other pre-amps makes the M75 simply the best. Wide band (24 to 2150 MHz), variable gain -10 dB (attenuation) to +20 dB gain. Bandwidth selector switch covers 3 bands: a) 225 to 1500 MHz-reduces TV, FM and Hi Power VHF pagers for clear UHF Airband, PSB, Cellular etc.; b) 108 to 185 MHz- for optimum reception of VHF Airband, 2m Amateur Radio, and other VHF communication eliminating VHF TV and FM bands; c) wide open 24 to 2150 MHz, low noise figure 2 dB gain. Comes with a BNC connector. Requires 12 VDC or 9 V battery.

NEVADA SE 1300

VHF/UHF Discone Antenna **$89**

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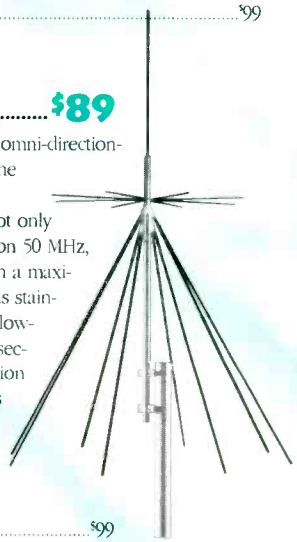

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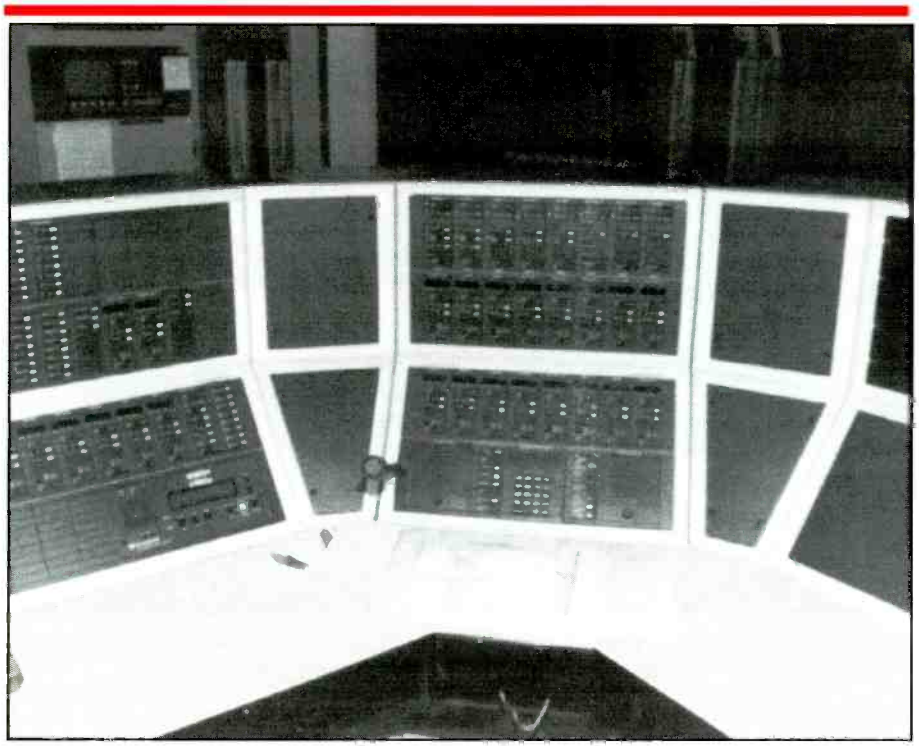
CIRCLE 124 ON READER SERVICE CARD



One of the 800 MHz consoles during installation at the Cleveland Fire Department dispatch center. (Photo by Stephen Bellamy)

the city. These sites are linked by a microwave loop to a prime control point where supervisory computers control the radio network. Should any portion of the microwave loop fail, the rest of it can be backfed to keep the system running. Each of the eight sites has 25 receivers and transmitters for the 25 channels, plus an extra transmitter and receiver as backup for the supervisory channel, which runs on one of the 25 channels. This means that there are 208 base radios—26 radios at each of the eight sites. That total doesn't include the microwave radio loop equipment.

Unlike some trunking systems, the supervisory data always stays on the same channel. This means there are actually only 24 channels available for user radio traffic.

Cleveland's New 800 MHz System

Divisional subscriber units:
2,479 50-watt mobile units
1,973 3-watt portables
192 control stations

Each trunked site contains:
Self-supporting tower
Five antennas with combiners
26 125-watt (ERP) base stations
Microwave link in and out
Utility power source
UPS (uninterruptible power supply)
Emergency electrical generator

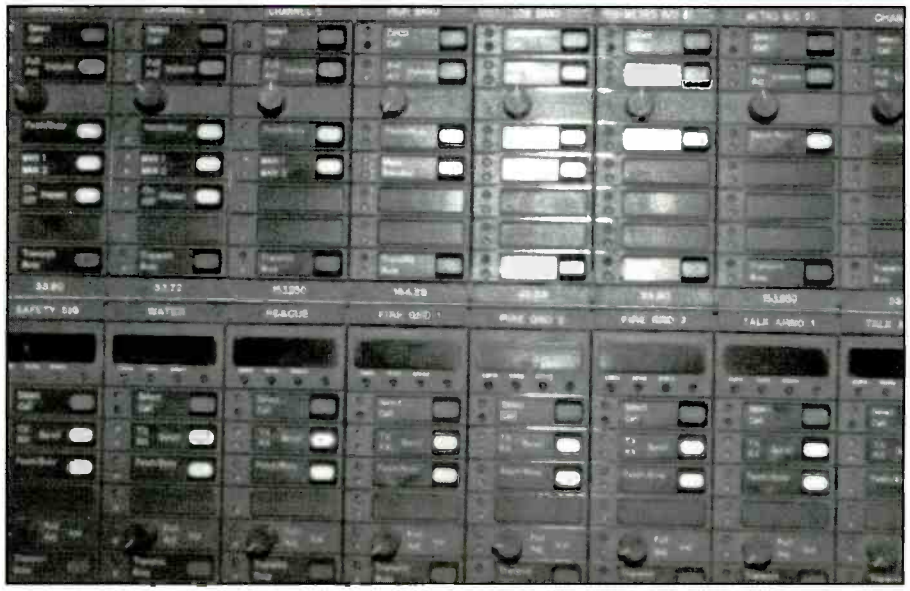
Fire Department Talk Groups

Memory bank "A":
1–6-Cleveland fire battalions
7-Rescue
8-Haz-Mat/Tactical
9-Haz-Mat suits
10-County disaster
11-Public Safety coordination
12-Special operations
13-Dynamic regrouping
14-Fire protection
15-Administrative
16-Dispatch

Memory bank "B"—
1-Citywide No. 1
2-Citywide No. 2
3-Airport fire
4-FIU
5-FIU/secure
6-Safety signal
(Others are unassigned at this time.)

800 MHz system has three levels of operation:

- Full trunked, simulcasting operation from eight sites
- Site trunking without system coordination; limited coverage
- "Fail soft" mode whereby eight sites can operate as individual repeaters without trunking. Talk groups are on predetermined fixed channels.



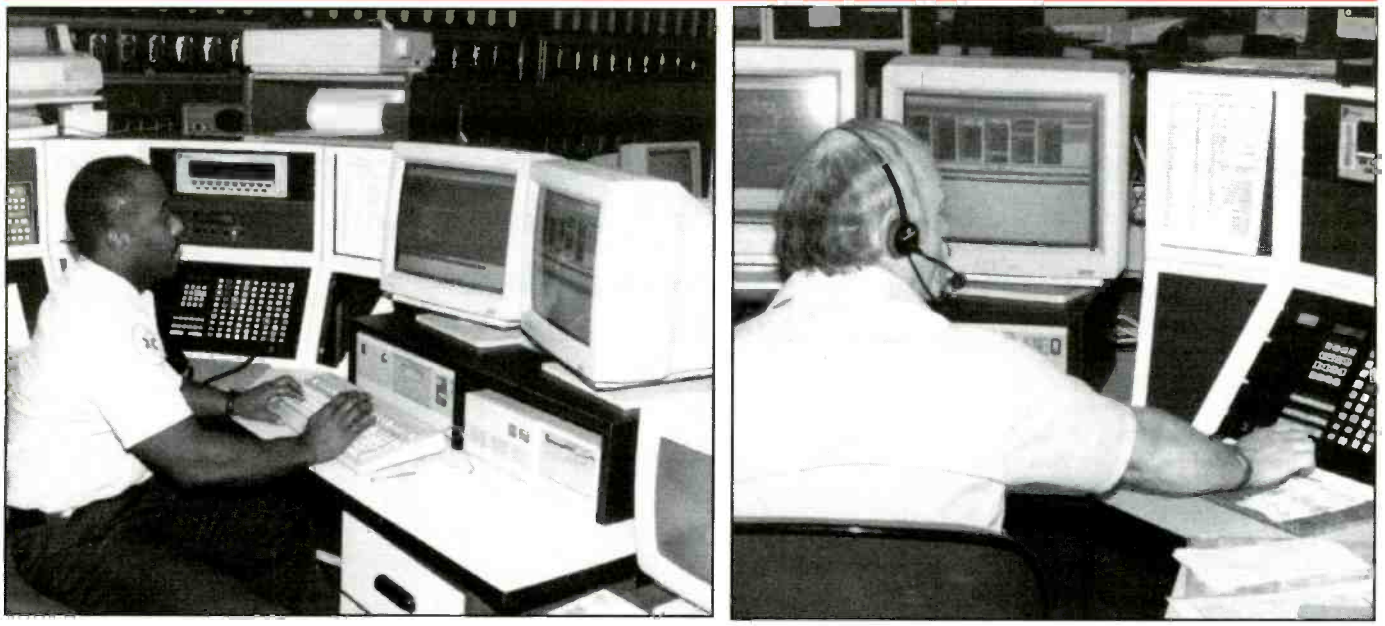
Closeup of Motorola talk group control modules at the Cleveland Fire Department dispatch center. (Photo by Stephen Bellamy)

Cleveland Fire Department dispatch center operators key in information for the new computer-aided dispatch system. (Photo by Stephen Bellamy)

When someone transmits anywhere in the coverage area, all eight sites listen for that signal, and upon hearing it, send it via microwave to the prime (control) site. At the control site, an electronic "voter" picks the best signal received from all eight sites. The signal then is processed further and sent back to the eight sites for retransmission on a trunked channel that is available at that moment. That's what is meant by simulcasting—all eight sites are retransmitting the original signal simultaneously.

Ramadan explained that the system was designed to meet or exceed the Association of Public-Safety Communications Officials International (APCO) 95/95 standard. Simply put, the system maintains communications 95 percent of the time in user areas that are used 95 percent of the time. System specifications include coverage at one foot above the ground for portable units. This last specification would be an important consideration for a police officer lying wounded on the ground calling for help, for example.

The citywide implementation means that all users will have the capability of talking to any of the 20 divisions, if necessary. This could be done using one of two available citywide talk groups, or a dynamic talk group that can be custom-tailored to a specific need in real time. Dynamic talk-group-



Cleveland Fire Department dispatch center operator seated in front of computer-aided dispatch monitors. The one on the left is for incident workups; the right one shows status of all fire units. (Photo by Stephen Bellamy)

ing could be used for situations requiring coordination with various city departments like streets, sewers, police and fire at a highway hazmat incident. Configuring talk groups and other functions can be done through the system manager console which is at the prime site. A subset of the system manager with reduced access also is available to main dispatch centers like police, fire and EMS.

The radio system is constantly monitored by the computer system for user-defined anomalies, including entry alarms at all sites. The computer even can sense a stuck microphone and shut down that individual radio. This also is useful if a radio falls into unauthorized hands.

The eight trunked sites all have backup power sources, including an uninterruptible power supply and a fossil fuel-powered generator.

With constantly evolving communications technology, increased pressure is on all communications users to use the radio spectrum more efficiently. In coming years, this will include tightening of channel spacing, trunking and wholesale reassignment of radio frequencies by the FCC. Cleveland, like most cities, will not continue to have the luxury of all the VHF and UHF channels it is now using. Trunking will enable Cleveland's 20 divisions to communicate by using just 25 channels, and avoid needless division-by-division duplication of transmission equipment. The eight-tower system reportedly replaces 30 towers and associated equipment that had been used by the 20 city divisions. ■

Frequencies:

851.1375	853.2875
851.1875	853.3375
851.2375	854.1375
851.2875	854.1875
851.3375	854.2375
852.1375	854.2875
852.1875	854.3375
852.2375	855.1375
852.2875	855.1875
852.3375	855.2375
853.1375	855.2875
853.1875	855.3375
853.2375	

Signal Snatcher

Homebrewed Quarter-Wave Vertical Ground Plane Antenna for Under $5

BY JAMES A. WILLIAMS, KE4RDB

The great day has come: You have studied hard and today your brand new amateur radio license is here; you are now a new ham operator. If you are like most new hams, the first thing you will do is buy a 2-meter handi-talkie transceiver (HT). You rush home with your new purchase, unpack it, charge the batteries and finally you're on the air.

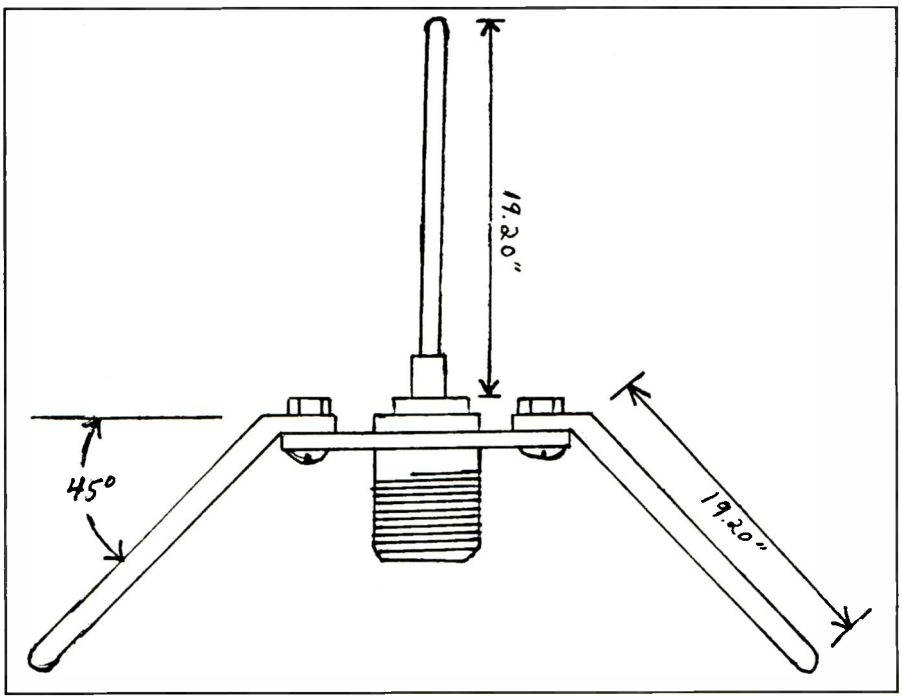
You're able to make contacts on some of the local repeaters, but you're disappointed you can't hit that popular repeater or packet station all your friends use. The poor performing rubber-duckie antenna that came with that new HT just doesn't have what it takes. What to do!

No doubt you've looked at the various store-bought antennas on the market. They're great. Commercial antennas are well made, durable and have excellent performance. However there are a couple of disadvantages; they are expensive and most are large and need an outdoor location. If you live in an apartment, condo or deed-restricted community, your options are limited.

Don't be disappointed. What would you say if I told you that for $5 and about a couple of hours of time you can build an antenna tweaked for the 2M band and small enough to use indoors. With changes, other VHF and UHF bands such as 222 MHz and 440MHz can be used. This antenna also is suitable for base station use. Building your own antenna also gives you the opportunity to get more involved with your radio hobby.

The quarter-wave ground plane antenna is a simple and popular antenna. They sometimes are called omnidirectional or non-directional antennas because they receive RF signals from all compass directions. Because they do tend to concentrate the signals from the horizon more than vertically the way horizontal dipoles do, they also are called gain antennas as compared to a dipole.

The drawing shows a simple quarter-wave vertical ground plane antenna you can build for about $5 for use with your HT, base station or even your scanner. This quarter-wave vertical ground plane antenna has a radiator element that is quarter-wave length long. It also has four radials that also are a quarter-wave length long. The radials at the bottom of a vertical antenna act as a ground under the antenna.



Vertical ground plane antenna. (Drawing by James A. Williams)

That is the reason these antennas are called ground plane antennas. The equation:

$$\text{Length (in feet)} = \frac{234}{\text{Freq.(in MHz)}}$$

Using the formula gives us the lengths of the radiator and each ground radial. Using the equation and using a center frequency of 146 MHz, you will find a length of about 19.2 inches is just about right Lengths for other bands are:

54 MHz	54 inches
220 MHz	12.5 inches
440 MHz	6.3 inches
1300 MHz	2.2 inches

Lets make an antenna! First, you will need the following items:

- Silver-plated SO-239 connector
- Five pieces of 36-inch length of 3/16-inch brass rod (welding rod or obtain from a hobby shop)
- Four 4-40 machine screws 1/4-inch long
- Four 4-40 nuts
- Large high-wattage soldering iron or propane torch
- Needle-nose pliers
- Rosin core solder
- Ruler
- Hacksaw or large wire cutters

Once you have gathered all the items needed, start by cutting the five 36-inch 3/16-inch brass rods into five 20-inch pieces. These pieces are a little long, but give you some room for the next step.

Form a small loop at one end of each radial using the needle-nose pliers and four pieces of brass rod. These will be used to fasten the four radials to the SO-239 connector. With this done, take the remaining 19.2-inch length of brass rod and solder it to the center pin coaxial connector of the SO-239 connector, using the propane torch or large high-wattage soldering gun. Be sure to scrape or sand the points on the brass rod radiator and radials and SO-239 connector where they will be soldered.

Don't forget the proper way to get a solder joint is to carefully heat both parts to be joined, allowing the solder to flow freely

at the open joint. A proper solder joint appears shiny and smooth; an improper cold solder joint appears lumpy and dull. Proper solder joints can make or break a project.

Attach the four radial elements to the SO-239 connector with the 4-40 machine screws and nuts. After the four radials are attached with the machine screws and nuts use the propane torch or large high-wattage soldering gun to solder the radials and the mounting machine screws and nuts to the SO-239 connector. (At this point if you have tried to use a nickel plated SO-239 connector instead of the listed silver-plated one, you have discovered that the solder will not work. Discard the nickel-plated SO-239 and obtain a silver-plated SO-239 and start over). Once cooled, bend the radials at about a 45-degree angle. Now trim the radiator and the radials to 19.2 inches.

SWR can be adjusted by bending the four radial elements of the antenna up or down, changing their angle. Most hams like to tune their antennas for the lowest SWR they can get—in the center of the band. Your SWR should be less than 2:1, if you can get it to 1.5:1, terrific! It's not worth the time and effort to do better than that.

The way that you mount the antenna to your transceiver is up to you. Some examples include: On a handheld transceiver, you can obtain the adapters needed, a double PL-259 (Radio Shack 278-192) and a PL-259 to BNC (Radio Shack 278-120), to connect the antenna directly to your HT's BNC connector (only for the higher frequency bands). Using a piece of RG-8 coax with the proper connectors (PL-259) and a PL-259 to BNC (Radio Shack 278-120) adapter, you can attach one end of coax to the antenna and the other end with the PL-259 to BNC adapter to the HT's BNC connector. Hang the antenna by a piece of fishing line from the ceiling or place in the attic or other suitable place, if you are limited to an inside location.

On base stations or preamps, use a piece of RG-8 coax with the proper connectors (PL-259). You also can use a piece of PVC pipe and a compression-type hose clamp as a mast if you are able to have an outdoor antenna. You also can use the same PVC mast-type mounting and attach the mast to a camera tripod for indoor or portable use.

If the antenna is to be used outside, weatherproof it by using outdoor RF connector sealant. Use the sealant where you soldered the radiator to the center pin coaxial connector of the SO-239 connector. Remember, seal around the completed coax feed line connection by using the connector sealant and electrical tape to keep moisture from entering the coax feed line.

Congratulations! You have now built a 2M vertical ground plane antenna that has been optimized for its transmitting and reception capabilities in this band. Enjoy the added range of your new antenna and happy chatting or listening. ■

Radio: The Good Old Days

Let's Search Out Hidden & Almost-Forgotten Pasts

BY ALICE BRANNIGAN

Few modern stations have had as complex, unorthodox and multistaged evolution as this one. KLIF 570 first became known to Dallas listeners in January 1991, yet it's 73 years old and the fifth oldest continuously licensed AM broadcast station in Texas! KLIF took a *very* curious trip to get from then to now.

In 1922, employing the talents of L.B. Henson, who had helped build Dallas station WRR, A.H. Belo, publisher of the *Dallas Morning News* had a 5-watt radio station with studios and transmitter installed on the roof of his two-story newspaper building. The 362-foot antenna was strung from his building to another structure. On June 6 of that year, this station was issued the call letters WFAA, and commenced operation on 833 kHz for regular broadcasts, with weather bulletins on 618 kHz. In September, the regular broadcast frequency was shifted to 750 kHz.

WFAA proved a success, and by early 1923 was running 500 watts, having moved frequencies again to 630 kHz. Belo said the call letters stood for "Working For All Alike."

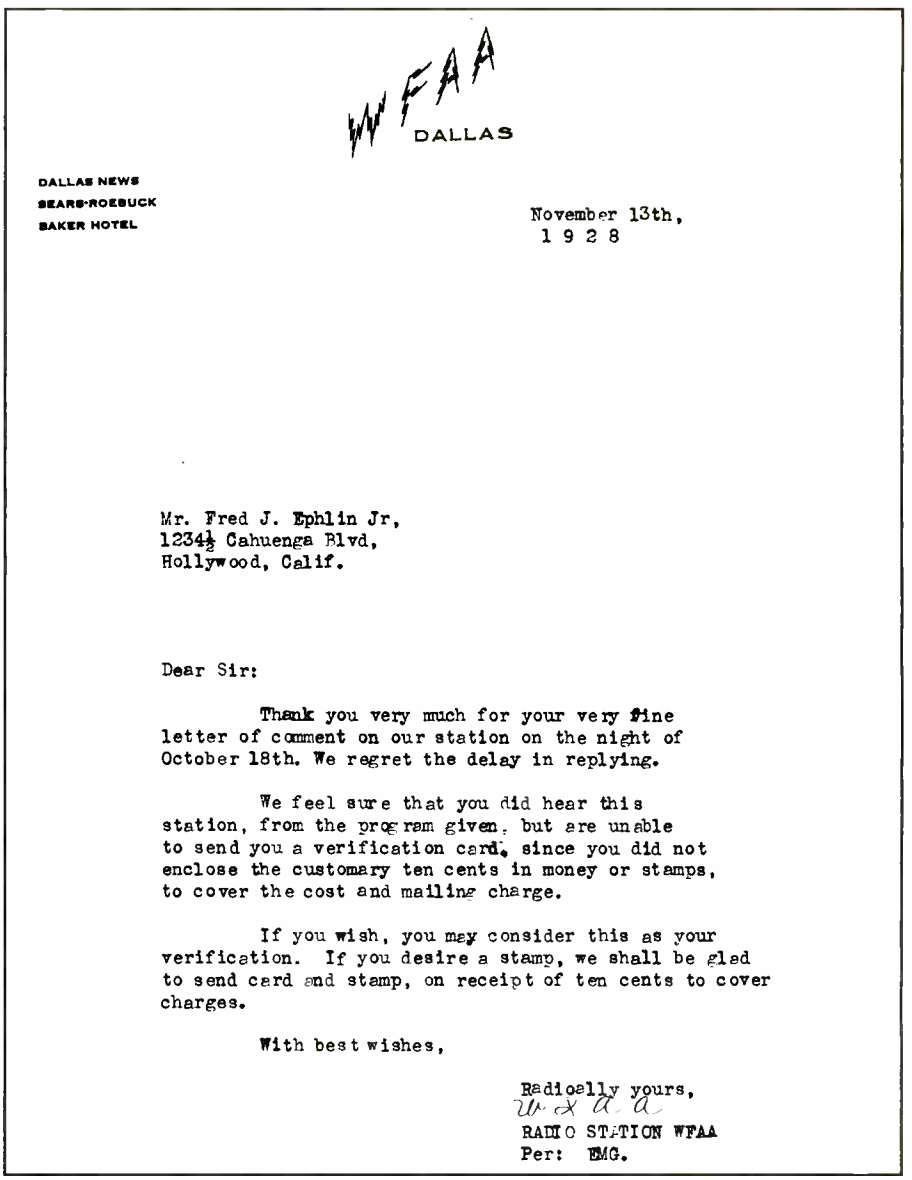
The first WFAA studio on the roof of the newspaper building had every problem a radio studio didn't need, such as trembling from the vibrations of the giant newspaper presses. Wooden walls caused sound to reverberate and echo in the carbon mics, especially street and traffic noises.

WFAA then tried to rig up a room in the newspaper's library to substitute as a quieter studio. They draped the walls and lined the floors and ceiling in layers of heavy canvas. Listeners then complained that people speaking from this studio sounded as if their heads were stuck inside waste baskets. By late 1925, new and better studios were opened in the Baker Hotel on Commerce Street.

In 1927, WFAA sought approval to operate with 5 kW on 600 kHz. Simultaneously, station WBAP in neighboring Fort Worth also applied to establish 5 kW facilities on the same frequency. As there weren't enough suitable frequencies available to accommodate both applicants, the government ordered WFAA and WBAP to begin sharing time on the channel. This held from June through November 1927, when WFAA was able to shift over to 550 kHz, freeing itself from WBAP and the split schedule. That freedom didn't last long!

By 1928, the Federal Radio Commission showed up once more, ordering WFAA and WBAP to operate on 800 kHz, where they would again be sharing time for the same reason as the first time. In 1930, WFAA moved its transmitting site to a location four miles southeast of Grapevine, Texas. A 50-kW transmitter was installed, and two 300-foot towers spaced at 700 feet were erected. WFAA was authorized to operate with 25 kW, but could experiment with 50 kW. In 1932, full 50-kW authorization was granted to WFAA. Both stations shared time on 800 kHz during alternate periods from 6 a.m. to midnight.

In 1938, big things were taking place. The first of them was the replacement of the two 300-foot towers with a new 653-foot guyed steel vertical radiator. Also,



WFAA
DALLAS

DALLAS NEWS
SEARS-ROEBUCK
BAKER HOTEL

November 13th,
1 9 2 8

Mr. Fred J. Ephlin Jr,
1234½ Cahuenga Blvd,
Hollywood, Calif.

Dear Sir:

Thank you very much for your very fine letter of comment on our station on the night of October 18th. We regret the delay in replying.

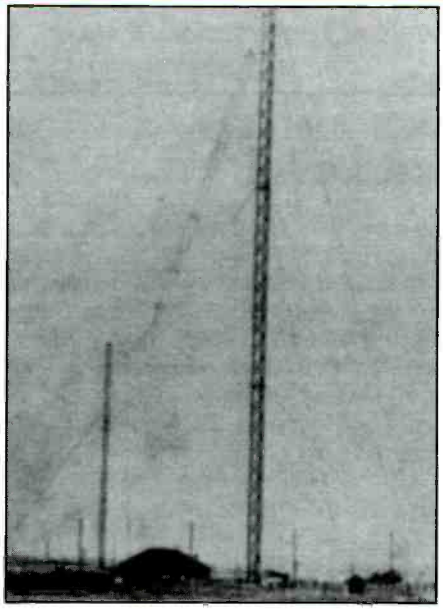
We feel sure that you did hear this station, from the program given, but are unable to send you a verification card, since you did not enclose the customary ten cents in money or stamps, to cover the cost and mailing charge.

If you wish, you may consider this as your verification. If you desire a stamp, we shall be glad to send card and stamp, on receipt of ten cents to cover charges.

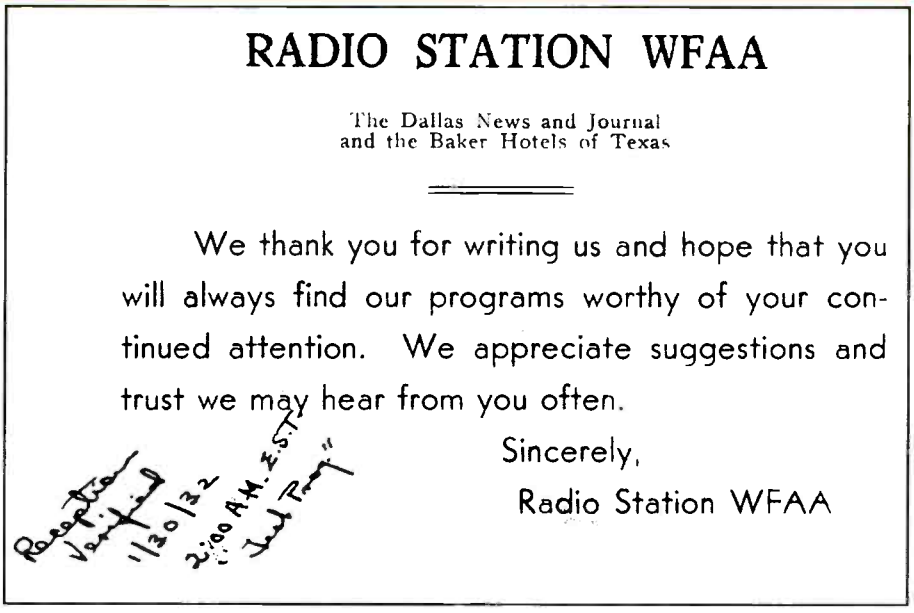
With best wishes,

Radioally yours,
WFAA
RADIO STATION WFAA
Per: EMG.

A 1928 half-hearted QSL letter from parsimonious WFAA chided a DXer for not sending 10 cents postage for a QSL card. He was told straight out that they wouldn't send him a QSL card or EKKO stamp unless he coughed up some money. The nasty letter probably cost WFAA more than sending the QSL card would have.



Air view of VK3ME, the AWA shortwave station's antenna farm in Australia, taken in the early 1930s.



RADIO STATION WFAA

The Dallas News and Journal
and the Baker Hotels of Texas

We thank you for writing us and hope that you will always find our programs worthy of your continued attention. We appreciate suggestions and trust we may hear from you often.

Sincerely,
Radio Station WFAA

Reception Verified 1/30/32 2:00 A.M. E.S.T.

Big deal! For a dime in 1932, here's the plain-look QSL card WFFAA sent out, and no EKKO stamp! What a gyp.

WBAP must have decided that because they couldn't beat them, they'd better join them. At that point, WBAP shut down its own Fort Worth transmitting plant and began sharing the WFAA transmitting facilities! Lastly, Grapevine had become the location of a co-owned experimental shortwave relay station, W5XD.

In 1940, A.H. Belo acquired half-interest in Fort Worth radio station KGKO. Several of the new Dallas WFAA studios in the Santa Fe Building were set aside to be shared with KGKO. In 1941, WFAA/WBAP, radio's Siamese twins, were shifted to 820 kHz, where they shared a transmitter and split hours with one another. This resulted from a major North American frequency reorganization.

As 1947 rolled in, a totally unique and novel arrangement between these two time-share stations was placed into effect. This came about because the FCC decided that certain relationships between WFAA, WBAP and KGKO touched upon the

agency's duopoly (ownership of more than one AM station to a market) restrictions. As a result, KGKO's license for operation on 570 kHz was canceled. This allowed the FCC to concoct a somewhat bizarre plan to permit WFAA and WBAP each to operate full hours.

WFAA moved to half-time on 570 kHz with 5 kW (directional at night), while still licensed for half-time operation on 820 kHz. While on 570 kHz, WFAA broadcast ABC programs, but was an NBC affiliate while operating on 820 kHz. A newly installed 50-kW WFAA transmitter at Grapevine was in use for 820 kHz broadcasts, but when WFAA operated on 570 kHz, it used the former KGKO transmitter at Arlington, Texas.

In 1950, the FCC authorized WFAA on 570 kHz to switch from a nighttime-only directional pattern to day and night directional patterns. A year later, the WFAA 570 transmitter was moved from Arlington to Grapevine, and its use there shared with WBAP 570.

The big fuss concerning the different frequencies was because 820 kHz was a clear channel, while 570 was a less desirable regional channel. As of 1964, WFAA operated on 570 kHz from about 6 a.m. to midnight, and on 820 kHz from midnight to around 6 a.m. So, WBAP operated the reverse schedule. Therefore, both stations had full-time operation, and each had a shot at using the clear channel during nighttime hours. The cost of the arrangement was that the two stations had to exchange frequencies twice each day.

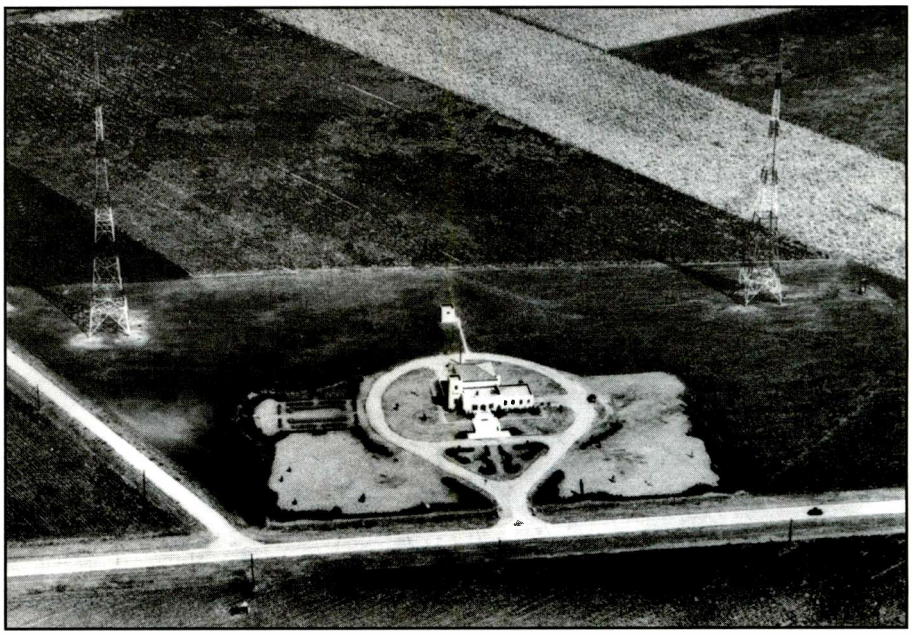
In 1970, the strange 23-year marriage of convenience and time share was to come to an end. Thus ended one of the oddest and most unique arrangements in American broadcasting. In February that year, it was announced that WFAA was to become the full-time occupant of 570 kHz, ending its activities on 820 kHz. The Grapevine facilities were sold. As of May, the ABC affiliation would remain in effect on 570 kHz, with WBAP still carrying NBC on 820 kHz.

In 1973, WFAA was granted FCC permission to identify its location as Dallas-Fort Worth, and in 1975 the station's affiliation changed from the ABC Entertainment to the CBS Radio Network. Other switches included the NBC Radio Network in 1979, and the Mutual Broadcasting System in 1980. By 1980, its affiliation with CBS had ended.

In 1982, WFAA had switched from NBC and Mutual, back to the ABC Entertainment Network, then later added the NBC Talknet service.

The last time listeners heard the old familiar WFAA call letters used was in July 1983. That was just before the crusty veteran switched to a "Good Times Rock 'n' Roll" format and took out new call letters intended to project a hip, new image, KRQX.

In 1987, still in the hands of the Belo



Air view of WFAA taken in September 1930. (National Archives Photo, provided by Broadcast Pro-File, Hollywood, Calif.)

COMMONWEALTH OF AUSTRALIA

TELEGRAMS: "CHIEFENG," MELBOURNE
TELEPHONE—CENTRAL 5551

YOUR REFERENCE. .....

IN REPLY QUOTE FILE NO. C.E. .....

POSTMASTER-GENERAL'S DEPARTMENT.

CENTRAL ADMINISTRATION.
CHIEF ENGINEER'S BRANCH.
TREASURY GARDENS, MELBOURNE, C 2,
VICTORIA.

24th September, 1947.

Dear Sir,

Official Verification of Reception.

Thank you for your report of reception of station VLC7 (11840 Kc/s) on 6th September 1947.

2. The details furnished correspond with station log of that date.

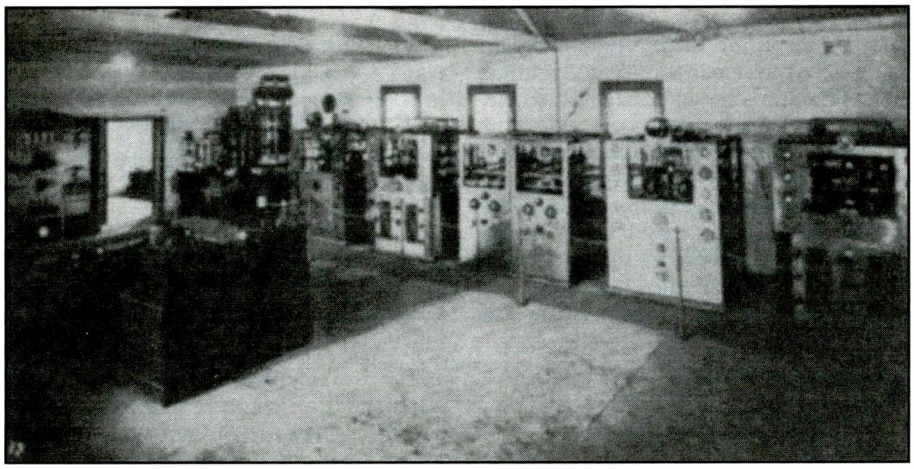
3. Since frequency changes are necessary from time to time to suit seasonal and other changes, further reports you may care to send would be appreciated.

Yours faithfully,

(N. HAYES)
A/g. Chief Engineer.

Mr. T. Kneitel
175 East 93 Street
New York 25, N.Y.
U.S.A.

A 1947 veri letter from the Postmaster General confirms Radio Australia's VLC7 on 11840 kHz. (Courtesy Tom Kneitel, K2AES.)



Transmitters used by Australia's VK2ME during the 1930s.

family, the venerable station was sold for $20 million. The sister FM station (KZEW) was part of the sale. KRQX (ex-WFAA) received yet another identity change. This time it had metamorphosed into a station with the cloddish sounding call letters KLDD, thus further obscuring its origins. By mid-1990, the station had been redubbed with a complete tongue-twister, KKWM

In January 1991, the station was sold again, this time to KLIF. Their existing station, KLIF, operated on 1190 kHz, using a highly directional night array. It seems they were displeased with the 1190 kHz nighttime coverage. Concurrent with the purchase of KKWM, they sold KLIF/1190 "to end its night problems." During one week in January 1991, pending removal of all programming to the newly acquired station, the KLIF/1190 programming also was simulcast over KKWM, 570 kHz. By the end of January, the KKWM call letters were dumped and the 570 kHz station was renamed KLIF. All KLIF programming then was carried only over 570 kHz with 5 kW, and a directional antenna having separate day and night patterns.

It's eerie. Scrape away the coats of glitter, dig down, and uncover an extraordinary piece of our common heritage already in the process of drifting off into obscurity.

As we often do, this month we wish to thank *Broadcast Pro-File* for allowing us to excerpt material from their lengthy and highly detailed report on the history of KLIF. *Broadcast Pro-File* is a professional research company that can prepare historic information reports on all American AM/FM/TV broadcasters, past and present. They charge a reasonable fee for their services. A complete catalog is available for $1 from Broadcast Pro-File, P.O. Box 982, Hollywood, CA 90078-0982.

The Australian Sisters Who Grew Up

DX listeners of the 1930s loved broadcasters VK2ME (2 kW on 9590 kHz) and VK3ME (20 kW on 9508 kHz) of Sydney, Australia. The stations referred to themselves as *The Voice of Australia*, but many DXers popularly called them "the twin sisters." Both stations were owned by Amalgamated Wireless (Australia) Ltd. and signed on and off with the laughing notes of the Australian Kookaburra bird. VK2ME and VK3ME began operating in late 1930, and continued until 1939.

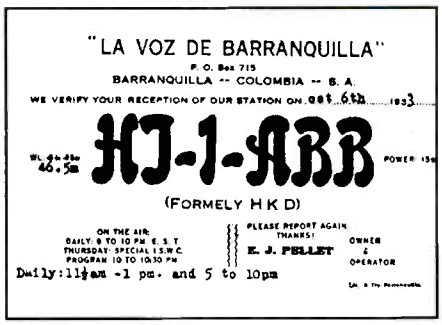
The AWA transmitting plant for these stations was situated at Pennant Hills, near Sydney. Antennas beamed the signals to-

ward Great Britain and Europe, as well as North and South America. It was no trouble at all receiving them anywhere in North America. The strong-signal stations were welcomed as daily visitors to many DX shacks. Programs were all in English, and consisted of recordings, short talks, news items, and time checks (in local Melbourne or Sydney time).

In 1939, present-day *Radio Australia* directly evolved from those two early shortwave stations. In 1939, however, *Radio Australia* was known as *Australia Calling*, and continued the English-only programming of its predecessor AWA stations. Soon after, they added Dutch, French, Italian, German and Spanish.

During World War II, *Australia Calling* became one of the most popularly monitored shortwave voices throughout Asia and the Pacific war zones. It was a favorite of all forces. In 1945, the station formally adopted the name *Radio Australia*.

Though *Radio Australia* now operates in nine languages on 44 frequencies from four locations, and is running as much as 250 kW, down deep it's essentially the matured version of friendly VK2ME/VK3ME calling from Australia on the world's radio dials. We are pleased to note that the laughing Australian Kookaburra was retained to serve on the *Radio Australia* staff.



HJ1ABB, Barranquilla, Colombia, was a front-room, privately owned, and fully licensed shortwave broadcaster of the 1930s. It was widely reported, despite running only 300 watts.

Personal Shortwave Broadcaster

The 1920s to early 1930s was a period when many individuals were able to own and operate their own personal small broadcasting stations from home. These fully licensed stations were quite plentiful for a time. This wasn't limited to North America, or the mediumwave band.

Shortwave broadcaster HJ1ABB, *La Voz de Barranquilla*, 6450 kHz, in Colombia was a perfect example of this. The licensed broadcast station began operations about 1930 with the call letters HKD. It used a 7-watt transmitter hand-built by its American-educated owner, Elias J. Pellet.

In 1933, Pellet constructed a 15-watt transmitter, and the station's call letters were changed to HJ1ABB. By 1934, HJ1ABB still was operating from Pellet's home with a 300-watt transmitter. Despite its low power on 6 MHz, HJ1ABB was widely reported in North America.

Announcements were made in English as well as Spanish. By 1933, HJ1ABB was on the air for more than six hours every day. Wouldn't you agree, it's not too shabby for a one-person, at-home operation?

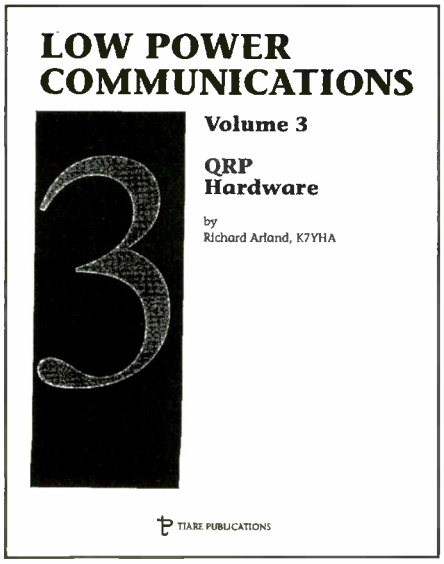
The help and participation of our readers in the preparation of this section of *POP'COMM* remains invaluable. Please continue to pass along old radio and wireless station picture postcards, QSL cards and letters (originals or good copies), station listings, newspaper clippings, memories and anecdotes, questions and suggestions. Everything is appreciated, and most likely will be used at some point. ■

BOOKS YOU'LL LIKE

BY R.L. SLATTERY

How Low Can You Get?

Volume 3 of *Low Power Communications*, by Richard Arland, K7YHA, is subtitled *QRP Hardware*. This is the final book in Arland's trilogy devoted exclusively to QRP operation, also known to many as low-power hamming.



In this new volume, you'll learn about the equipment choices available when planning a new or upgraded QRP station. Also included are sure-fire tips for buying and trading used gear, plus a look at various operating accessories of particular use to the QRP specialist. There's a fine chapter on how to plan and erect an antenna tower, and the author has included valuable information about errors hams often make when they put up towers.

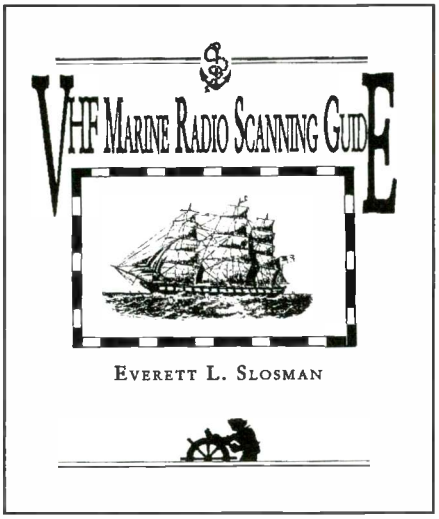
Want to start and run a QRP club? This book tells you how. Or, use the listings in the book to join existing QRP clubs and on-air nets. There also are listings giving the addresses of manufacturers and suppliers catering to QRP fans.

Like Arland's earlier books in this series, this volume is illustrated and written in an informal style well-suited to the hobby user. The emphasis is on the fun and excitement of QRP. Many advocates feel that QRP contacts are operating accomplishments, and give more pride than simply propelling signals through a band by means of maximum firepower. We strongly suspect there's a larger philosophical viewpoint involved. More (or actually *less*) power to that concept!

Low Power Communications, Vol. 3: QRP Hardware, by Richard Arland, is $14.95, plus $2 shipping and handling, from Tiare Publications, P.O. Box 493, Lake Geneva, WI 53147. They accept VISA/MC, and you can phone in your order weekdays from 8 a.m. to 6 p.m. (Central Time) at 1-(800) 420-0579.

All About Marine Scanning

If you're a scanner owner, you already may have discovered excellent monitoring on VHF marine channels. Scanner insiders have learned that these intercepts can offer some of the best listening. Of course, a scanner owner needs to know the right tricks to really access the nitty-gritty of maritime monitoring—the best of the action. Everett L. Slosman to the rescue! Slosman is a nautical expert who happens to be a scanner enthusiast fascinated by VHF maritime communications.



Slosman's new book, *VHF Marine Scanning Guide*, is the complete users' guide to locating, tuning-in, understanding and enjoying these comms. This monitoring includes pleasure craft, commercial vessels and Coast Guard vessels. This encompasses vessels on inland lakes and waterways, bays, ports, harbors, seaways, and in coastal waters.

Here is useful information on all the frequencies used in the U.S.A. and Canada, and what you are likely to hear on each of them. Special sections provide in-depth information on monitoring the U.S. Coast Guard's VHF operations, also scanning the Mississippi River, the Columbia and Snake Rivers, the St. Lawrence Seaway, the Pacific Northwest, plus the Atlantic, Pacific, and Great Lakes areas of Canada.

This is *not* a frequency directory, but a how-to book. Still, Slosman gives you hundreds of specific shore stations and their operating frequencies. In addition, there are more than 40 relevant maps, codes, tables and frequency charts. There are listings of federal agency maritime channels, as well as Army Corps of Engineers frequencies, and pollution containment and cleanup frequencies. There's a phonetic alphabet chart, as well as marine communications procedure information and lingo.

Slosman has covered all the bases, right down to the best antennas to use for monitoring, and even how to log stations. Best of all, he has done a thorough job. This is an interesting, comprehensive, useful and well-done book.

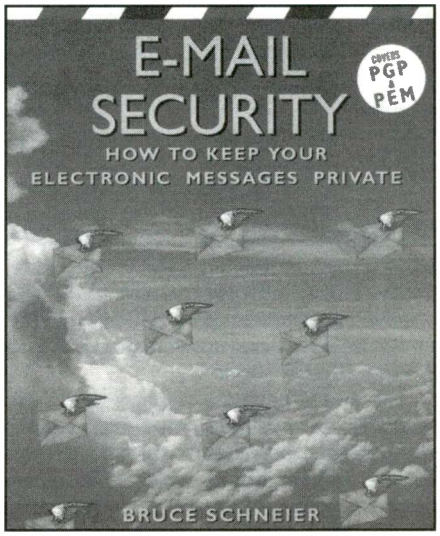
VHF Marine Scanning Guide, by Everett L. Slosman, is $14.95, plus $5 shipping and handling ($6 to Canada) from CRB Research Books Inc., P.O. Box 56, Commack, NY 11725-0056. N.Y. state residents add $1.70 tax. VISA/MC accepted. Phone orders: 1-(800) 656-0056. Canada/AK/HI orders: (516) 543-9169.

Keeping E-mail Private

In an age where information is exchanged freely over computer networks, the invasion of text privacy is becoming commonplace. The average e-mail message passes through no less than a half-dozen intermediaries between its source and destination, and there are no laws to prevent prying eyes from reading this material. A jealous co-worker, a competitor, an employer, the NSA, foreign governments, hackers, and a host of assorted other electronic snoops can peruse all of your ostensibly private e-mail messages as easily as reading postcards.

In his 365-page book, *E-Mail Security: How to Keep Your Electronic Messages*

(Continued on page 82)



TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

How shocking to see the gigantic headline on a supermarket tabloid newspaper screaming, "Cops Tape Dramatic Phone Call—O.J.'s Mom Begs: *Plead Insanity.*" Normally I wouldn't use this rag to wrap fish in, much less buy a copy to actually read. But that blurb was a grabber. The issue went into the shopping cart along with the Twinkies and diet soda.

Inside the tabloid, spelled out in "four-part harmony" (as Arlo Guthrie used to say), was a lengthy story alleging that the Los Angeles Police Department was eavesdropping on O.J.'s cellphone calls, as well as tape recording them. This supposedly occurred as he rode along the freeway with his friend Al Cowlings in the white Ford Bronco, a few days after the murders of Nicole Simpson and Ron Goldman.

This story not only claimed the eavesdropping and recording took place, but then kept right on going by presenting its readers with what they represented as verbatim transcripts of portions of those conversations! The tabloid's editors were kind enough to comment on the transcripts with their own descriptions of the emotions the calls had on those who received them, such as how O.J.'s very ill 72-year-old mother was "devastated."

I don't intend offering any opinions here on the horrible double murder, nor the conduct of any of the personalities connected with the trial. And please don't get me started on a rant about the sleazy and lurid way those crimes have been dealt with in the media in general, the tabloid press and TV in particular. I'm only commenting on the tabloid newspaper's story because it goes beyond bizarre. If it's true, it's extremely relevant to our hobby.

The story noted that O.J. never realized the police were listening in on his calls with "sophisticated electronic equipment." The tabloid mentioned that some portions of the calls were lost as the Bronco moved along the road, but they did manage to tape segments of conversations. Police were said to have distributed copies of the recordings to the District Attorney's office.

A Los Angeles attorney, who is also a law school professor, told the tabloid that the tapes could be used as evidence. He was quoted as having said, "The United States Supreme Court has ruled that 'over-the-air communications,' which would include cellular phone conversations, are not private conversations."

Whoa! I'm having a major problem with all of this. For instance, it's getting stuck in my craw. By whose authority was this monitoring and recording done? Who authorized the release of the transcripts to the media? So far as I'm aware, it looks like a clear violation of the federal Electronic Communications Privacy Act, the Communications Act, as well as any number of California statutes. That would make it useless as evidence. More than that, it would have put the LAPD in line for direct action by the U.S. Department of Justice!

When a formal complaint has been filed by the person, or the cellular service provider whose privacy has been compromised, the federal government is obligated to enforce its ECPA. It would have been interesting to see what happened if someone actually would have filed a complaint! The Department of Justice has taken such action in the past when people have made an official squawk about having their cellphone conversations illegally taped and disseminated to the media.

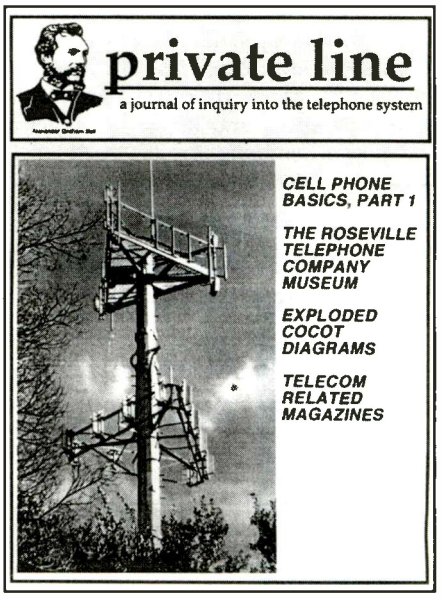
What about the opinions of that attorney and law professor? He is utterly confused. I definitely wouldn't send him out to find some *Shinola*. The U.S. Supreme Court wasn't referring to cellular phones, only cordless telephones! Even so, California has state laws that also make cordless phone monitoring illegal. Here's one lawyer that doesn't belong on a "dream team."

But wait! Remember how, in 1985 and 1986, the cellular phone industry went to Congress, where they cried "foul." They claimed that evil scanner hobbyists were eavesdropping and threatening the growth of their budding industry, even though the analog cellphone calls were transmitted in clear FM over public airwaves.

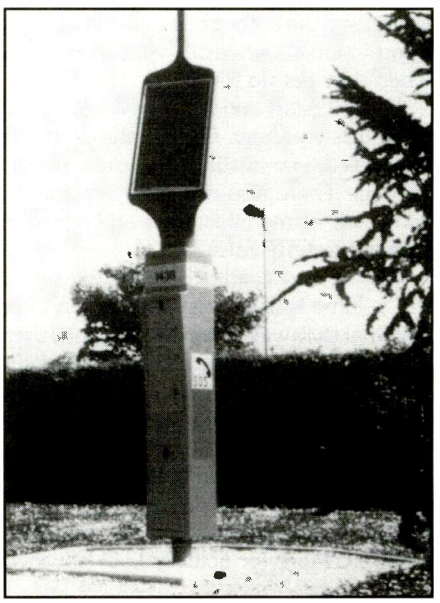
The industry's position was that unless they could assure subscribers that cellphone calls had "a reasonable expectation of privacy," the cellular radio service never would be able to grow. I think they claimed that cellphone monitoring by hobbyists could cause either two or three of Newton's Laws of Motion to be either canceled or repealed. In any case, Western Civilization would certainly end because we'd be back to communications by means of shouting very loudly at one another, and they would not get paid for air time or roamer fees.

They demanded and got their federal law making it clearly illegal to eavesdrop on cellular calls. The industry then boldly hawked their federally mandated expectation of privacy. Last year, the cellular industry further tightened up on privacy by convincing the FCC to forbid the manufacture or importation of new scanners that could receive cellular bands, or be easily modified for such reception.

These events had a decidedly negative impact on our hobby. I feel it made no real difference to the number of cell phones sold. Convenience and access are the selling points. If you've ever monitored cellphone chatter, you quickly realize that privacy obviously is of little concern to users. People freely discuss drug sales, crime plans, tacky romances, and give their credit card numbers. Members of the public (including the apparent legal experts) don't even understand the communications, wiretaps and other privacy laws.



Private Line appeals to those interested in the inner workings of telecommunications technologies. Lots of good info here.



Sagem's solar-powered electronic callbox can operate in virtually any type of radio system, even by landline, cable or fiber optics.

In view of the tabloid story, you'd think that the giant cellular industry itself would have had the ethics, honesty and integrity to raise a stink with the feds to enforce the ECPA they stuck on the public. The tabloid story described a gross violation of everything the cellular industry supposedly holds sacred. One subscriber's promised and federally assured privacy expectations were trampled, and transcripts of his private conversations were released to the media. They sold him the equipment and service with those promises and assurances. Now it's incumbent upon his industry to go to bat on behalf of the rights of their subscriber and see that this egregious violation will not be tolerated. Otherwise, it's all a fake, a sham, and they owe the public an explanation, don't they?

As a scanner hobbyist, I'm weary of watching our hobby, its members and equipment singled out, besmirched, and penalized by the cellular telephone industry for the questionable practices of others. That's not all, I note with due cynicism: The cellular industry's latest ads now are offering the new digital cellular service. After all of the anti-scanner and cellular monitoring laws they've wrought, and their new digital service (which cannot be monitored on hobby scanners), it seems they have suddenly realized that a "reasonable expectation of privacy" is not a necessary selling point for analog cellphones.

Aren't you impressed that the strategy to sell the wonderful high-tech new digital phones requires them to reveal to the public the awful truth about those rinky-dink old-fashioned analog phones? "Hey everybody, strangers can listen to your calls!" The latest ads state that you get "more privacy with digital cellular service," and that "it's more difficult for anyone to listen in."

But, why are they hedging? Why isn't it necessary (or possible) for the industry to proclaim that even digital cellphones offer a "reasonable expectation of privacy?" Does or doesn't this technology make it absolutely impossible to eavesdrop? Maybe they learned their lesson that there really is no need for the "reasonable expectation of privacy" charade. After all, they can't and don't promise this, nor can it be guaranteed.

Or, maybe the digital cellphone ad tacitly reveals why nobody from the cellular world has squawked about the tabloid transcripts. Could it be that the greedy, crafty and manipulative cellular industry now has a good reason for the public to the learn the truth about how vulnerable analog phones are to monitoring by outsiders? Now everyone will want to buy a new digital phone!

If there's no longer a reasonable expectation of privacy with cellphones, as it seems, there is no longer any reason to justify the continued existence of the ECPA,

Protect your cellphone from damage by foods, liquids and other hazards. This inexpensive covering slips over the unit and can be left in place while deflecting all invading schmutz.

or the exclusion of cellular bands in modern-made scanners. The cellular industry now must be forced to either justify the continuation of these laws, or else declare them unnecessary in light of present circumstances. They must recommend that the ECPA and the FCC's scanner restrictions be rescinded without delay.

Readers of Telephones Enroute are invited to write to me with comments. Let's hear from you.

Interesting Periodical

The other day we got several sample copies of a fine-looking bi-monthly publication entitled, *Private Line: A Journal of Inquiry Into the Telephone System*. Edited and published by Tom Farley, KD6NSP, its focus is on the technology of telecommunications in all of its forms including cellular, landline, digital, legal matters, hacking, phreaking, hardware, software, fraud, opinions, and all kinds of other things related to the topic.

Private Line has been published since June 1994 and has been growing steadily in size, distribution, reputation and influence. The issues run about 28 pages and are nicely printed with slick covers. They're filled with good photos, charts, diagrams, schematics and lots of information that I found very interesting and well done.

This publication, which comes out six times per year, is available for $27 per year. The address is *Private Line*, 5150 Fair Oaks Blvd., #101-348, Carmichael, CA 95608. Phone: (916) 488-4231; fax (916) 978-0810; or at privateline@delphi.com if you communicate via e-mail. Let them know we sent you.

Out Damp Spot

What's worse than spilling a container of piping hot Mickey D's coffee into your lap? Possibly nothing. My vote for a close second is dumping any kind of hot or cold beverage on your cellphone, or subjecting it to rain, saltwater spray, food spills, dust, sand, dirt, grit, soot, tobacco scraps, lint, constant cigarette smoke or other hazards.

Carrying around a portable long enough in a vehicle, pocket, purse or briefcase seems to eventually result in a disaster involving something messing up the cellphone. Even mobile cellphone handsets get zapped in due time. Keypads are particularly disinclined to continue functioning after being invaded by fluids or foodstuffs of any kind, delicious though they may be.

These problems can be eliminated with PhoneGuard, a transparent, flexible, custom-fitted keypad cover. Made of tough polyurethane, it fits the keypad like a glove. The keys are fully visible and easily operated through the cover. There are models to fit every cellphone, and they sell for less than $10 each. That's much cheaper than repairing or replacing a keypad or cellphone.

For more information, descriptive literature, or dealer pricing, contact Viziflex Seels Inc., 16 E. Lafayette St., Hackensack, NJ 07601. Phone: (201) 487-8080; fax (201) 487-6637.

Solar-Powered Call-Box

Sagem, a French company, has produced a new solar-powered electronic callbox for use in Europe. With its flashing lights, the unit can integrate into any radio system, including police, railway or parks. Alternately, it can feed its messages out via standard phone lines or fiber-optic cables. Call buttons are utilized to summon assistance required for any given location where a callbox is installed, such as police, repair, ambulance, fire, park ranger or rescue. Special central station monitoring equipment is used with these callboxes.

More information on Sagem Division Terminaux et Telecommunications is available from French Technology Press Office, 401 N. Michigan Ave., Suite 1760, Chicago, IL 60611. Phone: (312) 222-1235; fax: (312) 222-1237.

This column seeks your input and comments, also information and press releases on products and services relating to cellphones, pagers, PCS, air/ground phones, and related matters. ■

Scanners/CB/Weather Stations

New Scanner Products Available

Now it's easy to purchase communications, emergency management supplies, weather forecasting equipment and more directly from Communications Electronics Inc. Your **free fax-on-demand catalog** including unadvertised specials is instantly available by calling 313-663-8888 from your fax machine.

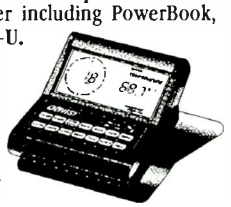
Bearcat Scanners

Monitor police, fire, marine, aircraft, emergency medical transmissions and more with a Bearcat scanner.

Bearcat 9000XLT-U base/mobile $369.95
Bearcat 3000XLT-U handheld $344.95
Bearcat 890XLT-U base/mobile/weather alert $227.95
Bearcat 860XLT-U 100 channel base $154.95
Bearcat 760XLT-U base/mobile $189.95
Bearcat 700A-U information mobile $144.95
Bearcat 560XLA-U base/mobile $76.95
Bearcat 220XLT-U handheld/SPECIAL $207.95
Bearcat 178XLT-U base with weather alert $124.95
Sportcat 150-U handheld with 800 MHz. $158.95
Bearcat 148XLT-U base with weather alert $83.95
Bearcat 120XLT-U handheld $129.95
Bearcat 80XLT-U handheld with 800 MHz. $144.95
Bearcat BCT7-U information mobile $168.95

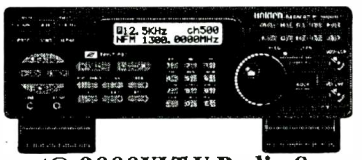
Weather Stations

Now you can be your own weather reporter with the Davis Weather Monitor II. Our top-of-the-line weather station combines the most advanced weather monitoring technologies available into one incredible package. Glance at the display, and see wind direction and wind speed on the compass rose. Check the barometric trend arrow to see if the pressure is rising or falling. Push a button, and read indoor and outdoor temperature, wind chill, humidity and barometric pressure. Our package deal includes the new ultra high resolution 1/100 inch rain collector part **#7852-U**, and the external temperature/humidity sensor, part **#7859-U**. The package deal is order **#DAV1-U** for $479.95 plus $15.00 shipping. If you have a personal computer, when you order the optional Weatherlink computer software for $139.95, you'll have a powerful computerized weather station at an incredible price. For the IBM PC or equivalent order part **#7862-U**. Apple Mac Plus or higher including PowerBook, order part number **7866-U**.



The Weather Monitor II (7440) comes complete with anemometer with 40 feet of cable, external temperature sensor with 25 feet of cable, junction box with 8 feet of cable, AC-power adapter, detailed instruction booklet and one year limited factory warranty.

Davis Weather Monitor II 7440-U $334.95
Davis Weather Wizard III 7425-U $154.95
Davis Perception II Indoor stand-alone weather monitor 7400-U .. $124.95
Davis Remote Display Unit 7815-U $84.95
Davis Rain Collector II 0.01" 7852-U $59.95
Davis Rain Collector II 0.2 mm 7852METRIC-U $59.95
Davis Rain Gauge Stand-alone 0.01" 7520-U $79.95
External Temperature/Humidity Sensor 7859-U $99.95
Davis Anemometer Mast Mount 7890-U $15.95
Weatherlink Software for IBM PC-Version 3.0 7862-U $139.95
Weatherlink Software for Apple-Version 3.0 7866-U $139.95
4-Conductor 40' (12.2 m) extension cable 7876-U $17.95
6-Conductor 40' (12.2 m) extension cable 7878-U $21.95
8-Conductor 25' (7.6 m) junction box cable 7880-U $14.95
8-Conductor 50' (15.2 m) junction box cable 7881-U $24.95
8-Conductor 100' (30.5 m) junction box cable 7882-U $44.95
Modem Adaptor 25-Uin for communications port 7870-U $9.95
Car/Boat/RV Lighter Power Cord 7873-U $9.95
2400 baud modem for Weatherlink MEXT-U $29.95
Talking weather card - Call 313-994-9000 for demo IT1-U $474.95
Weatherlink language disks: Française, Deutsche, Italiana, Española 7863-U $24.95
Barometer, Indoor Hygrometer & Thermometer, Clock/Calendar BA888-U . $89.95
Indoor-Outdoor Thermometer/Barometer & Hygrometer by OSI BA213-U .. $79.95
Thermometer with transparent calender & clock display by OSI TC188-U .. $19.95
Thermometer with AM/FM clock radio by Oregon Scientific CR388-U $39.95
Indoor/Outdoor Thermometer with Jumbo Display by OSI JB880EX-U $24.95



Bearcat® 9000XLT-U Radio Scanner

Mfg. suggested list price $769.95/**CE Special $369.95**

500 Channels · 20 banks · Alpha numeric display Turbo Scan · VFO Control · 10 Priority channels Auto Store · Auto Recording · Reception counter Frequency step resolution 5, 12.5 & 25 KHz.

Size: 10-1/2" Wide x 7-1/2" Deep x 3-3/8" High

Frequency Coverage:
25.000-549.995 MHz., 760.000-823.995 MHz., 849.0125-868.995 MHz., 894.0125-1,300.000 MHz.

The Bearcat 9000XLT gives you pure scanning satisfaction with amazing features like TurboSearch™ to search VHF channels at 300 steps per second. This base and moble scanner is ideal for surveillance professionals because it has a selectable attenuator to help eliminate annoying intermodulation from adjacent frequencies in highly populated areas and selectable AM, Wide FM and Narrow FM modes that allow you to change the default receiving mode of the BC9000XLT. Other features include ***Auto Store*** – Automatically stores all active frequencies within the specified bank(s). ***Auto Recording*** – This feature lets you record channel activity from the scanner onto a tape recorder. **Hi-Cut filter** to help eliminate unwanted static noise. You can even get an optional ***CTCSS Tone Board*** (Continuous Tone Control Squelch System) which allows the squelch to be broken during scanning only when a correct CTCSS tone is received. For maximum scanning enjoyment, order the following optional accessories: **PS001** Cigarette lighter power cord for temporary operation from your vehicle's cigarette lighter $14.95; **PS002** DC power cord - enables permanent operation from your vehicle's fuse box $14.95; **MB001** Mobile mounting bracket $14.95; **BC005** CTCSS Tone Board $54.95; **EX711** External speaker with mounting bracket & 10 feet of cable with plug attached $19.95. The BC9000XLT comes with AC adapter, telescopic antenna, owner's manual and one year limited warranty from Uniden.

CB/GMRS Radios

The Maxon GMRS 210+3 transceiver is a PLL synthesized 10 channel radio on General Mobile Radio Service frequencies. It's the ideal radio for long range communications. Two repeater channels are programmable and one channel (462.675 MHz.) is set aside for emergency and safety communications. The seven remaining interstitial frequencies 462.5625, 462.5875, 462.6125, 462.6375, 462.6875 & 462.7125 MHz are all-purpose GMRS radio channels. 2 watts of RF power for exceptional transmitting range. Up to 5 watts when used with the supplied 12 volt vehicular DC power cord. CTCSS built-in. Includes 450mAh Ni-cad rechargeable battery pack, AC/DC wall battery charger, owner's manual, FCC license application, belt clip, antenna. Call 1-800-USA-SCAN to order.

Maxon GMRS210+3-U GMRS transceiver $188.95
SPECIAL Buy 2 or more GMR210+3 at $174.95 each
WTA3DT-U Ni-cad battery charger for WTA6GN4 & WTA6GN2 .. $58.95
WTA6GN4-U Ni-cad pack gives 4 watts power with 210+3 ..... $55.95
WTA6GN2-U Ni-cad pack gives 2 watts power with 210+3 ..... $29.95
WTA6GA-U Alkaline battery case - requires 6 AA batteries $9.95
WTA8GA-U Carrying case for Maxon GMRS210+3 ..... $29.95
WTA10G-U Speaker/microphone for Maxon GMRS210+3 ..... $18.95
WTA13G-U Push-to-talk mini-VOX headset for GMRS210+3 ..... $47.95
WTA14-U Antenna adaptor/screw-in male to BNC connector $9.95
ANT4GM-U 1/4 wave UHF magnetic mount mobile antenna $29.95
Cobra 2010GTLWX-U SSB base with weather alert+ $379.95
Cobra 148FGTL-U CB with frequency counter $209.95
Cobra 29LTDWX-U CB with weather alert $114.95
Cobra HH40-U CB 40 channel handheld transceiver $99.95
Ranger RCI2950-U 25 watt 10 meter transceiver $239.95
Uniden GMR100-U GMRS handheld transceiver $144.95
Uniden WASHINGTON-U SSB CB Base (+ $25.00 shipping) $199.95
Uniden GRANTXL-U SSB CB Mobile $139.95
Uniden PRO538W-U CB & Weather $59.95

VHF Transceiver

RELM® WHS150-U Transceiver/SPECIAL

Mfg. suggested list price $481.67/**CE price $299.95**

Police and fire departments depend on the RELM WHS150 transceiver for direct two-way communications with their police, fire department, civil defense agency or ham radio repeater. The WHS150 is our most popular programmable five watt, 16 channel handheld transceiver that has built-in CTCSS, which may be programmed for any 39 standard EIA tones. Frequency range 148.000 to 174.000 MHz. Will also work 144.000-148.000 with slightly reduced performance. The full function, DTMF compatible keypad also allows for DTMF Encode/Decode and programmable ANI. Weighing only 15.5 oz., it features dealer programmable synthesized frequencies either simplex or half duplex in both 5.0 and 6.25 KHz. increments. Other features include scan list, priority channel, selectable scan delay, selectable 5 watt/1 watt power levels, liquid crystal display, time-out timer and much more. When you order the WHS150 from Communications Electronics Inc., you'll get a complete package deal including antenna, battery, belt clip and user operating instructions. Other accessories are available. A leather carrying case with swivel belt loop part **#LCWHS** is $49.95; rapid charge battery charger, part **#BCWHS** is $69.95; speaker/microphone, part **#SMWHS** is $54.95; extra ni-cad battery pack, part **#BP007** is $59.95. The radio technician maintaining your radio system must order programming instructions part **#PI150** for $18.00 to activate this radio. FCC license required for United States operation.

Other neat stuff

PH5000-U Waber 500VA/340 Watt computer uninterruptable power supply $159.95
WX70-U weather radio with National Weather Service storm alert $29.95
WB-U USA Today The Weather Book, Guide to USA weather by Jack Williams $15.95
PSUN-U Partly Sunny, Weather Junkie's Guide to Weather by Alan Fields $11.95
Grundig Yacht Boy 400-U digital portable shortwave - 40 memory $179.95
Grundig Yacht Boy 230-U portable shortwave receiver $109.95
Sangean ATS800-U portable 20 memory shortwave receiver $69.95
Sangean ATS803A-U portable shortwave w/AC adapter -- 9 memory $129.95
Sangean ATS808-U portable 45 memory shortwave receiver $129.95
Uniden EXP9200-U 900 MHz. 1 or 2 line spread spectrum cordless phone . $289.95
Uniden EXP9100-U 900 MHz. 1 line cordless spread spectrum telephone ... $224.95
Uniden EXP901-U 900 MHz. 1 line cordless analog telephone $149.95
Bogen FR3110-U Digital FAX Friday Fax-on-Demand & answering system ... $399.95
Bogen FR3020-U memory module for Fax Friday/up to 36 minutes $99.95
Bogen FR2000-U Digital two-line voice mail & answering machine $279.95
Bogen FR0018-U memory module, doubles recording time to 36 minutes $79.95
FANS P161P-U 60 name/number caller ID, unwanted call blocker, paging .. $149.95
SNI ID200-U Bouncer name/number caller ID, call reject, forward $89.95
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BROADCAST DX'ING

BY TIM KRIDEL

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Belt-Tightening or Strangulation?: With deep budget cuts forcing the Canadian Broadcasting Corp. to rethink its mission, and many private stations scaling back by merging with their rivals or buying satellite-delivered programming, the past few years have been tumultuous for Canadian radio. Now, word comes to us from Edmonton, Alberta's Trevor Fletcher saying that province's AM and FM network, CKUA, also is facing death by a thousand cuts. According to an article in *The Edmonton Journal*, employees are being dismissed, demoted or jumping ship. Morning man Tony Dillon-Davis, a 27-year veteran of the station, was sent to the overnight, and after 14 years as a producer, program manager Brian Dunsmore was laid off. Worse, the changes come on the heels of an average 30 percent salary rollback, with some staffers suffering cuts as deep as 50 percent. The result, as the *Journal*'s radio columnist describes it, is that CKUA is "starting to behave like a shaky commercial outlet, where salaries are low, everyone is expendable and major decisions are made with knee-jerk haste."

The upheaval at the publicly owned network stems from the Alberta government's plan to wean CKUA from provincial funds. In the fiscal year beginning Sept. 1, 1995, the station will have its budget slashed to $1.35 million from $2.6 million; the following year, it will be reduced to $675,000, and then eliminated entirely. The cuts have sent the non-profit CKUA Foundation, which now holds the station's license, scrambling to replace the loss through fund-raising drives and by soliciting corporate underwriting. A spring drive netted $168,000 in pledges, and several corporate sponsorships are in the works. Even so, the days of a steady flow of funding—and the security that came with it—are over for good. As CKUA's new operations manager, Ken Davis, explained, "The method of payment at CKUA under the foundation has changed." With government financing, "you got increases every year just for being there. Now you get paid according to what you do within the station and we've ascribed various values to programming elements."

CouponRadio: If Dave Alwadish has his way, radio listeners soon will be able to get savings on purchases the way newspaper readers do—but with a twist. Alwadish's company, CouponRadio, has teamed up with Arbitron and the Interep Radio Store to test a system that would allow listeners with specially equipped receivers to download advertisements to a "smart card," which then could be used to receive more information and coupons at participating stores. The technology, which utilizes Radio Data System, is slated to be tested in Miami in January and February 1996, with WKIS-AM and FMers WBGG, WTMI, WHYI, WPOW, WSHE and WEDR taking part. A contest will give away 3,000 car receivers as part of the promotion.

At WTKC-FM, "Tour Kankakee County" is their middle name. (Logo courtesy Kyle Buente, WTKC's digital broadcasting manager.)

CouponRadio's backers are touting the system as a win-win situation for consumers and advertisers. As Alwadish told the industry newspaper *Radio World*, he envisions a listener will hear a new song while driving; inserting the credit card-size smart card into the car's receiver would allow him or her to download information such as song title, artist and the station's calls. Later, at a participating record store, the listener could use the card to receive more information about the album, as well as a coupon. At the same time, radio advertisers thereby could achieve what Interep Radio Store Marketing President Marc Guild calls "the ultimate accountability" by determining which stations gave the best results in reaching prospective customers.

Hi-Tech TIS: Bandscanning while on a road trip can yield many new loggings, especially of low-power Travelers Information Stations (TIS). But while most of us would hunt for these stations at either end of the AM band, if you're passing through Kankakee, Ill., you might want to check out the FM band, too. *POP'COMM* reader Kyle Buente, N9OQC, tells us about WTKC, an FM station where he is an intern. The 1.75-kW station continually broadcasts tourism information for Kankakee County on 91.1 MHz. Kyle points out that while many communities have an AM TIS, to his knowledge "WTKC is the first and perhaps only FM radio station in the nation" to have a format solely of tourism information. Although its licensee is Kankakee Community College, the station is a joint venture by the college, Olivet Nazarene University, and the Kankakee County Convention and Visitors Bureau, which oversees the day-to-day operations.

The station, which first took to the air on June 1, 1992, also is unique for its production. Kyle, WTKC's digital broadcasting manager, says that "instead of having an endless loop tape or carts, WTKC utilizes the latest in digital equipment." Programming "is digitally recorded at one location onto a DCS computer," and then is sent "via modem to the transmitter site" on the campus of Olivet Nazarene University, "where a traffic computer in turn sends the files via a network to the on-air computer." Both the traffic and on-air computers are remote-controlled by a computer. The end result, Kyle says, is "efficient and state-of-the-art," and with the exception of a contracted engineer, the station has no full-time employees.

The Fifth Estate vs. Real Estate: In the December 1994 issue, we reported about how the construction of a 480-foot antenna tower by Fordham University's WFUV-FM led to a clash between the university and its neighbor, the New York Botanical Garden. Now, *POP'COMM* reader Stephen B. Dobrow of Woodside, N.Y., reports that a similar battle is under way near Ringwood, N.J. A proposal by the owner of WKNJ-AM to erect three 297-foot towers on 14 acres is being challenged by the curator of neighboring historic Ringwood Manor. According to an article in *The* (Bergen County, New Jersey) *Record*, the historian contends that the towers would detract from the wooded, mountainous landscape surrounding the 18th-century mansion where George Washington slept at least five times. Until now, the manor was able to stave off development, including a radio tower for the state police, by virtue of its status as a national historic landmark.

The 500-watt station, with a proposed format of rock 'n' roll oldies, is owned by Steven Wendell, who maintains that he already has spent more than $400,000 to start up WKNJ. Wendell is leasing the land for the proposed antenna farm from the borough, which has led to charges by opponents that council members are "caving in

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CIRCLE 131 ON READER SERVICE CARD

Seeking Permission to Construct New FM Stations

AK	Houston	92.1 MHz	6 kW
AL	Harvest	88.1 MHz	1.5 kW
AR	Jonesboro	90.5 MHz	1 kW
AZ	Bisbee	90.1 MHz	
AZ	Fountain Hills	89.1 MHz	1.4 kW
CA	Ludlow	100.1 MHz	25 kW
FL	Apalachicola	105.5 MHz	6 kW
FL	Ocala	91.5 MHz	200 watts
GA	The Rock	88.9 MHz	9 kW
HI	Hilo	91.1 MHz	100 kW
HI	Lihue	90.1 MHz	100 kW
IA	Ottumwa	89.7 MHz	2.3 MHz
ID	Twin Falls	88.9 MHz	3 kW
IL	Danville	88.5 MHz	500 watts
KS	Hill City	101.9 MHz	100 kW
KS	Larned	106.9 MHz	100 kW
MA	Woods Hole	90.1 MHz	6.5 kW
ME	Van Buren	98.1	2 kW
MI	Reed City	97.3 MHz	
MN	Hermantown	92.1 MHz	780 watts
MS	Bude	104.3 MHz	25 kW
MS	Greenville	104.7 MHz	
MS	Kosciusko	103.3 MHz	25 kW
MS	Pascagoula	88.9 MHz	30 kW
MT	Ennis	98.7 MHz	50 kW
NC	Atlantic Beach	91.5 MHz	26 kW
NC	Nashville	106.9 MHz	
NE	Bellevue	88.3 MHz	1.8 kW
NE	McCook	94.1 MHz	50 kW
NM	Jal	107.1 MHz	100 kW
NY	Rouses Point	88.7 MHz	13 kW
OH	Kingsville	107.5 MHz	6 kW
OH	Piketon	100.1 MHz	3 kW
OR	Grants Pass	91.1 MHz	250 watts
PA	Cambridge Springs	104.5 MHz	
PA	Fairview	93.9 MHz	
PA	Johnstown	89.7 MHz	8 kW
SC	N. Myrtle Beach	88.9 MHz	
TN	Norris	106.7 MHz	6 kW
TX	Edna	96.1 MHz	13 kW
TX	Stanton	105.9 MHz	37 kW
VA	Ettrick	93.1 MHz	6 kW
VA	Farmville	92.9 MHz	6 kW
WA	Moses Lake	88.3 MHz	4 kW

Issued Permits to Construct New FM Stations

FL	St. Augustine Beach	105.5 MHz	1.9 kW
GA	Sasser	107.7 MHz	25 kW
IL	Mt. Sterling	106.7 MHz	25 kW
MI	L'Anse	106.1 MHz	50 kW
MT	Great Falls	88.9 MHz	6 kW
NY	Chenango Bridge	104.1 MHz	3.1 MHz
OH	Coschton	91.1 MHz	6 kW
PA	Reading	105.1 MHz	5 kW (WIOV booster)
TN	Monterey	104.7 MHz	3.4 kW

Canceled

KLRF	Brownsville, OR	102.3 MHz	345 watts

Seeking Permit to Construct a New AM Station

AK	St. Paul	540 kHz	2.5 kW

Seeking Permission to Modify AM Facilities

KENO	Las Vegas, NV	1460 kHz	Seeks drop to 20 kW/625 watts.
KENS	San Antonio, TX	1160 kHz	Seeks daytime increase to 10 kW.
KGOL	Humble, TX	1180 kHz	Seeks daytime drop to 8.5 kW.
KGRB	W. Covina, CA	900 kHz	Seeks increase to 30/10 kW.
KORG	Anaheim, CA	1190 kHz	Seeks daytime increase to 20 kW.
KRGS	Rifle, CO	810 kHz	Seeks 690 kHz, 900/11.6 watts.
KRML	Carmel, CA	1410 kHz	Seeks drop to 2.5/2 kW.
WBYY	Rockford, MI	810 kHz	Seeks increase to 3.5 kW.
WLIB	New York, NY	1190 kHz	Seeks increase to 30/10 kW.
WRYM	New Britain, CT	840 kHz	Seeks night operation with 125 watts.
WTNN	Farragut, TN	670 kHz	Seeks increase to 2.5 kW.

Changed AM Facilities

KBMR	Bismarck, ND	1130 kHz	Dropped to 10 kW during day time.
WKNL	Knoxville, TN	760 kHz	Dropped to 2.4 kW.
WLUV	Loves Park, IL	1520 kHz	Added nights with 12.5 watts.
WMUZ	St. Louis, MO	690 kHz	Added nights with 17.9 watts.
WNVJ	Oakland, NJ	1160 kHz	Increased daytime to 20 kW.

Seeking Permission to Modify FM Facilities

KLVS	Kingsburg, CA	106.3 MHz	Seeks non-commercial status.
WJNF	Marianna, FL	91.1 MHz	Seeks change to 88.3 MHz.
WWBD	Bamberg, SC	92.1 MHz	Seeks to change frequency.

Changed FM Frequencies

KIRC	Seminole, OK	105.5 MHz	Changed to 105.9 MHz, 6 kW.
WAAI	Hurlock, MD	100.9 MHz	Changed to 100.5 MHz, 6 kW.

Pending AM Call Letter Change

New	Old	
KAAM	KWFT	Wichita Falls, TX

Changed AM Call Letters

New	Was	
KAHS	KCTQ	Thousand Oaks, CA
KCWM	KRME	Hondo, TX
KFCC	KBUD	Amarillo, TX
KIMN	KSMJ	Sacramento, CA
KJUS	KZXT	Beaumont, TX
KSBT	KBCR	Steamboat Springs, CO
WAPB	WMTS	Murfreesboro, TN
WBPS	WBMA	Dedham, MA
WGLH	WAZU	Lafollette, TN

Pending FM Call Letter Changes

New	Old	
KRQZ-FM	KBIX-FM	Wagoner, OK
KTUN	KQMT	Eagle, CO
WSEA	WZEA	Hampton, NH

Changed FM Call Letters

New	Was	
KASS	KPGM	Capser, WY
KBCR	KSBT	Steamboat Springs, CO
KBEE-FM	KVRI	Salt Lake City, UT
KFTX	KWVS	Kingsville, TX
KGTR	KQDF-FM	Larned, KS
KHUM	KBEY	Garberville, CA
KIMN-FM	KIMN	Fort Colins, CO
KMJZ	KJJO-FM	St. Louis Park, MN
KNFO	KVYT	Basalt, CO
KPHT	KSSZ-FM	Kindred, ND
KRKO	KGRQ-FM	Roy, UT
KRKN	KACG	Eldon, IA
KROX-FM	KOKE	Giddings, TX
KRVR	KRVI	Copperopolis, CA
KSPT-FM	KJDE	Sandpoint, ID
KSYG-FM	KKYK	Little Rock, AR
KTBZ	KRQT	Lake Jackson, TX

KUBL	KLZX-FM	Salt Lake City, UT
KZAP	KZZP	Paradise, CA
KZNO	KLCR	Nogales, AZ
WALR	WIGO	Atlanta, GA
WALR-FM	WALR	Athens, GA
WBEB	WBEB-FM	Philadelphia, PA
WEND	WRDX	Salisbury, NC
WHRR	WEZO	Avon, NY
WHZZ	WILS-FM	Lansing, MI
WIGY	WHAA	Madison, ME
WING-FM	WAZU	Springfield, OH
WKRF	WPMR-FM	Tobyhanna, PA
WKRO-FM	WEDG	Edgewater, FL
WMKW	WAJX	Crossville, TN
WMTS-FM	WAKF	Murfreesboro, TN
WPDT	WRHA	Johnsonville, SC
WQHR	WTMS-FM	Presque Isle, ME
WRVC-FM	WCMI-FM	Catlettsburg, KY
WSRR-FM	WYKL	Millington, TN
WULF	WHIC-FM	Hardinsburg, TN
WWSK	WCIG	Mullins, SC
WXVR	WZYQ	Braddock Heights, MD
WYMJ	WIMX-FM	Harrisburg, PA
WYSR	WTRY-FM	Rotterdam, NY

New FM Call Letters Issued

KAKP	Bagdad, AZ
KAKR	Sterling City, TX
KAKU	Springfield, MO
KAKV	Lompoc, CA
WALN	Carrollton, AL
WALQ	Poughkeepsie, NY
WAMP	Jackson, TN
WBHW	Logootee, IN
WCMD	Barre, VT
WEGC	Sasser, GA

James H. Young of Springfield, Va., sends us this photo of the transmitter site of Washington, D.C.'s WTOP-AM.

CMBE
Chip Morgan Broadcast Engineering

Tuesday May 2, 1995

Mr. Walt Schivo
KB6BKN

Dear Mr. Schivo:

Thanks for your signal strength report on the KUSA 1680 kHz test station broadcasting from Las Vegas, NV during the National Association of Broadcasters Convention.

This was the first broadcast of AM digital technology that is in-band-on-channel. The tests were conducted by USA Digital, a consortium of radio operators including Gannett, Westinghouse and several others. The purpose of the tests was to show that digital modulation could be superimposed with standard AM broadcasts. Visitors to the NAB show who were interested in the tests rode in a special bus outfitted with a digital receiver and listened in headphones to the analog and digital signal for comparison. The AM digital signal provides 15 kHz stereo audio response with no fading, static or noise.

The transmitter was a Harris DX10 10kW standard AM transmitter modified to accept the digital signal. It simultaneously broadcast the standard AM signal and the digital signal on a non-directional tower near Las Vegas.

The reason you heard our phone number on the air was that we were advertising our digital experience to visitors at the NAB show. We actually have nothing to do with the test broadcasts other than being advertisers! Our firm performs **architectural and engineering** design, installation and troubleshooting for broadcast stations nationwide, based in Sacramento, California. We specialize in strategic planning, signal improvement, facilities improvement and project management for broadcast clients.

Reports are coming in from all across the US, showing just how far standard broadcasts could go if there was no interference on local channels! 1680 kHz is in what's called the "expanded band" recently approved by the FCC for new AM broadcast stations. I hope this information proves useful to you, and we appreciate your report!

Best Regards,

Chip Morgan
President **CMBE**

P.O. Box 5233
El Dorado Hills
California 95762

916.933.9330
Fax 916.933.3903

KUSA, heard by DXers as far away as the east coast, offered at once a hint of the future and a blast from the past—digital broadcasting in the new expanded band, and a reminder of the days when a less congested dial meant now-unheard-of DX catches.

to developers so they can pick up ratables." Mayor Jerry Holt responded that although the borough is in need of tax ratables, "on balance, I think the community would be well-served by having its own radio station."

Ironically, the issue of antenna towers as a source of tax revenue was the subject of a March legal decision in East Rutherford, N.J. As we reported that case last month, a state tax judge ruled that an AM antenna tower is considered business equipment, not property, because it radiates the station's signal; therefore, the tower cannot be taxed.

1+1=3: A combination in November 1994 of two Maine radio stations, and complaints by area residents about the resulting loss of their sole local radio outlet, has prompted two men to start up a new station to fill the void. After 45 years of serving Aroostook County, WHOU-FM was sold to the owners of Presque Isle's WOZI-FM, and subsequently began simulcasting WOZI. Residents of Houlton complained that the merger of the stations, now known collectively as "KIXX-FM," came at the expense of the community. "It's basically a slap in the face because WHOU stands for Houlton," one resident said in a *Bangor* (Maine) *Daily News* article sent to

us by Don Hallenbeck of Pittsfield, Maine. "We're going to lose the local flavor," a former WHOU advertiser said. "It just can't be done from Presque Isle."

At the time the simulcasts began, according to the *Daily News*, a spokesman for WHOU said that WOZI and WHOU "probably would resume separate programming" once the sale had been finalized, but that "it could take 18 months." After conducting a survey of 203 attenders of a local health fair in May that yielded 192 responses supporting the idea of a new local radio station, Paul J. Cleary, a former WHOU staffer, and an undisclosed partner began the process to start up a station to serve southern Aroostook County. Although the two declined to reveal the status of their efforts, the new station likely would have a format of oldies and classic rock, the overwhelming choice of those surveyed.

Notes from Cyberspace: Marc Manis, K5NO, checks in via the Internet to report several changes in the central Florida radio market. Daytona Beach's WCFB-FM has dropped its "Young Country" format and "B94.5" slogan in favor of what Marc describes as "a mix of soft urban, dance and contemporary music," and now IDs as "Star 94.5." Meanwhile, in an apparent effort to make a clean break from a format of satellite-fed oldies, Edgewater's WEDG-FM played over and over throughout the April 30 through May 1 weekend "an unintelligible tune sung by former model Twiggy," before debuting a new format of alternative music on the following Monday. Finally, Winter Park's WLOQ-FM has added two bays to the four-bay antenna it built last summer, which boosted its ERP to 25 kW at 450 feet.

Other news we've been receiving via e-mail is from the Michigan Area Radio Enthusiasts. Their *Tip Sheet* includes news, program schedules, loggings and upcoming events in the region. For more information, contact MARE via the Internet at xx024@detroit.freenet.org, or send a self-addressed, stamped envelope to P.O. Box 530933, Livonia, MI 48153-0933. What sort of news can you expect? In their May 12 issue, MARE reports that the Chicago Bulls and White Sox will move to WMVP-AM, where they will join the Blackhawks.

In Brief: Chicagoland AMer WJJG, 1530 kHz, is seeking to double its power to 800 watts, according to a *Chicago Tribune* article sent to us by Elmer Wallesen of La Grange Park, Ill. The daytime-only station, licensed to the suburb of Elmhurst, Ill., switched earlier this year from jazz and adult standards to all-talk.

Montclair State (New Jersey) University's station, WMSC-FM, has returned to 90.3 MHz from 101.5 MHz after its licensee was being upgraded from a college to a university. *POP'COMM* reader Louis J. Scilia reports that the 0.86-watt station, which shares a 623-foot antenna tower with WNJN-TV, "has a very haphazard schedule, being off the air more than it's on." Meanwhile, William Paterson College's WPSC-FM, after monthlong silence this past spring because of transmitter problems, was expected to resume broadcasting on 88.7 MHz on April 24.

The sale of Kendallville, Indiana's WBTU-FM to a Michigan firm is up in the air following accusations that the station inflated its advertising logs to show that it aired more commercials than it actually did. According to articles in *The* (Fort Wayne) *Journal Gazette*, sent to us by James R. Weiler, Regional Radio Corp. had paid $100,000 toward the purchase of the 50-kW country music station from Fort Wayne Media Ltd., but now seeks damages and a refund of the downpayment after it discovered the alleged falsifications. Although Regional Radio still wants to buy WBTU, it maintains that the station's value is less than the agreed price.

Fans of Larry "Bud" Melman, whose bizarre humor has made him a staple on the "Late Show with David Letterman," now can catch the comedian on the radio. He's signed a five-year contract with Premiere Radio Networks to host weekday segments based on his book *Cheap Advice*, as well as longer specials.

Thanks: Stay on the lookout for any news concerning AM and FM radio, and be sure to pass it along to us here at *POP'COMM*. Until next month, 73. ■

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Reclaim Unused Spectrum

The Federal Communications Commission's International Bureau reclaimed orbital locations and channels allocated to Advanced Communications Corp. for its proposed direct broadcast satellite (DBS) system of video programming. The bureau canceled Advanced's DBS construction permit when it failed after 10 years to provide DBS service to the public.

Scarce public resources—orbital positions and channels—are allocated to DBS permittees to provide direct-to-home video programming to the public. "After more than a decade, Advanced has not provided, and isn't close to providing DBS service," according to the bureau. "Advanced must now return these public resources so they can be used by others who will provide service expeditiously." Two entities are operating DBS systems: Hughes Galaxy Communications Inc. (through its programming affiliate, DirecTV), and United States Satellite Broadcasting Inc.

The order denies Advanced's application for a time extension for construction of its DBS system and declares its construction permit null and void. Advanced wanted the extension, not to provide service, but to assign its construction permit. Orbital spectrum and channels formerly allocated to Advanced will be available for reassignment to others.

Caller ID; Per-Line Blocking; PBX Caller ID

The Commission approved national Caller ID rules that protect the privacy of the called and the calling party. The rule mandates that carriers make available a free, simple and consistent, per-call blocking and unblocking mechanism. According to the rules, callers dialing *67 before a call will, for interstate calls, block calling party information for any interstate calls. Callers using a blocked line can unblock the line and release that information by dialing *82. The order permits carriers to provide privacy on all calls dialed from a particular line, where state policies provide, and the customer selects that option.

The action evolved as the commission reconsidered its original Caller ID order, adopted in March 1994. The FCC affirmed its original finding that a nationwide Caller ID system is in the public interest. It found that passage of the calling party's number, or CPN, could benefit consumers by encouraging the introduction of new technologies and services to the public, enabling service providers and consumers to conduct transactions more efficiently.

The rules will take effect Dec. 1, public payphones and party lines will be required to be in compliance by Jan. 1. The commission also issued a rulemaking proposal concerning PBX and private payphone obligations under the Caller ID rules.

In March 1994, the commission adopted a report and order that concluded that a nationwide Caller ID system was in the public interest and stated that the potential benefits of a Caller ID system—efficiently and productivity gains, infrastructure development and network utilization, and new service and employment opportunities—would be possible only if CPN is passed among carrier networks. It noted two areas of concern; however—compensation issued related to passage of CPN for interstate calls and varying state requirements intended to protect the privacy rights of calling and called parties on interstate calls.

The FCC affirmed its finding that common carriers, including Commercial Mobile Radio Service providers, with Signaling System 7 (SS7) call setup capability, must transport CPN without charge to interstate connecting carriers. The commission clarified that carriers without SS7 call setup capability do not have to upgrade their networks just to transport CPN to connecting carriers. The commission noted that local exchange carriers are required to resell interstate access or Caller ID to other carriers wishing you to compete for end-user business in this market.

The commission modified its previous decision that only per-call blocking would be allowed. This new action permits per-line blocking for interstate calls in states where it is permitted for intrastate calls, provided the customer elects per-line blocking. The commission's original rules required a caller to dial *67 before each call in order to block the called party from knowing the caller's number. The commission now has modified its rules to permit carriers to provide privacy on all calls dialed from a particular line where state policies provide, and the customer selects that option, provided carriers permit callers to unblock calls from that line by dialing *82. Where state policies do not require or permit at the customer's election per line blocking, carriers are bound by the federal privacy protection model to provide privacy only where *67 is dialed.

The commission noted that it continues to exempt calls to emergency lines from its rules; that is a carrier's obligation to honor caller privacy requests to emergency numbers will be governed by state policies.

As an additional privacy measure, the commission requires that when a caller requests the calling party number be concealed, a carrier may not reveal the name of the subscriber to that line and callers requesting that their number not be revealed should be able to block an automatic call return feature. The commission continues to require that carriers with call setup capability that pass CPN or transmit automatic number identification (ANI) educate customers regarding the passage and usage of this information.

Finally, the commission issued a notice of proposed rulemaking that private branch exchange (PBX) systems and private payphones capable of delivering CPN to the public-switched telephone network also be capable of delivering a privacy indicator when users dial *67 and be capable of unblocking the line by dialing *82.

Oncor to Reduce Rates or Prove Reasonable

The Common Carrier Bureau acted on the first of several pending investigations of operator service providers (OSPs), carriers that serve payphones or other phones available to the public in hotels, motels, hospitals, airports, and other locations. Often, consumers using a public phone for a long-distance call assume it will be billed to their own presubscribed carrier, for their home or office, and are outraged at later discovering they were charged a much higher rate than expected. The bureau is investigating the rates of several carriers that have generated numerous consumer complaints and whose rates appear to be far greater than those of the carrier used most by consumers.

In an order to show cause, the bureau directed Operator Communications Inc. (OCI) and Oncor Communications Inc. to add an audible message alerting callers using Oncor operator services that its rates are available upon request by dialing a specified number and to reduce the rates it charges for interstate operator services, including commissions and surcharges. If Oncor does not agree to reduce its rates within 30 days, the order also directs Oncor to show why it should not add an additional message alerting consumers to the possibility of higher charges, including surcharges as great as $10 per call, and to provide within 60 days certain expense, revenue and investment information.

In the past three years, the number of informal complaints that the commission has received concerning Oncor's rates and charges has nearly quadrupled. In 1994, the commission received more than a thousand complaints directed against Oncor, more than 800 of which concerned its rates for operator services. As a result of these complaints and the level of charges imposed by Oncor, the bureau notified Oncor in November 1994 that an investigation had been initiated into the company's operator service rates and charges. Following a conference with bureau staff in December, Oncor amended its tariff to cap aggregate and miscellaneous surcharges applicable to

interstate directory assistance at $1 per call and capped interstate operator-assisted calls of one minute or less at $5.95.

The bureau investigation found that Oncor's maximum interstate OSP rates often are three or four times greater than those charged by AT&T for comparable services. For example, in complaints filed with the commission, one consumer complained about being charged $15.50 for a five-minute call and $7.42 for a two-minute call. Another consumer complained of being charged $9.58 for a three-minute call.,

The order uses AT&T's operator services rates and charges as a benchmark for comparison, stating that the bureau general will not challenge those rates that do not exceed those of AT&T, for a comparable OSP service, by more than 15 percent. The bureau noted that the rates charged by AT&T, MCI and Sprint are paid by most consumers and compared Oncor's rates to those of AT&T because MCI and Sprint's rates were identical, in the respects compared, to those of AT&T.

The Telephone Operator Consumer Services Improvement Act of 1990 (TOCSIA) provides that if, upon review, the rates and charges filed by any OSP appear unjust or unreasonable, the commission may require the OSP to do either or both of the following: demonstrate that its rates and charges are just and unreasonable and announce that its rates are available on request at the beginning of each call.

TOCSIA was enacted to protect consumers from unfair and deceptive practices relating to their use of operator services to place interstate telephone calls and to ensure that consumers have the opportunity to make informed choices in making such calls. The commission's regulations governing OSPs and the call aggregators with whom they contact, established rules concerning consumer information and call blocking. These rules inform and ensure consumers can reach their carrier of choice. For example, the name of the OSP must be posted on or near the phone and callers must hear an audible message, or branding, announcing the name of the OSP before the call is completed and before any charges are incurred. In addition, callers always have the right to access the carrier of their choice by dialing an access code such as 10XXX or 1-800-XXX-XXXX.

Complaints received by the commission indicate that many consumers are unaware of their right to access their own carrier or the potential need to do so. For the past several years, complaints about OSP rates have been the third-largest source of complaints (behind slamming and information service complaints). The complaint level indicates that numerous consumers still use the carrier chosen by the payphone provider and are surprised and angry when they receive a larger-than-expected telephone bill. These calls often average $1 per minute; a much higher per-minute charge is common for calls short of duration because the OSP includes a commission of several dollars per call for the payphone owner. Based on reported data, the commission has estimated that consumers could save about $280 million annually by avoiding the highest-priced OSPs.

In seeking to alleviate this problem, the bureau has undertaken several non-public investigations of OSPs. The order released is the bureau's first public action in these investigations. In addition, the commission recently sought comment on a proposal from 24 state attorneys general to require a specific branding requirement for certain OSPs and another proposal from a broad-based industry coalition proposing a rate ceiling for OSP calls. ■

YOU SHOULD KNOW

BY CAPT. WILLIAM MAULDIN, WG4R

INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

A Traveling Scanner

Everywhere you turn these days, you see ads for handheld scanners. The ads in *Popular Communications* and other hobbyist magazines are filled with pictures and discounted prices for handheld scanners. More and more radio buffs are adding the small, battery-operated handheld scanner to their personal inventory. If you don't have one, perhaps this is an item you should consider.

Handheld scanners come in all shapes and sizes; many look like professional walkie-talkies used by commercial radio users. Most have a variety of modes and scanning features that can make the handheld as useful as the standard desktop or mobile scanner. As one might expect, when you add features, you also add dollars to the price of the unit.

Why would anyone want a handheld scanner? The answers to this question are as varied as the profile of the user. I was standing in an airport the other day waiting on a flight when I noticed a gentleman in a business suit sitting in the next chair, and he had one of those small earphones stuck neatly in his ear. As I sat down, he remarked that the flight had just landed. How did he know that, I wondered. As I looked at him a little closer, I saw that his earphone wire was attached to a small handheld scanner which was in his briefcase.

While waiting for the plane to come up to the gate, we started talking about his scanner, and how and where he uses it. He mentioned that he always monitors the airport control tower and several of the airline frequencies when he is in an airport waiting to catch a plane. It is also useful when you are there to pick up someone, he added, as our conversation continued. You always know when your flight is on the ground or cleared to land by just listening.

As we continued to talk, he suddenly paused as if he was listening again, and then had a very different look on his face. As I asked what he was hearing, he told me that Flight 989 was on the ground, indeed, but that they had just called on the company frequency and asked to have maintenance meet the plane at the gate. They had a mechanical problem. This was not good news to this high-profile business flyer, as he had a close connection at the next scheduled stop, and any delay would certainly cause him to miss the last flight to Fort Wayne. His news brought a smile to my face in that my flight was not Flight 989, but Flight 1022, and it was not scheduled in for another 30 minutes at the next gate.

This gentleman was not a ham radio operator or a devoted radio hobbyist. He was just a frequent-flyer businessman who spent many hours in airports and hotels. In talking with a neighbor, he had discovered the wealth of information available from just having a handheld scanner along. He mentioned as we continued to talk that he was staying in a downtown New York City hotel recently when the fire alarm went off. By carrying a simple directory or some frequency notes from a frequency directory, he quickly tuned in the Manhattan fire dispatch frequency as he heard the fire engines head to the hotel. As he started to get dressed in case of an evacuation, he heard the dispatcher advise the approaching fire trucks that it was a false alarm coming from a smoke detector in the kitchen. Score another bit of inside news from having the scanner along. The alarm in the hotel did not silence for another five minutes, with all other guests wild with concern.

With my interests in radio and the fact that this handheld scanner user was neither a devoted radio hobbyist or a ham radio operator, I wanted to explore this gentleman a bit more and share it with you.

Here are just some of the things he mentioned in our conversation. First, his flight was canceled about 20 minutes after he heard about the delay because there were no parts to fix the broken 737 at the airport. He was the first with this information because of a conversation he heard between the mechanics and the company operations. Quickly and silently, he packed up his briefcase and went to the ticket counter, getting one of two remaining seats on a flight that would arrive in Fort Wayne in time for his meeting. He also said that he normally flies only airlines that allow the use of VHF handheld scanners on board, so he can monitor the air traffic communications as well as the company channels. With an earphone and a window seat, reception is quite good. And, yes, there are airlines that do legally allow VHF scanners to be used in flight, though the airline has the right to make its own rules about such things, under current federal rules.

If you have been thinking about adding a handheld scanner to your inventory, this is probably a good time to consider it. Prices are reasonable, and there are many to select from.

As you consider the price range of your new scanner, compare different features. The gentleman in the airport would not have been able to get good reception of the AM aircraft band if he had bought a scanner with only FM reception. Consider the frequency coverage that you will need. Most scanners offer low band, VHF and UHF channels. This is not good enough if you want to monitor signals of aircraft, as they are AM signals, and in a band devoted to aviation. Check this feature if you would like aviation. Aircraft communications start at 118 MHz and continue up to 137 MHz; all of the signals are AM.

Let's pause for a question and answer. Why did the FAA and FCC decide that all aircraft communications should be AM and not FM? After all, aren't FM signals normally static-free and clear? The police and commercial radio bands just above and below the aircraft band are FM. Why not use FM on the aircraft band instead of AM? This has to do with the so-called "capture effect" that takes place on the FM band. Remember the last time you were monitoring a standard FM broadcast station in your car and were about to make the transition from the area covered by station "A" to the area covered by station "B?" Remember how as you drove in this transition area, one station would pop in and completely override the other? You would never know that station "A" was on the air when you were in the strong signal of station "B." The strongest signal on an active frequency will "capture" your FM receiver, and you will never know the other station is transmitting.

The FAA and FCC decided that the

(Continued on page 46)

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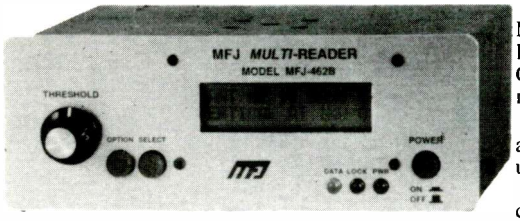

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MFJ's exclusive *TelePrinterPort*™ lets you monitor any station 24 hours a day by printing their transmissions to your Epson compatible printer.

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

MFJ *MessageSaver*™

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

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

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

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

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

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

Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, $12.95. 5¼x2½x5¼ inches.

No Matter What Guarantee

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

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Order an *MFJ-462B MultiReader*™ *from* MFJ and try it in your own setup -- compare it to any other product on the market regardless of price.

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Order today and try it -- you'll be glad you did.

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

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

Receives strong, clear signals from all over the world. 20dB attenuator, gain control, ON LED. Switch two receivers and aux. or active antenna. 6x3x5 in. remote has 54 inch whip, 50 ft. coax. 3x2x4 in. 12 VDC or 110 VAC with MFJ-1312, $12.95.

$129.95 MFJ-1024

Indoor Active Antenna

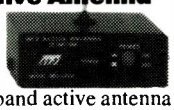
MFJ-1020B **$79.95**

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

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as preselector with external antenna. Covers 0.3-30 MHz. Has Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip. 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312B, $12.95.

Compact Active Antenna

MFJ-1022 **$39.95**



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

Also improves scanner radio reception on VHF high and low bands.

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MFJ Antenna Matcher

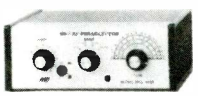
MFJ-959B **$89.95**

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

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

High-Gain Preselector

MFJ-1045C **$69.95**



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

Dual Tunable Audio Filter

MFJ-752C **$99.95**

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

Easy Up Antennas Book

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

MFJ-38 **$16.95**

Covers receiving antennas from 100 KHz to almost 1000 KHz. Includes antennas for long, medium and shortwave, utility, marine and VHF/UHF services.

Receive *Color* News Photos, Weather Maps, RTTY, ASCII, Morse Code

MFJ-1214PC **$149.95**

Use your computer and radio to receive and display *brilliant full color* FAX news photos and incredible WeFAX weather maps with all 16 gray levels. Also RTTY, ASCII and Morse code.

Animate weather maps. Display 10 global pictures simultaneously. Zoom any part of picture or map. Frequency manager lists over 900 FAX stations. Automatic picture capture and save.

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

Super Hi-Q Loop™ Antenna

The *Super Hi-Q Loop*™ is a professional quality remotely tuned 10-30 MHz high-Q antenna. It's very quiet and has a very narrow bandwidth that reduces receiver overloading and out-of-band interference.

MFJ-1782 **$269.95**

High-Q Passive Preselector

MFJ-956 **$39.95**

The MFJ-956 is a *high-Q* passive LC preselector that lets you boost your favorite stations while rejecting images, intermod and other phantom signals. Covers 1.5-30 MHz. Has preselector bypass and receiver grounded position. 2x3x4 in.

Mobile Scanner Ant.

Cellular look-a-like. Covers 25-1300 MHz. Highest gain on 406-512 and 108-174 MHz, 19 in. Magnet mount. MFJ-1824BB has BNC/UHF plug; MFJ-1824BM has Motorola plug.

MFJ-1824BB/BM **$19.95**

MFJ 12/24 Hour LCD Clocks

MFJ-107B **$9.95**

MFJ-108B **$19.95** MFJ-105B **$19.95**

MFJ-108B, dual clock displays 24 UTC and 12 hour local time *simultaneously*. **MFJ-107B**, single clock shows you 24 hour UTC time. *3 star rated* by *Passport to World Band Radio*!

MFJ-105B, accurate 24 hour UTC quartz *wall clock* with large 10 inch face.

MFJ Antenna Switches

MFJ-1704 **$59.95**

MFJ-1702B **$21.95**

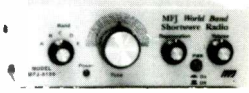
MFJ-1704 heavy duty antenna switch lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection device. Good to 500 MHz. 60 dB isolation at 30 MHz.

MFJ-1702B for 2 antennas.

World Band Radio Kit

MFJ-8100K **$59.95** *kit*

MFJ-8100W **$79.95** *wired*



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CIRCLE 120 ON READER SERVICE CARD

POP'COMM's World Band Tuning Tips

October—1995

This *POP'COMM* feature is designed to help you hear more shortwave stations. Each month this handy, pullout guide shows you when and where to tune to hear a wide variety of local and international broadcasters on the shortwave bands. The list includes broadcasts in languages other than English. Most of the transmissions are not beamed to North America. Keep in mind that stations make frequent changes in their broadcasting times and frequencies. Changes in propagation conditions may make some stations difficult or impossible to receive. Your equipment and receiving location also will have a bearing on what you are able to hear. Note: EE, FF, SS, etc. are abbreviations for English, French, Spanish and so on. Some frequencies may vary slightly. All times are in UTC, which is five hours ahead of Eastern Standard Time (i.e., 0000 UTC=7 p.m. EST).

Freq.	Country/Station	UTC	Notes
3240	TWR, Swaziland	0300	
3250	R. Luz y Vida, Honduras	0100	SS
3270	Namibia Broadcasting Service	0345	
3280	La Voz del Napo, Ecuador	1000	SS
3300	R. Cultural, Guatemala	0300	
3306	ZBC, Zimbabwe	0300	s/on
3325	R. Maya, Guatemala	1100	SS
3340	R. Altura, Peru	1030	SS
3366	GBC, Ghana	0600	
3380	R. Chortis, Guatemala	0130	SS
3396	ZBC, Zimbabwe	0256	s/on
3905	R. New Ireland, Papua New Guinea	1100	
3945	R. Vanuatu	1030	Pidgin/EE
4460	R. Norandina, Peru	0100	SS
4485	La Voz de Celendin, Peru	0100	SS
4753	RRI Ujang Pandang, Indonesia	1130	II
4760	ELWA, Liberia	0600	
4765	R. Rural, Brazil	0230	PP
4770	R. Nigeria, Kaduna	0430	
4775	Onda Musical, Dom. Rep.	0130	SS
4800	R. Lesotho	0300	
4805	Radiodifusora Manaus	0100	PP
4815	RTV Burkina, Burkina Faso	0700	FF
4830	R. Tachira, Venezuela	0100	SS
4832v	R. Reloj, Costa Rica	0500	SS
4835	R. Tezulutlan, Guatemala	1100	SS/vern
4850	R. Centenario, Bolivia	1000	SS
4860	All India Radio, Delhi	1215	
4870	ORTB, Benin	0530	FF
4880	R. Nacional Espejo, Ecuador	0130	SS
4885	Ondas del Meta, Colombia	0300	SS
4890	NBC, Papua New Guinea	1100	EE
4890	R. France Int'l, via Gabon	0500	FF
4915	GBC—Radio One, Ghana	0400	
4920	R. Quito, Ecuador	0200	SS
4930	R. Internacional, Honduras	0200	SS
4935	R. Tropical, Peru	0400	SS
4955	R. Nacional, Colombia	0400	SS
4980	Ecos del Torbes, Venezuela	0300	SS
5020	SIBC, Solomon Islands	0800	
5025	R. Aparecida, Brazil	1000	PP
5030	AWR-Pan America, Costa Rica	0330	SS
5047	RTV Togolaise, Togo	0500	FF
5055	TIFC, Costa Rica	0400	
5075	Caracol Colombia	0300	SS
5124	R. Galaxia, Bolivia	0000	SS
5547v	La Voz de Andamachay, Peru	0200	SS
5887v	Swiss Radio Int'l, via Brazil	0200	
5930	R. Prague, Czech Rep (via Slovakia)	0230	
5960	R. Japan, via Canada	0100	
5965	R. Budapest, Hungary	0330	EE s/on
6000	R. Havana Cuba	0130	
6010	R. Mil, Mexico	1000	SS
6015	R. Austria Int'l, via Canada	0530	
6030	BBC, via S. Africa	0230	
6040	Deutsche Welle, via Antigua	0100	
6070	CFRX/CFRB, Canada	1200	
6080	R. Patagonia, Chile	0900	SS
6095	Vatican Radio	0250	
6100	R. New Zealand	0800	
6105	R. Cultura, Brazil	0900	PP
6110	Radio Japan, via Canada	0500	
6135	Swiss Radio Int'l	0100	
6145	R. Tirana, Albania	0230	
6195	BBC, via Antigua	1200	
6195	R. Sweden	0230	
6250	R. Nacional Malabo, Eq. Guinea	0500	SS
6260	V of Greece	0130	GG/EE
6299	Sani Radio, Honduras	0200	SS
7020	V of Broad Masses of Eritrea, Ethiopia	0300	local lang
7108v	R. Bosnia-Hercegovina	0100	
7115	AWR via Slovakia	0730	
7160	R. Tirana, Albania	0200	
7200	Sudan Nat'l Broadcasting Corp.	0259	s/on
7255	R. Nigeria	0500	
7265	R. Yugoslavia	0430	
7300	R. Slovakia Int'l	0100	
7325	BBC, England	0130	
7335	Vatican Radio	0130	
7345	R. Prague, Czech Rep.	0700	
7448	V of Greece	0130	
7465	Kol Israel	0500	
7475	RTT, Tunisia	0400	AA
9022	VOIRI, Iran	1930	
9200	R. Omdurman, Sudan	1800	
9375	Voice of Greece	0500	Greek
9440	R. Slovakia Int'l	0100	
9445	Voice of Turkey	2330	TT
9470	Trans World Radio, via Albania	0515	Polish
9475	R. Cairo, Egypt	0200	
9530	R. Vilnius, Lithuania	2300	
9535	R. Japan	1400	
9540	R. Espana Exterior, Spain	0100	
9555	R. Veritas Asia, Philippines	1430	

Freq.	Country/Station	UTC	Notes
9560	Voice of Peace/R. Amaharo, Ethiopia	0400	vern
9570	R. Portugal	0230	
9570	R. New Zealand	0600	
9580	R. Yugoslavia	0000	
9580	Africa No. One, Gabon	1900	FF
9590	R. Denmark, via Norway	1330	
9605	UAE Radio, Abu Dhabi	2300	
9605	Vatican Radio	0330	SS
9610	BBC relay, S. Africa	0230	
9620	R. Dniester Int'l, Moldova	2130	
9645	Faro del Caribe, Costa Rica	0500	SS
9655	Radio Austria Int'l	0130	
9665	R. Marumby, Brazil	0900	PP
9670	R. Veritas, Philippines	1130	unid
9675	R. Cancao Nova, Brazil	1100	PP
9690	China Radio Int'l, via Spain	0300	
9695	Channel Africa, South Africa	0500	
9700	R. Bulgaria	0000	
9710	China Radio Int'l, via Mali	0000	
9725	RAI, Italy	0100	
9735	R. Nacional, Paraguay	0100	SS
9745	HCJB, Ecuador	0730	
9750	Radio Japan	1400	
9755	Radio Canada Int'l	0000	
9765	Voice of the Mediterranean, Malta	0600	
9770	V of UAE, Abu Dhabi	2300	
9780	Yemini Republic Radio	0300	
9810	FEBA, Seychelles	1530	
9820	R. Havana Cuba	0100	(USB)
9840	Voice of Vietnam	1230	
9860	R. Australia	0600	
9860	Swiss R. Int'l, via Fr. Guiana	0400	
9860	R. Sweden	1100	Swedish
9870	R. Austria Int'l	0130	
9905	Swiss Radio Int'l, via Fr. Guiana	0100	
9955	WRMI, Florida	0000	
9977	R. Pyongyang, N. Korea	1100	
10461	U.N. Radio, Switzerland	1800	USB
11580	Trans World Radio, Guam	1500	
11603	Kol Israel	1900	
11615	HCJB, Ecuador	0700	
11635	Croatian Radio	1730	Croat
11670	R. France Int'l, via Fr. Guiana	0130	SS
11675	R. Kuwait	2200	AA
11690	FEBC, Philippines	1200	VV
11700	R. Pyongyang, N. Korea	2300	
11710	RAE, Argentina	0200	EE
11715	China R. Int'l, via Mali	0300	
11720	R. Bulgaria	2100	
11740	All India Radio	1530	s/on
11745v	R. Tirana, Albania	0200	
11750	Voice of Russia	2200	
11775	R. Espana Exterior, Spain	1900	
11780	R. Ukraine Int'l	0030	
11800	R. Australia	1300	
11805	R. Globo, Brazil	0100	PP
11830	Vatican Radio	2250	
11835	SLBC, Sri Lanka	1100	
11845	R. Canada Int'l	2200	
11865	BBC, via Canada	1400	
11870	FEBA, Seychelles	1500	
11885	UAE Radio, Abu Dhabi	2300	
11890	R. Oman	1400	AA
11895	R. Japan, via Fr. Guiana	0300	
11925	FEBC, Philippines	1300	
11925	V of Mediterranean, Malta	1400	
11940	Nat'l Voice of Cambodia	1300	VV
11950	R. Havana Cuba	2300	USB
11990	R. Kuwait	1900	AA
12005	RTV Tunisienne, Tunisia	1900	AA
12050	R. Cairo, Egypt	2300	AA
12065	V of Russia	1300	s/on
12085	R. Damascus, Syria	2030	
13625	R. France Int'l, via Fr. Guiana	1200	
13635	Swiss R. Int'l, via Fr. Guiana	0030	
13670	R. Canada Int'l	2200	
13675	UAE Radio, Dubai	1630	
13680v	R. Iraq Int'l	1200	AA, irreg.
13750	All India Radio	1900	
13750	AWR, Costa Rica	1200	s/on
13760	R. Pyongyang, North Korea	0030	
13760	R. Philipinas, Philippines	0200	
13805	R. Denmark, via Norway	1530	DD
13860	INBS, Iceland	2300	Icelandic
15009	V of Vietnam	1330	
15050	RFPI, Costa Rica	1600	
15084	VOIRI, Iran	2200	Farsi
15095	R. Damascus, Syria	2030	
15115	R. New Zealand Int'l	0100	
15168v	R. Tahiti	0300	FF/TT
15175	BSKSA, Saudi Arabia	1200	AA
15190	R. France Int'l	2300	SS
15235	V of Great Homeland, Libya	2000	AA
15240	R. Australia	0400	
15240	R. Sweden	1330	
15265	Radiobras, Brazil	1700	
15270	R. Jordan	1430	
15315	R. Netherlands, via Bonaire	1830	
15330	R. Rossi	1100	RR
15345	RTV Morocaine, Morocco	1800	AA
15365	R. France Int'l	1230	
15375	R. Oman	1200	AA
15400	R. Finland Int'l	1330	
15400	BBC, via Ascension	1900	
15435	V of the Great Homeland, Libya	1645	s/on
15445	Radiobras, Brazil	1200	
15475	R. Atlantika, Russia	1300	RR, Tu-Fr
15475	Africa Number One, Gabon	2100	FF
15490	HCJB, Ecuador	1700	
15530	R. France Int'l	1230	
15555	R. Pakistan	1600	
15565	R. Australia	1200	
15570	Vatican Radio	1745	
15575	R. Korea, S. Korea	0030	
15590	Vatican Radio	1345	
15640	Kol Israel	1515	
15650	V of Greece	1400	GG/EE
15675	R. Pakistan	1430	Urdu
15675	R. Copan Int'l, Honduras	2300	SS
15770	All India Radio	1200	vern
17490	HCJB, Ecuador	1000	USB
17500	RTT, Tunisia	1330	AA
17520	V of Greece	1430	GG/EE
17575	R. France Int'l	1500	
17605	R. Netherlands, via Bonaire	1830	
17620	R. France Int'l	1600	
17630	Africa No. One, Gabon	1430	FF
17655	R. Ukraine Int'l	2330	
17670	Swiss Radio Int'l	1500	
17740	R. Finland Int'l	1430	
17745	R. Algiers, Algeria	1930	
17775	R. Romania Int'l	1300	
17810	R. Japan	2300	
17820	R. Canada Int'l	1300	
17870	R. Exterior Espana, via Costa Rica	2200	SS
17870	RAI, Italy	1730	II
17895	Qatar Broadcasting Service	1400	AA
17900	R. Portugal	2000	PP
17905	RFPI, Costa Rica	1900	USB
21455	HCJB, Ecuador	1330	

You Should Know

(from page 42)

FM "capture effect" might be a problem on the aviation band. When two airplanes transmit at the same time using an FM signal, only the strongest signal normally is heard by the controller. When the same two planes transmit using an AM signal, the transmissions mix and although the controller may hear only one call clearly, he will know that there also was a second signal. This prevents two planes from acknowledging a clearance given to only one pilot. It just made sense to make the aircraft band AM once the "capture effect" was taken into consideration.

Other things to consider when making your handheld scanner purchase include selecting a scanner with the AM aircraft band if you will be using your new toy around airports. Check and make sure you know the frequencies and bands that you will want to monitor. I suggest considering a scanner with 800 MHz coverage, even though you don't have any 800 MHz activity in your area now. Many police and fire departments are in the stages of making the transition from VHF and UHF to 800 MHz in the months ahead. You will save money in the long run if you buy this coverage now, and don't have to change scanners in a few years or less.

Check the construction of the scanner—make sure it can stand the bumps and squeezing that will be encountered in packing, carrying and portable use. Make sure you can get service from the dealer or manufacturer—there is no need to buy a foreign-made scanner that would have to be sent back to Europe or another country for factory service. Scanners made or sold in the U.S.A. or by American dealers on a high-volume basis offer the best security for future service. You can bet that eventually you probably will drop your scanner or it will need some servicing or upgrading, and you will want to get the needed service. Buying a scanner with a good, wide frequency coverage, low-profile antenna is another good tip. The standard rubber-duckie antenna will serve most of your listening needs. Know where and how to get a replacement later, if needed.

Handheld, portable scanning can open a whole new world to the person who enjoys radio and who wants to be kept informed. Making the right selection can bring you hours of enjoyment and much information with a low-profile earphone, a good antenna and a high-quality scanner. Think about your selection before you make your purchase. Do some advance study work to learn about the frequencies, the bands, the AM and FM modes, and other extras that can make your radio do the listening and the work for you. Be careful not to buy a radio that is so advanced it could qualify as a video recorder (an electronics device that no one can operate!). If possible, get a local demonstration of the scanner you are considering, even if you are planning to make your purchase by mail order. One local "hands-on" demonstration is worth a hundred returns! Good luck with your new radio. I'll be looking for you as you pass by, with your earphone tucked in tightly. ■

PIRATES DEN

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

Let's open up the mailbag and see who's reporting what!

Richard Smith of Illinois checks in with his first pirate log—KDED on 7465 USB from 0220 to 0245 sign-off. The host talked about the Grateful Dead but played mostly Chuck Berry.

He invited listeners to send him a "hit," for which he'd respond with a Dead T-shirt and a pair of tie-dyed shorts! KDOD (same station?)—The Voice of the Grateful Dead—was logged by Skip Harwood in West Virginia on 6965 upper sideband at 0130, playing Dead music. They announced the Wellsville, NY, address—P.O. Box 452; zip—14895.

Skip had Vox America on 7415 at 0025, but with lots of QRM from WEWN and the VOA. They featured an Andy Rooney skit and various fake commercials. They said to check for future transmissions on 3475, 7375, 7415, 11650, 11750 and 15050. Address announced as Box 3913, Schenectady, NY 12303. Tony Benbenek in New York had them on 6990 at 2333, announcing as 100 watts. Tony notes they want $3 for a QSL!

George Roberts in Pennsylvania caught He Man Radio testing at 2322 on 6955 lower sideband, playing the "Bridge on the River Kwai." Harwood had them at about the same time and also heard an ad for a (station) T-shirt and mention of the Blue Ridge Summit, PA, address (P.O. Box 109, zip 17214). Dick Pearce in Vermont had them at 0019 "broadcasting in upper sideband, the manliest of all modes."

Pearce heard XEROX—Radio Duplicado, on 6955 LSB at 2211 with host Bart Sambo and some kind of music countdown followed by a tape of an interview with pirate expert George Zeller. This one uses the Wellsville address.

WKND was logged by Pearce on 6955 LSB talking about making more use of the 1620 to 1700kHz area, and urged pirate operators to be "more cooperative with verifications." Also read was listener mail, which should go to the Blue Ridge Summit address.

Up Against the Wall Radio was logged by Jill Dybka in Tennessee on 6955 at 0110 with jazz and rock, ID and karate sound effects, giving the Wellsville address.

Another from Jill is Radio Airplane, heard at 0027 to 0030 sign-off on 6955 with parodies and DJ "Captain Eddie... from the free skies of North America." Use the Wellsville address.

Jill also caught Microdot Radio on 6955 at 2340 with rock and DJ "Mike Rodot." "You're tripping with Microdot Radio," was the ID. Address given was P.O. Box 2024, Faribault, MN 55021. Jill says she thinks she caught the tail end of a broadcast just before Microdot signed on, including a 90803 zip code for an address on the Pacific Coast Highway. Anyone have any ideas on this?

Pearce reports "Radio Albatross" which is (or was) a pirate program aired on the Honduran station Radio Copan International (15675 Saturdays or Sundays at 2030). I believe this is off the air, at least temporarily. One of the hosts, "Pirate Mike," (in reality Michael Goetsch of Cleveland, Ohio) passed away this past spring.

NARPS (North American Pirate Relay Service) was logged by Pearce on 6955 LSB at 2210, 2310 and 0000 in a repeated, eight-minute test transmission, with the Wellsville address given. Offered light blue T-shirts for $13. Harry Betts of Illinois had this just after the 0000 transmission began. Harwood had 'em when he was in the Columbus, Ohio, area, from 0001 tune-in until 0008, with the song "All I Want to Do." Skip incidentally is DXing pirates in a mobile mode, using a Yaesu FT-900 and says his reports will be from "all around the country."

Jack Sheldon in Michigan had Outlaw Radio on 9655 at 2315 IDing as "Outlaw Radio, pirate radio just for the fun of it."

Pearce caught this one, too, playing music by the Doors, Spirit and Jefferson Airplane. Sign-off was with an air-raid siren.

Dick Pearce also bagged WLIS (though he says it was barely audible) on 6956 at 2305. A better signal later allowed an ID to be heard. Included was a Radio Beijing IS and off at 2324 with "73s and 88s as always to Ian McFarland." (Never mind that "73s" translates to "best regardses.")

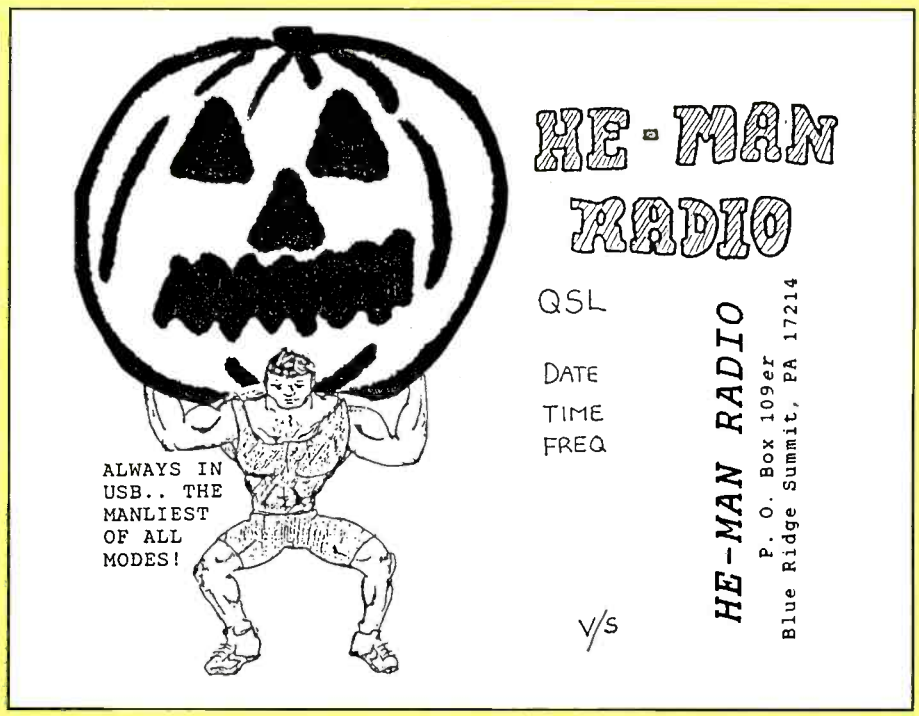
Radio Azteca was caught by Pearce, on 6954.65 at 2140 with a comedy show including top 10 unexplained DXer mysteries.

WREC's second anniversary show was another one in Dick Pearce's log, heard on 6956.7 at 2336 with some of the music described by Dick as "rock with a sort of Middle Eastern flavor." Several parody commercials and foreign accent stuff were heard, including phone calls to businesses in the New York City area.

KIWI Radio was heard by Dick on 6957 USB at 0112. "This is the rock of the South Pacific, Kiwi Radio International...;" announced it was heard via a North American or European relay, and offered to relay other programs over their transmitter in Napier, New Zealand. (I expect this was via NAPRS, Dick?)

Dick Pearce promises a photo of a weather balloon, complete with transmitter, which landed in an ash tree just 60 feet from his radio shack!

Keep those reports coming! I really appreciate your support each month, gang!



He-Man Radio has been active for quite awhile, "always in upper sideband, the manliest of all modes!"

NEW PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

Improve Transmit Performance on SSB Radios

From the land Down Under of the Royal Flying Doctor service comes a device that was designed just for those folks, as well as other users of single-sideband radios such as amateur and citizens band.

Communications Equipment Co.'s SP-500 RF Speech Processor Plus.

Communications Equipment Co. has started selling its SP-500 RF Speech Processor Plus device, designed to help achieve maximum performance from SSB radio equipment. The manufacturer says the device can provide an 8 dB increase in a signal's readability under weak and noisy receive conditions. It's claimed that this type of increase in performance is equivalent to more than quadrupling the transmitter's power output. The makers of the SP-500 claim their unit is legal if properly installed and aligned and gets around using illegal higher power or adding a costly amplifier.

How does the SP-500 achieve added talk power? Communications engineers long have recognized that unprocessed human voice is not well suited to use with SSB or AM radio systems, which are peak power limited. Voices contain a few high-level amplitude peaks, with a lot of average- to low-amplitude energy. Unfortunately, the average- to low-amplitude component contains most of the voice's intelligence. Because SSB radios' performance is limited by their peak power handling capability, the low-level high-intelligence component generally is lucky to attain one-fifth of the radio's peak power output. To put it into perspective, for a 100-watt PEP radio, the majority of the output signal's intelligence is only at a 20-watt peak power level. That means 80 watts head room capability of the radio is being effectively wasted!

The SP-500 brings up the amplitude of the low-level component close to that of the peaks therefore, decreasing the average-to-peak power ratio. Because it does this at RF using its own internally generated SSB signal, the manufacturer claims it produces a cleaner output waveform and more talk power than any audio processor or power-amplified microphone.

While it wouldn't be a useful feature on the ham bands, the unit also offers a multimode end-of-transmission beep generator that can range from a single short-duration 20-millisecond 1800-Hz tone (Morse code letter "E") or the Morse letter "K" sent at 25 words per minute.

The SP-500 is priced at $210 U.S., plus freight from Australia. Additional information about the SP-500 RF Speech Processor Plus can be obtained from GFS Electronics, P.O. Box 97, Mitcham 3132, Victoria, Australia, phone (61-3) 9873-3777, or fax (61-3) 9872- 4550.

High-Performance Computer-Aided Scanning

If you own a Realistic Pro-2035 scanner, and you have a computer, why not link the two devices together and enter the world of computer-aided scanning? Opto-Electronics has designed a computer interface designed to fit into the Radio Shack Pro-2035 scanner, the popular 1,000-channel model introduced earlier this year.

A Realistic Pro-2035 with OptoElectronics' OptoScan 535 installed for computer-aided scanning.

The OptoScan-535 unit allows for complete computer control of the Pro-2035 and enhances the performance of the scanner by increasing its scanning speed up to a blazing 80 channels per second (depending on software used).

The Pro-2035 equipped with the OS-535 makes the radio the fastest computer-controlled scanner available, stepping out above the popular Icom R7100, the AOR AR8000 or any other receiver using computer control. The faster your receiver can scan, the less chance you have of missing any communications on all the channels. When combined with a computer, the OS535 makes using the Pro-2035 easier and less confusing. And even while you are away from the scanner, your OS535 is searching for those elusive frequencies you want to monitor and recording them into virtually unlimited numbers of memory locations for later review.

The OS535 also includes a built-in CI-V to RS232 serial interface for applications in which a receiver is connected to a computer; this eliminates the need for an external converter box. The OS535 also can be used now with the OptoElectronics Scout to "reaction tune" the Pro-2035 receiver. When the Scout receives a signal, it can automatically tune the Pro-2035 to monitor the frequency it captures. The Scout's 400 memories also can be used to tune the OS535.

CTCSS tones, DCS codes and DTMF tones also can be decoded off the air with the OS535. The OS535 package carries a price of $299 and includes hardware, computer serial cables and demonstration software. For more information, contact Opto-Electronics, 5821 N.E. 14th Ave., Fort Lauderdale, FL 33334, phone (305) 771-2050, fax (305) 771-2052.

New Switch Balun Is Magnetic

Palomar Engineers has a new Magnetic Switch Balun system for 500 kHz to 30 MHz reception. It consists of the MSB-3 balun and a control box. The balun is designed to mount in the center of a bent dipole: one dipole leg going north-south, the other east-west; or one leg horizontal and the other vertical.

The control box has a three-position switch that connects the balun to: both wires acting as a bent dipole; one wire only as an end-fed long wire; or the other wire as an end-fed long wire. Thus, the one antenna has three directional patterns switchable at will to select the best signal or the least noise for the particular frequency and time of day.

Palomar Engineers' Magnetic Switch Balun.

The control box operates from 115 volts AC and sits by the radio. Coax cable sends the received signals to the radio and sends power to the Magnetic Switch Balun. No extra control wires are needed.

The cost is $135, plus $6 shipping and handling for the balun and control box. Coax, antenna wire and end insulators are not included. For more information, contact Palomar Engineers, P.O. Box 462222, Escondido, CA 92029, phone (619) 747-3343, fax (619) 747-3346.

BY GERRY L. DEXTER

CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

The most recent schedule from WHRI shortwave shows these anti-Castro programs being aired: "La Voz de Fundacion" (Cuban-American National Foundation) at 2300 to 0400 Monday to Saturday on 9495; "Alpha 66" (Alpha 66 organization) 0700 to 0800 and 2200 to 2300 Monday-Friday, and "Cuba 21" (presented by Sergio Ramos) Sundays at 0000 on 9495. There's also a program called "Impacto," presented by Luiz Ortiz aired Monday through Saturday at 1230 and 2230 on 9495, as well as Saturdays at 0800, although we're uncertain of the program's exact nature.

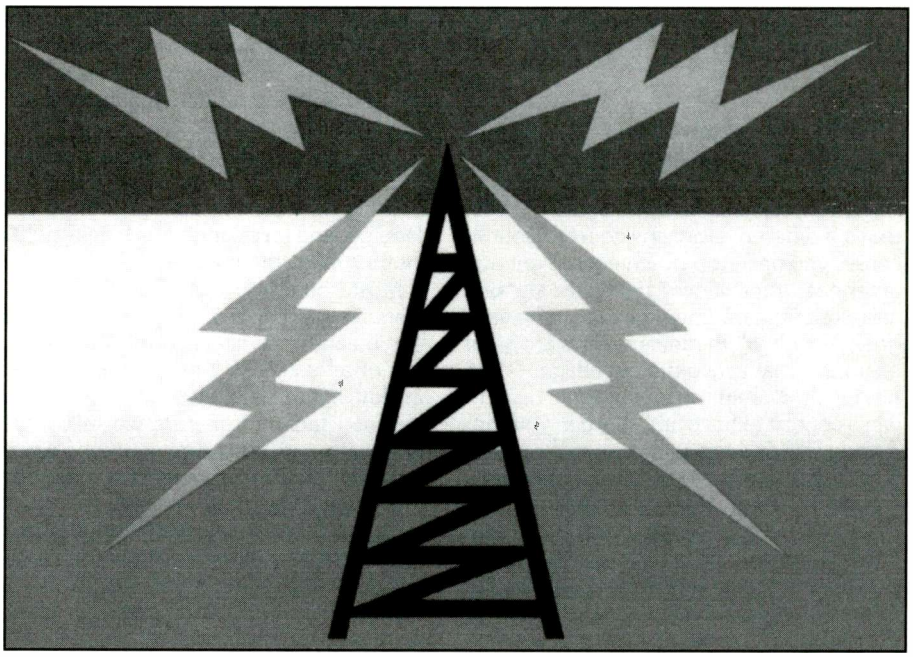
A check of WWCR's latest program schedule shows no political programming directed to Cuba. Two other stations—Radio Miami International (WRMI) on 9955 and Radio Copan International in Honduras (on 15670) carry anti-Castro programming. No schedules available at this time.

It's our understanding that some of the anti-Castro material is on satellite (SpaceNet-2, transponder 4, 5.8 MHz audio subcarrier for those equipped for satellite reception). La Voz de Fundacion, La Voz de Resistencia and Expresos Cubanos are being carried, all originating in the Miami, Fla., area. The purpose, we suspect, is to feed the programming to broadcasters such as WHRI. Thanks to Larry Van Horn who sent in this interesting info.

"The Voice of Oromo Liberation," mentioned last month, apparently had a short run as it is not on the current WHRI schedule. WHRI's sister station, KWHR in Hawaii, still carries "Forum For Democracy," a program aimed at a Vietnamese audience daily at 1400 to 1430 on 9930. Programs like these offer an opportunity to hear clandestine-flavored broadcasts, even if you can't pick up the "full-bodied" real thing direct from the source.

Afghanistan clandestine Radio Message of Freedom has been reactivated. It supports the Afghan Islamic Party and airs programming in Pashto and Dari from 0230 to 0330 and 0730 to 0830 on 6145 and variable 7090. The suspension of its activity may have been the result of the party's headquarters near Charasiab having been captured by government forces earlier this year. Unfortunately, there's little chance signals from this station ever will be heard in North America.

The Voice of Human Rights and Freedom for Iran says it now broadcasts only once a day at 1430 to 1625 on 9270, 9380 and 11470. The station is operated by the Organization of Human Rights and Freedom for Iran, which is made up of several other organizations, including Flag of Freedom (which once was the station's name), Iranian Youth Solidarity, League of Iranian Women, Association for the Advancement of Education in Iran and the Iranian Students Association. It may be, however, that a second daily broadcast is on the air, probably beginning at 0230 on the above frequencies.



The number of anti-Iranian stations on the air today is less than during Khomeni's day. Most of today's Iranian clandestines on the air today are Kurdish-related. This QSL is from the now-silent Radio Vatan (Homeland), which operated on 9027 and 15555 some years ago

This station has been heard often by clandestine hunters in North America. The station's transmitters are believed to be in Egypt and, indeed, probably belong to the Egyptian government. This station has several addresses, including one in the United States: c/o Reza Farhadi, P.O. Box 19740, Irving, CA 92740.

"Republic of Iraq Radio," claiming to be broadcasting from Baghdad and also using the slogan "Voice of the Iraqi People" is being heard at 1600 on 9570 and 15133. For one or two days a couple of months ago, it also appeared on 13675 which normally carries UAE Radio from Dubai in the United Arab Emirates and on both of those occasions carried UAE Radio before and after the Iraqi clandestine. This was one of those "ooops" cases, when an engineer hits a wrong switch and radio monitors gain some useful information!

Korean clandestine Voice of National Salvation, which beams to South Korea from North Korea is said to operate from government transmitters at Pyongyang, Haeju (in southwest North Korea) and Wosan (eastern North Korea). The latter site has at least one transmitter in use on 3480, and should be audible occasionally during our early morning hours (around dawn). A better bet is 4120 or slightly below at the same hour.

A new, unidentified Tamil station has appeared, using 6035 at 1315 to 1500. This is the same time, same frequency and seemingly the same government (SLBC) transmitter that until recently was carrying a broadcast from Trans World Radio. We'd guess this Tamil program is one that favors the government view, assuming the same transmitter is, indeed, involved.

That's it for this time. Again a reminder that clandestine station loggings, QSLs, station news and anything else relating to this mysterious side of SWLing are always welcome. Feel free to write at any time.

Until next month, good hunting! ■

THE HAM COLUMN

BY BRIAN BATTLES, WS1O
AMERICAN RADIO RELAY LEAGUE HQ

GETTING STARTED AS A RADIO AMATEUR

Contesting—Part 1: HF

"Contesto ergo sum."—Blaise "Turbo" Pascal, N^2X+Y

What are the three things you need to operate in a ham radio contest? An amateur radio license, a radio and an antenna. What do you need to win a contest? Well, that's a different story. Aside from your license, you need top-notch equipment and antennas, intelligence, patience, stamina and experience. Winning need not be your goal, though. Ham radio contests are great examples that prove the old adage, "Winning isn't everything." You don't have to win a contest to have fun, sharpen your operating skill and test your station's capabilities. If you decide to become a dedicated contest operator, it takes a serious investment in time, money and effort. Competition is vigorous. There are long, tiring hours of operating and your emotions can get ragged after an all-night stint at your key or mike. If it's done right, however, contesting builds your skill and confidence. Every ham should give it a try.

The ARRL and *CQ* magazine sponsor major contests, and specific rules, descriptions of the categories and entry forms are available free. You don't have to be a *CQ* subscriber or an ARRL member to participate, nor are you required to officially "enter" afterward (by submitting your log), although doing so helps the contest sponsors verify QSOs that others claim.[1]

Ladies' and gentlemen's rules are as applicable to contesting as they are to DXing or any other ham operation. Courtesy, patience and timing are vital to success as a contester. The interference on a busy band during a contest can be agonizing, and your enthusiasm may be at stake if you allow the racket to get the best of you. But hang in there—you can do it.

Where Do You Fit In?

There are two kinds of contest stations: single operator and multioperator. If you're the only participating operator at your station, you're in the single-operator class. This means you must conduct all related activities. You can't operate the equipment while someone else does the logging, nor may you operate while monitoring a local cluster packet station for spotting. As you might expect, a multioperator setup has several operators. Two or more operators share the work while using one transmitter, with several antennas and perhaps additional receivers for "spotting" multiplier stations. This is called a "multisingle" operation. Many multioperator stations use separate transceivers and antennas to cover several bands simultaneously. This makes it a multioperator, multitransmitter ("multi-multi") station.

Only one call sign is used for a multi station. The operators are assigned shifts. This allows time for eating, resting and sleeping, and for taking turns logging while another mans the controls.

Most contests provide for score multipliers, depending on the type of contest. This means your final score isn't simply a tally of all your QSO points, but is based on that figure multiplied by some predetermined factor. For instance, a contest QSO with a given station could be worth one point on 20 meters and two points on 160 meters. In some contests, you earn additional points for working stations in foreign countries, different states or ARRL sections, or for using certain bands. Some contest rules offer bonus points; for example, during ARRL Field Day, you can rack up extra points for using packet radio and satellites, transmitting with low power, relying on "alternative" energy sources (batteries, solar cells, waterwheels or windmill generators, etc), sending news releases to local media, running a visitors' center, and for copying the special W1AW Field Day bulletin.

Techniques

A productive technique is to find a clear frequency for your contest operation. This may not be easy to do, and generally requires you to have a strong signal, but once you find a spot, stay put on that frequency and let the other stations come to you. This procedure can usually earn the highest scores. Remain on your frequency and send CQ CONTEST and your call sign. This is called "running stations."

You also can move around to different frequencies and reply to others who are calling CQ CONTEST. This is called the "hunt-and-pounce" technique and it requires cunning. The idea is to call every station you hear and to be especially alert for stations that count as multipliers or extra points. It's less likely that you'll run up the highest score if you hunt-and-pounce because you lose time tuning from one frequency to another, and a station you call may be a frequency hopper—you may call it and obtain no reply because it already moved to a new frequency. But if your signal isn't strong enough to "hold" a frequency, hunting-and-pouncing may be your best option. Develop a strategy. Sometimes you'll want to pass by a multiplier in a huge pileup because you might judge that you'd spend too much time there and you could do better to move elsewhere to grab more single-point contacts. You might want to combine these two: Slide around grabbing QSOs, and come back to the multiplier's frequency every so often to see if the pileup has diminished.

Frequency hopping is okay, if you're a casual contest operator and aren't attempting to roll up the overall winning score. There's nothing wrong with that—in fact, most people you hear in a contest aren't there to win overall, but may be taking a shot at a less ambitious goal, such as beating their own personal best in previous contests, or perhaps trying to be No. 1 in their state or other category. Don't be intimidated—pick your own goal and go for it.

Contests are open to everyone. Never let yourself feel like you don't belong in a contest, or that they're only for "special" stations. Besides, all the serious contesters out there agree on one thing: They want to hear your station. Contesters always are hoping to hear new call signs because it makes the game more fun and competitive. In fact, most top-tier contest operators take a major interest in recruiting new blood. Many of the perennial top-scoring hams got started with the help of a seasoned contest veteran. An amateur who shows interest and potential—particularly by getting in on the action and regularly submitting entry logs—might be invited to join a team as a guest at a huge multi-multi station. The sport of contesting needs new participants to provide contacts—and points—for the regular, "serious" contest stations. You might participate in a contest simply to provide points for those competing with their peers.

Besides, it's fun to participate in contests without being a serious competitor. You can collect new stations for your ARRL Worked All States (WAS), ARRL DX Century Club (DXCC), IARU Worked All Continents (WAC) or *CQ* Worked All Zones (WAZ) award credit. Casual contest operating is useful for determining how effective your signal is. If you're often answered on your first call, and if your message is copied the first time, you'll know that your equipment and antennas are working well.

Contests also are a way to get non-hams interested in the hobby. You can have anyone join you as a logger or "spotter" with a second receiver. If your contacts are limited to stations within the U.S. (and Canada, Mexico and other countries with which the U.S. shares third-party traffic agree-

ments), you can have anyone take turns at the mike, key or keyboard with you, as a guest operator. Some beginners are apt to feel less "mike fright" as guests at a multi-operator effort during a contest because they don't have to worry about making snappy on-air conversation, they don't have to do it all alone, and they can "hide" behind another call sign. Might be a good time to get a family member or your best friend on the air!

Not surprisingly, many amateurs who give contesting "a quick try, just this once" find themselves hooked. A modest effort even may pay off in a certificate in a category that doesn't attract many entrants. For example, if you live in a state with few hams, you could find yourself winning a certificate in a less-competitive category. I've never been what I'd call an accomplished contester, but in 1992 I surprised myself—and many of my ARRL HQ colleagues—by winning first place in the first ("1") call area in the single-operator, single-band (20 meters), low-power, unassisted category in the *CQ* HF WPX SSB contest. Okay, so it does sound like a rather narrowly defined category, but, hey, a certificate is a certificate! And it took me only about six hours of operating on a Sunday afternoon, using a common solid-state transceiver, an untuned horizontal loop of wire strung about 25 to 35 feet above my house and trees, and an inexpensive antenna tuner.

Later that year, I invited a friend to join me in my first real stab at the ARRL November SSB Sweepstakes, and our unassuming multioperator entry racked up enough contacts to earn commemorative participation pins and "Clean Sweep" coffee mugs (and a few good-natured, jealous grumbles from my fellow staffers).

Don't pay attention to the signal reports you receive during a contest. Most operators report every signal as 59 (SSB) or 599 (CW), although a signal really may be a mere 549. The 59(9) reporting system is used for expediency in a contest. It allows hams using memory keyers or computerized logging/keying/voice announcing systems to program them for a specific exchange (call sign, signal report, serial number and other information) to save time. You can honestly report the other station's signal strength and readability if you insist, but you might rattle the other operator.

Contest Logging

There are a few essential tools to use when you jump into a contest. You need an accurate clock and log sheets for contesting and DXing. A "dupe sheet" is essential for each band of operation. This extra contest form has the amateur prefixes for each U.S. call area and many countries printed in numerical order. There are blank spaces under the prefixes where you list the suffixes of the stations you work. If you're in doubt about whether you've already worked a calling station (or one you want to call), a quick check of the dupe sheet reveals the data you need to prevent working the same station twice on a given band. Duplicate QSOs on a given amateur band, or sloppy operating or logging can get your entry disqualified. You must to be careful and accurate, and strict adherence to the time limits of the contest are imperative.

With the pervasiveness of personal computers in ham shacks today, it's easy to take advantage of their capabilities to automate your logging, scoring and duping. There's plenty of free or inexpensive software available that lets you do away with pencil-and-paper logging. Using a good computer program helps you work more efficiently, and lets you forget about dupe sheets and a calculator. Most of them display a running total of your score, QSOs, multipliers, and even the rate at which you're picking up points, so you can review your present status at a glance. The better programs save updates to your data direct to your computer's disk immediately after each contact is logged so that you won't lose any information if you have an unexpected power failure or other interruption. Some come with large databases of station prefixes for different countries so that you instantly

know where the other station is located and whether it counts as a multiplier. After the event, you can print out the information you need to fill out your contest entry forms or you can just print a summary sheet and mail it with the other data on a computer diskette. Even better, many contest sponsors invite you to submit your entry via telephone modem.

The more comprehensive software lets you configure your computer to send CQ or exchange information on voice or CW at the press of a key. All you do is add a simple hardware interface between your PC and your transceiver. The software does the rest.[2]

If you don't have a PC, even a "smart keyboard keyer" or memory keyer can help with CW contesting if you can program it to send the repetitive exchange information, such as, your call sign, contact serial number and so forth.

If you prefer paper logs, contest forms usually are available free from the sponsor. Normally all you have to do is send in a self-addressed, stamped envelope (SASE) ahead of time to request the forms you'll need. Information about forthcoming contests is published in ham magazines. *CQ* runs rules and schedules in its Contest Calendar. The monthly Contest Corral listing and detailed rules for ARRL-sponsored contests are printed in *QST* a month or two in advance. Included are the contest name, date, time and operating rules. Other organizations that sponsor contests include QRP clubs, radio clubs in various states and countries, ARRL sections, and international and foreign national radio societies.

Something for Everyone

You never may have tried contesting. You may prefer to participate in activities such as ragchewing, net operation or traffic handling. You might be more interested in experimenting and technical achievements than in assembling a competitive contest station. You might enjoy building and testing equipment more than operating it. Networking may be your personal interest, and you could be happy spending all of your amateur radio time at a keyboard. Perhaps ATV suits you, and you're happiest pointing a camera or performing in front of one. One of the greatest things about amateur radio is that there's something for everyone. But try something new —you may discover an activity that's more fun than you suspect!

Ya say ya wanna try contesting, but all ya have is a handheld VHF FM transceiver, bunkie? Well, chin up—next month we'll look a bit higher up in the RF spectrum at VHF/UHF contesting. Meanwhile, send mail and leftover Halloween candy to Brian Battles, WS1O, ARRL HQ, Dept. PC, 225 Main St., Newington, CT 06111; e-mail: bbattles@arrl.org.

[1]Two magazines published by the ARRL include *QST,* sent monthly to all league members, and *The National Contest Journal,* a bimonthly journal that any contesting enthusiast can subscribe to. Contact the ARRL, 225 Main St., Newington, CT 06111; (203) 666-1541, fax (203) 665-7531, e-mail kfay@arrl.org.

CQ Amateur Radio is a monthly magazine published by CQ Communications, 76 N. Broadway, Hicksville, NY 11801; (516) 681-2922, fax (516) 681-2926, e-mail 71301.424@compuserve.com.

Both publishers also offer an extensive variety of books and video programs.

[2]Contest software isn't hard to find. If you're just starting out in contesting, you may want to try freeware, which costs nothing to use, or shareware, which you may use free for a trial period, but requires a nominal registration fee if you plan to use it regularly. If you have a modem, but don't know where to start looking for contesting software, try the ARRL HQ BBS (203-666-0578), commercial online services such as CompuServe, America Online and GEnie, or the Internet. Commercial contesting software is available from commercial vendors that advertise in *QST, CQ* and *The National Contest Journal* (published by the ARRL). ■

HANDI-CHAT

BY TED LISLE, KD4EXK

FOR THE HANDICAPABLE COMMUNICATIONS HOBBYIST

Hello again, and welcome to our bimonthly gabfest. This time we have a smorgasbord, leading off with two items from everyone's favorite uncle, the Federal Communications Commission. To begin, while it may be old news to some of our readers, the FCC now has a toll-free telephone number, (800) 322-1117—enabling those with technical or regulatory questions to go directly to the source. In addition, those obtaining their first amateur radio licenses through VE (volunteer examiner) teams who participate in the commission's new electronic filing program may learn the status of their applications. Applicants whose paper work is in order may obtain temporary operating authority over the telephone. A recent issue of *QST* reported turnarounds as short as two days for those utilizing the system. I haven't seen service like that since the old days on 11 meters, when newcomers were allowed to temporarily roll their own—using their first and last initials and their zip code after a "K" for a call sign.

Under the heading of "Your tax dollars at work," FCC Chairman Reed E. Hundt recently announced the formation of a special disability issues task force. Designed to ensure that "the interests of people with disabilities are represented and understood at the commission, and in the industries it regulates," the task force will contain representatives from each of the commission's bureaus and offices. Such broad representation should provide a wide variety of issues and perspectives. Furthermore, Hundt will serve as the first disabilities commissioner, thereby placing full prestige of the organization behind this potentially important new endeavor. There will be a toll-free telephone number to facilitate the expression of legitimate concerns, and a special agency to address those concerns—sounds like an auspicious combination!

An interesting catalog recently crossed my desk from a company called *FM Atlas*, Box 336, Esko, MN 55733-0336, telephone (218) 879-7676. Their specialty is the modification and/or sale of stock receivers that have been adapted to receive SCS (subsidiary communications service) or "subcarrier" broadcasts. Similar to the SAP (secondary audio program) signals offered by some TV broadcasters, these auxiliary broadcasts are offset from a station's center frequency by values of 57 (for data transmissions only), 67 or 92 kHz, and carry a wide variety of special material—radio reading services for the blind, background and foreground music feeds, news, sports, ethnic programming, and computer telemetry. (For further information, see Miles Beam, "Smart Radios—They're Here!" *Popular Communications*, November 1994) Featured models run the gamut—new and used, stereo and mono, analog and digital—and include brand names such as GE, Sangean, Realistic and Sherwood. The recorded catalog is informal and chatty, including excerpted testimonials from satisfied customers and demonstrations of several of the advertised models. However, the latter are only marginally useful because of the severe limitations of the built-in condenser microphone with which they were made. Visa and MasterCard are accepted for all phone orders.

While I can't endorse any of the claims made herein, mail-order shopping is here to stay, and a few of those rigs sounded intriguing. Furthermore, the business has been operating since 1977. I'd be interested in hearing from any readers who follow up on this item, or any who may have dealt with *FM Atlas* in the past.

That catalog might be of special interest to at least one of our readers. John Wagner of Pickerington, Ohio, is a brand-new *POP'COMM* subscriber with a serious problem, to which he has devised an extraordinary solution. While not handicapped in the conventional sense, John contracted a painful lower abdominal disorder, when gallstones were allowed to go untreated. The current medical prognosis indicates a long convalescence, but he reports that shortwave radio can be potent therapy. Specifically, John enjoys walking about his neighborhood—logging nine to 12 miles per day—accompanied only by a shortwave portable and a lightweight headset. He reports that the resulting combination of physical exercise and mental stimulation creates a kind of "comfort zone."

Why a shortwave portable, instead of the ubiquitous AM-FM walk-about? Quite simply, John prefers the international bands' unique mix of commercial-free news, information and music. Similarly, he reports that a good analog portable, with its ability to tune slowly and steadily through a band, often is a better match for this sort of peripatetic listening than most of today's synthesized rigs. His radios include a Realistic DX-342 ("tough as nails"—a solid performer with good headset audio), a Sony ICF-SW15 and a Grundig Traveler 2. A regular at the local hospital and pain clinic, John shares his technique with fellow patients and reports solid progress. Like a modern-day Johnny Appleseed, he maintains a constant stock of small portables, from sources such as Radio Shack and Universal Radio, to use as loaners. Once a borrower is thoroughly hooked, John either helps him select a permanent radio or sells the loaner at cost. Local suppliers assist by selling the radios at a discount. To top it all off, two doctors, a pharmacist and the hospital chaplain are now fledgling SWLs. For his next step, John plans to go into kit building, and encourage his associates to do likewise. He already has made some favorable preliminary contacts with John Ramsey of Ramsey Electronics, whose kits have received good reviews in *QST* and other hobby publications.

For stationary listening, he favors a Grundig Satellite 700, or a Sangean ATS-803A. The latter is fed by a homemade 60-foot random wire, coupled to a Radio Shack active antenna, which functions as both a pre-amp and impedance match. He recalls that, while hospitalized, he achieved decent results in an RF-hostile environment by placing the active antenna next to a window, and coupling it to the whip of the DX-342. To round out his hobby, John enjoys corresponding with broadcasters, equipment manufacturers and—fortunately for us—publications such as *POP'COMM*.

Thanks, John; it was great hearing from you. Your courage and ingenuity are not only a credit to you, but also an asset to our hobby. Anyone wishing to contact John may do so at 864 Appleridge Circle, Pickerington, OH 43147.

Well, that's a wrap for this month. Remember, your letters keep HandiChat on track—ensuring that we address the issues about which you want to read. So, if you have any questions, insights or tips, don't hesitate to sent them along. For now, address all correspondence to HandiChat, Popular Communications, 76 N. Broadway, Hicksville, NY 11801-2953, or e-mail us at POPCOMM@aol.com. Within the foreseeable future, I hope to be able to list an Internet address of my own, so stay tuned. For now, take good care, and I'll see you at Christmas. ■

SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

The bombing of the federal building in Oklahoma City earlier this year taught many of us a lesson in ways we'll probably never forget. It also offered an intense listening experience for many scanner hobbyists in that city and its environs. For weeks after the initial blast, scanner listeners tuned into communications from a variety of services ranging from police and fire rescue operations to temporary radio systems brought in by agencies such as the Federal Emergency Management Agency and the FBI.

For many, there were new frequencies to find every day. If you didn't find salvage operations on business or general mobile radio service frequencies, there certainly were news media operations to scan in the 161-, 450- and 455-MHz bands every day.

What the incident should teach each monitor, however, is that the hobby shouldn't be taken for granted. I am sure most of the scanner hobbyists in the Oklahoma City area will tell you that their scanners provided a lifeline to them every day. The radios carried information instantaneously, especially when family and loved ones were involved.

But how many scanner enthusiasts are prepared to monitor what could become the news story of the year in your very own community. Look around you: Do jetliners fly over your community? Is there a large chemical plant nearby? What naturally occurring hazards can strike in your community: tornadoes or hurricanes (or volcanoes)? Any hazard can become a disaster at any time. Sometimes, perhaps, the question is just when. How many monitors in the Oklahoma City area ever would have calculated that the bombing of a public building would be a hazard in their community? Probably none. But it all points in one direction: that hobbyists need to be prepared to listen to the "big event" should it occur near their homes.

How does one prepare to monitor an event that may last for days or weeks? How does one anticipate what frequencies may be used during a major emergency? With the availability of scanners that can be programmed with hundreds or even thousands of frequencies these days, it shouldn't be too hard to load up one of these receivers up with frequencies that are not only used on a daily basis, but also others that may become active only when necessary. Sure, you may not want to monitor public works frequencies on a day in and day out basis, but when all city units get pressed into service for a major emergency, you will want to monitor just about everything. The trick is to program every frequency you think may become active so you don't miss the action. Make it easy to access these channels, too, if you aren't monitoring them on a daily basis. Lock out the channels, or lock out banks containing these frequencies. And if you don't have a scanner capable of handling perhaps hundreds of channels, at least make a list, either on a computer or in a notebook, containing all the frequencies you will need.

This trailer housed a repeater on 453.350 MHz that the Federal Emergency Management Agency set up for Oklahoma City fire rescue operations after the blast that tore into the federal building earlier this year. (Photo by Dick Sharp)

And don't forget frequencies in other services that might become active. For instance, you can bet during a major emergency frequencies such as 151.625, an itinerant business channel, or 156.800, VHF marine Channel 16 for calling and emergency, might become active with emergency-related communications. In September's Scanning VHF/UHF column,

These are the antennas at the top of the tower on the FEMA repeater trailer in Oklahoma City. (Photo by Dick Sharp)

we presented a comprehensive list of frequencies one monitor uncovered in the hours after the Oklahoma City bombing.

Olympic Frequencies

Nate Grigg sends us a message via the Internet from Salt Lake City, Utah, saying that in light of the fact that Salt Lake City was awarded the 2002 Winter Olympics he wonders what kind of frequencies he eventually should scan to hear the goings on of the Games. He also asks whether monitors should listen for federal, business or other bands.

That's an interesting question, not because of the possible monitoring bonanza, but how one predicts the future of communications seven years from now! There could be all kinds of new types of radio communications services in place by 2002 that will afford an odd mix of monitoring.

In the past, activity leading up to the actual Olympics probably will result in the use of business frequencies, perhaps on UHF as things need coordination. There will be a lot of construction, so expect to find not only special industrial radio service frequencies used, but also business radio service channels. When the Olympics comes to Salt Lake City, expect the organizers to have their own radio systems in place for the event itself. For instance, perhaps PCS, the new Personal Communications Service, will be in place throughout your city by that time. That will mean that everyone will be carrying handheld telephones to keep in touch. Cellular systems already in place probably will be augmented with additional service sites to handle the increase in the number of cellular users who will be in place for the Olympics.

The news media frequencies were in widespread use immediately after the blast in Oklahoma City. Here, one news crew that traveled from Miami, Fla., sends video via satellite to viewers in South Florida. (Photo by Dick Sharp)

And like other Olympics cities, you can expect not only a special paging system to be put into place, but also two-way radio systems, too. The FCC's typical approach to handling an unusual number of two-way radios for events such as this is to take an unused UHF TV channel from Channel 14 through 20, as is done in the nation's top 20 cities, and use a 6-MHz band to accommodate radio communications. For instance, Channel 14 already is used in Salt Lake City for TV, so perhaps one of the channels between 16 and 20 could be cho-

sen for usage. If, for instance, Channel 16 was chosen, the frequency range that would be used for two-way radios would be 482-485 MHz for repeaters and base stations, as well as mobile-to-mobile simplex communications, and 485-488 MHz for repeater input frequencies and mobile use. Not only will you hear frequencies related to coordination of the Games themselves, but all the world's news media coming into Salt Lake City to cover the Games will be given frequencies from this segment that the FCC chooses.

While this is how it has been done in the past (and at other large-scale events such as Republican and Democratic conventions for presidential primaries), it doesn't mean that's how things will happen seven years from now. For instance, perhaps a digital system that takes advantage of trunking technology will be put into place on the 800 MHz band if sufficient spectrum can be found in Utah.

So, to make a long answer short, keep looking for new frequencies. Yes, some federal frequencies will be active during the actual Games, but probably not much beforehand. If you run consistent searches through the various bands, you'll likely stumble on new frequencies as they come into usage.

Noted

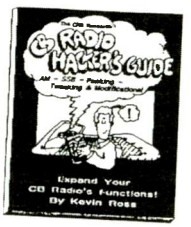
Jim Floyd, KB9KID, writes from Indiana with a quick note about some frequencies that were published in the June issue. He says that 146.700 is not the Indianapolis Skywarn net, but that it is the Indiana Severe Weather Net. This weather net is connected to the National Weather Service forecast office at Indianapolis. Jim says the Indy Skywarn net actually is on 146.760. Jim adds that he enjoys the column. Thanks for keeping things straight, Jim.

An Ending

Next month, we'll introduce you to a new scanning columnist who will take over this column. I have written this column since June 1983 and have loved the interaction with our readers since then. The readers of this column are the ones who actually write this column each month and it is with much appreciation that I say thanks to every one of you who has written to me over the past dozen years.

However, as my duties have intensified as the new *POP'COMM* editor, I felt that I needed to devote my attention to the magazine while bringing on a new columnist who is capable of continuing this column.

If you have input for this column, feel free to send it to us at Scanning VHF/UHF, Popular Communications, 76 N. Broadway, Hicksville, NY 11801-2909, or e-mail to POPCOMM@aol.com. I'll see that it gets sent to our new columnist. ■



EMERGENCY

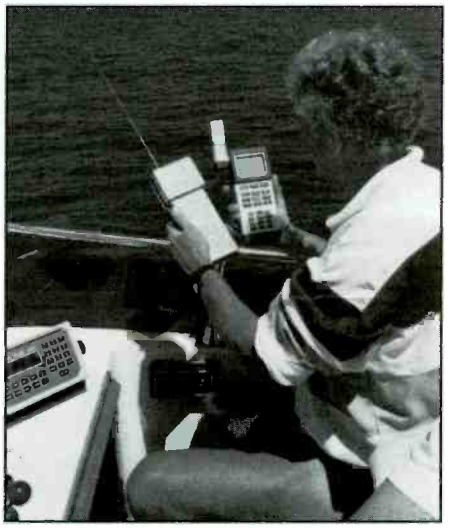
BY GORDON WEST, WB6NOA

COMMUNICATIONS FOR SURVIVAL

Marine Rescue Transponders

Rescue squads that respond to on-water emergencies in the ocean, on lakes, and on big rivers now have specific access to certain emergency transponder transmitters to better locate the scene of the distress. These radio transponders are specifically covered under FCC rules, Part 80, and their use is specifically limited to on-water emergencies, with only the emergency position indicating radio beacon (EPIRB) having a similar counterpart on shore.

GPS readouts can spot a distress call position within a 300-foot circle 95 percent of the time.



Author West testing EPIRBS and GPS sets aboard a lifeguard boat in Chicago.

VHF Marine DSC

"DSC" stands for digital selective calling, and marine VHF two-way radios are now becoming available with this feature. Digital selective calling is similar to amateur radio packet communications where information is sent as a datastream, rather than voice. VHF marine Channel 70, 156.525 MHz, is reserved exclusively for data communications. In an emergency, a boater in distress with DSC equipment would merely need to push a single button, and their set could send the following distress packet in less than five seconds:

- International digital distress preamble
- Boat identification (assigned by FCC)
- Boat position (from onboard GPS or Loran)
- Time of activation
- Automatic listen for DSC response

All ships with turned-on VHF marine radios with DSC capabilities will automatically "sound off" that there is a distress call on Channel 70. Inexpensive VHF transceivers with Class C capability, such as the new ICOM America IC-M126DSC which will squawk a distinctive warbling tone out of the speaker and automatically switch to Channel 16, the international distress voice communications frequency. More elaborate VHF DSC transceivers, Class B or Class A, will sound off loudly when a distress call is received, and also display vessel ID, position, and time of the distress call, plus rebroadcast the distress packet exactly as received. Out on the ocean, it's conceivable that a DSC distress call could be relayed ship-to-ship on VHF Channel 70 over hundreds of miles to ultimately be received by a United States Coast Guard or rescue agency that would then take appropriate action.

By 1999, digital selective calling will be mandated for almost all marine VHF equipment, so the present may be a good time to modernize your rescue squad boat or shore-based communications station for digital selective calling capabilities. Contact ICOM America at (206) 454-8155 for their digital selective calling information sheets.

EPIRBs

The EPIRB is no stranger to rescue squads on land or at sea. An activated EPIRB transmits a distinctive warbling tone on 121.5 MHz and 243 MHz. For land use, these two frequency transmissions come from ELTs, emergency locater transponders, found aboard aircraft and sometimes carried by backpackers. Out on the water, marine EPIRB with Class A specifications will float free of a sinking ship, and automatically activate. Class B EPIRB may be turned on automatically by water activation, or manually by an on-off switch. Aboard aircraft, the ELT activates on impact, or may be manually activated in a soft landing.

There is also a category "406" EPIRB for long-range commercial and pleasure boats, and this unit operates on 406 MHz with telemetry that self-identifies upon activation. There is also a 121.5 MHz homing system on the 406 MHz EPIRB, too.

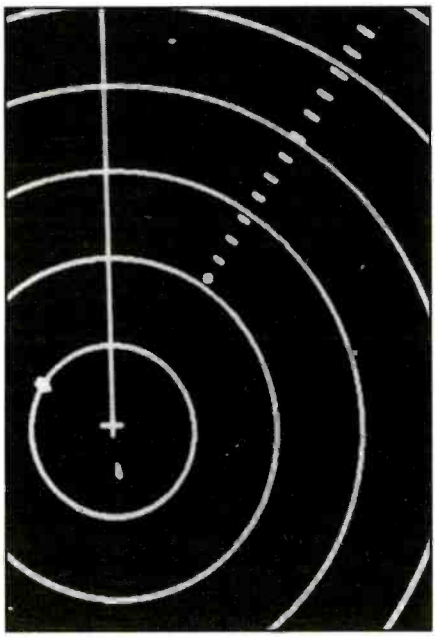
When an EPIRB is activated out on the water or on land, the signals might be heard locally up to 100 miles away by passing aircraft or ground stations tuned into the 121.5 MHz/243 MHz frequencies. The activated EPIRB is also received by low-earth orbit (LEO) COSPAS/SARSAT satellites constantly circling the globe taking weather facsimile pictures and doing double duty as a repeater station for the 121.5/243/406 MHz EPIRBs. By Doppler shift, special land stations may determine the position of an activated EPIRB within a couple of miles. Local agencies are contacted to commence rescue efforts, and ultimately the activated EPIRB gets tracked down.

The greatest problem with the EPIRB system is that 95 percent of all activated

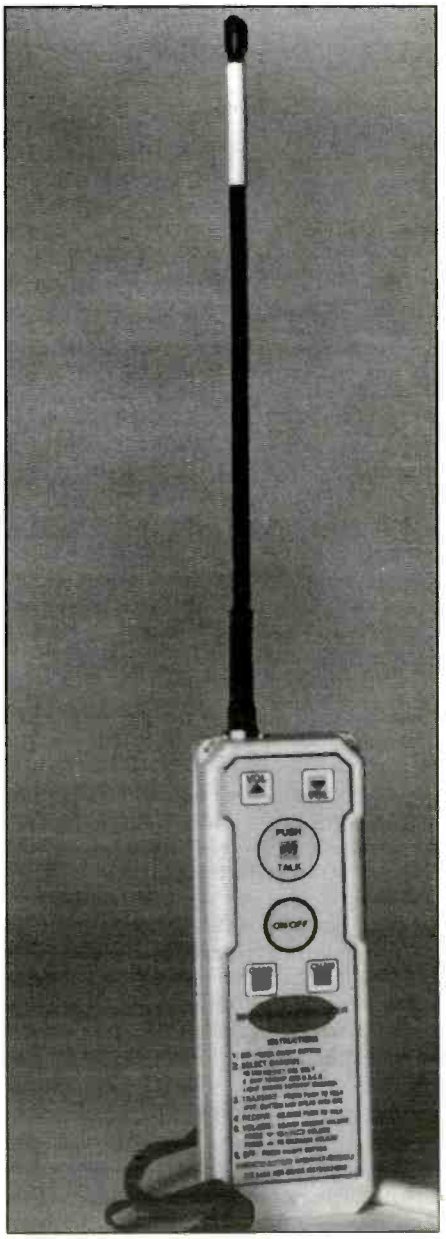
Frequencies 121.5 MHz/243 MHz EPIRB for on-water emergency.

An activated SART picked up on the toe mile range ring, 20° on the starboard bow.

Emergency fireboat with twin DSC (Digital Selective Calling) radios onboard.



Activated SART at two miles away off starboard quarter.



Waterproof emergency channel 16 radio for rescue squads.

Icom marine VHF tuned to DSC calling channel 70, 156.3525 MHz.

EPIRBs are false alarms. Pilots making a hard landing sometimes activate an EPIRB without even knowing it. Mariners may take an EPIRB out of its chalks to paint behind it, and inadvertently turn it right-side up, causing it to self-activate. Hikers may set their backpack down, accidentally triggering the EPIRB "on" switch. Civil Air Patrol units are commended on the major effort on their part to help track down false and real EPIRB alarms.

Search and Rescue Transponders

Rescue squads serving boaters on the ocean, lakes, and big rivers can benefit from the search and rescue transponder (SART). The activated SART sends out a special coded signal that is easily recognized on a ship radar set. And now that marine radars have gone to liquid crystal displays (less than 3 amps current draw), lightweight 10-pound radar antennas, and 16-mile capabilities (all for under $1,500), a ship radar set a can-do proposition for search and rescue agencies out on the water with a tight budget.

When a SART is activated by a mariner in distress, it creates 12 distinctive dashes on everyone's radar screen on a bearing line that would allow the ship operator to head directly to the search and rescue transponder. The SART operates on 9 GHz (9,200 MHz) X-band radar frequencies, and has a range of approximately 10 miles to nearby radar sets. There is no mistaking when the activated SART appears on your radar screen.

The SART is similar in technology to what aircraft controllers use when they ask an aircraft to "squawk" a specific code for radar identification purposes. In the case of the SART, the "squawk" is an emergency call to anyone who picks up these dash lines, and responds to the target at the beginning of the dash lines on the scope.

In congested harbor areas where a boat is sending out a Mayday call over marine VHF voice Channel 16, 156.800 MHz, the activated SART will assist rescue agencies

Commercial "Sea Tow" company uses DSC radios to protect local boaters in an emergency.

in quickly identifying the vessel in distress among all of the other targets appearing on the radar set. This is much faster than triangulation or homing with automatic direction finders on VHF, and about the only thing better than an activated SART would be the reception of a digital selective calling packet that might also contain the distressed vessel's exact latitude and longitude.

So if your rescue squad is into boating responses, do consider the new technology that lets you pick out the Mayday faster, more automatically, and allows you a quicker response to the emergency scene. ■

New and Changed Radio Communications Services Digital Selective Calling

Coast Guard Group Moriches in Long Island, NY, and Coast Guard Communications Stations NMF in Marshfield, MA, began offering a new radiotelephone service to mariners on a trial operational basis as part of the new Global Maritime Distress and Safety System. This new service, called digital selective calling (DSC), will allow mariners to instantly send an automatically formatted distress alert to the Coast Guard or other rescue authority anywhere in the world. Digital selective calling will also allow mariners to initiate or receive distress, urgency, safety, and routine radiotelephone calls to or from any similarly equipped vessel or shore station, without requiring either party to be near a radio or loudspeaker. We have also begun announcing unscheduled marine information, broadcasts form both Moriches and Marshfield using this service.

Group Moriches will receive VHF maritime DSC calls on VHF channel 70 and medium frequency DSC calls on 2187.5 kHz. Urgent marine information broadcasts in VHF channel 22A and 2670 kHz will be operational for a one-year trial period between March 1, 1994 and March 1, 1995. The DSC identification number for Group Moriches is 003669985.

Communications Station Boston/NMF has been receive Medium and High Frequency DSC calls on 2187.5, 4207.5, 6312, 8414.5, 12577, and 1680.5 kHz from mariners for several months. Urgent marine information broadcasts on 2670 kHz will be preceded by a DSC call. The DSC identification number for NMF is 003669991.

The Coast Guard plans to install this service at each of its high seas communications stations by 1995, and at each of its coastal radio stations by the end of the decade. Marine radios equipped with this digital selective calling feature is just now becoming available, and should be standard on most if not all marine radios sold in the U.S. within approximately four years. We expect this service to eventually replace a listening watch on most maritime radio voice channels.

We encourage you to test this system and give us your comments. If desired, special tests can be arranged directly with the Group or the Communications station.

CB SCENE

BY JOCK ELLIOTT, SSB-734

27 MHz COMMUNICATIONS ACTIVITIES

Recently, a gentleman named Clarence wrote to me from Linwood, N.J., to say:

"I am 83 years old, retired and wanted something to pass my time. So I purchased a CB set about two weeks ago, thinking I could make new friends. I find it very hard to contact anyone to talk to. What am I doing wrong?"

First eliminate any technical problems that could interfere with putting a decent signal on the air. I assume you have purchased a name-brand CB radio (either a base station or a mobile rig with a power supply), a vertical base antenna that is mounted outside at least 10 feet off the ground, and a length of good coax cable to connect the radio and antenna.

If you have done all that, it's likely you are putting out a copyable signal. To make sure that's true, tune to a busy channel—for example, Channel 19, where the truckers are—and say, "Break 19, is this radio working OK?" The reply you get may be as brief as: "It's working," but at least you'll know that you can be heard. If, however you try numerous times and no one ever comes back to you, it's probably time to look for a CB repair shop for someone that can help you check out your installation.

Look Who's Talking

Maybe the problem isn't technical. Maybe people aren't coming back to you because they don't know you, and don't realize that you are an interesting person who would be fun to have a conversation with. So, what do people talk about on CB? There is endless variety, but it seems there are a few basic groups of CBers:

•**Travelers**—These folks include professional truck drivers as well as ordinary business and family people in their cars. One thing they have in common: they're all headed for a destination. Generally, travelers are interested in road conditions, smokey (traffic police) reports, and sometimes in getting help for an emergency on the road. Depending on how long they have been driving, whether they have anyone with them, and their temperaments, travelers may or may not be interested in an extended conversation on CB.

•**The community on the air**—Some CBers use their "home channel" as a kind of town square; it's where everyone meets during the day. People check in and out of the home channel as they go about their business, often looking for particular members of the group. "Have you heard Snoopy? I need to talk to him." As with all human groups, some welcome newcomers with open arms, and others operate as a closed clique.

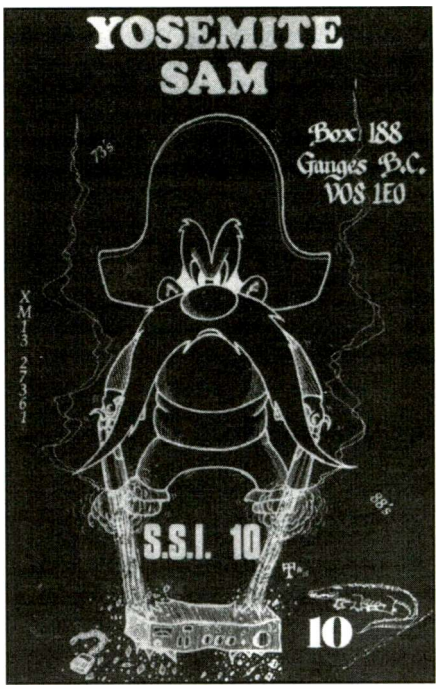
• **Folks with a common interest**—One thing drawing people together is a shared interest, and that happens on CB as well. I have heard people playing games, including chess and Trivial Pursuit on CB. I've heard discussion groups talking about everything from agriculture to politics. One evening, in Troy, N.Y., I ran into a group of Christians gathered in fellowship on Channel 35. The common factor with all these groups is that if you are interested in what turns them on, chances are you will be welcome as a participant.

•**Antenna polishers**—This is simply another group of people with a common interest. Antenna polishers, however, are focused entirely on optimizing their CB stations. You will hear them endlessly experimenting with microphones, antennas and radios, and some participants obviously have a high level of technical knowledge. If you find the right group, and you can learn a lot.

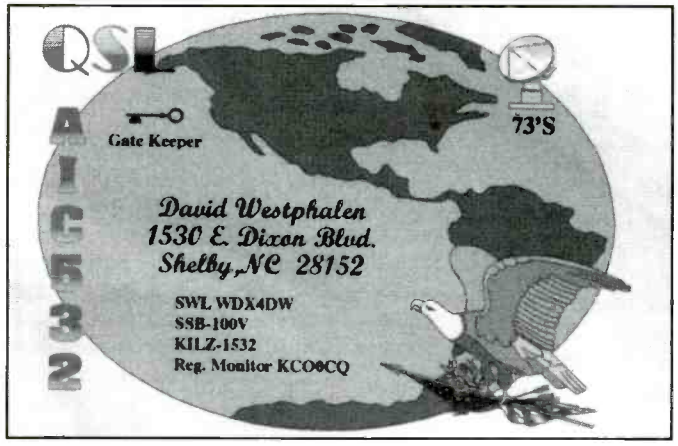
•**The wild bunch**—These are the people running overpowered, overmodulated radios with roger beeps, and echo chambers. They scarcely qualify as CBers, because they usually care only about how much noise they can make rather than enjoying any real communications. A talented CB technician I know says, "These aren't radio operators; they're boys with noise toys." I can't think what the attraction might be for such a group, but most communities have at least one CB channel like this.

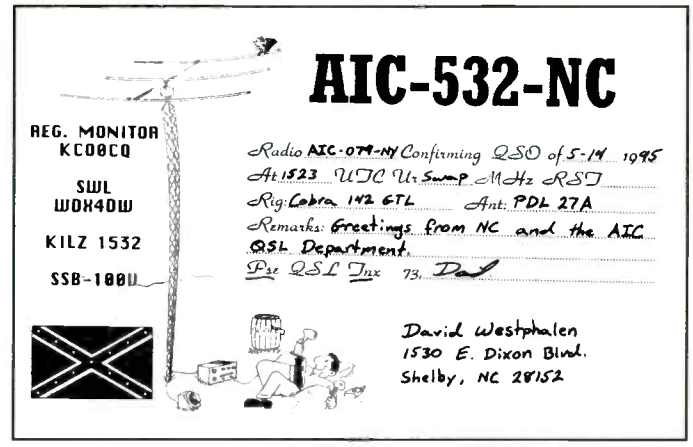
Ask Questions to Break the Ice

Your best bet is to listen around for a while to the CB channels in your area to see which ones appeal to you. Once you find a channel or two that you'd like to call home, here are some questions you might



Neyens Roger sent in these fine QSL cards from Luxembourg.





AIC member David Westphalen sent in these good-looking QSLs.

ask to help break the ice:

- How long have you been a CBer?
- What do you like best about CBing?
- What sort of radio, microphone or antenna are you using?
- What do you like to do for fun when you are not on CB?
- How did you get started as a CBer?

In addition, Clarence, you've lived 83 years—that's a lot of life experience. I bet you've got some stories to tell. You might have to reveal what makes you an interesting person in order to strike up some new friendships. During my time as a CBer, I've learned one incontravertable fact: everyone, repeat, *everyone* is interesting in one way or another. Sometimes it just takes a little digging to discover what it is. So keep trying, Clarence, and maybe some day we'll meet on the air.

From the Mailbag

William Benstead wrote from Etobicoke, Ontario, wondering why he never heard back from the SSB Network, P.O. Box 908, Smithtown, NY 11787. He thought it might be a scam of some sort.

Not at all. The SSB Network is the largest organization of 11-meter single-sideband operators in the world. If you write to them at the above address and enclose a self-addressed, stamped envelope with U.S. postage on it, you will get information about the network and an application form. There is a small, one-time

registration fee, and then you are registered for life. I have no commercial connection with the network, but I am one of the 125,000 SSB operators who can tell you the SSB Network is a good outfit.

Sideband Lingo

In a sideband-related note, Matthew Zasadinski, a teen-ager from Clifton, N.J., wrote to say he doesn't understand the number "handles," how to break, or the Q-codes used by sideband operators.

First, sidebanders use numbered callsigns to identify themselves in the same way that ham operators use callsigns composed of letters and numbers. These numbered callsigns usually are issued by a sideband club or network, so the operator can be pretty sure that his callsign—like mine, SSB-734—is unique. In addition, it often is easier to understand a number callsign under noisy conditions.

Most sidebanders break a channel by calling "CQ" or "CQ lowerside," although sometimes you'll hear something like "break 37 lowerside." As to Q-codes, the only one I hear used frequently usually is used incorrectly. It's not uncommon to hear some operator say, "This is unit 333, QRT and standing by." In ham radio parlance, QRT means "I'm shutting down my station." So to say you are QRT and standing by means you are going to shut off your radio but you'll be listening for other operators anyway!

The best way to get familiar with sideband operating practices is to listen. Maybe there is a local sideband network in your area that you could join. I'm sure some of the oldtimers would be glad to answer your questions. In addition, you'll find an excellent discussion of sideband operating in *Tomcat's Big CB Handbook*, available from CRB Research Books Inc. You can find the address in the classified section of this magazine.

Fatal Tower Accident

George Kirkpatrick of TX sent in a clipping from the *Fort Worth Star-Telegram* that related how a man was killed when he and a friend were trying to erect a tower near a power line. They were steadying the tower when it twisted and struck the power line, which was carrying 7,200 volts. Wiring attached to the tower carried the electricity inside the house, causing a bed to catch on fire.

The fire was extinguished quickly, but when the incident was over, Ernie Rutledge, a ham radio operator who enjoyed helping fellow radio enthusiasts, lay dead. The moral of the story: be extremely careful when putting up towers or antennas. By all means, try to plan your installation so that antennas and towers cannot come in contact with electrical lines.

A wise friend once said, "Hope for the best, but plan for the worst. If you have any doubt whatsoever of your ability to put up a tower or antenna in complete safety, get professional help." Those are, indeed, words to live by.

Breaker for Mickey

Gary from Lamesa, Calif., wrote telling of an interesting practical use for CB: He and his mom went to Disneyland and used a pair of CB walkie-talkies to stay in touch while exploring the wonders of Disney. It's a neat idea, Gary, and thanks for letting me know about it.

Coming Soon: CB Buyer's Guide

In early November, you'll want to pick up a copy of the *Popular Communications CB Buyer's Guide*. It will have all the latest info on CBs, antennas, accessories and more, as well as a bunch of informative articles.

Please keep those cards and letters coming—write to me here at *Popular Communications*. ■

BY DON SCHIMMEL

COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Ever wonder why sometimes it is difficult to find call signs for some MARS stations? Let's look at the Navy and its changes in ships and crafts during 1994.

There were 18 ships commissioned, 11 transferred to the Military Sealift Command, two to the Naval Reserve Force, and 65 decommissioned. Some ships were also transferred to foreign countries, as well as the Ready Reserve Force, other government and non-government agencies, the Maritime Administration; others were stricken from the Naval Vessel Register. Also add the above changes in the Coast Guard, Marine Corps and the Air Force, and it is apparent that an up-to-date list of MARS stations is almost impossible to maintain.

First-time contributor Richard Smith, IL writes, "I've been picking up *POP'COMM* for over a year now, and after careful consideration I have finally purchased my first world band radio! I chose the Sony 7600G because of my budget (teeny-weeny), and I wanted synchronous detection. I wasn't impressed until I connected the coax from my CB antenna jack to the 7600G. Wow! Lots of stations pouring in."

Tim Bowling, WV, had a question about Offutt AFB which he heard while monitoring. Offutt Air Force Base is about 10 miles south of Omaha, Neb., on the outskirts of the city of Bellevue. Offutt is home to the Air Combat Command 55th Wing, which is under control of the Defense Airborne Reconnaissance Office. Units in the Wing include the first and second Airborne Command and Control Squadron (ACCS), 24th Reconnaissance Squadron (RS), 38th and 343rd Reconnaissance Squadrons, 55th Operational Support Squadron (OSS) and 11th Airlift Flight (AF).

Tom Trott, AL, asks, "Is there an organization for us old Air Force radio operators (AFCC 29350)?" Does anyone have info for Tom?

While listening to various air traffic control stations, Dave Copeland, IA, heard the term "Selcal" used and wondered what it meant. Selcal is the abbreviation for Selective Call. This paging method, a four-letter code, is utilized when a ground station wants to contact a particular aircraft. There is a unique Selcal for each aircraft. When the ground station transmits the Selcal, the aircraft's receiver receives the signal and a bell/light combination is activated on the flight deck. The call then is answered by someone on the flight deck.

Robert Hall, South Africa, reports, "By my bed I have a Sony 2001D/2010 and the bottom row of memory channels contain the most interesting HF USB air frequencies that can be easily heard from this QTH. During a sleepless night, I occasionally listen to 8903 kHz, which brings in traffic routing through zones AFR/4 and 5. The next memory button is tuned to the Springbok private company frequency on 8933 kHz. One day at 0415, I pressed what I thought was the 8903 kHz button. Through some crackle I heard 'United 90.987' saying it had engine trouble that could be catastrophic. Two U.S. stations came back and there was talk of an emergency landing at San Juan. The aircraft was losing height and its transmissions became garbled; I continued to hear a U.S. ground controller (Oceanic?) talking to the plane and offering Bermuda, and a PC (Lockheed Orion) escort with a life raft. Later contact seemed to be lost as the stricken plane fell below Bermuda radar and the last I heard was 'United 90.987, do you think you are going to make it? Please reply!'

"At this I rushed down to the shack and fired up the Icom 71Es, but nothing more was heard. Perhaps the strangest part of this drama was that I pressed the memory button in the dark and all the traffic took place on 8933 kHz, South African Airways private base contact frequency with Johannesburg. Indeed I heard Springbok 271 calling home, but without response. All very curious."

William Rich, TX, reports that Carswell AFB now is known as Navy Fort Worth. When Navy took over, a very tall mast topped by a three-sided antenna was observed. William says it wasn't there when it was an air force base.

According to Joe Pierce, MD, the installation is for cellular phone relay. A somewhat similar mast and antenna is being installed near where Joe works and the installers explained the purpose of the antenna to him.

While on vacation in Guam, Lynn Hanson took this photo. The vessels are two Japanese destroyers.

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

129.5: SOA212, Warsaw Meteo in RTTY, 50b, w/synops at 0745. (AB)

200: Beacon UAB, Anahem Lake, BC, Canada at 0858. (SF)

208: Beacon JYN, Goldsboro, NC at 0928, 554m; Beacon YSK, Sanikilauq, NWT, Canada at 0605, 1094m. (AH)

209: Beacon AEC, Mercury, NV at 0928. (SF)

211: Beacon AN, Anniston, AL at 0504. DSB. (PC)

212: Beacon OVE, Oroville, CA at 0920. (SF)

230: Beacon PD, Pendleton, OR at 0906. (SF)

249: Beacon JC, San Jose, CA at 0903. (SF)

253: Beacon HYT, Offshore Oil Rig, Gulf of Mexico at 0746, 1538m. (AH)

272: Beacon OLY, Olney, IL at 0520. DSB. (PC)

274: Beacon CQI, Council, ID at 0950. (SF)

283: Beacon AFP, Wadesboro, NC at 0806, 816m; Beacon UZG, Zaragoza, Cuba at 1009, 1428m. (AH)

286: Beacon PI, Pigeon Point, CA at 0905. (SF)

294: Beacon SC, Santa Cruz, CA at 0950. (SF)

305: Beacon ONO, Ontario, OR at 0930; Beacon RO, Roswell, NM at 0928. (SF)

308: Beacon G, Cranberry Island, NS, Canada at 0649, 1108m. (AH); Beacon MI, Manasquan Inlet, NJ at 0631. (PC)

317: Beacon VC, La Ronge, SK, Canada at 0905. (SF)

320: Beacon AE, Point Atkinson LS, BC, Canada at 0809. (SF)

330: Beacon CZM, Cozumel, Mexico at 0834, 1717m. (AH)

332: Beacon PIOA, Pahoa, HI at 0727. (SF)

341: Beacon SB, South Bend, IN at 0558, DSB. (PC)

346: Beacon LW, Lewisburg, WV at 0628, 522m. (AH)

353: Beacon HOT, Higuerote, Venezuela at 0603,

Abbreviations Used For Intercepts

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

2170m; Beacon JUK, Brunswick, GA at 0917, 910ml; Beacon UHG, Holguin, Cuba at 0707, 1465m. (AH)

362: Beacon GND, Pt. Salinas, Grenada at 0804, 2119m. (AH)

365: Beacon FT, Ft. Worth, TX at 0631, DSB. (PC)

370: Beacon UCM, Camaguey, Cuba at 0631, 1444m; Beacon VVC, Villavicencio, Colombia at 0623, 2592m. (AH)

390: Beacon UCA, Ciego de Avila, Cuba at 0915, 1421m. (AH)

394: Beacon ENZ, Nogales, AZ at 0904. (SF)

400: Beacon QQ, Comox, BC, Canada at 0903. (SF); Beacon HIV, Santo Domingo, Dominican Republic at 0902, 1599m. (AH)

411: Beacon SDA, Shenandoah, IA at 0727, DSB. (PC)

412: Beacon BU, Kri Bern Island, Kiribati at 0749, 7445m. (AH)

423: Beacon CKP, Cherokee, IA at 0849, 1241m. (AH)

450: Beacon PPA, Puerto Plata Int'l., Dominican Republic at 0927, 1503m. (AH)

2137.5: WLC, Rogers City at 0219 in FEC w/MAFOR bcst indicating wave conditions for each of the Great Lakes. (JN)

2182: NMN72, USCG Station Oak Island at 0200 wkg Group Fort Macon for rdo ck. WTK7485, F/V Victor, at 0337 wkg USCG Grp Southwest Harbor re being hailed on CH 16 to call CG Woods Hole. QSY to 2670 kHz w/Grp Woods Hole who passes mssg for brew member to call home ASAP. NLVA, USCGC Point Barnes (WPB-82371) at 0635 at work Grp Miami, QSY 5680 kHz where cutter gives posn, reports has vsl in tow. All in USB mode. (RB)

2442.7: DER, MOI Bonn at 2141 in ARQ-E, 72b, w/mssg to Berlin. (channel id GOVHF). (AB)

2550: RDFHD, Danish Navy at 2335 in 100b RTTY w/Foxes. (AB)

2687: JWT, Norwegian Navy Stavanger at 2344 in USB w/rdo cks w/7IK and 3HA. (AB)

2744: JWT, Norwegian Navy Stavanger in 75b RTTY at 2314 w/rdo cks & encrypted RTTY mssgs w/10F, N4G, 2UM, and F6M. (AB)

3269: NNNOBAG, 4 Whiskey 1 Bravo Net Control in USN MARS net at 0135 in USB. Check-ins include: NNNOTDA, ACO, EUD. Likely the Navy MARS net for Wisconsin as Green Bay mentioned as ACO's QTH. (JN)

3357: Savannah in USB at 1810 w/CG03 and CGC w/rdo cks. At 1825 CG02 now airborne and wkg w/Savannah. (AB)

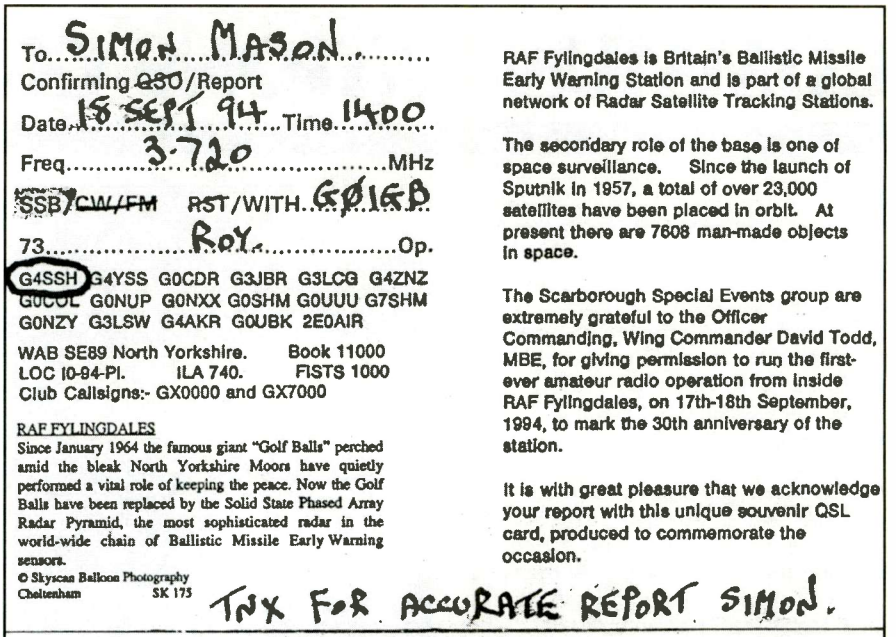
3455: New York ARINC (CAR-B MWARA) at 0501 in USB wkg Atlanta 715 w/selcall ck DE-AK. (RB)

3485: New York rdo in USB at 0652 w/aviation wx. (MNN)

4027: YL/SS w/nbrs bcst fm 0608-0611. (TB)

4071: ELGH6, M/V Regal Princess at 0316 clg/wkg WOM cking for tfc holding, Princess Cruise Lines cruise ship. NRDW, USS DeWert (FFG-45) at 0329 clg/wkg WOM for 1 R/T call. At 0355, 3FGV2, SS Seabreeze 1 concluding R/T tfc w/WOM. C6LG5, M/S Dreamward at 0443, a Norwegian Cruise Lines cruise ship, clg/wkg WOM for R/T tfc. All USB. (RB)

4202: UGNX, M/V Komsomolets Litvy in CW at 0215 wkg CLA, Cuba w/3 mssgs. (JN)



Simon Mason, England received this special events QSL.

4426: USCG Master Station NMN w/wx at 0405 in SSB. (TB); At 0410 NMN hrd in USB w/nautical wx east coast thru gulf. (MNN)

4461: Mossad YL rptng Foxtrot Tango Juliet 2. Usually on 4463 kHz. (SM)

4485: Sweep jammer at 0333. (TS)

4535: White noise here at 0134. (TS)

4601.5: OA, Irish Military Dublin at 2300 in SITOR-A, 100b w/sea area forecast. (AB)

4665: At 1840 VLB rptd by YL then 5L grps sent. Mssg abruptly terminated at 1845. Then some YL rptd VLB 14Delta8! (AM)

4721: SOP wkng Okie Sam w/scrambled speech comms in USB at 0133. (TS)

4742: RAF Ascot 2C18A w/Architect in USB at 2148. (AB)

4818: U/i stn in RTTY 100/425 passing 5L grps similar to RR MFA tfc, but was operating duplex, not bcst. (TS)

4835: Between 2015-2020 CW stn sending T's (long dashes, cut zeros) foll by short and long dashes. At 2025 063 063 063, 63 63 32 32 11 and into 5F grps. (SM)

4978: DER, MOI Bonn in ARQ-E, 72b at 1459. Mssg to Munchen (channel id GSVHF). (AB)

5083: DHJ51, Grengel Meteo, Germany at 1225 in 100b RTTY w/coded wx. (AB)

5153: At 1700 YI/EE w/1-0 count and 767 from 1700-1710. Then ten tones 'Count 1434' and into 3/2F grps. Also on 7473 kHz. (SM)

5160: 5UA, Niamey, Nigeria at 0025 in ARQ-M2 AB 96/320 w/aero wx. (PS)

5262.8: DER, MOI Bonn at 1925 in ARQ-E 96b w/mssg to Potsdam (channel id BRVHF). (AB)

5268.6: HEP, Zurich, Switzerland, State Police at 0150 in CW w/mkr. (PS)

5306: SLHFM "S," Arkhangelsk, Russia in CW at 2200. (AB; SLHFM "C" in CW at 0248. (JN)

5320: Charlie Bravo USCG Net at 1653 in USB wkg Mike, Alpha, & clg "Coast Guard 1504" (HC-130), most likely some type of interdiction net. (RB)

5437.2: Mossad bcst at 0140 in AM. YL/EE w/phonetics. (PS)

5500: Scrambled speech in USB at 0222. (TS)

5547: Fed-Ex 1800 wkg u/i ATC w/posn report & other data. Was told by ATC to contact Oakland Center o 134.15 MHz at 127W. (TF); Honolulu ATC wkg Singapore 18, told a/c go to primary freq 5643 kHz, also Air Canada to 5667 kHz. Also hrd Honolulu on 5628, 3413 kHz. 5547 also used by San Francisco. (DC)

5598: NY Aeroflot Oceanic in USB at 0030 wkg Delta 20. At 0035 Aeroflot 347 cks in, speed .85 mach; NY wkg Delta 32 gives posn, fl 330; United 9504 cks in @Lima Echo Mike Delta enrt to Echo Sierra Papa mach .80, fl 350. (M)


COAST GUARD COMMUNICATION AREA MASTER STATION ATLANTIC

LAST MORSE CODE TRANSMISSION AWARD

This certifies that ______________________, c/s

has copied the last morse code transmission originated by COAST GUARD COMMUNICATION AREA MASTER STATION ATLANTIC NMN, Thus marking the end of the era of RADIO TELEGRAPHY in the COAST GUARD.

OPERATORS
TC1 J. Burleson
TC2 T. Hill
TC3 S. Morales

N
M
N

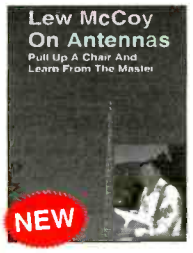
TELECOMMUNICATIONS SPECIALIST IN CHARGE

COMMANDING OFFICER CAMSLANT

This certificate was received by Richard Baker, OH.

Robert Pizzi, CA, copied this fax sent by HMY33, Pyongyang, North Korea. The frequency was 11475 kHz USB, 0200-0100 UTC.

CQ BOOK &



McCoy on Antennas

CQ magazine author and acclaimed authority on antenna theory and design, Lew McCoy, W1ICP, has written a truly unique antenna book that's a must for every amateur. Unlike many technical publications, Lew presents his invaluable information in a casual, non-intimidating way. **Lew McCoy on Antennas**—It's not just an antenna handbook, but a wealth of practical antenna advice for the ham! **Order No. MCCOY.....$15.95**

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Written by world-renowned expert Jerry Sevick, W2FMI, this volume is the definitive source for his latest practical information and designs on transmission line transformer theory. W2FMI has unraveled the technological mysteries with designs that are simple and work. Discover new applications for dipoles, yagis, log periodics, beverages, antenna tuners, and countless other examples. **Order No. BALUN.....$19.95**

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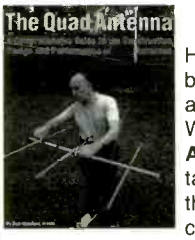
Order No. SWP.....$19.95

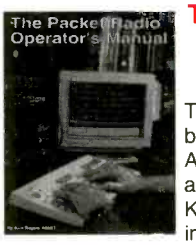
The Quad Antenna



Hams love antenna books. Written by noted author Bob Haviland, W4MB, **The Quad Antenna** is the authoritative technical book on the design, construction, characteristics and applications of quad antennas. Discover how to easily build a quad antenna for your station that will help you fill your logbook with rare DX that you've only dreamed about before.

Order No. QUAD..... $15.95

The Packet Radio Operator's Manual



This book is written by CQ columnist and Amateur Radio Packet authority Buck Rogers, K4ABT. An excellent introduction and guide to packet operation, it is the perfect single source, whether you're an advanced user or just starting out. Learn about packet radio without all the technical jargon. This book is the definitive resource for the active packet user.

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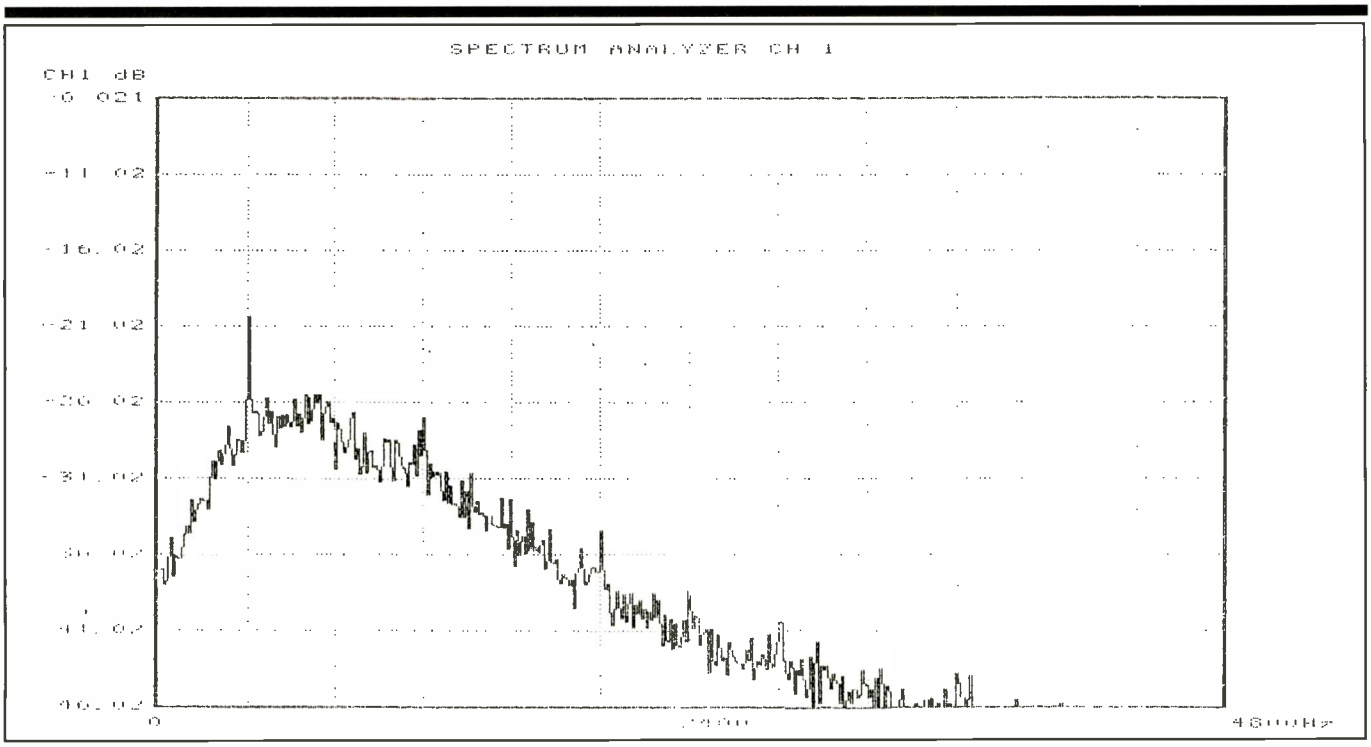

Tom Sevart, KS, heard this signal on 6963 kHz USB. Analysis was performed by Kevin Tubbs, VT, and he described it as a 400-Hz tone keyed on for about one second about every seven seconds.

5695: At 2020, YL/EE rptng 43795 til 2025 when 'Ready Ready' was sent then 45, 45 and into 5F grps. (SM)

5696: CG 6034 wkg CAMSLANT in USB at 0122. Eliz. City wants then to standby to be diverted. (JN)

6336.7: MTO, Navy Rsyth at 1222 in 75b RTTY w/availability mssgs. (AB)

6455: OM/EE (British accent) in USB at 0706 says, "You are covered in fat, I say again, you are covered in fat." (MNN)

6501: USCG Honolulu in SSB at 0615 w/maritime wx. (TB)

6535: Chilean Air Force 996 in USB at 0537 wkg Dakar w/posn report. (JN)

6550: Netherlands CG03 in USB at 1750 w/ Savannah. Rdo cks. At 1753 CG Center cld by CG03. No joy due massive QRM by Voice of Lebanon on same freq. CGC asked Savannah to contact CG063 in UHF and asked them to change freq to 3357 kHz. (AB)

6604: Gander Radio in SSB w/New Foundland Airlines, wx at 0500. (TB)

6628: NY Aeradio wkg Cubana 479, KLM 772, Air Liberte 815, Caledonian 78 in USB at 0220. All w/posn reports, selcal checks, etc. (JN)

6683: Andrews AFB wkg AF-1 at 1715. Andrews giving AF-1 alternate & primary freqs. (NM)

6712: FAF 7046, French AF aircraft in USB at 2355. FF language. Seemed to be status report for 0000. (JN)

6736: SIDECAR, Canadian NORAD Station at 1624 in USB clg M5G. ID's as "SIDECAR Radar." (RB)

6777.4: Various stations of USAF MARS Packet Network copied incl AGA5MC (McChord AFB), AFA6IV (San Diego, CA), AGA6ED (Edwards AFB), and AGA6TR (Travis AFB). Hrd at 0450. (JN)

6797: YL/SS w/5F grps at 0903. (TS)

These photos of ex-Air Force Base Carswell, TX, were taken by William Rich, TX.

```
Albrook: 6.739, 8.992,(00001-1200Z), 11.175(24hr.),15.016(1200-2400Z)

Andersen: 4.724(0900-2000Z), 6.739(0700-2200Z), 8.968(24hr),
          11.175(24hr), 13.200(2000-0900Z).

Andrews: 4.724, 6.739, 8.968, 11.175, 15.016, 17.976.

Ascension: 6.712, 6.739, 8.992, 11.175, 15.016.

Croughton: 4.724, 6.712(24hr), 8.968, 11.175(24hr), 13.200,
           15.016, 17.976.

Elmendorf: 6.739(24hr), 8.968, 11.175(24hr), 13.200(2000-0600Z),
           15.016, 17.976.

Hickam: 6.739(0400-1900Z), 8.968, 11.175, 13.200.

Incirlik: 4.724, 6.739(1500-0700Z), 8.992, 11.175(24hr),
          13.215, 15.016(0500-2000Z), 17.976.

Lajes: 6.712(24hr), 8.968(24hr), 15.016.

MacDill: 6.739, 8.968, 11.175, 15.016.

McClellan: 4.724, 6.739, 8.968, 11.175, 13.200, 15.016, 17.976.

Offutt: 4.724, 6.712, 6.739(2300-0800Z), 8.968 & 11.175(24hr),
        13.200, 15.016, 17.976(0800-2300Z).

Thule: 4.724, 6.739, 8.968, 11.175, 15.016, 17.976.

Yokota: 4.724, 6.739, 8.968, 8.992, 11.175, 13.200, 15.016, 17.976.
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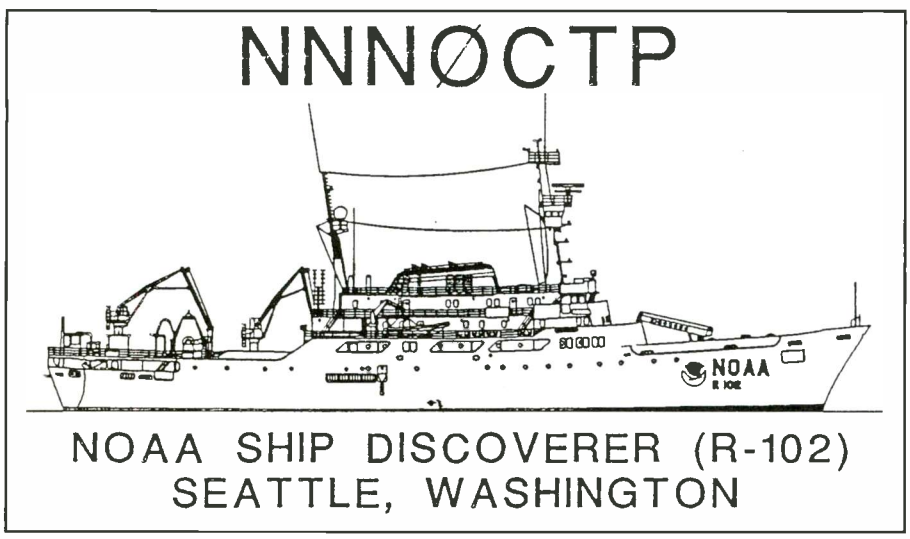
A contributor signing himself as "Hotel Sierra One" provided this list of USAF GHFS frequencies. (USB)

6826: YL/SS in AM at 0308 w/5F grps. (TS)
6936: Raspers of 6, 5, 7, and 8 dots/1 dash here at 1525. (BS)
7532: Yl/GG rptng Hotel Kilo w/tones fm 2330-2335. Then 921 54 Gruppen and into 5F grps. (SM)
7535: SESEF Norfolk w/equip tests w/foll ships: NRAR, USS Monterey (CG-61) at 1351 w/RTTY circuit ck; NEBP, USS Wasp (LHD-1) at 1515 w/HF rdo ck's; NVVV, USS Normandy (CG-60) at 1517 conforming 1200 (local) start time for test fol day; NJAG, USS Yellowstone (AD-41) at 1519 w/HF tests; At 1822 wkg tactical call "GUNSLINGER" w/KY-75 systems tests (in the green). Primary mode in USB. (RB)
7605: At 2200 YLB rptd by YL foll by 42 grps at 2203. At 2206 VLB again and at 2210 42 grp mssg. At 2213 suddenly off and at 2214 VLB14DELTA31 til 2245 when changed to VLB2. (SM)
7648: DDH7, Hamburg, Germany meteo w/tfc at 2256 in 50/425 RTTY. (PS)
7667: 8BY in CW at 0356 w/mkr. (BS)
7790: Lots of tfc in SS, transmitting simultaneously. USB at 0020. Poss Mexican Police? (JN)
7840: OTH radar at 0300. (TS)
7902.5: DOJ, in flight AWACS w/track nbrs & target id's. USB at 0048. Joint Inter-Agency Task Force (JIATF) tfc. (PS)
8095: Connie 801 in USB at 0310 w/departure mssg 'Sierra Kilo Bravo Oscar, eta Sierra Victor Mike India, cargo 27848 lbs.'; Silvair rdo wkg Farragut 967 w/co relay 'neg maint description.' (M)
8136:YL/SS at 0112 in AM w/5F grps. (PS)
8294: ADMP, USAV Five Forks (LCU-2018) in USB at 2016 wkg RAIDER w/"1600 posn report"; KYR822, Eklof Marine, Staten Island, NY in USB at 2303 wkg WBF9528, Tug Taurus. (JN)
8297: KZU, Gulf Fleet Marine, "Harvey:, LA at 0106 in USB taking ck in's fm various tugs for posn/status incl: WBS5277 Mister Andre; WBS7689 Gulf Duke and WBT9121 Gulf Majesty; ADMN, USAV Corinth (LCU-2016) fm 329th Transportation Co., Fort Eustas,



Jim Deardorff, OH, monitored this MARS station on 14477 kHz

VA at 0112 clg ADMN, USAV Contreras (LCU-2015), no joy. At 1713, AAF1, blvd be U.S. Army Ammo Plant. St. Louis, MO wkg u/i USAV w/rdo ck's. Bth in USB mode. (RB)

8300: New Star Broadcasting Station at 1330 in AM w/CC mmisc. Then YL/CC w/4F grps, each x2. Off at 1338. Back on at 1400, 1430, 1500, 1530, & 1600 on same morning with same format. (BS)

8335.5: DRAN, FGS Augsburg (F-213) at 0157 in USB clg DHJ59, Wilhelmshaven Naval after passing RTTY tfc. (RB)

8350: 6NEL, Jin Young 155 in CW at 0433 wkg OBC3, Callao, Peru w/mssgs. (JN)

8391: YLBH, TH Inzhener Nechiporenko (refrigerated cargo ship) at 0620 w/tlx report at Havana, Cuba, discharging cargo. YLAW, TK Pablo Neruda (tanker) at 0632 w/one TG. UIWK, M/V Putivl at 0745 w/ETA to Montreal. All in SITOR-A. (RB)

8459: YQI, Constanta Radio, Romania at 0125 in CW wkg u/i vsl YQR07 to 0139, then back to CQ mkr "DE YQI." (RB)

8475: Lithuania ship LYAW in RTTY 50/170 at 0527 clg LYK (Klaipeda Radio, Lithuania). (TS)

8933: NY Arinc LDOC wkg United 987 at 0340 in USB. 987 had declared an IFE (in flight emergency) due problems w/1 of 2 engines. Was requesting equip at San Juan when engine was lost completely. A/c then turning back to Bermuda. Requested standard emergency equip, was advised Navy Rescue P-3 was enrt also. At 0345 wkg Cedar Rapids LDOC w/pp. At 0422 Bermuda Center on VHF, then relays same to NY Arinc. (RB)

8969: U/i stn in SSB at 2348 w/SKYKING bcst. (TB)

8992: KING 29 wkg McDill in USB at 1810 w/pp to Patrick AFB metro for wx, base ops for info, a/c is enroute from Halifax to Patrick w/5 passengers on board. When queries as to civ/mil status, answer given 'Theoretically civilian' passengers. (M)

9120: 1 dot, 1 dash rasper at 1648. (BS)

10421.6: RTTY bcst, 75/500 to BPA at 1526. 1 mssg of 334 grps indicated. Mssg header "11144 00116 72578 21113 03349." Went down w/QRU QRU SK SK. (BS)

10493: WGY912 discussing Oklahoma City bombing w/unid stn in USB at 1629. LSF clg WGY912 at 1645 for rdo ck. When QGY 912 answers, LSF is gone. (BS)

10497: WOO, Ocean Gate Radio, NJ in SSB w/tfc list of waiting ship-to-shore calls at 0406. (TB)

10529: YL/EE at 1600 rptng 652 (x3) 1-0 count. At 1610, ten tones foll by count 106 (x2) and into 3/2F grps.//13518 kHz. (BS)

10551: GFL23, Bracknell Meteo in 75b RTTY at 1124 w/RY's. (AB)

10565: GR TAT over and over in CW at 1301. Then into 5L grps. Ends at 1314. (BS) TAT poss cut nbrs for 010. (Ed.)

10598: XVN37. Hanoi, Vietnam at 1630 in 50/500 RTTY w/nx in EE. (BS)

10740: YL/GG rptng Sierra Bravo fm 2330-2335 w/tones, then 174 67 Gruppen and into 5F grps. (SM)

10856.2: GXQ, British Army station at 1804, 75b VFT B, w/RY's and Foxes. (PS)

10871.7: SLHFM "S" Arkhangelsk, Russia in CW at 0557; SLHFM "D," Odessa, Ukraine at 0209 in CW. (BS)

11042.2: 9MR in RTTY 50/898 at 1606 w/5L grps. After several mssgs 9MR sent "9MR 5/11/15 RMMJ MRB RY's" til abrupt end at 1707. (BS) CFL (9TH Edition) shows 9MR as Johor Bahru Naval. Malaysia. (Ed.)

11110: At 2000 CW station sending 360 (x3), 00000 til 2005. Zero was cut as T. (SM)

11175: Lola91 wkg 91 Vitro and SY 34 asking for pp then asked for 1000 pounds of fuel. He was told they didn't have a govt contract and would have to pay the regular rate. Hrd 1920-1950. (RS); Reach 59404 in USB at 1920 wkg Andrews AFB & indicates "injured on board," is inbound ETA 1950. Requests fast turn. This is C-141 from Tinker. Needs 20K fuel, latrine service, meals for crew. Advised it cleared for very fast turn and will be uploading 60 passengers, 28,000 lbs. of cargo. HILDA breaks in w/new freqs for Tinker AFB. Apparently 59404 making fast turns between Andrews and Oklahoma City for relief & assistance re bombing of federal building. (M)

11176: Reach 5 wkg 500002, giving landing clearance and conditions. All in USB. (RS)

11178: RAF Cove radio w/wx at 1055 in USB. (AB)

11181: Victor 6 in USB at 1704 wkg Bayonne, and MacDill re WX. (M)

11208: Raspers. 1 dot/1 dash at 1559; 7 dot/1 dash at 1959; 5 dot/1 dash at 1559; 7 dot/1 dash at 1730. (BS)

11244: SHYKING bcst in USB at 1905. "SKY KING, SKY KING, DO NOT ANSWER. 5 DELTA WHISKEY, TIME ZERO FIVE AUTHENTICATION SIERRA YANKEE, MACDILL OUT" (M)

11270: OM/RR in AM at 0820 w/615 77314 75434 00000. (AB)

11410: PCW1, MFA, The Hague, Netherlands at 2150. SITOR marker w/CW ID. (JN)

11428: At 2000 CW station sending 411 411 411 1 foll by fast 5F grps. (SM)

11474.2: HMF52, Pyong Yang, N. Korea at 2130 in RTTY 50/385 w/nx in EE re Kim Il Sung. (BS)

11545: YL/GG rptng Sierra Bravo w/tons and into 5F grps for 613 of 90 grps at 2230. On same freq 'Lincolnshire Poacher' station w/YL/EE 5F grps. (SM)

12092.1: YL in USB at 2102 announces Juliet Whiskey in EE foll by musical tones. Into 5F grps in GG. (PS)

12228.7: SNN299, MFA Warsaw, Poland in RTTY 75/443 w/nx in EE at 1609. (RH)

12478: Unid 690SB at 2231 in 100/850 RTTY w/Foxes, RY's & "TEST DE 690SB." (RB)

12480.5: 3FJF3, M/V Finnsnes in ARQ at 1447 w/tlx to Southport Agencies via Goteborg Radio. (JN)

12490: ELOV9, M/V Horncliff in ARQ at 1805 wkg NMN w/OBS report. (JN)

12496: UHBO, TK Novoklav-4 (ammonia tanker) at 2016 in SITOR-A, w/DISP-1 reports, crew TG's. (RB)

12359: S/V Nightsail in USB at 2123 wkg 'Herb' (VAX498). QRM, hetrodyne present. (MNN)

12365: ADMM, USAV Contreras (LCU-2015) at 2234 in USB wkg AAC2, Harbormaster Ft. Eustis, for posn report. (RB)

12569.5: Unid Russian ship in RTTY 50/170 at 2140 w/RR TG's. (TS)

12575: UTSW, RTMKS Kapitan Orlikova at 1945 in 50/170 RTTY w/RY's. (RB)

12587: 6WW, Dakar, Senegal in RTTY 75/850 at 2259 w/RY's. (TS)

13366: 5YD, Nairobi Air at 2135 in 50b RTTY w/NOTAMSs, Meteo mssgs, etc. (JN)

13635.9: SLHFM "K" Khabarovsk in CW at 0418. (BS)

14441.5: NNN0CNZ, USCGC Tahoma (WMEC-908) at 1830 trying to work private shore sta NNN0HLQ, but too weak. At 2112, NNN0CVL, USS Shreveport (LPD-12) wkg NNN0NUW, NAS Whidbey Island, WA w/QSY to 14838.5 for pp tfc. At 2117, NNN0CMI, USS Robert G. Bradley (FFG-49) wkg private MARS sta NNN0BMV w/QSY to 14470 kHz for pp tfc. All in USB mode. (RB)

14487: Lincolnshire Poacher in USB at 1100, clg Id 43469. 5F grps.//15682//16084 kHz. Heavy jamming all freqs. Also hrd at 1400 clg Id 00283 and at 1500 clg id 79891. 5F grps sent. (AB)

14622: Thursdays and Tuesdays at 1330 YL rptng Mike Delta w/tones. At 1335 'Message for 296 296 84 groups.' 'Attention' and into EE 5F grps. (SM)

14738.4: 271, u/i in CW at 2140. Rpts mssg sent earlier in 16238.4 kHz. This freq also used for WFO (RR MFA) tfc. (PS)

14890: OM/RR in AM at 0800. 615, 78424, 72084. (AB)

15027: NATO exercise 'Destined Glory 95' near Sardinia, Italy. Stations Hotel, Mike, Oscar, Alpha, Romeo, Tango, papa, & Foxtrot. Positions given, NUCO's & other coded items. USB at 1214. (AB)

15860: RFFX, MOD Paris, France at 1650 in ARQ-E 72/385, idling. (RH)

15950: RBI77, Moscow meteo at 1155 w/FAX 120/576, fair chart. (RH)

16117.1: 6VK317, Dakar, Senegal at 1620, RTTY 50/462. PANA Dakar w/nx in FF & EE. (RH)

16165.4: RFFTD, MOD Paris, France wkg RFFVA/Air DIRMAT Paris w/tfc/FF. Hrd 1214 in ARQ M2 200/350. (RH)

16183.2: 5YE, Nairobi, Kenya meteo w/wx codes in RTTY 100/425. Hrd at 1223. (RH)

16238.4: 271, u/i in CW at 2110 w/125 group mssg of 5F grps. (PS)

16641: 9HGH4, M/V Golden North , QTH Amazon River, wkg DAN, Norddeich Radio, Germany in CW at 1315. (JN)

16800.6: UJMU, Sov ship "TR Dimants" at 1242 in RTTY 50/170 wkg Riga. (RH)

16802.6: YLGA, Sov ship "Rumbula" in RTTY 50/170 at 1324 wkg Riga. C/S was USMB. (RH)

17015.8: SLHFM "S" Arkhangelsk in CW at 1448. (BS)

17478.2: RTTY 75/500 bcst to YBU (Russian MFA Station) w/5L grps. (TS)

17976: SAWTOOTH in USB at 2055 wkg McClellan who relayed two pieces of encoded tfc to them. (JN)

19621.7: OZU25, MFA Copenhagen, Denmark at 1234 in Twinplex, unable to decode. (RH)

19955.4: RTTY 50/500 bcst to BAR (Russian MFA stn) at 2100. Just sent BAR's & 64's indicating no tfc. Secondary freq not found. (BS)

20136.6: RTTY 50/500 bcst to YBU (Russian MFA stn) at 2200. Indicted two mssgs, total grps 1617. Headers:...00148 14880 20393 04119; 11177 00148 11058 20394 12069. (BS)

20700: SAM, MFA Stockholm, Sweden at 1058 in SWED ARQ 100/362 w/5L grps and then tfc/s. (RH)

20711.1: SAM, MFA Stockholm at 1155 in SWED ARQ 100/400, nx/s & sports in L, M, & S modes. (RH)

Our contributors this month were: AB—Ary Boender, Netherlands; RB—Richard Baker, OH; TB—Tim Bowling, WV; DC—Dave Copeland, IA; PC—Perry Crabill, Jr., VA; SF—Stan Forsman, CA; TF—Trevor Fletcher, Alberta, Canada; AH—Al Hemmalin, RI; RH—Robert Hall, South Africa; M & MNN—Anonymous, IL; NM—Norm Metiuira, MA; SM—Simon Mason, England; JN—Jim Navary, VA; BS—Basil Shelley, CA; PS—Paul Scalzo, Quebec, Canada; RS—Richard Smith, IL; TS—Tom Sevart, KS. ■

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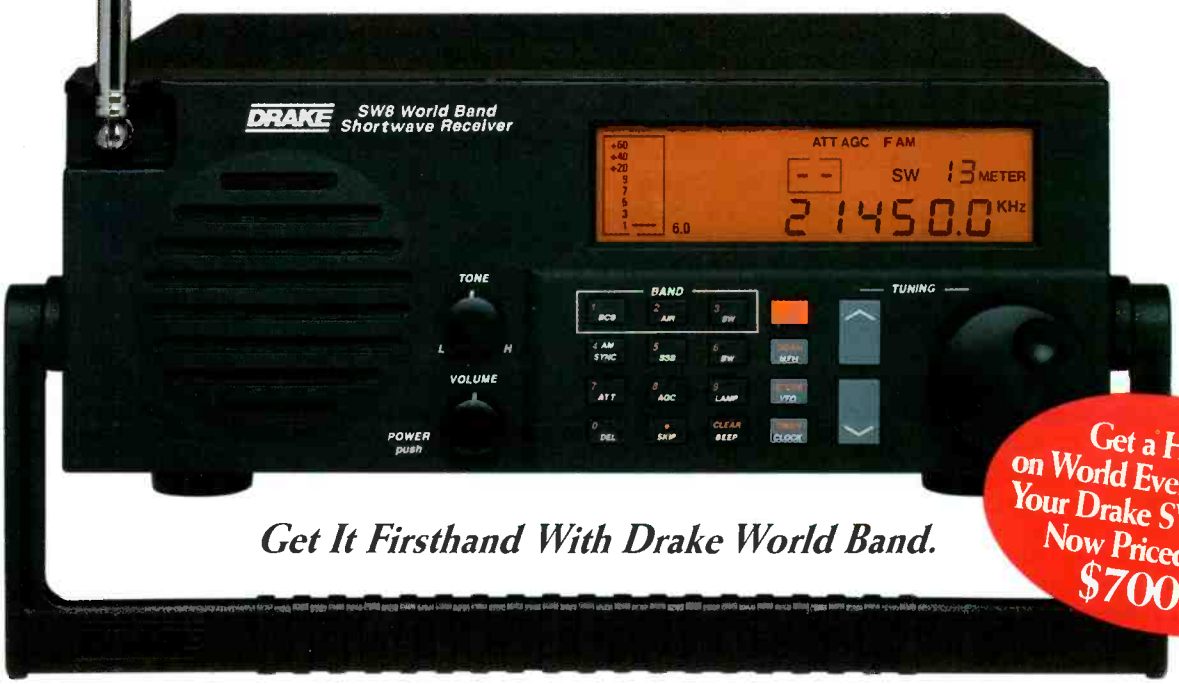

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SATELLITE VIEW

BY DONALD E. DICKERSON, N9CUE

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

Peace Mission

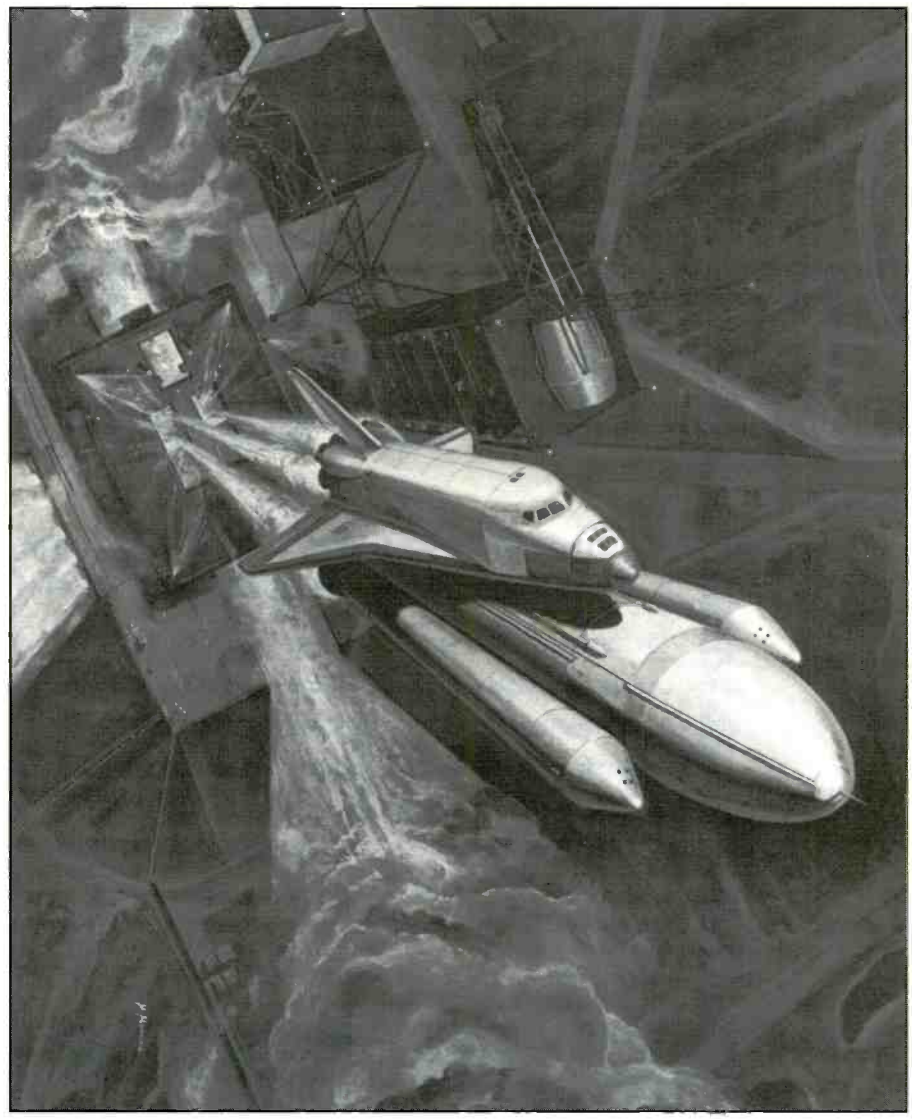
"It was 20 years ago today...," is more than just the words from the Beatles' *Sgt. Pepper's Lonely Hearts Club*. In fact, 20 years ago, the first joint-manned space mission between the U.S. and Soviet Union took place. The 20-year anniversary of the Apollo-Soyuz mission is significant in light of the recent docking of the shuttle Atlantis and the Russian space station Mir. The Atlantis-Mir docking mission (STS-71) was, as of this writing, the second joint manned mission for both countries, and also was America's 100th manned space mission. The trip to Mir will be repeated again with the launch of STS-74 when the shuttle Atlantis again visits its comrades in space.

History is not the only thing made on these missions. They have provided some unique opportunities to listen in on astronauts and cosmonauts as they connect their spacecraft for the duration of their joint space mission. During each mission, VHF voice channels are utilized. Besides telling you how to listen in on these communications, we'll share those secret space frequencies so when the October STS-74 mission is upon us, you will enhance your chances for the thrill of a lifetime.

Dr. Norm Thagard and the American crew were reunited during the four-day mission of STS-71 in June 1994. Thagard was the first U.S. astronaut to ride aboard a Russian space vehicle to the Russian space station, and become a working member of a Russian crew for three months.

STS-74, the next scheduled shuttle mission to Mir, will be the second of seven planned shuttle flights to the Russian space station. These missions are called Phase One of the planned international approach to space exploration. It is also a prelude to a truly international space station sponsored by the U.S., Russia, European Space Agency, Canada and Japan. Phase One will continue through 1997, when assembly of the International Space Station (ISS) is scheduled to begin. ISS should provide many opportunities to hear amateur radio communications. Cosmonauts aboard Mir and astronauts on frequent shuttle flights use amateur radio equipment during their free time. This should continue with the International Space Station.

It's during mission "74" that a permanent docking module will be installed on the Mir space station to simplify future missions. The shuttle Atlantis, under the command of Ken Cameron (an amateur), will carry the docking unit that, after deployment, will allow the crew to spend two days aboard Mir. Along with the usual battery of experiments, the Atlantis crew will be delivering water and other essential supplies for the first time. This was made possible with the recent cooperative space agreement signed between the U.S. and Russia. The crew also will leave two new solar panels to be added to the Mir space station.



An artist's conception of the space shuttle in flight.

How can we hear these spacecraft and what frequencies do we tune to? First, note that not only will the spacecraft be using satellite frequencies in the GHz range (which is a little more complex than some of us like), but they also will be using VHF frequencies, common frequencies that most FM scanners have. Frequencies included are not only amateur radio frequencies, but the main voice channels used between the shuttle Atlantis and Mir as well. The shuttle will be transmitting in FM on 121.750 MHz, and the Mir space station will be on 130.162 MHz. They will be tuned to each other's transmitting frequency and you should be tuned to both as these two frequencies will be used for direct contact between Atlantis and Mir.

Other frequencies should be programmed into your scanner, such as additional Russian VHF channels currently used on the Mir space station. One channel is 143.625 MHz, the main Mir voice channel used by satellites to relay their signals to Moscow when they are not in use. When they are in use, this channel is often open.

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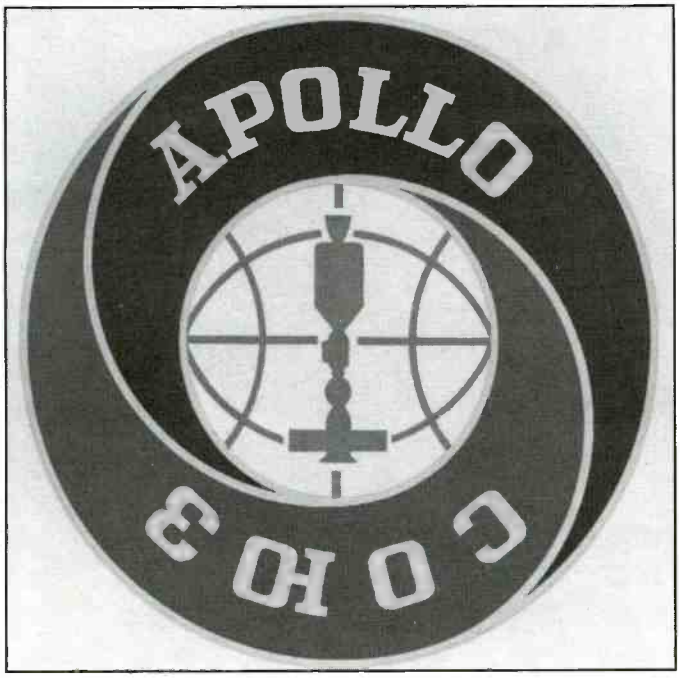


Apollo/Soyuz, the only joint U.S.-U.S.S.R. mission, took place in 1975.

A verification report from the Soviet space station Mir.

Additional frequencies to program into your scanner are 145.550 MHz, the main channel for amateur radio voice and data communications; 145.000 MHz, 145.325 and 145.840 MHz (amateur astronauts normally use these, but they are used by both shuttle and Mir crews). The frequencies of 259.700 and 279.000 MHz are used by the shuttle for spacewalks. They, however, use AM mode because they are in the aeronautical military band. The smart hobbyist will want to use the scanner's search mode and scan everything between 120 and 146 MHz during joint-manned space missions, in addition to the previous suggestions.

You know where to look. What else do you need to know? Two things: If you can see a spacecraft over your horizon, you also can hear it if you have the frequency. Direct line of sight is required to hear the space shuttle or Mir no matter what frequency they use. They will have to be in line of sight of your ground station or antenna to be heard at your location. Second, the addition of an outside antenna will improve signal strength. Keep in mind that a handheld scanner with a rubber antenna is sufficient if the spacecraft is overhead. Remember, the spacecraft will be less that 250 miles above the surface of the earth and it takes about eight to 12 minutes for the space complex to come into range and leave again. This means you may want to find a way to track the spacecraft by computer.

This is a fairly straightforward arrangement, but not necessary for the beginner or old salt. I usually have the scanner on whenever I am in the shack and listen only to space frequencies during a mission. Using this catch, I have heard the Mir cosmonauts and shuttle astronauts many times on both the regular VHF and amateur frequencies. I even have been fortunate enough to make voice contacts with Mir twice on the amateur channels. I suggest whatever time you have to listen, do so. If, on the other hand you get excited about the possibilities of hearing directly from the space complex, track away! If you don't have enough time or resources to track the October mission, try calling an amateur radio friend who can help you find the tracking information you need to narrow your search for the ultimate DX catch.

The opportunities are here and are yours for the taking. It can be more than a lesson in international cooperation or a simple footnote in history. It can make you a witness to the events, the next best thing to being a participant. Twenty years after our first false start at international cooperation in space, we all can participate in new era of space exploration. See you next month. ■

Travelling Ham Show Takes Amateur Radio on the Road

Ed Hammond, WN1I, is doing what so many of us have only dreamed of doing. He's hitting the road with Amateur Radio to spread the word that this is a great hobby. Beginning in September, Ed will visit fourteen cities presenting seminars and demonstrations of Amateur Radio. In cooperation with Ham dealers at each stop, Ed will demo how it all works, and tell what it takes to join the ranks of licensed Hams. The entire expense for the tour is being borne by Ed.

Formerly the North American Sales Manager for Cushcraft Corp., Ed is an accomplished professional public speaker who has had an unabashed love affair with Amateur Radio for 25 years. He is also the author of a new book on the hobby, "Ham Radio—Your Ticket To Worldwide Adventure." While the tour is aimed at spreading the word to folks who know nothing about Ham Radio, this might be the chance you've been looking for to get a non-Ham spouse or acquaintance in your hobby. Contact the dealer in your location for exact seminar sites and times. Here's the tour schedule:

Ed Hammond, WN1I (center), talks to some future Hams at a warm-up seminar session.

Tour Schedule

Tues. Sept. 19	Baltimore, MD	Maryland Radio Center	301-725-1212
Thurs. Sept. 21	Washington, DC	Electronic Equipment Bank	703-938-3350
Tues. Sept. 26	Cleveland, OH	Amateur Electronic Supply	216-585-7388
Wed. Sept. 27	Grand Rapids, MI	H.R. Electronics	816-722-2246
Tues. Oct. 3	Evansville, IN	The Ham Station	812-422-0231
Wed. Oct. 4	Cincinnatti, OH	R & L Electronics	513-868-6399
Thurs. Oct. 5	Indianapolis, IN	R & L Electronics	317-897-7362
Tues. Oct. 10	Minn./St. Paul, MN	Radio City	612-786-4475
			1-800-426-2891
Thurs. Oct. 12	Kansas City, MO	Radio Center USA	816-459-8832
Tues. Oct. 17	Dallas, TX	Texas Towers	214-422-7306
Thurs. Oct. 19	Austin, TX	Austin Amateur Radio Supply	512-454-2994
Mon. Oct. 23	Memphis, TN	Memphis Amateur Electronics	800-238-6168
Tues. Oct. 24	Huntsville, AL	RT Systems Amateur Radio Supply	205-882-9292
Thurs. Oct. 26	Wilmington, NC	Communications H.Q.	919-791-8885

LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

You think you've got problems? What about our government shortwave stations —the Voice of America and Radio Free Europe/Radio Liberty? As you've probably heard, Washington's new-found passion for getting our financial house in order has brought forth plans to reduce or eradicate the U.S. Information Agency (USIA) and the VOA and RFE/RL, which are part of that agency.

One plan calls for a complete phasing out of all government broadcasts. Another would reduce the USIA's budget by a billion dollars (which is most of it) over the next five years. Still another would eliminate the USIA and give what's left of its functions to the State Department (isn't that where we started so many years ago?) The administration's plan would cut $121 million—a little less than 10 percent, from the USIA's budget.

We guess the VOA won't disappear anytime soon, but it does seem likely that deep cuts will be imposed. That would mean the elimination of a number of language services and, depending on how severe the cuts are, perhaps even a reduction in transmitter hours and/or the closing of some transmitters. We'll wait and see what comes down from Capitol Hill.

Swiss Signals

A couple of interesting shortwave things are happening in Switzerland.

The Red Cross Broadcasting Service, which has aired monthly programs over Swiss government shortwave facilities for many years, is revamping its programming. RCBS broadcasts were suspended for much of the summer but are scheduled to resume early this fall. When that happens, the broadcasts will be on the air each week, rather than just once a month. Broadcasts are co-produced with Swiss Radio International and will be aired in English, French, German, Italian, Spanish and Arabic. We expect the RCBS will continue to issue QSL cards for reception of these broadcasts.

United Nations Radio is being picked up in transmissions direct from Switzerland. Actually, up until a few years ago, U.N. Radio aired a 10-minute broadcast in Russian each week, direct from transmitters in Geneva, Switzerland. These new broadcasts are described as tests, and we don't know whether they will be temporary or become a permanent thing. A 15-kW transmitter is operating on 10461 upper sideband at 0600 and 1800, with another transmission at 1200 on 17520. Reports can be sent to U.N. Radio, Room 850, United Nations, New York, NY 10017. Ed Rausch of New York already has put this one into his log. See this month's listings.

Russian Reduction

The number of transmitters in use by the Voice of Russia continues to decline. A recent report out of Moscow says that only 50 of the 250 transmitters belonging to the Voice of Russia still are operating. As of the end of last year, the Voice of Russia was using 84 transmitters. Russian officials say that despite the poor financial situation of the Communications Ministry, there's no immediate threat that any of the official stations might be closed down.

Bosnia-Hercegovina, in the thick of the news, is being heard a bit better than usual. Radio Bosnia-Hercegovina is using 7108 (slightly variable). Try around 0100.

Thailand

First it was a Voice of America shortwave relay in Thailand (which, of course, explains the better reception of Radio Thailand). Now it's the BBC's turn. Construction is under way on the BBC Thailand relay that will operate from (get out your atlas!) Tambon Ban Kaeng, Muang District in Nakhon Sawan Province. The on-air date looks to be in early 1997.

Cuban Contest

Radio Havana Cuba wants to know, "What has Radio Havana Cuba meant to you in these 35 years?" (i.e., since RHC became Cuba's government voice). Five essays will be chosen and the writers given an all-expense paid week in Cuba. Of course, because it's still illegal for U.S. citizens to travel to Cuba, getting there may be a problem! The deadline is March 31, 1996. Entries should be sent to 35th Anniversary Essay Contest, Radio Havana Cuba, Box 6240, Havana, Cuba.

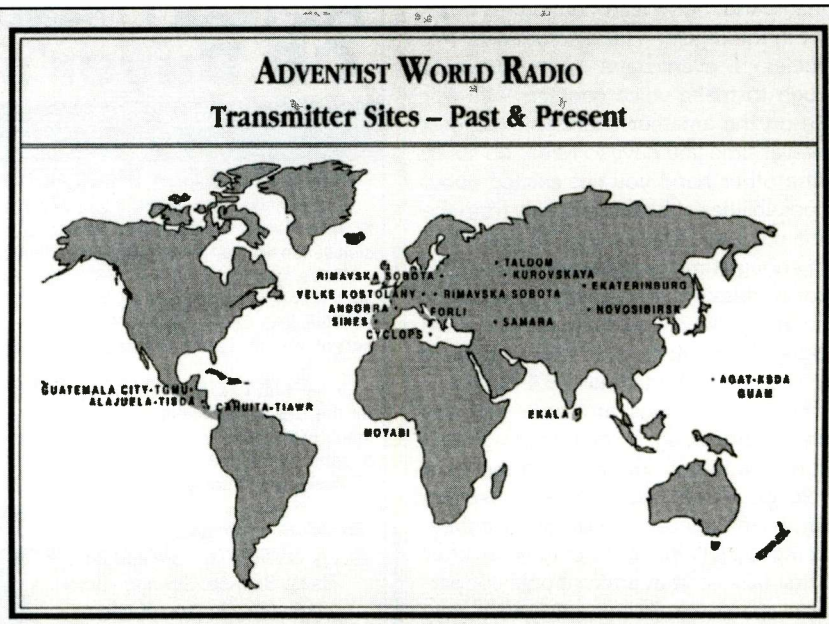
Your SW station loggings are always welcome! They must be listed by country or we can't use them. We process several hundred loggings each month so we ask that these simple rules be followed.

ADVENTIST WORLD RADIO

TRANSMITTER SITES

Past & Present • Leased & Owned

Country	Location	No.	kW	Began	Closed
Portugal	Sines	2	250	1971	1992
Sri Lanka	Ekala	3	35&100	1975	1986
Malta	Cyclops	2	250	1979	1984
Andorra	Andorra	2	10	1979	1981
Guatemala	Guatemala City-TGMU	1	10	1980	
Gabon	Moyabi	1	500	1983	1994
Italy	Forli	1	10	1985	
Costa Rica	Alajuela-TISDA	3	1&5	1986	1992
Guam	Agat-KSDA	3	100	1987	
Costa Rica	Cahuita-TIAWR	5	20&50	1991	
Russia	Samara	1	250	1992	
Siberia	Novosibirsk	2	100	1992	1994
Russia	Ekaterinburg	2	100	1992	1994
Russia	Taldom	2	250	1992	1994
Russia	Kurovskaya	1	250	1992	1994
Slovakia	Rimavska Sobota	2	250	1994	
Slovakia	Velke Kostolany	1	100	1994	



Adventist World Radio recently issued this "collector's edition" QSL. It lists all the AWR past and present transmitter sites but a typesetting error shows the same site twice (on the map).

Congratulations to Radio Canada International, celebrating its 50th birthday this year.

We also are eager to receive information about stations, QSL news (requirements, addresses, etc.), and spare QSL cards for use as illustrations. Photos of you in your shack (or just your shack if you're the shy type) also are wanted. Thanks for your continuing help and interest!

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

ANTIGUA—BBC relay, 5975 at 0040 and 6195 at 1143. (Williams, TX) 11865 at 1325. (Jeffery, NY)

Deutsche Welle relay, 11810 at 0210 in SS. (Wms, TX)

ARGENTINA—RAE, 11710 at 0234 with soft piano music, "World DX Club" program. (Jeffery, NY)

ASCENSION ISLAND—RAI relay, 6110// 11765 at 0126 in II with bird call IS, bells, ID, frequencies, "Un Giorno in Italia" (A Day in Italy). (Lamb, NY) 11765 at 0212 to SA in II. (Wms, TX)

BBC relay, 11765 at 2344 in EE, to SS at 0000. 11835 (// Lesotho-6190) at 2135. Off 2200. (Lamb, NY)

VOA relay, 7105 at 0334 to South Africa. (Wms, TX)

AUSTRALIA—Radio Australia, 6080 at 0904 in Tok Pisin (Pidgin English) with Aussie rock, ID, lineup, football. (Lamb, NY). 1135. Shepparton site. Also 17796 //17860 at 0227. (Wms, TX)

9860 at 0700. (Wilden, IN) 11800 at 1225. (Northrup, MO)

ABC Alice Springs, 2310 kHz at 0941 with pop songs. (Foss, AK)

AUSTRIA—Radio Austria Int'l, 9655 at 0138 in EE and 9870 at 0324 in FF and GG. (Wms, TX) 9860 at 0712 with news. (Wilden, IN)

BELGIUM—Radio Vlaanderen Int'l, 9925 at 2330 with news and culture program. (Pellicciari, CT) 2330 with ID, news, "Radio World" and "P.O. Box 26." (Lamb, NY)

BOLIVIA—Radio Fides, 4845 at 1053 man in SS and unidentified language. (Wms, TX)

Radio Santa Cruz, 6015 at 1130 in SS. (Wms, TX)

BOSNIA-HERCEGOVINA—Radio Bosnia-Hercegovina in Serbian on 7108 upper sideband. Operatic vocals and ballads. IDs at 0100, 0140 and 0200 as "Radio Bosnia-Hercegovina." EE language pop and country. (Rausch, NJ)

BRAZIL—Radiodifusora, Belem, 5045 at 1049 in PP. Weak, static. (Wms, TX)

Swiss Radio Int'l relay, 5888 at 0033 in GG. (Wms, TX)

Radio Clube do Para, 4885 at 0836 with man in PP, cuckoo clock, ID. (Dybka, TN)

Radio Nacional da Amazonia, 11780 at 2350 with ID in PP. (Pellicciari, CT)

CANADA—BBC via Canada on 6175 at 0054. (Wms, TX) 11775 at 1554. (Jeffery, NY)

Radio Canada Int'l, 5960 at 2339. (Wilden, IN) And //9755 at 2230. (Pellicciari, CT) 6120 at 0251. (Wilden, IN) 9635 at 1231 with "Double Exposure" and "Royal Canadian Air Farce." (Jeffery, NY) 11855 at 1220 and 13650 at 1215. (Northrup, MO)

Radio Japan relay on new 6110//7230 (Skelton) at 0532. (Lamb, NY)

CHU time station, 3330 at 0540 in EE/FF. (Wms, TX)

CHINA—China Radio Int'l, 0304 on 9690. (via Spain, ed.) (Wilden, IN) 0335 frequencies announced as 9595, 9710, 9730, 11715 (Mali). (Wms, TX) 11715 at 0037. (Jeffery, NY)

COLOMBIA—Radio Nacional de Colombia, presumed, on 4955 at 0350 in SS. (Wms, TX)

La Voz del Cinaruco, 4865 at 0245 in SS with commercials, news, ID at 0300. (Dybka, TN)

Caracol Colombia, 5075 in SS at 0031. (Wms, TX) 0930. (Foss, AK) 0200// 6150. (Pellicciari, CT)

COSTA RICA—Radio Exterior de Espana relay, 9630 at 1200 in SS with ID, IS, frequencies. (Wms, TX)

Faro del Caribe, 5055 at 1111 with SS religion. (Wms, TX)

Radio Reloj, 4832 at 0535 with ballads in SS. (Wms, TX)

RFPI, 7385 at 0115; 9400 at 0125. (Wms, TX)

CROATIA—Croatian Radio, 5895 at 0400 with

Abbreviations Used in Listening Post

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

Joseph Rampulla in Florida received this QSL from RAI, Italy, last year. RAI uses a wide variety of picture postcards as QSLs.

IS, ID, frequencies, EE news, then news in Croatian. (Lamb, NY)

CUBA—Radio Havana Cuba, 6180 at 0055 in SS and 9820 in SS at 0158. (Wms, TX) 9820 at 0314 with mailbag. (Wilden, IN) 11760 at 1225 in SS, 11875 at 1215 in SS. (Northrup, MO) New 11950 upper sideband (//6180) at 2234. (Lamb, NY)

Radio Rebelde, 5026 in SS at 0029. (Wms, TX)

CZECH REPUBLIC—Radio Prague on 7345 to North America at 0115. (Wms, TX)

DOMINICAN REPUBLIC—Radio Quisqueya, 6236 at 0341 in SS with news. (Wms, TX)

ECUADOR—HCJB, 6135 at 1023 with religion. (Jeffery, NY) New 11615 at 0659 with IS, ID, mailbag and DX shows. (Lamb, NY) 11960 at 1220 and 12005 at 1220. (Northrup, MO) 15490 at 1725 with "Studio 9." (Wilden, IN)

La Voz de Upano, 5999 at 1128 in SS with news. (Wms, TX)

La Voz de Napo, 3280 at 1121 in SS. (Wms, TX) 0957 in SS. (Foss, AK)

EGYPT—Radio Cairo, 9475 to NA in SS at 0128. Also 9900 in AA at 0203. (Wms, TX)

ENGLAND—BBC, 9515 at 1600. (Wilden, IN) 11750 at 1220, 11865 at 1220. (Northrup, MO)

VOA Wooferton relay, 6140 at 2240 in Polish. (Lamb, NY) 7170 at 0338 in RR. (Wms, TX)

FINLAND—Radio Finland Int'l, 15400 at 1240; 1330. (Northrup, MO; Pellicciari, CT)

FRANCE—Radio France Int'l, 5920 to CA in FF at 0035 and 5945 at 0037 to North America. (Wms, TX)

FRENCH GUIANA—RFI relay, 9800 at 0405 in FF; 11670 at 1202 in FF. (Wms, TX) 11670 in FF at 1215; 13625 at 1225 in EE and 13640 in FF at 1220. (Northrup, MO)

Radio Japan relay, 11895 at 0215 with JJ/EE ID, into JJ. (Wms, TX)

China Radio Int'l relay, 13685 at 0222 in SS. (Wms, TX)

GABON—RFI relay, 4890 at 0512 in FF. (Wms, TX)

Radio Japan relay, 11865 at 2100 with ID, news, frequencies. (Lamb, NY)

GERMANY—Deutsche Welle, 6100 at 0500 to NA in GG and 6145 at 0100 with IS, ID in EE/GG and xmsn to North and Central America. (Wms, TX) 9615//9645 at 0258 with IS, ID, time pips, GG ID and news in EE. (Wilden, IN)

VOA relay, 9770 at 1830 with special EE news. (Jeffery, NY)

GHANA—GBC on 4915 with news at 2330. (Pellicciari, CT) 0026 with African music. (Wms, TX)

GUATEMALA—Adventist World Radio, 5982 at 0048 with hymns, DJ request show.

Radio Tezulutlan, 4836 at 0305 in Mayan with songs and SS. (Wms, TX)

Radio K'ekchi, 4845 at 0024 in SS or local with music. (Wms, TX)

Radio Maya de Barillas, 3325 at 1037 with SS ballads and Mayan language. (Wms, TX)

Radio Cultural, 3300 at 0354 with evangelist in EE. (Wms, TX) 1009 with mariachi music. (Foss, AK)

HAWAII—KWHR, 9930 at 0840 with religion, IS, ID, South Bend (WHRI) address for reports. (Lamb, NY)

HONDURAS—Radio Internacional, 4930 at 0310 with SS preacher. (Wms, TX) 0448 with in SS with hymns. Sign-off at 0500. (Lamb, NY)

HUNGARY—Radio Budapest, 9835 at 2108; 0327. (Jeffery, NY; Wms, TX)

INDIA—All India Radio, Delhi, 9950 at 0120 in unidentified language. (Wms, TX)

INDONESIA—Radio Republik Indonesia, Bengkulu, Sumatera, 3265 at 0954 in II with male "chant-prayer." (Foss, AK)

IRAN—VOIRI, 7100 at 0116 with news and propaganda. (Wms, TX) 9022 at 0030 with news. (Pellicciari, CT)

The Voice of America is under the budgetary gun. This VOA QSL shows the location of the VOA on the mall in Washington, D.C. (Thanks to C.C. Scott)

ISRAEL—Kol Israel, 9435//11603//11685 at 1907 near end of EE news; into FF with ID at 1910. (Lamb, NY) 15640//15650 at 1456-1525 s/off with seven-note trumpet fanfare IS. (Pappas, SD)

ITALY—RAI, 7275//9575//11905 at 1935 with bird IS, bells, EE news. Alas, the "dead lady" seems to have come back. ID, address, II and U.S. pops, frequencies and off with bird IS at 1956. (Lamb, NY)

JAPAN—Radio Tampa, 3925 in JJ at 1035. (Wms, TX)

Radio Japan, 11705 at 1400 and 11865 at 2100. (Pellicciari, CT) 11785 at 1215, 11815 at 1220 and 11930 at 1215, all in JJ. (Northrup, MO) 17810 at 0230 in JJ. (Wms, TX)

JORDAN—Radio Jordan, 9830 at 2030 in AA and 15270 at 1605 in EE. (Pellicciari, CT)

KAZAKHSTAN—Golos Russi via Kazakhstan, 13605 in RR at 0306. (Wms, TX)

Radio Netherlands relay, 7300 at 0113 in EE. (Wms, TX)

KUWAIT—Radio Kuwait, 11990 at 1856 with U.S. pops, instrumentals, ID. (Lamb, NY)

LEBANON—Wings of Hope, presumed, 9960 at 0310 in AA with talks, Mideastern music, possible ID. (Lamb, NY)

LESOTHO—Radio Lesotho, 4800 at 0358 in SeSotho, mention of Africa. (Dybka, TN)

BBC relay, 3255//6190 at 0434 with "Network Africa." (Lamb, NY)

MALI—China Radio Int'l relay, 11715 at 0253. (Wms, TX) 15120 at 2331 in SS. (Lamb, NY)

MALTA—Deutsche Welle relay, 11865//13790 at 2125 with IS, PP IDs, EE site ID, gong, news. (Lamb, NY)

MEXICO—Radio Educacion, 6165, in SS at 0331. (Wms, TX) 0845. (Foss, AK)

Radio Mil, 6010 at 0050 with broadcast of labor-business-related meeting in Cuba. (Wms, TX)

Radio Universidad, San Luis Potosi, 6045 at 0054. (Wms, TX)

Radio Mexico Int'l, 9705 at 0359 with music, IS, ID, more music, all SS. (Wms, TX)

MOLDOVA—Voice of Russia relay, 9665 at 0142 in RR. (Wms, TX)

Radio Dniester Int'l, 11750 at 2042 with economic talk, mail, RR pops. Into Voice of Russia world service at 2059. (Lamb, NY)

MOROCCO—VOA relay, 9760// 15205 at 2010 with "Music USA Jazz." (Lamb, NY)

NAMIBIA—NBC, presumed, 3270 at 0125 with nonstop pops and country in EE/GG. No ID heard. (Lamb, NY)

NETHERLANDS—Radio Netherlands, 6020 at 0324 in SS. (Wms, TX)

NETHERLANDS ANTILLES—Radio Netherlands relay, 6165 at 0053 with ID, news in EE. (Wms, TX) 15315 and 17605 at 1952. (Jeffery, NY)

NEW ZEALAND—Radio New Zealand Int'l, new 6100 at 0851. New 9570 at 0759 with suggestion to retune to 6100 at 0758. (Lamb, NY) 11900 at 0518. (No, Steve, the transmitter site—Rangitaki—is not considered a separate radio country.)

NORTH KOREA—Radio Pyongyang, 7580 at 1153 with oriental music. (Wms, TX) 11700 at 2301 with ID, anthem, news. (Jeffery, NY)

PAPUA NEW GUINEA—Radio Sandaun, 3205 at 0949 in unidentified language. (Foss, AK)

PARAGUAY—Radio Nacional, 9735 at 0152 with Latin/accordion music, ballads in SS. (Wms, TX) 0200 with SS ID. (Pellicciari, CT)

PERU—Radio Cora, 4914 at 1047 in SS with bird and cow sound effects, ID at 1050. (Dybka, TN) 0309, two men in SS. (Wms, TX)

Radio Union, Lima, 6115 at 1139 with news in SS. (Wms, TX)

PHILIPPINES—VOA relay, 6110 at 1138 with news. (Wms, TX)

PORTUGAL—Radio Portugal, 9570 at 0135 with news and weather. Also in PP at 0148 on 9705. (Wms, TX) 0570 at 0130. (Pellicciari, CT)

Deutsche Welle relay, 9535 at 0338 with news. (Wms, TX)

ROMANIA—Radio Romania Int'l, 9690//11940 at 1914 with news, ID, "Business Club." (Lamb, NY)

RUSSIA—Golos Rossi, 9720 at 0150 in RR. (Wms, TX)

Radio Rossii, Kazan, 11750 at 0210 in RR. (Wms, TX)

Voice of Russia, 9530 at 0200. (Pellicciari, CT) 9530 at 0129, 12050 at 0410 and 15425 at 0226. (Wms, TX) 11675 at 1605 and 1824. 15105 at 1959. (Wilden, IN)

Voice of Vietnam relay, 7360 at 0402 in EE with ID, talks. (Lamb, NY)

RWANDA—Deutsche Welle relay, 9735 at 1930 and 2055 on 15135 with EE ID and site ID in FF. (Rausch, NJ)

SAUDI ARABIA—BSKSA, 9555//9870 at 1924 in AA with remote report, local music, IDs. (Lamb, NY) 9870 at 2030 in AA. (Pellicciari, CT) 15060 at 0440 in AA. (Foss, AK)

SEYCHELLES—FEBA, 9820 at 0331 to East Africa in unidentified language. (Wms, TX)

SLOVAKIA—Adventist World Radio relay, 7270 at 0108 with AA-sounding music, unidentified language. (Wms, TX)

SOUTH AFRICA—BBC via Meyerton, 9515 at 0516 in PP with tonic scale IS for 13 minutes, ID, Big Ben, presumed news. (Lamb, NY)

Channel Africa, 9695 at 0506 with news, IDs. (Lamb, NY)

SOUTH KOREA—Radio Korea, 15575 at 0311 in presumed KK to North America. (Wms, TX)

SPAIN—Radio Exterior de Espana, 6055 at 0046 to North and South America. 9540 at 0500 in EE. 9620//9630 (Costa Rica) in SS at 0137. (Wms, TX)

SWEDEN—Radio Sweden, 9850 at 0325 with pops, news in Swedish. (Wms, TX) Recent schedule shows North America broadcasts at 1230 and 1330 on 11650, 15240; 0230 and 0330 on 7120 and 9850. E-mail address is: greta-g@stab.sr.se. (Roeder, FL)

SWITZERLAND—United Nations Radio, 10461 upper sideband at 1755 with IS, ID, UN Hymn, news of UN activities. QSL addresses in New York and Geneva. Also heard at 0600 on the same frequency. (Rausch, NY)

Swiss Radio Int'l, 6135 at 0051 in GG, 9885 at 0201 in FF, 9905 at 0204 in FF and 0407 in EE. (Wms, TX)

SYRIA—Radio Damascus, 12085//15095 at 2120 with EE news. (Pellicciari, CT)

TAIWAN—Voice of Free China, 9680 (via WYFR) at 0302. (Wilden, IN)

THAILAND—Radio Thailand, 9555 at 2013 in GG; into FF at 2015 after EE ID and HSK9 call, into EE at 2030. (Lamb, NY)

TUNISIA—RTV Tunisienne, 7475 at 0409 in AA with music. (Wms, TX)

TURKEY—Voice of Turkey, 9445 at 2200. (Pellicciari, CT)

0126 and 0551 in TT. (Wms, TX)

UKRAINE—Radio Ukraine Int'l, 7240 at 0105, 9685 at 0146 and 9860 at 0200, all in presumed Ukrainian. (Wms, TX) 9685//9835//9860 at 0326 in EE, 11590//11610 at 2300 in GG, 11610//11875 in EE at 2134. (Lamb, NY) 11780 at 0000. (Pellicciari, CT)

UNITED ARAB EMIRATES—UAE Radio, Abu Dhabi, 7215 in AA at 0403. (Wms, TX)

UAE Radio, Dubai 11945//13675 at 0220 in AA. (Wms, TX) 13675 at 2034 in AA. (Lamb, NY)

UNITED STATES—WRMI on 9955 at 0000 with letters. (Pellicciari, CT)

VANUATU—Radio Vanuatu, 3945 at 1033 in FF, 1117 in EE. (Wms, TX)

VATICAN—Vatican Radio, 7305 at 0344 in SS and 9605 in SS at 0136. (Wms, TX)

VENEZUELA—Radio Rumbos, 9660 at 0352 in SS with news. (Wms, TX)

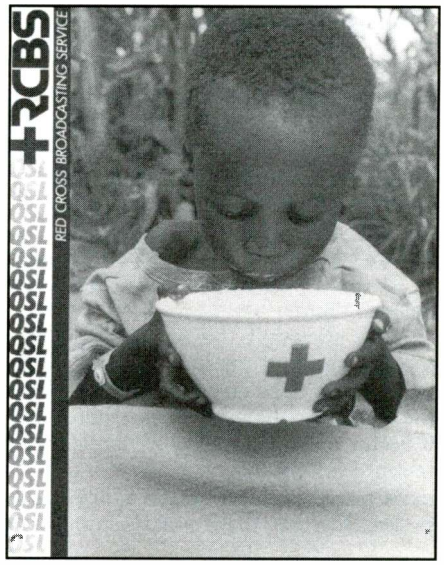
Ecos del Torbes, 4980 at 1113 in SS. (Wms, TX)

YUGOSLAVIA—Radio Yugoslavia, 6100//6185 at 2102 with news, ID, jingle, commentary. Also 9580//11870 at 0020. Into Serbian at 0030. (Lamb, NY) 9720 at 1833 in EE. (Jeffery, NY)

ZIMBABWE—ZBC Radio 2, 3306 at 0408 in local language with presumed news, "Radio Two" ID, drums, African music, time check of "28 minutes before the hour." (Lamb, NY)

That's the lot! A rousing cheer to the folks who checked in with logs this month: Dave Jeffery, Niagara Falls, NY; Jill Dybka, Nashville, TN; Marina Pappas, Huron, SD; Marty Foss, Wasilla, AK; Konrad Roeder, Boca Raton, FL; Ed Rausch, Cedar Grove, NJ; Steve Williams, Corpus Christi, TX; Steve Pellicciari, Norwalk, CT; Marie Lamb, Brewerton, NY; Mark Northrup, Gladstone, MO; and Sue Wilden, Columbus, IN. Thanks to each of you!

Until next month, good listening! ■



The Red Cross Broadcasting Service soon will begin airing programs weekly rather than monthly, as they've done for many years.

HOW I GOT STARTED

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

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

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to Popular Communications.

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

Our October Winner

This month our winner, Lou Giovannetti, writes in from Yorktown Heights, N.Y. Let's take a nostalgic look at how KB2DHG got started:

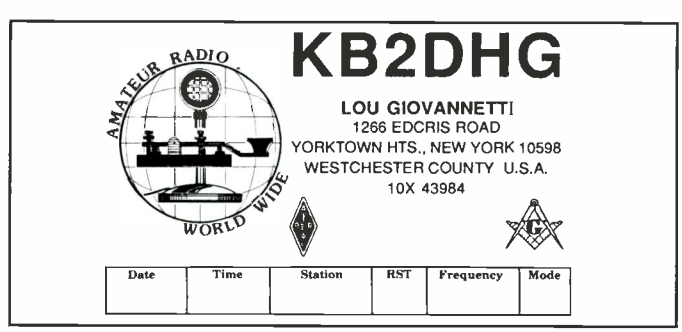
"During the summer of 1970, I remember going for a walk not far from my home. After noticing a house with several big, weird antennas around it, I became curious about what the antennas could possibly be for. I walked by this house two or three times before I met the man who lived there. I finally asked him what those antennas were for. It turns out he was a ham and invited me in to see his station. I had no idea what a ham was—I was only 13 at the time!

"We went down to his basement and he sat me in front of a wall that looked like mission control. Among the radios and such, he turned some switches, said something into a microphone, waited, and then continued speaking into the mike. Someone finally responded—it was a station from England! I was hooked!

"He gave me a 1968 *ARRL Handbook* and told me to stop by anytime. It was then I began saving my money and finally purchased a small shortwave receiver. The hobby of shortwave listening has expanded into the hobby of amateur radio and worldwide communications. I have contacted and talked to stations all over the world and even contacted the space shuttle! I guess the hobby is a lot like fishing—you never know what you'll catch!

"Now at 36 years old, I still have that *ARRL Handbook* and I will always remember the summer of 1970." ■

Meet Lou Giovannetti seated at his own mission control.



Lou has his own personal QSL.

Thoughtwaves *(from page 5)*

al income off the admission tickets sold at the door. If you have 1,000 people come to your hamfest and charge $5 for admission, that's $5,000 the club has earned before paying the bills for renting the hall, etc. But, if there are 100 tables on the floor and they are sold at $10 each, that's another $1,000 in the club treasury. See an imbalance there?

Why shouldn't the vendor pick up a meatier share of the hamfest cost for the club? While clubs do a lot to entice a lot of the vendors to their shows, how hard would it be for a vendor to pay a little extra for tables? Perhaps they may have to sell a few extra radios to make up the additional expense. But, then there could be more price competition among attending dealers. Maybe not, but it's worth looking at.

On the other hand, a lot of computer and sports collectible shows are put on by commercial businesses and the tables used by vendors command higher rental costs. Yes, sometimes these tables run as high as $30 each or more. But here's my philosophy: Let the public in for free. You'll pack the house. You'll drag interested spectators in off the streets who have no idea what a hamfest or electronics fest is. But charge more for the tables. The vendors can afford the additional amount. If they really want to attend the show in your market, they will. If it costs more, that's a cost of doing business. But, you can offer them increased attendance. And as you pack the house even more each year, the attendance will get greater.

Yes, the club won't make as much money for the first year or two. Using the dollar examples already given, if you were accustomed to raking in $6,000 each year ($5,000 for admissions and $1,000 for tables), you may only bring in $3,000 the first year the club makes the change ($30 times 100 tables). However, attendance will increase with free admission and the numbers will only help attract more vendors the following year when they look at those kinds of numbers deciding where to attend. The attendance may reach a level where the club needs to move to a larger hall and has more tables available and can charge even more for the tables.

If the club has trouble charging an individual the same rate as a large commercial vendor the same price for tables, consider two-tier pricing for table rentals. Of course, there will be some who try to take advantage of such a situation, but the person selling a few pieces of gear from his shack isn't in the same league as some business bringing in boxes of new gear.

Who knows? Eventually, you may be able to get as much as $50 per table from commercial vendors? Who really knows? No one ever has tried it!

I like the idea of free admission and making the vendors carry more of the financial burden of these shows. Heck, if you have to charge any admission at all, drop it to a buck at most and you'll still make money. But the hobbyists attending these shows will walk away pleased that they didn't have to pay for admission (they may very well spend that admission price on something from a vendor).

I really feel that this is worth trying. I am a member of a club that has put on hamfests. We're looking at how to attract more people to our show by tinkering with the format. So, next year, we're planning on a show that will be billed more as a computer and electronics fest, rather than a hamfest. We hope we get out some folks who never went to a hamfest before. The computer users. The radio listeners. The CBers. And maybe a few hams, too. We also will be having free admission and hope more folks show up. But we also will be charging more for tables. If the computer shows can get away with it, so can we, is our club's attitude. But the vendors should be happier if we can cram more people through the front door.

If it works, we'll toss in forums for the various interests the following year. And I know I won't be busy collecting admissions or checking tickets. It will take fewer club members to pull off a free show. That's a side benefit.

Hopefully, some other radio clubs will see the benefit and consider it, too. I know it wouldn't work for Dayton (the club there has one massive bill to pay for the place), but it may just work for smaller shows. It's worth a try.

73, Chuck

Books You'll Like

(from page 29)

Private, Bruce Schneier discusses the issues of privacy as they relate specifically to electronic mail. He alerts users to the many ways their messages are capable of being intercepted, copied and altered. Then, he goes on to describe how the privacy of e-mail can be enhanced.

Schneier's book is divided into two sections. The first section covers the privacy issues, and includes encryption, authentication, keeping your private key private, patents, governments and export laws. The second part of the book explains how to achieve privacy, and relates to privacy enhanced mail (PEM), pretty good privacy (PGP), requirements and features, also comparing PGP with PEM.

The post office assures that letters, plans and other documents can be routinely mailed inside sealed envelopes, then achieve secure delivery without their privacy being impaired. Why, then, shouldn't e-mail reach its destination with its privacy intact? It can, but with e-mail, it is up to the individual to take steps to protect his/her own privacy. Schneier's book does a good job of showing precisely how this is accomplished.

E-Mail Security, by Bruce Schneier, is $24.95 from John Wiley & Sons Inc., 606 Third Ave., New York, NY 10158-0012.

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Closing Date: The 10th day in the third month preceding date of publication. Because the advertisers and equipment contained in Communications Shop have not been investigated, the Publisher of Popular Communications cannot vouch for the merchandise listen therein. Direct all correspondence and ad copy to: PC Communications Shop, 76 N. Broadway, Hicksville, NY 11801.

Please take note: As of May 1, 1995, we are no longer accepting free subscriber ads.

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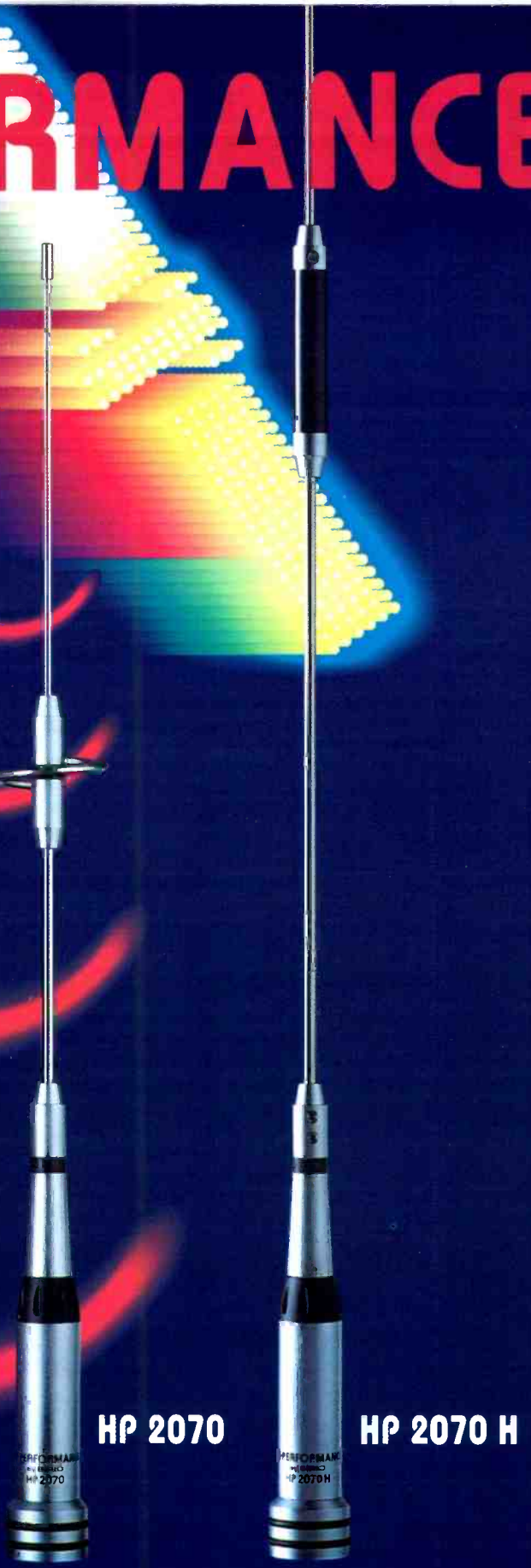

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