

POPULAR COMMUNICATIONS

Fast Scanning Action: Tune In To Racing

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- Digital Information On Your FM Radio
- Scanning Life-Saving Helicopters
- Checked Out: Optoelectronics Scout
- Shortwave's Forgotten "Voice Of Freedom"

On the cover: Drew Markell at Costa Mesa Speedway, CA.

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This month’s cover: A paramedic works at the Costa Mesa Speedway in Costa Mesa, Calif. Tune in racing teams, medical crews and the media with your scanner at trackside! Photo by Larry Mulvehill, WB2ZPI.

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BY CHUCK GYSI, N2DUP

Thoughtwaves

AN EDITORIAL

Imagine! AM Radio Is Exciting!

It's hard to believe, but listening to the AM broadcast band is about to become exciting again! Most of us often marvel at stories from the early days of broadcasting when tuning in radio stations from across the continent was an enthralling pastime most evenings.

However, as we have been reporting for some time through our Broadcast DXing and Washington Pulse columns, the new portion of the AM band, 1610-1700 kHz, is gradually about to become home to stations migrating from the overcrowded 540-1600 kHz standard broadcast band.

For hobbyists, it means not only exciting listening, but a lot of challenges. The obvious challenge will be to try to log as many of these stations as they start up operations in the new band segment. I know many DXers will try to snag as many QSLs as possible from these stations.

Another challenge eventually will be presented in the standard broadcast band. Rules governing the migration of these stations requires licensees to return to the Federal Communications Commission their authorizations to broadcast in the 540-1600 kHz band within five years of setting up camp in the 1610-1700 kHz portion. That means that potential roadblocks from hearing certain stations will be removed.

For instance, if one of these stations that moves is near you, you obviously cannot listen to that frequency and try to snag stations far away. However, once they shut down operations on the old frequency, it will present a lot of DX challenges for many listeners.

The first station to open operations in the expanded AM band is WJDM, a station in Elizabeth, N.J., that operates on 1530 kHz, and also 1660 kHz now. While other stations await the opportunity to migrate to the new segment that is mired in FCC red tape, WJDM received the opportunity to move because of special legislation that allowed it. Apparently, Elizabeth was the largest city in the United States without a full-time broadcast station, thus the 1660 kHz allocation allowed it on the air full time, something not possible at 1530 on the dial. The 1660 kHz allocation remedied the Elizabeth situation, way ahead of other stations awaiting the FCC's reshuffling of allocation tables.

Elizabeth, a city of 100,000 residents, is located across the bay from the Staten Island section of New York City, which is hardly without full-time radio service!

However, a lot of credit should be given to the folks at WJDM. While testing the new transmitter on 1660 kHz, there wasn't anything exciting to really tune in—oldies at best. But then it happened! On Feb. 1, a new format took to the air and it's very unique: 24 hours a day of children's programming.

Because the 1660 kHz frequency is clear now, WJDM's new transmitter can be heard not all over the continent, but has been heard as far as Europe and Asia. Listener reports have been flowing into the New Jersey station from all over.

WJDM's Radio Aahs format seems to be a hit for children age 12 and under. It is produced by Minneapolis-based Children's Broadcasting Corp., which bought WJDM from Radio Elizabeth Inc. for \$12.5 million. The Radio Aahs format is nationally syndicated on 29 stations, too.

However, it also should be noted that while the new format may be a hit for a station that now IDs on the air as being from "Elizabeth and New York," it also is a loss for the residents of Elizabeth and surrounding communities in Union County, N.J. The very mechanism that allowed the station to move to 1660 kHz created a property worth a lot more with its expanded reach. Instead of being an Elizabeth station that can serve the population of its diversified city better now and at all hours, it has become nothing other than another station in the mix of New York City area stations that all strive to capture Arbitron rating points each month. For all intents and purposes, it's just another New York station now that has a unique format.

In fact, the station's first broadcast with the new format was not from Elizabeth, but from the famous FAO Schwartz toy store on Fifth Avenue in Manhattan. Well, at least a busload of elementary school students from Elizabeth were bused to New York to witness the first broadcast.

In the meantime, WJDM's 1530 kHz channel will continue to serve the population of Elizabeth with its ethnic programming from sunrise to sunset and oldies from

(Continued on page 83)

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 and to edit to conform to style. All letters submitted must be signed and show a return mailing address or valid 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 11801-2909, or send e-mail via the Internet to POPCOMM@aol.com.**

Are They Listening?

Boy, it really warms the cockles of my heart to know that our fearless bureaucrats at Customs and the Justice Department are out there in their flak jackets, M-16s and flamethrowers at the ready, kicking in doors and seizing caseloads of those evil import-electronic listening devices.

I always thanked my lucky stars that we are blessed to have such an abundance of liberty-loving politicians whose life goals are to outlaw virtually everything. Now I find my nation also is blessed with equally compe-

tent civil servants, extravagantly funded, and sent forth to battle even the most trivial threat to our continued existence as organic life forms.

As soon as I quit sobbing with gratitude, I have 535 faxes to get off to Congress. Those brave warriors must be properly congratulated for their astonishingly savvy use of tax dollars.

Jack Meyers
Amarillo, Texas
(via the Internet)

Ham Radio Still OK

Just some general comments about a number of things:

First, I like the new artwork you're incorporating into the magazine: It really perks up the look: I like it! I also notice a lot less typesetting errors: You guys do something different?

In your January 1996 Mailbag, you and reader Jim Hughes kind of allude to ham radio losing its appeal; allow me to give a different perspective on that.

Unlike you "old-timers," I started out as a "computer geek" first, then later became a "radio nerd." I started playing with com-

puters on a DecWriter 300 in the janitor's storage room in high school. Using a rotary phone, we dialed a number on the wall and, when we heard the tone, placed the handset in the acoustic modem's cradle. (Don't bump the table or you may get garbage or, worse yet, disconnected!)

While in high school, I wanted to get involved with amateur radio, but the code was giving me a hard time, and my family was so tight financially that we couldn't afford a rig. I lost interest in "hamdom" and continued my computer pursuits.

After a year of college, I began a 12-year stint in the Navy as a "data systems technician," repairing and maintaining real-time digital computer systems and associated peripherals.

My discharge from the service led me to various odd jobs until I landed a position as a computer operator and part-time programmer. I am now a full-time programmer with an international freight forwarding and distribution company.

The advent of the "no-code" license saw me get bitten by the ham radio bug (again). I got my technician license, then my 5 WPM code. A few more months saw my passing the 13-WPM element and attaining advanced-class status: The HF bands were now wide open to me!

Being in the computer industry almost my entire adult life, computers are nothing novel. I was checking into bulletin boards at 300 bps, played with FidoNet and discovered nationwide messaging, gained access to the Internet and "surfing" to "exotic" sites long before mainstream society ever heard of the Internet (later, the World Wide Web). I now access the "web" daily, and routinely exchange e-mail with personnel in my company's branches worldwide. There's nothing particularly romantic or exotic with that.

Now, making contact directly with someone across the country, or across the world, now there's something exotic. Carefully tuning through the frequencies, listening for that rare DX, or just for someone, a few states away, who wants to chat, now that's neat! Passing messages to a local non-ham from a loved one overseas, now there's a service. Being able to establish communications when other more "mundane" services have been rendered inoperative, now there's satisfaction.

I liken amateur radio vs. the web to fishing a wild lake vs. angling in a fish pond. The web is easy, pretty and reliable; dull. Ham radio is challenging, often times spotty and unreliable and very dynamic; in a word, fun.

So much for my view. Keep up the good work; I really enjoy your efforts.

Richard Gonzales, N7UFG
(via the Internet)

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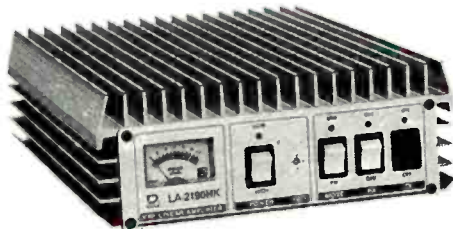


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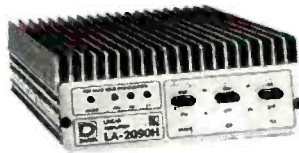
MODEL	DLA-80HII	DLA-50HII	DLA-25H
Frequency Range	VHF	144 ~ 148 MHz	
	UHF	430 ~ 450 MHz	
Output Power	VHF	80W at 5W input	50W at 10W
	UHF	60W at 5W input	40W at 10W
Input Power		0.2W ~ 15W (Max.)	0.2 ~ 6W (Max.)
Mode		FM, CW, SSB	
Pre-Amp Gain		VHF 15dB, UHF 12dB	
Power requirement	13.8V DC, 15A (MAX)	13.8V 8A	13.8 V 4A
Fuse	15A	10A	5A
Dimension, Weight	160W x 45H x 238D mm 1.5Kg	160W x 45H x 193D mm 1.2Kg	
Cable Supplied	M-BNC, 50'	M-MP 50'	M-DNC 50'

144MHz - 430MHz HandHeld & Mobile Use

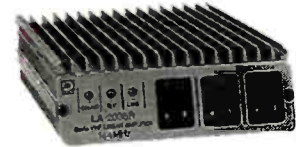


190W

• LA-2190HK



90W • LA-2090HK



30W • LA-2035R



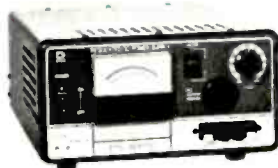
130W

• LA-4130

MODEL	LA-2190HK	LA-2090HK	LA-2035R	LA-4130
Frequency	144 ~ 148 MHz			430 ~ 450 MHz
Preamp gain	150dB			120dB
Input Power	10 - 5W, 10 - 45W	1 - 5 W		0.5 - 30 W (Max)
Output Power	10 5W IN - 180W OUT 00 30W IN - 180W OUT	3 W IN - 90 W OUT	3 W IN - 30 W OUT	15 W IN - 130 W OUT
Power Consumption	13.8V DC/26A Max.	13.8 V DC/12 A Max.	13.8 V DC/5 A Max.	13.8 VDC/20 A Max.
Dimensions (mm)	192W x 71H x 250D	125W x 48H x 175D	100W x 35H x 140D	216 W x 110 H x 280 D
Accessory Weight	with RX & FAN 2.6Kg	with RX & FAN 1Kg	with RX 550g	with RX & FAN 3.4Kg

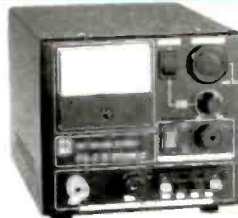
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Fast Scanning Action

Racing 'Round The Oval Means Radios

BY CHUCK GYSI, N2DUP, EDITOR

One of the fastest forms of communications on the air is the chatter you hear while auto racing teams keep in touch when 'rounding the oval. More and more race fans are toting handheld scanners to racetracks these days to catch an earful of hot racing action.

From the dirt tracks to the Indianapolis 500, two-way radios are used not only in the logistics of the races being staged, but also by the drivers, pit crews and crew chiefs. If there are problems with the car while out on the track, the driver can radio ahead to the pit crew so the proper equipment can be on hand for a speedy pitstop. On the same note, crews can notify their drivers of safety matters related to the race.

A variety of radios—from handhelds to mobiles to portable repeaters—are used in various configurations at the track for purposes such as track officials, timers, observers, security guards, medical and fire-crash units and the news media.

Auto Search

The trick to finding all these interesting communications is searching the right band segments. Except for a handful who use the 800- and 900-MHz bands, most race teams use UHF for their communications. The 6-inch whip on most race cars can be a giveaway as to UHF operation.

Unless you are in the know, the exact frequencies used by race teams are con-

sidered a closely guarded secret. That's not to say that you can't find out! One obvious way to find these frequencies is to search—especially from 461 to 465 MHz and 466 to 470 MHz. Most comms will show up in these two segments. In fact, if you find one team's frequency during time trials, don't be surprised if the frequency change when the race begins. Drivers and their crews know the competition is monitoring their frequency, much like the fans, and some

are troubled by it enough to consider encryption or using other frequencies.

Both simplex and repeater systems are employed at race tracks. Repeater systems are used especially on long courses where there is a potential for communications among low-power radios to be unstable. Base antennas typically are mounted on long masts at the pits to extend the range of track repeaters. Sometimes, modified mobile antennas with artificial ground

Frequency Sampler

Here is a list of frequencies that will prove interesting to race fans. Individual drivers' frequencies are not listed as they have a tendency to change at the beginning of the season depending on sponsors and other factors. The Frequency Fan Club's *Race Scanning Monthly* offers drivers' frequencies on a monthly basis.

NASCAR officials: 461.200, 463.625, 463.850, 465.025, 464.500, 464.775, 464.900, 468.250, 468.850, 469.500.

International Motor Sports Association (IMSA) officials: 451.225, 461.625, 462.5625, 464.525, 467.025, 467.1375, 467.725.

National Hot Rod Association (NHRA) officials: 461.075, 461.200, 461.625, 464.500, 464.550.

ESPN Sports: 450.250.

Motor Racing Network (MRN): 454.000.

The Nashville Network (TNN): 467.750, 467.900.

Indy Car officials: 451.525, 451.8125, 457.0125, 457.1875.

U.S. Auto Club (USAC) officials: 463.2125, 468.700, 935.1375, 935.150.

DIRT officials: 151.625, 151.955.



▲ Before pulling into the pits, this NASCAR driver radioed ahead his intention.

Race officials use UHF radios with headsets in the tower at Pocono International Raceway in Long Pond, Pa. (Photo by Chuck Gysi, N2DUP) ▶





↑Using VHF high-band radios (whip antenna on car roof), this Subaru Legacy Group A PRO Rally racer hustles along the course.

UHF repeater antennas rise high above the track infield → to support race communications. (Photo by Chuck Gysi, N2DUP)



planes, such as cut-out metal plates, are used. Special headsets that fit in the drivers' helmets are plugged into mobile and handheld radios in the race cars.

Radio Equipped

One firm, Racing Radios, phone (800) 669-1522, caters to race teams. One typical system assembled for sale to crews consists of the following equipment for long tracks: two Motorola Radius GP300 UHF 4-watt, eight-channel radios with CTCSS, two rapid chargers, two leather carry cases, a David Clark headset with cable, a car harness, a push-to-talk switch with Velcro strap, a BNC antenna adapter, a roof-mount car antenna with 7-foot cable, a helmet kit, a set of foam earpieces, a polycarbonate padded equipment case and a belt. The firm also offers a variety of other radio accessories for race teams.

The radios are used by the drivers to let their pit crews know when they are headed in for rapid service or to advise of problems encountered with the car. The driver's team, on the other hand, can use the radio to advise their driver during the race on matters such as where cars are gaining on him, his speed as he rounds a lap, safety problems on the track and possible problems and conditions with competing drivers' cars that may affect driving.

The one exchange of communications you won't want to miss if you monitor a race is when the winner talks with his crew after getting the checkered flag; you'll want to lower the volume! On the same note, you'll also need to lower the volume when the profanity blasts through the speaker as a driver careens into a wall and loses a wheel.

One trick to finding out who will be using what frequency during a race is to try and arrive at the time trial qualifications and practice runs that occur in the days prior

to the actual race. During time trials, only one driver is on the track at any given time, so it is simple to track down who is using what frequency, if you can find the frequency being used fast enough.

Another idea in tracking down frequencies is to show up during prerace activities and set up your monitoring post. That way, you can locate administrative frequencies that you may not want to monitor during the race. For instance, you may find T-shirt vendors and food concessions using two-way radios, and there is no need to monitor those channels during the actual race. Find them, then avoid them!

In addition, you can find frequencies being used for track operations, security, news media and sanctioning organizations. These may be frequencies you may want to monitor during the race. For instance, it might be a good idea to use an additional scanner to monitor sports announcers on a remote pickup broadcast frequency in the 450- or 455-MHz band to keep abreast of track action while monitoring the drivers' channels. You also may want to use that second scanner to monitor the administrative and track operations channels while the primary scanner is dedicated to listening to the drivers and their crews.

There are three frequencies that are surely to have administrative communications of some type at almost any given race: 151.625, 464.500 and 464.550. These are the primary itinerant business frequencies and almost always are active.

If a fire department or ambulance unit is providing standby services during the event, you'll certainly want to have their frequencies programmed into a scanner should their services be needed. If the track is in a remote area, and there is a possibility medical helicopters would be called in for an injured driver, have those frequencies programmed at the ready, too!

Take Note

Try to keep your monitoring notes organized as you listen to race communications. The race itself doesn't last all that long and with the noise from the track, it sometimes will be difficult to monitor the actual communications. You won't want to miss a word. If you are capable, consider using a tape recorder to log the event and then sit back and enjoy the race again later; you can figure out the various exchanges better that way.

One method that I have found effective is to write in a notebook all possible frequencies that race and news media com-

Where To Search?

If you are going to search for frequencies at a race, here is a suggested list of places to find channels with worthwhile communications.

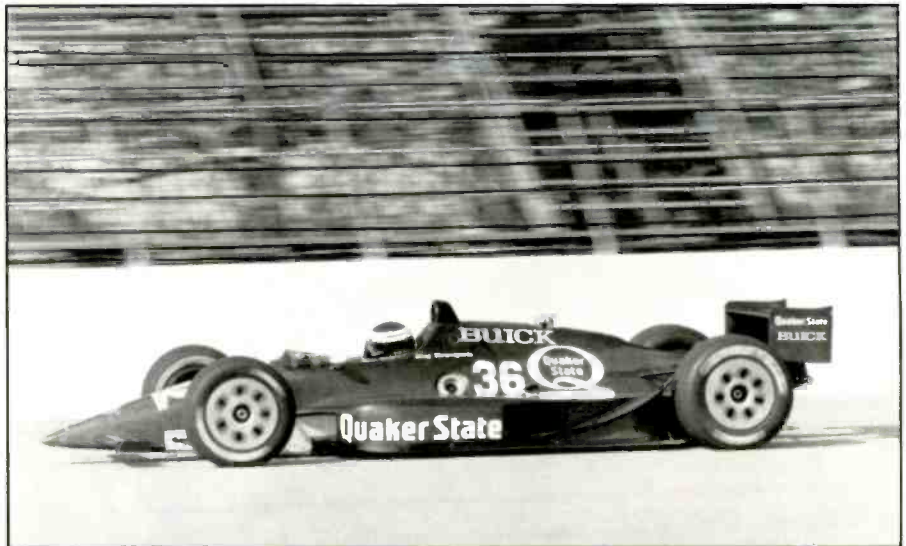
- 151.625 to 151.955 (business)
- 152.870 to 153.020 (media)
- 154.515 to 154.600 (business)
- 155.160 to 155.400 (medical)
- 161.640 to 161.760 (media)
- 173.225 to 173.375 (newspapers, film crews)
- 450.0375 to 450.950 (TV, radio)
- 455.0375 to 455.950 (TV, radio)
- 457.5125 to 457.6125 (business)
- 460.6625 to 460.6875 (business)
- 460.9125 to 462.1875 (business)
- 462.750 to 462.9125 (business)
- 463.200 to 464.9875 (business)
- 465.6625 to 467.1875. (business)
- 467.750 to 467.9125 (business)
- 468.200 to 469.9875 (business)
- 851.0125 to 860.9875 (business)
- 935.0125 to 939.9875 (business)

Race Tips

Here are two tips to enhance your track monitoring during a large race:

- Program frequencies in channels corresponding to car numbers. For instance, program the frequency for car number 36 in Channel 36. It will help you remember which driver you are monitoring.

- Don't use an antenna! If you don't use the rubber duck antenna on your scanner at the track, you will hear all communications within line of sight, yet eliminate the potential for strong nearby signals locking up other channels. While this trick seems to work well for Uniden scanners, according to the Frequency Fan Club, it may not work for RadioShack scanners.



Veteran driver Roberto Guerrero takes a test lap at the Indianapolis Motor Speedway in Indiana, prior to the annual running of the race.

munications could show up on during the race, and then I cross-reference what I hear as to whether I have heard anything previously on the frequency. For example, if I hear a race crew using 468.6125, I make a note of such on that line in the notebook as well as additional notes that may help me identify the user later.

Before you go to the race, be sure to have a list of all the drivers and their nationalities. This proves helpful in IDing drivers; if you hear an Australian voice and you know there is an Australian in the race, you've ID'd the user!

What You'll Hear

Organizations that sanction auto races include Championship Auto Racing Teams (CART), the National Association of Stock Car Auto Racing (NASCAR) and National Hot Rod Association (NHRA). These groups all use two-way radio to coordinate

their personnel at races. The personnel may include emergency crews, medical units, safety teams, officials, timers, spotters, observers, track crews, pace cars, registration, media relations and operations. The track itself may have frequencies it uses for activities such as security, maintenance, medical teams, parking, operations, administration and ticket sales.

The news media covering races often will be using radios, especially those broadcasting the race on TV or radio. Be sure to check the 161-, 450- and 455-MHz broadcast relay channels for coordination, cueing, reporters, talent, open microphones, camera crews and audio feeds. You also may find some of this activity on business band channels.

Other frequencies you may stumble across at a race include those used by communications technicians (someone has to install all those radios!), food concessions, drivers' escorts, race sponsors, track emer-



Track security guards keep watch over admission gates and crowds during auto races. You'll find them on their own dedicated frequencies or those of the guard service supplying the personnel.

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gency teams, and local emergency services such as police, fire and ambulance.

If you are serious about scanning at races, you may want to check out a monthly updated newsletter containing nothing much other than frequencies used by drivers, officials and related services. *Race Scanning Monthly*, the Frequency Fan Club's newsletter, costs \$30 for a new subscription, and \$25 for renewals. In addition to the monthly newsletter, the club offers live updates over the air at the track, as well as via a special members-only telephone line. Call them at (800) RACE-FAN, or write: Frequency Fan Club, P.O. Box 610, Milledgeville, GA 31061. Tell them POP'COMM sent you!

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WRUL: The Forgotten "Voice of Freedom"

The World Radio University's Historic Station

BY ALICE BRANNIGAN

When someone comes along and makes a significant impact upon broadcasting, their name becomes legend. Sarnoff, Crosley, E.H. Armstrong, Dr. Frank Conrad—to name a few—were such people.

You probably never heard of Walter S. Lemmon, but he was the visionary who established W1XAL, later to become WRUL, arguably this nation's first major independent international broadcasting station. For many years, WRUL was the most powerful shortwave station in the Western Hemisphere. In the days before the U.S. entered World War II, Lemmon's station had America's strongest shortwave signals denouncing Hitler's social, political and military actions.

As a young man, at the end of World War I, Lemmon was a U.S. Coast Guard wireless operator. He served aboard the yacht returning President Woodrow Wilson home from the 1919 Peace Conference in Switzerland. Lemmon told how Wilson had spoken with him during the long voyage. Wilson felt that if people around the world only could get to understand each other's cultures, lives and feelings, then there would be no future world wars. The year 1919 coincided with the dawn of amateur and experimental broadcasting. Frank Conrad already was operating 8XK (later to become KDKA) in Pittsburgh, Pa. Lemmon envisioned that someday worldwide broadcasting could be used to bring about international understanding. He said that Wilson agreed.

After leaving the service, Lemmon attended Columbia University, graduating as an electrical engineer. Later, he conceived the idea of mechanically ganging up the variable tuning capacitors in radio receivers on a single shaft so only one knob would be needed to tune in stations. Prior to this invention, a receiver might require as many as three or four separate dial adjustments to bring in a station. He made millions of dollars from the sale of his patent.

The Birth of The Dream

The money from his invention helped Lemmon establish the World Wide Broadcasting Foundation in Boston, Mass. The



In 1931, W1XAL began its career sharing this transmitter site with Boston's first TV station. That station was W1XAV, designed, owned and operated by 22-year-old Hollis Baird.

foundation was a non-profit organization that solicited funds from those who supported the idea of "telling about America and its people." In addition, Lemmon organized the World Radio University (WRUL), which proposed to broadcast high-quality, non-commercial educational programs as well as information about the United States. At some point, he also had become an executive at International Business Machines (IBM).

In 1931, Lemmon connected with Hollis S. Baird, a brilliant 22-year-old electronics engineer (who was not related to British TV pioneer J.L. Baird). Hollis Baird had graduated from the Massachusetts Institute of Technology, and immediately dedicated himself to designing a new television system. Baird was the chief engineer of Shortwave and Television Laboratory Inc., located on the second floor at 70 Brookline Ave., Boston, Mass.

Baird transmitted TV over his own experimental stations, W1XAU and W1XAV, located at the lab. The Baird stations transmitted 500-watt video (W1XAV) on 2870 kHz, and AM audio (W1XAU) on 1600

kHz. The video was a 60-line image intended to be mechanically scanned at 20 lines per second on 15-inch screens. The audio also was simulcast over various Boston AM stations. In addition, Baird ran W1XM, MIT's experimental station that operated on 10 discrete frequencies between 1604 and 26100 kHz.

Soon after Lemmon and Baird met, Bostonians saw yet another antenna sprout from the roof of the building, this time a shortwave "curtain." Experimental shortwave station W1XAL, running 20 kW, went into operation on 6040 kHz. With the aid of Baird's technical expertise and facilities, W1XAL had become a reality.

W1XAL identified itself as "The World Radio University." W1XAL's first studios were in a small suite in the Harvard University Club, Boston. Thus were the humble beginnings of Walter Lemmon's noble dream.

W1XAL: A Success

The goodwill mission of W1XAL brought the station considerable attention. The Rockefeller Foundation became a sub-



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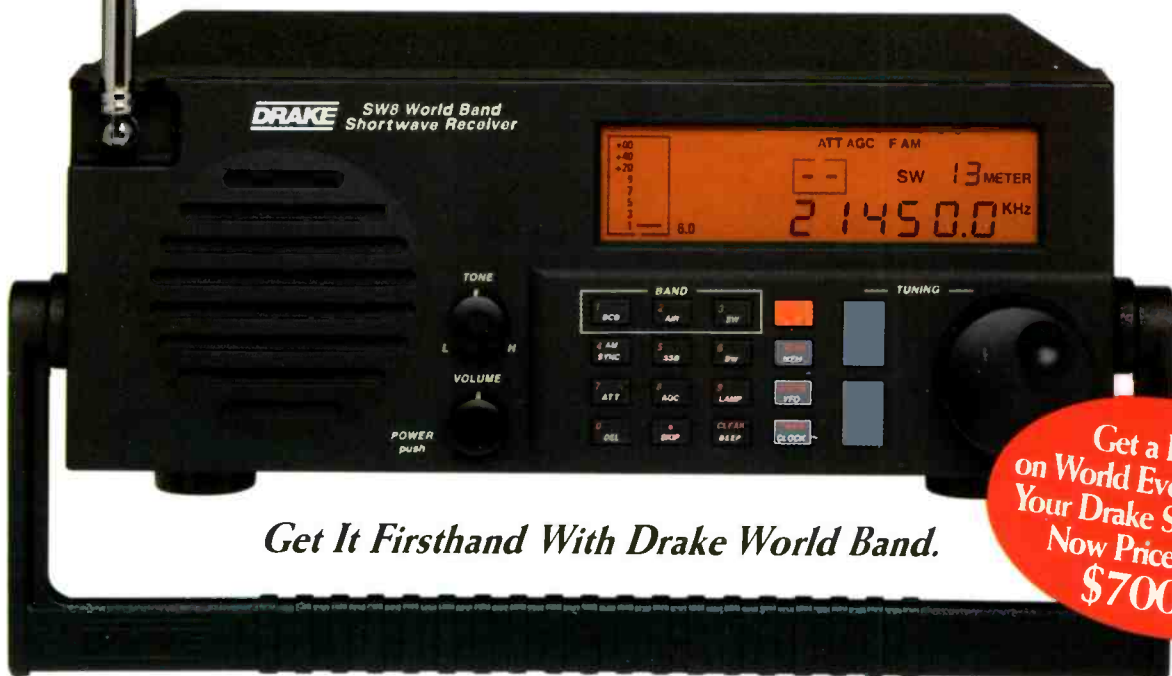
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The Baird TV system used a mechanical rotating disc. In 1931, WIXAV operated for several hours each weekday.



Walter S. Lemmon, founder of World Wide Broadcasting.

stantial backer of WIXAL. Private individuals, including thousands of listeners, also contributed to the station's work.

When Lemmon decided to add a second high-power transmitter, he felt that asking Baird to allow it in the lab would outstrip

his hospitality. Therefore, he searched out a new location for WIXAL. In Scituate, Mass., at the seashore on Hatherly Beach, he found and leased an unused power plant building and the surrounding land which had been reserved during World War I for testing munitions. The transmitters, WIXAL and WIXAR, were installed in the structure, while the large tract of land was ideal for the big rhombic antennas.

New studios were established in a quaint old brownstone mansion at 133 Commonwealth Ave., Boston.

Much of WIXAL's night programming was beamed to South America and spoken in basic English. Other programs to South America and Europe were in Spanish, Portuguese, French, Norwegian and Greek. Some programs such as lectures by Harvard University professors, touched upon inventions and theoretical physics. Other programming included classical music and drama. News from *The Christian Science Monitor* was broadcast daily, and on Sundays there were church services.

Lemmon decided that WIXAL needed a stronger signal. This would come from a new Twin 50-kW transmitter to be designed and constructed by the station's staff.

The job of making the schematic drawings and mechanical details was assigned to John R. Hall, presently W5ETK (ex-W1JSV), one of WIXAL's engineers. Hall also was made responsible for designing the 12-kV high-voltage supply and the 36-kW modulators. We know about such things because John R. Hall happens to be a longtime *POP*COMM* reader, and recently furnished us with lots of information about the early days of WIXAL/WRUL. He was there for many years.

War Clouds

In September 1939, the FCC allowed shortwave broadcast stations to evolve

from their experimental status to use standard call letters. World Wide's transmitters changed from WIXAL and WIXAR into WSLA and WSLR. Two months later, the call letters were changed to WRUL and WRUW. The transmitters often are all referred to generically as WRUL.

It was the late 1930s, and war was spreading through Europe. Some European nations had established exile governments in London. WRUL began broadcasting the *Friendship Bridge* program to allow English children sent for safety to the United States and Canada to speak to their families back in England. There also were uplifting programs announced by local exiles from Norway, Czechoslovakia, Yugoslavia, Romania and elsewhere.

The Nazis had established powerful shortwave stations in Berlin and Breslau. These stations carried an enormous amount of political propaganda, including offensive religious references, and distorted war news.

WRUL was the most powerful of the 11 U.S. shortwave broadcasters responding over the airwaves to Berlin's broadcasts. When Berlin stopped talking about South Russia after the Nazi retreat from Rostov, WRUL seized upon the topic and hammered home the defeat in no less than 24 languages. When Gen. Maxime Weygand was stripped of his North African command, WRUL broke through the Vichy French censorship and spread the news in both French and Arabic. Many African desertions resulted. WRUL's Yugoslav announcer caused a revolt in Serbia, causing Berlin to accuse WRUL of "interfering in the affairs of a sovereign nation."

As soon as the Twin 50-kW transmitter was completed, the FCC quickly licensed it as two separate transmitters, WRUA and WRUS. New frequencies also were listed, but also were interchangeable with all the

May 26, 1933

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

Cordially yours,

SHORTWAVE AND TELEVISION CORPORATION

70 Brookline Avenue, Boston, Mass.

~~BACK BAY STATION~~

The factors of Television Station WIXAV, Experimental Sound Station WIXAU, Ultra-short wave station WIXG and operators of International Short Wave Station WIXAL.

This 1933 QSL from WIXAL lists Baird's company as its owners, and gives a plug to watch his TV station. (Courtesy Tom Mooneyham of Maryland)

May 26, 1933

A special program originating from WEEI will be rebroadcast by WIXAL in Boston from 2:30 to 3 P.M., Eastern Daylight Saving Time, on 11.790 kc. or 25.4 meters, Sunday, June 4th.

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

Cordially yours,

WIXAL, Boston, U.S.A.

Another 1933 WIXAL card tells SWLs to listen for the station's shortwave relay of the AM station WEEI. (Courtesy Tom Mooneyham of Maryland)

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And to continue keeping signals coming in loud & clear, an AFC (auto frequency control) compensates for any FM, FM-N and WFM station frequency drift.

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Cover frequencies from 100 kHz to 1,999.99 MHz* using 10 Hz tuning steps. You'll receive SSB (USB, LSB), AM (Normal, Narrow, Wide), FM (Normal, Narrow), WFM, and CW!

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The IC-R8500 is designed to grow along with your communication needs. Built right in is the famous ICOM-developed CI-V computer control interface and an industry standard RS-232C port. This allows

for advanced software control and for the programming of up to 800 memory channels (20 banks of 40 channels), straight off of a PC.

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- S-Meter Squelch (in addition to ordinary noise squelch)
- Noise Blanker (SSB/AM)
- 3 Antenna Connectors
- 12 VDC/120 VAC



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World Wide
Broadcasting
Foundation
~~WIXAL~~
WRUL-WRUV
University Club
Boston, Massachusetts

Dear Friend: Here is an opportunity to hear programs free from advertising. "World Youth Speaks" (WYS) is "from Youth, of Youth, to Youth, by Youth and for Youth."

"WYS" uses material in different languages for which it later gives a translation in the new International Language, - Basic English, using a vocabulary of less than 1000 words.

"WYS" programs are at ~~7:30 P.M. E.S.T.~~ 6:00 P.M. EST, on Saturdays, on a frequency of 11.79 Mc. or a meter length of 25.4.

A card sent to the Station requesting the month's printed program will receive immediate attention.

If you have material or suggestions for WYS programs, please let us hear from you.

Carleton A. Wheeler, Director



World Radio University
RADIO MECHANICS
LITERATURE WORLD PEACE
SCIENCES AVIATION
MUSIC NEWS
LANGUAGES
and
Special International
Good-will Broadcasts

World Wide Broadcasting Foundation
UNIVERSITY CLUB BOSTON, MASS. U. S. A.

WRUL VERIFIES
YOUR RECEPTION REPORTED ON

Date
AM
PM

Thank you and please write us again.

Do you know this is a non-profit Station supported by gifts and voluntary contributions? Won't you become a part of this Station by joining our WORLD WIDE LISTENERS' LEAGUE? Write for our leaflet.

15.25—6.04—11.79—21.46—11.73—15.13—25.6 Mc.

This undated card has the former WIXAL crossed out, and WRUL typed in. It explains the station's youth programming. (Courtesy George Saunders of California)

An early WRUL QSL explained Lemmon's philosophy. (Courtesy John R. Hall of Texas.)

transmitters (except for WRUL's main frequency, 6040 kHz). WRUL could operate on all frequencies. Four new rhombics were built, all directed toward Europe. WRUL operated nearly 24 hours a day on four separate frequencies.

During this period, John Hall recalls, a

truck pulled up and dumped a "pile of junk" into the back storeroom. It turned out to be the discarded old W4XB (6040 kHz) shortwave relay transmitter used in 1936 by AM station WIOD, Miami, Fla. It consisted of a Bendix exciter and "composite" 10-kW, water-cooled amplifier. Apparent-

ly Lemmon had picked it up cheaply. Hall was assigned the task of rebuilding it.

Hall recalls how he had, with help, barely finished reassembling the rig when a late-night phone call came in from the station's transmitter supervisor, "Red" Edwards. Edwards asked whether it could be put right

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

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



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

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

Issued To: Thomas Kneitel

This 1947 veri displays the full spectrum of all five World Wide Broadcasting call letters. (Courtesy Tom Kneitel of New York)

on the air. Hall reminded Edwards they had no license for it yet. Edwards said only, "Put it on the air. Call it WRUX." The next morning at 7 a.m., a telegram arrived from the FCC authorizing the call letters WRUX, 10 kW, and a list of frequencies. Hall remembers that Lemmon's clout with the right people in Washington always brought that kind of quick action, as well as many FCC telegrams.

The U.S. Enters WWII

As soon as the United States entered World War II, the Office of War Information ordered WRUL to immediately shut down all operations. The next day, lines from the Boston studios were cut, and new lines were connected to the OWI's control room in New York City.

WRUL returned to the air the following day on frequencies provided by the gov-

ernment. The station's programs were repeated over and over in English, French and Arabic. Government personnel remained in residence at the WRUL transmitting facilities, directing operations, throughout the duration of the war.

Engineer John Hall left WRUL in 1944 to join the OWI and go overseas as a radio engineer. Hall told us that in later conversations he had with Lemmon, there were hurt feelings because the OWI had not used WRUL's Boston programming for their wartime purposes. Lemmon also appeared to be resentful about the government's wartime "takeover" of WRUL.

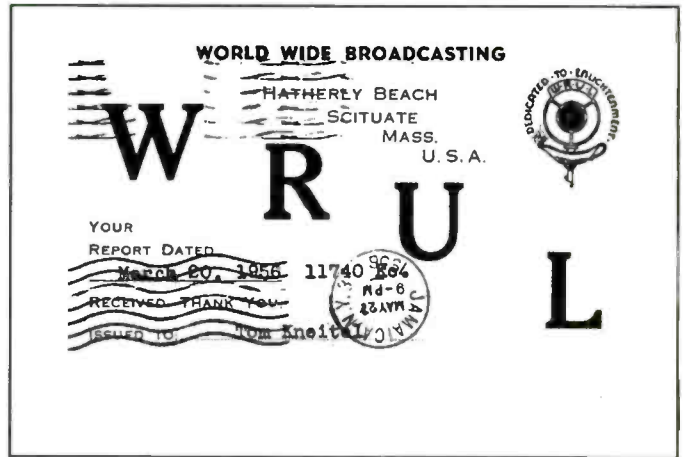
At the end of World War II, WRUL was restored to Lemmon's control, and the station(s) resumed international goodwill peace broadcasts. The station called itself "The Voice of Freedom," and its interval signal was from the *New World Sym-*

phony. For years afterward, the Voice of America (VOA) and United Nations both continued to lease time on WRUL's facilities. By 1958, the VOA and UN no longer used WRUL's facilities. The station began calling itself the "World Wide Broadcasting System, Radio Boston."

From its earliest W1XAL days, WRUL always was most cordial to the SWL community and warmly responded to reception reports with an interesting variety of QSL cards.

Swan Song

In April 1960, WRUL suddenly began broadcasting Pepita Riera to Cuba. Riera was a hard-line, militant, anti-Castro Cuban exile dubbed "Havana Rose." In September 1960, Lemmon announced that WRUL would cooperate with Radio Swan in broadcasting anti-Castro broadcasts to



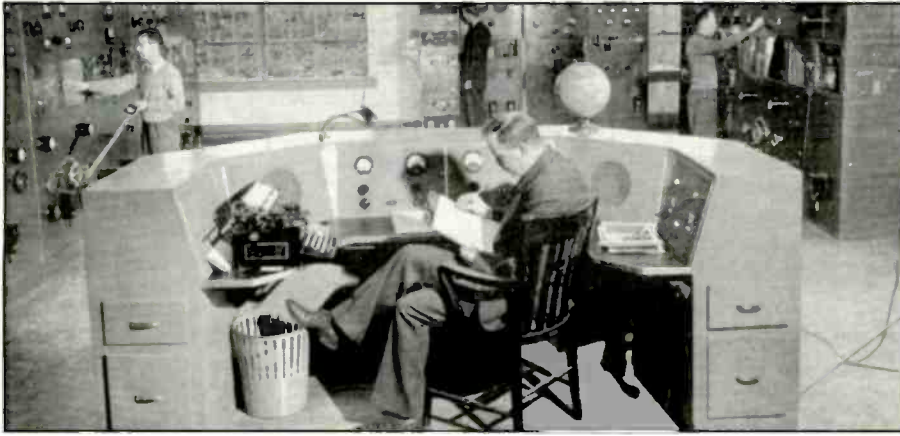
By 1956, the WRUL veri had evolved into one quite simplified and bold. (Courtesy Tom Kneitel of New York)



◀By 1941, this German expatriate (who declined to use his name on the air) already had given 10,000 anti-Nazi talks over WRUL.

▼The WRUL studios are in the center brownstone with the U.S. flag just above the front door.





The WRUL transmitter room and control console at Scituate about 1940. That's Supervisor "Red" Edwards at the desk, while John R. Hall stands at the rear center adjusting equipment.

Cuba. Radio Swan (alternately known as Radio Americas) was a quasi-clandestine 50-kW AM and shortwave commercial station located on (then) U.S.-owned Swan Island, near Cuba. Radio Swan was a thinly veiled CIA gray propaganda operation. Lemmon gave permission for Radio Swan to rebroadcast WRUL's programs.

Lemmon's tie to Radio Swan didn't end there. He also owned Pan American Broadcasting Co. of New York City. That company was awarded the lucrative contract to

sell commercial time on Radio Swan to sponsors. They lined up major accounts such as Kleenex, R.J. Reynolds Tobacco Co. and Philip Morris Co. There also were many anti-Castro groups signed up as commercial sponsors.

In 1960, Walter S. Lemmon, founder of WRUL, left his position as president of World Wide Broadcasting. By 1961, Lemmon's name was missing from the list of officers.

Ties between Lemmon and the CIA's

operations were not openly apparent prior to 1960. There are many unanswered questions relating to these events.

By 1964, WRUL's owners had renamed the Scituate station Radio New York World Wide. Late in the 1960s, Radio New York World Wide was sold again, and that time the new owners went so far as to dump the historic WRUL call letters, replacing them with WNYW.

Several years ago the station was resold, this time to *The Christian Science Monitor*. The call letters WNYW were changed to the present ones, which are WCSN. (The call letters WNYW became reassigned to the TV station on Channel 5 in New York City, ex-WABD, ex-WNEW-TV.)

Many thanks to John R. Hall of Dallas, Texas, for sharing his memories and many tantalizing facts about Walter Lemmon's early days and pre-World War II years at WRUL. Additional material and information was researched in the POP'COMM archives and other reference sources.

We always seek reader input here, and this month's information is a perfect example of why. Please send us your old-time radio and wireless memories, photos, picture postcards, QSLs (originals or good copies), station listings, newspaper clippings, questions and comments. Let's get together again next month. In the meantime, I hope we meet on the road to Radioville. ■

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- B: 399.450/455
- C: 399.025/030
- D: 406.000

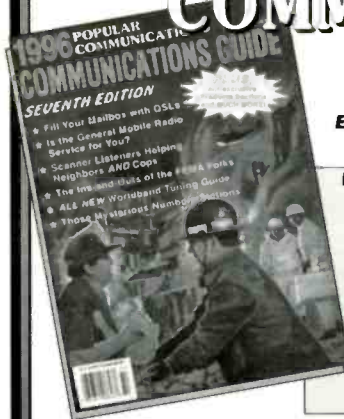
Channel selected at random if none specified

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Take A Look (And Listen)!

Radio Broadcast Data System Is Here

Picture this: You're driving down the highway, or leaning back in your favorite chair at home. You just tuned in an FM radio station that's playing your favorite song. The next couple of songs come on, and you like them, too. You figure any station that plays a bunch of your favorite songs in a row is your kind of station. You look at the radio and see the station's call letters and a scrolling message containing its nickname and programming information, and you make a mental note to come back to that station the next time you're in the mood for some tunes.

Yes, you read that right...you looked at the radio—well, at the special display area on the Radio Broadcast Data System (RBDS) radio, that is. RBDS is the proverbial real thing; thanks to this technological wonder, radio is poised to undergo a dramatic rebirth not experienced since the medium's founding fathers first tuned into the basic concepts of broadcasting (a nearly identical system has been widely used in Europe since 1985 to both broadcaster and listener satisfaction).

What Is It?

Here's how it works: Radio stations use RBDS technology to transmit text information to display areas on car, home and portable RBDS radios (RBDS encoders allow stations to accomplish this feat).

RDS actually is a digitally encoded stream of information that FM broadcasters "piggyback" on their normal radio signals. You can't hear it; but your RDS radio can. And, that stream of information enables a wide range of new capabilities for the conventional home and car radio.

Here's what's possible:

- RBDS radios can show a radio station's call letters, tune by program format, show song titles and artist names, even switch to alternative frequencies that might be carrying the same programming.

- RBDS radios can automatically tune to emergency broadcasts or traffic reports, supply paging information, and provide business and navigation data.

Today, broadcasters around the country are using this text capability to provide

information such as song titles and artists currently playing, other programming information, call-in subjects and telephone numbers, lottery numbers, weather forecasts, time and temperature, contest information, and, of course, commercial messages. The sky's the limit for future text applications—anything that can be put into words can now appear on the face of your home and car radio.

More Than 400 Stations

More than 400 FM broadcasters nationwide today are offering their listeners the Radio Data System. By using RDS' non-listener features, these broadcasters are now developing new customer bases and exploiting new revenue streams. Non-listener features of RDS include the ability to remotely control signs and billboards, operate private paging networks, send data directly to customers' personal computers and provide Global Positioning Systems (GPS) navigation correction data.

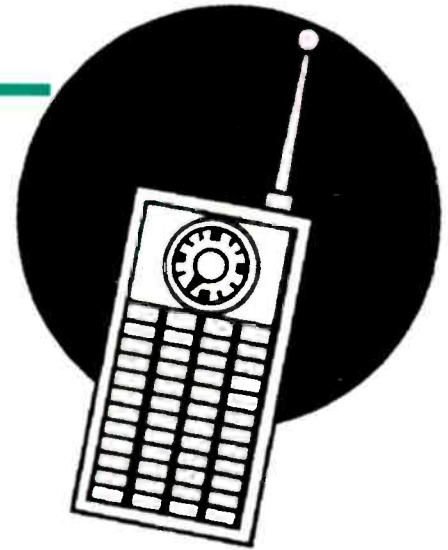
KTBZ, "The Buzz," was the first station in Houston to use RDS' sign-control feature to operate an electronic billboard in real time. Houston drivers are able to view artist and song title now-playing information along with other program, promotion and contest information on the electronic display of the Buzz's billboard.

The station also plans to use this text display capability to warn drivers of future emergency situations.

KTBZ general manager Pat Fant says, "People love our billboard. This is an audience that embraces new ideas. They expect us to provide them technology like RDS. We jumped right on it, and I'm glad we did. We're now satisfied RDS users."

For The Listener

RDS makes radio easier for listeners to use by allowing them to tune in favorite stations by call letters or program formats. Additionally, RDS allows listeners to let their radios do things for them automatically, such as switching frequencies as they travel in their cars and alerting them to traffic and emergency announcements—even if they're listening to a cassette or CD.



The Consumer Electronics Manufacturers Association (CEMA), a sector of the Electronic Industries Association (EIA), is sponsor of a nationwide program that is putting stations on line with RDS. To date, more than 100 FM radio stations have joined its campaign.

WKYS-FM in Washington, D.C., was the 100th station to join the EIA's program. General manager Tony Washington, referring to RDS' ability to transmit text data, said, "RDS adds tremendous value to radio for the listener and the broadcaster. At KISS-FM, we're excited to be providing our listeners this important new technology."

The EIA's program is building the nation's RDS broadcast capability by putting top-25 radio market FM stations on line in exchange for commitment to use the technology and promote it to their listeners.

According to Gary Shapiro, CEMA president, "More and more broadcasters around the country are jumping on the RDS bandwagon. RDS allows them to give their listeners the information and technology they want and develop new customer bases and revenue streams non-existent without this technology. We expect many other broadcasters to begin offering their audiences RDS as a result of our efforts."

FM broadcasters in Boston, New York, Philadelphia, Washington, D.C., Baltimore, Pittsburgh, Cleveland, Minneapolis-St. Paul, Chicago, St. Louis, Dallas-Fort Worth, Houston, Denver, Los Angeles, San Diego, San Francisco and Seattle have joined the EIA campaign.

U.S. RDS Radio Stations

Here is a list of radio stations in the United States set up for RDS transmissions. An asterisk (*) denotes a translator station.

ALABAMA

WZYP-FM/104.3/Athens
WRJM-FM/93.7/Geneva

ARIZONA

KZZZ-FM/100.7/Scottsdale
KKFR-FM/92.3/Phoenix
KSLX-FM/100.7/Scottsdale

CALIFORNIA

KSIQ-FM/96.1/Brawley
KFMF-FM/93.9/Chico
KPPL-FM/107.5/Colusa
KLON-FM/88.1/Long Beach
KKGO-FM/105.1/Los Angeles
KPCC-FM/89.3/Los Angeles
KTWV-FM/94.7/Los Angeles
KCRW-FM/89.9/Los Angeles
KCRW-FM/89.9/Los Angeles
KFOX-FM/93.5/Los Angeles
KFSG-FM/96.3/Los Angeles
KREA-FM/93.5/Los Angeles
KSCA-FM/101.9/Los Angeles
KKLA-FM/99.5/Los Angeles
KKBT-FM/92.3/Los Angeles
KCSN-FM/88.5/Los Angeles
KLON-FM/88.1/Los Angeles
KUSC-FM/91.5/Los Angeles
KLSX-FM/97.1/Los Angeles
KPFK-FM/90.7/Los Angeles
KATM-FM/103.3/Modesto
KHOP-FM/104.1/Modesto
KNPR-FM*/88.1/Ridgecrest
KSFM-FM/102.5/Sacramento
KPBS-FM/89.5/San Diego
KPLM-FM/106.1/Palm Springs
KYXY-FM/96.5/San Diego
XTRA-FM/91.1/San Diego
KPBS-FM/89.5/San Diego
KKHI-FM/95.7/San Francisco
KDFC-FM/102.1/San Francisco
KEAR-FM/106.9/San Francisco
KECG-FM/88.1/San Francisco
KALW-FM/91.7/San Francisco
KKSF-FM/103.7/San Francisco
KOHL-FM/89.3/San Francisco
KVHS-FM/90.5/San Francisco
KALX-FM/90.7/San Francisco
KPFA-FM/94.1/San Francisco
KCRH-FM/89.9/San Francisco
KUSF-FM/90.3/San Francisco
KFOG-FM/104.5/San Francisco
KHQT-FM/97.7/San Francisco
KPFB-FM/89.3/San Francisco
KFRC-FM/99.7/San Francisco
KSJO-FM/92.3/San Francisco
KUFX-FM/94.5/San Francisco
KKIQ-FM/101.7/San Francisco
KCBX-FM/90.1/San Luis Obispo
KUSP-FM/88.9/Santa Cruz

COLORADO

KMUI-FM/100.3/Denver
KCFR-FM/90.1/Denver
KBCO-FM/97.3/Denver
KHIH-FM/95.7/Denver

CONNECTICUT

WSHU-FM/91.1/Fairfield
WPKT-FM/90.5/Hartford

DELAWARE

WSTW-FM/93.7/Wilmington

DISTRICT OF COLUMBIA

WAMU-FM/88.5/Washington
WETA-FM/90.9/Washington

WDCU-FM/90.1/Washington
WGAY-FM/99.5/Washington
WASH-FM/97.1/Washington
WHUR-FM/96.3/Washington
WGTS-FM/91.9/Washington
WAVA-FM/105.1/Washington
WKYS-FM/93.9/Washington
WMMJ-FM/102.3/Washington
WRCY-FM/107.7/Washington

FLORIDA

WAPN-FM/91.5/Daytona Beach
WSFP-FM/90.1/Fort Myers
WAOA-FM/107.1/Melbourne
WLRN-FM/90.3/Miami
WTMI-FM/93.1/Miami
WMFE-FM/90.7/Orlando
WOCL-FM/105.9/Orlando
WUFT-FM/89.1/Gainesville
WOWW-FM/107.3/Pensacola
WFLZ-FM/93.3/Tampa

GEORGIA

WDMG-FM/99.5/Douglas
WSTR-FM/94.1/Smyrna
WABE-FM/90.1/Atlanta
WCLK-FM/91.9/Atlanta
WKLS-FM/96.1/Atlanta

IDAHO

KCOX-FM/105.9/Boise

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WCIL-FM/101.5/Carbondale
WLRW-FM/94.5/Champaign
WBEZ-FM/91.5/Chicago
WKKD-FM/95.9/Chicago
WXRT-FM/93.1/Chicago
WLS-FM/94.7/Chicago
WNUA-FM/95.5/Chicago
WLLI-FM/96.7/Chicago
WKQX-FM/101.1/Chicago
WSSD-FM/88.1/Chicago
WCCQ-FM/98.3/Chicago
WARG-FM/88.9/Chicago
WNUR-FM/89.3/Chicago
WOJO-FM/105.1/Chicago
WRSE-FM/88.7/Chicago
WZSR-FM/105.5/Chicago
WNU-FM/90.5/DeKalb
WLLR-FM/101.3/East Moline
WAAG-FM/94.9/Galesburg
WWTE-FM/93.9/Lincoln
WSWT-FM/106.9/Peoria
WDBR-FM/103.7/Springfield
WGFA-FM/94.1/Watseka
WPGU-FM/107.1/Urbana

INDIANA

WSHW-FM/99.7/Frankfort
WENS-FM/97.1/Indianapolis
WZPL-FM/99.5/Indianapolis
WITZ-FM/104.7/Jasper
WZWZ-FM/92.7/Kokomo
WVKI-FM/100.5/Kokomo
WMRI-FM/106.9/Marion
WLEZ-FM/102.7/Terre Haute
WXKE-FM/103.9/Fort Wayne

IOWA

KRVR-FM/106.5/Davenport
KMFG-FM/103.3/Des Moines
WMT-FM/96.5/Cedar Rapids
KIAQ-FM/96.9/Ft. Dodge
KOEL-FM/92.3/Oelwein
KUOO-FM/103.9/Spirit Lake
KAYL-FM/101.5/Storm Lake

KENTUCKY

WMMT-FM/88.7/Whitesburg

LOUISIANA

WGGZ-FM/98.1/Baton Rouge
KQXL-FM/106.5/Baton Rouge
WYCT-FM/94.1/Kentwood
KFXY-FM/96.7/Morgan City
WLMG-FM/101.9/New Orleans
WMYZ-FM/95.7/New Orleans
WNOE-FM/101.1/New Orleans
KCIL-FM/107.5/Houma
KMJJ-FM/100.1/Shreveport

MARYLAND

WHFS-FM/99.1/Annapolis
WEAA-FM/88.9/Baltimore
WYYF-FM/97.9/Baltimore
WXYV-FM/102.7/Baltimore
WWMX-FM/106.5/Baltimore
WOCT-FM/104.3/Baltimore
WPOC-FM/93.1/Baltimore
WERQ-FM/92.3/Baltimore
WWIN-FM/95.9/Baltimore
WETH-FM*/89.1/Hagerstown

MASSACHUSETTS

WAAF-FM/107.3/Boston
WBUR-FM/90.9/Boston
WGBH-FM/89.7/Boston
WMUX-FM/106.7/Boston
WMUX-FM/106.7/Boston
WBOX-FM/92.9/Boston
WSSH-FM/99.5/Boston
WCRB-FM/102.5/Boston
WATD-FM/95.9/Boston
WBCS-FM/96.9/Boston
WBPR-FM/91.9/Boston
WFPB-FM/91.9/Boston
WJMN-FM/94.5/Boston
WUMB-FM/91.9/Boston
WXXS-FM/107.9/Boston
WBOQ-FM/104.9/Gloucester
WBCS-FM/96.9/Newton

MICHIGAN

WIOG-FM/102.5/Bay City
WLLZ-FM/98.7/Detroit
WKQI-FM/95.5/Detroit
WJLB-FM/97.9/Detroit
WQRS-FM/105.1/Detroit
WYCD-FM/99.5/Detroit
WDBM-FM/88.9/East Lansing
WKAR-FM/90.5/East Lansing
WLAV-FM/96.9/Grand Rapids
WKLQ-FM/94.5/Holland
WRKR-FM/107.7/Portage

MINNESOTA

KAUS-FM/99.9/Austin
KDNW-FM/97.3/Duluth
KEEZ-FM/99.1/Mankato
KBEM-FM/88.5/Minneapolis
KNOW-FM/91.1/St. Paul
KSJN-FM/99.5/St. Paul
KSTP-FM/94.5/Minneapolis
KTIS-FM/98.5/Minneapolis
KQQL-FM/107.9/Minneapolis

MISSOURI

KFMZ-FM/98.3/Columbia
KGRC-FM/92.9/Hannibal
KYYS-FM/102.1/Kansas City
WIL-FM/92.3/St. Louis
WKBQ-FM/106.5/St. Louis
WKXX-FM/104.1/St. Louis
KMJM-FM/107.7/St. Louis
KNJZ-FM/100.3/St. Louis

MONTANA

KCTR-FM/102.9/Billings
KKBR-FM/97.1/Billings

NEBRASKA

KNEN-FM/94.7/Norfolk
KESY-FM/104.5/Omaha

NEVADA

KNPR-FM*/88.7/Boulder City
KNPR-FM*/91.7/Beatty
KOMP-FM/99.3/Henderson
KNPR-FM*/88.7/Indian Springs
KNPR-FM*/89.5/Laughlin
KNPR-FM*/88.7/Moapa Valley
KNPR-FM*/88.7/Pahrump
KBUL-FM/98.1/Reno
KNEV-FM/95.5/Reno
KNPR-FM*/88.1/Scotty's Junction
KNPR-FM*/105.1/Searchlight
KKLZ-FM/96.3/Las Vegas
KNPR-FM/89.5/Las Vegas
KLUC-FM*/98.5/Las Vegas
KFMS-FM/101.9/Las Vegas
KWNR-FM/95.5/Las Vegas
KEYV-FM/93.1/Las Vegas
KRRR-FM/105.5/Las Vegas
KOMP-FM/92.3/Las Vegas
KEDG-FM/103.5/Las Vegas
KFBI-FM/107.5/Las Vegas
KYRK-FM/97.1/Las Vegas
KLNR-FM*/91.7/Panaca
KTPH-FM*/91.7/Tonopah
KEYV-FM*/103.5/Laughlin

NEW HAMPSHIRE

WBHG-FM/101.5/Laconia
WLNH-FM/98.3/Laconia

NEW JERSEY

WFG-FM/96.9/Atlantic City
WKDN-FM/106.9/Camden
WBGO-FM/88.3/Newark
WFME-FM/94.7/Newark
WNNJ-FM/103.7/Newton
WMGQ-FM/98.3/New Brunswick
WHTZ-FM/100.1/Newark
WPAT-FM/93.1/Patterson
WADB-FM/95.9/Point Pleasant
WCHR-FM/94.5/Trenton
WKXW-FM/101.5/Trenton
WBSS-FM/97.3/Millville

NEW MEXICO

KKOB-FM/93.3/Albuquerque
KKSS-FM/97.3/Santa Fe

NEW YORK

WAMC-FM/90.3/Albany
WGY-FM/99.5/Albany
WZRQ-FM/102.3/Albany
WMHT-FM/89.1/Schnectady
WSKG-FM/89.3/Elmira
WNEW-FM/102.7/New York
WSIA-FM/88.9/New York
WNYC-FM/93.9/New York
WFUV-FM/90.7/New York
WDRE-FM/92.7/New York
WMRW-FM/98.5/New York
WQRX-FM/96.3/New York
WHCR-FM/90.3/New York
WDFH-FM/90.3/New York City
WRGX-FM/107.1/New York City
WMRW-FM/98.5/New York (Long Island)
WKJY-FM/98.3/New York (Long Island)
WHUD-FM/100.7/Peekskill
WBEE-FM/92.5/Rochester

NORTH CAROLINA

WMIT-FM/106.9/Black Mountain
WUNC-FM/91.5/Chapel Hill
WSOC-FM/103.7/Charlotte
WCXL-FM/104.1/Kill Devil Hills

NORTH DAKOTA

KSSS-FM/101.5/Bismark

KDVL-FM/102.5/Devil's Lake
KRRB-FM/92.1/Dickinson
KFNW-FM/97.9/Fargo
KNOX-FM/94.7/Grand Forks
KQDJ-FM/95.5/Jamestown
KYYZ-FM/96.1/Williston

OHIO

WOUB-FM/91.3/Athens
WGUC-FM/90.9/Cincinnati
WVXU-FM/91.7/Cincinnati
WWNK-FM/94.1/Cincinnati
WCLV-FM/95.5/Cleveland
WCPN-FM/90.3/Cleveland
WGAR-FM/99.5/Cleveland
WENZ-FM/107.9/Cleveland
WKSU-FM/89.7/Cleveland
WLTF-FM/106.5/Cleveland
WZAK-FM/93.1/Cleveland
WZJM-FM/92.3/Cleveland
WMMS-FM/100.7/Cleveland
WLWQ-FM/96.3/Columbus
WDFM-FM/98.1/Defiance
WKRJ-FM*/91.5/New Philadelphia
WGLE-FM/90.7/Toledo
WKKO-FM/99.9/Toledo
WGTE-FM/91.3/Toledo
WKRW-FM*/89.3/Wooster
WKBN-FM/98.9/Youngstown
WHIZ-FM/102.5/Zanesville
WOUZ-FM/90.1/Zanesville
WGLE-FM/90.7/Lima

OKLAHOMA

KSYE-FM/91.5/Frederick
KIRQ-FM/98.1/Lawton
KTST-FM/101.9/Oklahoma City
KXXY-FM/96.1/Oklahoma City

OREGON

KYTE-FM/102.7/Newport
KOPB-FM/91.5/Portland
KKRZ-FM/100.3/Portland
KMCQ-FM/104.5/The Dalles

PENNSYLVANIA

WRTI-FM*/97.1/Allentown/Bethlehem
WITF-FM/89.5/Harrisburg
WRVW-FM/97.3/Harrisburg
WDRE-FM/103.9/Jenkintown
WROZ-FM/101.3/Lancaster
WPLY-FM/100.3/Media
WDAS-FM/105.3/Philadelphia
WFLN-FM/95.7/Philadelphia
WHYY-FM/90.9/Philadelphia
WIOQ-FM/102.1/Philadelphia
WMGK-FM/102.9/Philadelphia
WMMR-FM/93.3/Philadelphia
WRTI-FM/90.1/Philadelphia
WUSL-FM/98.9/Philadelphia
WWDB-FM/96.5/Philadelphia
WXPB-FM/88.5/Philadelphia
WXTU-FM/92.5/Philadelphia
WDUQ-FM/90.5/Pittsburgh
WBZZ-FM/93.7/Pittsburgh
WZPT-FM/100.7/Pittsburgh
WRTI-FM*/97.7/Reading

RHODE ISLAND

WWBB-FM/101.5/Providence

SOUTH CAROLINA

WWDM-FM/101.3/Sumter

SOUTH DAKOTA

KOLY-FM/99.5/Mobridge
KRRO-FM/103.7/Sioux Falls

TENNESSEE

WYPL-FM/89.3/Memphis

TEXAS

KEAN-FM/105.1/Abilene
KNLE-FM/88.1/Austin
KTTX-FM/106.1/Brenhane
KTEX-FM/100.3/Brownsville
KKYS-FM/104.7/Bryan
KORA-FM/98.3/Bryan
KTEX-FM/106.9/Bryan
KAYD-FM/97.5/Beaumont
KQXY-FM/94.1/Beaumont
KYKR-FM/95.1/Beaumont
KCBI-FM/90.9/Dallas
KERA-FM/90.1/Dallas
KNTU-FM/88.1/Dallas-Fort Worth
KPLX-FM/99.5/Dallas-Fort Worth
KSSN-FM/94.9/Dallas-Fort Worth
KVTT-FM/91.7/Dallas-Fort Worth
KYNG-FM/105.3/Dallas-Fort Worth
KDMX-FM/102.9/Dallas-Fort Worth
KEGL-FM/97.1/Dallas-Fort Worth
KBNA-FM/97.5/El Paso
KILT-FM/100.3/Houston
KUHF-FM/88.7/Houston
KRTS-FM/92.1/Houston
KBXX-FM/97.9/Houston-Galveston
KFTG-FM/88.1/Houston-Galveston
KHYS-FM/98.5/Houston-Galveston
KJIC-FM/90.5/Houston-Galveston
KMJQ-FM/102.1/Houston-Galveston
KRTS-FM/92.1/Houston-Galveston
KRTK-FM/97.1/Houston-Galveston
KTBZ-FM/107.5/Houston-Galveston
KLTN-FM/93.3/Houston-Galveston
KLTO-FM/104.9/Houston-Galveston
KMIA-FM/100.7/Houston-Galveston
KRTX-FM/104.9/Houston-Galveston
KJMZ-FM/100.3/Irving
KOOI-FM/106.5/Jacksonville
KYKX-FM/105.7/Longview
KFMX-FM/94.5/Lubbock
KKMY-FM/104.5/Orange
KCRN-FM/93.9/San Angelo
KXTN-FM/107.5/San Antonio
WACO-FM/99.9/Waco

UTAH

KSOS-FM/106.9/Ogden
KSOS-FM*/92.1/Salt Lake City
KSOS-FM*/96.7/Salt Lake City
KISN-FM/97.1/Salt Lake City
KLZX-FM/93.3/Salt Lake City
KSOS-FM*/98.3/Utah County

VIRGINIA

WLTY-FM*/95.7/Norfolk
WNVZ-FM/104.5/Norfolk
WESR-FM/103.3/Onley
WKOC-FM/93.7/Virginia Beach
WCDX-FM/92.7/Richmond

WASHINGTON

KFAE-FM/89.1/Richland
KISW-FM/99.9/Seattle
KUOW-FM/94.9/Seattle
KMPS-FM/94.1/Seattle
KMTT-FM/103.7/Seattle
KXXO-FM/96.1/Seattle
KVTI-FM/90.9/Seattle-Tacoma
KVTI-FM/90.9/Seattle-Tacoma
KDRK-FM/93.7/Spokane
KEZE-FM/105.7/Spokane
KRPM-FM/106.1/Tacoma

WEST VIRGINIA

WHCM-FM/99.1/Parkersburg

WISCONSIN

WIZM-FM/93.3/LaCrosse
WERN-FM/88.7/Madison
WNWC-FM/102.5/Madison
WUWM-FM/89.7/Milwaukee
WMYX-FM/99.1/Milwaukee
WMSE-FM/91.7/Milwaukee

THE LATEST PRODUCTS AVAILABLE AT YOUR FAVORITE DEALER!

AR8000 shocks the market.

AOR made every effort to incorporate the latest technology in to this new scanner.

• SPECIFICATIONS •

- **Range:** .5 - 1900MHz*
- **Modes:** AM/NFM/WFM/USB/LSB/CW
- **Stepsize:** 50Mhz to 999.995kHz
- **Sensitivity(μV):** 30 to 1000MHz
SSB .25 AM 1.0 NFM .35 WFM 1.0
- **Filters:** (kHz) SSB 4 AM/NFM 12 WFM 180
- **Memories:** 50 ch. x 20 banks= 1000 total
- **Size/Wt.:** 6.1 x 2.8 x 1.6 inch. 20 oz. batt. incl.
- * Cell blocked for all, but Approved agencies.
- Ferrite Rod antenna below 2MHz
- Only portable scanner on U.S. market to have true SSB, both LSB & USB.
- Others attempt SSB using a BFO, but are difficult to tune and produce poor SSB audio.
- 4 level alpha numeric LCD read out frequency, mode, signal strength, band scope spectral display, battery low, remote and more.
- Computer control up/down load data, will add a new dimension to the world of scanning.
- Clone your memory banks with a friend, load 1000 memory channels in seconds.



SSE PSU101

Adjustable Desk Charger/ Power Supply 12VDC Version

This quality, custom-designed combination desk charger and regulated power supply unit is perfect for convenient 'Base Station' use of your handheld scanner at home or office!!

- Securely holds scanner in proper position
- Charges radio's internal NiCad w/out overcharging
- Powers radio from standard 117VAC house current



SSE PSU101T

Desk Charger/Power Supply 9VDC Version

- 9 volt version for popular REALISTIC (RADIO SHACK) handheld scanners and others that require a 9 volt DC supply
 - All the same quality & features of the PSU101 12 volt version above!
- For: REALISTIC- TANDY- RADIO SHACK PRO34/PRO37/PRO43 and others.**

For: FIARMATE HP1000E/200E/HP2000

AOR AR1000XLT/AR1500/AR2000

YUPITERU MVT7000/MVT7100

UNIDEN BEARCAT BC50XL/BC55XL/BC70XL/TBC100XL/TBC200XL/TBC205XL

ALINCO DJX1

ICOM ICRI Handheld

REALISTIC-TANDY-RADIO SHACK PRO35/PRO38/PRO41

Computer Interface for the AR8000 & AR2700



Unlike some of the European devices sold today, this unit is smaller, lighter, and makes no power demands on your receiver. With the extra shielding and smaller size there is less chance of additional interference leaking into your radio.

The AR8000INF is also the only interface that is upgradeable for use with the optional Tape recorder controller due first quarter '95.

- △ Low Power, powered by your serial port
- △ No Drain on the batteries in the radio
- △ Light weight, perfect for Laptop use
- △ Hi-Tech Surface mount design for reliability
- △ 100% Shielded cable to receiver for reduced interference
- △ Demo Software included for Windows
- △ Detailed Programers documentation available
- △ Designed and Manufactured in the USA

AR 3000A

Compact, professional quality, wide range monitor receiver



Incredibly wide continuous coverage from 100kHz all the way up to 2036MHz* • Receives all modes • FM, AM, FMW, LSB, USB, and CW - so you'll hear everything! • Superb R.F. performance thru the use of 15 switched discreet band-pass filters with GaAs FET R.F. amplifier, delivers high sensitivity, wide dynamic range and excellent intermodulation rejection • Tuning rates are continuously selectable from 50Hz to 1MHz steps • True professional's choice!

NEW

NEW AR7030

" Superior By Design "



For many years AOR has pressed forward the frontiers of performance and design bringing notable advancements and setting new industry benchmarks for receiver technologies.

No Matter how many new features and facilities are offered, ultimately a receiver will be judged on how well it receives! It is for this reason that we can feel so confident of this receiver's success and notability. Contact your favorite Dealer for details and specifications.

AOR

SIRIO

Jim
PROFESSIONAL SERIES

"The New Star" AR 2700...
Out of this world Wideband Scanner
 The new AR 2700 from AOR is another break-through for general coverage scanners at an affordable price.

• FEATURES •



Wide frequency range: 500kHz to 1.300MHz with various step size. 5, 6.25, 9, 10, 12.5, 20, 25, 30, 50, & 100kHz (wide FM only).
Auto Mode tuning: Comprehensive band plan has been pre-programmed to simplify the operation. The AR 2700 will automatically select the appropriate mode and channel step.
Great flexibility in programming: for Scan and Search mode. Delay, Pause and Priority intervals can be set to a specific value. Program search, Manual search, Bank link, Delay, Pause, Pass, Scan, Bank delete, Priority are provided.
High Capacity: 500 channels into 10 banks and 10 search banks.
Optional Digital Voice Recording: 20 seconds of digitized recorded conversation and playback through the use of the RU-2700 option.
Computer control port may be connected via an optional adaptor to a computer for remote control of the AR 2700.



AR5000 CYBERSCAN...
The Ultimate Receiver

Join the AOR Revolution with high tech, state of the art receivers

Never before has there been so much in such a small package. Hear naval submarine command and control at 21.4kHz, push a button and copy GOES WX Satellite 1691MHz.



AR5000 Specifications

Frequency Range:10kHz - 2.600MHz
 Receiving Mode:FM, AM, LSB, USB, CW, Special
 I.F. Bandwidth:3kHz, 6kHz, 15kHz, 40kHz, 110kHz, 220kHz, 0.5kHz (Opt.)
 Triple Conversion:I.F. 622.2, 10.7 & 455MHz
 Frequency Stability:±1ppm (0 to 50C) ext OSC jack
 Antenna Impedance:50-Ohm (N, BNC)
 Programmable Step:1Hz to 999.999kHz
 Search/Scan Speed:50 steps/second (less than 100kHz steps)
 Power Supply:DC 12V, (<1A) 120VAC adaptor incl.

Adjustable SSE
BHA3 (C)



Universal base stand for handheld scanners and transceivers

- Heavy chrome base for extra stability, even with heavy handhelds.
- Adjustable front support stop which adjusts to fit all popular handheld scanners and transceivers.
- Convenient rear panel BNC connector for external antenna attachment - Use a short jumper to your radio and remove stress of large external antenna cable from your handheld's connector.
- Deluxe felt-lined radio tray that won't hurt your handheld's finish. BHA3 C comes with cable.

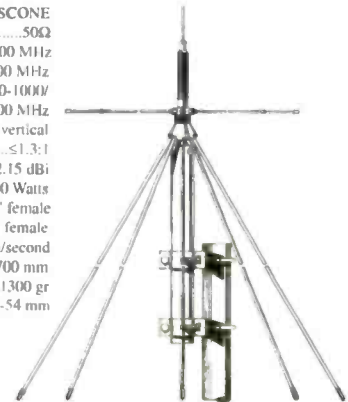


SIRIO SD1300 U/N

Wide-band discone antenna working on 25-1300 MHz in reception and on many amateur frequencies in transmission (6m, 2m, 1 1/4m, 70cm, 33cm, 23cm). It is made of stainless steel, chromed brass and anodized aluminium to guarantee the best efficiency and performance. Easy to fit, it can be suitable for the installation everywhere. The vertical whip can be removed whenever the 25-50 MHz frequency is not required. Two versions are available: SD1300 U with UHF-female connection, and SD1300 N with 'N' female connection.

Technical Data

Type:VHF-UHF wide-band DISCONE
 Impedance:50Ω
 Frequency range:Rx 25-1300 MHz
 VHF Tx Band:49-51/120-180/215-300 MHz
 UHF Tx Band:415-465/610-650/710-1000V1130-1300 MHz
 Polarization:vertical
 S.W.R. at freq. res.:≤1.3:1
 Gain:0 dBd - 2.15 dBi
 Max Power:VHF 300 Watts, UHF 200 Watts
 Connection:SD 1300 U- "UHF" female
SD 1300 N- "N" female
 Wind resistance:40m/second
 Length (approx):1700 mm
 Weight (approx):1300 gr
 Mounting mast:ø 25-54 mm



NEVADA ANT423 Mag Mount Mobile

Complete and ready to go, magnetic mount, ultra wideband mobile scanner antenna. Super wideband performance with excellent reception from 100kHz to over 1000MHz.

- Flat black and chrome custom finish, looks great on today's cars.
- Compact, only 18 inches overall, yet really pulls in the signals
- Extra heavy duty magnet mount with thick, full coverage rubber boot to protect your cars finish.
- 16 feet of RG58/U coax cable complete with attached BNC...Ready for direct connection to your favorite scanner!



Jim M-51

Specifications:
 Frequency Range: A band 225MHz-1300MHz
 B band 108MHz-174MHz
 C band 24MHz-1500MHz
 Gain: 0 to +20dB (24-1000MHz)
 Power Source: 3V (batt. UM-4 x 2)
 12V (external DC)



Jim M-75

Specifications:
 Frequency Range: A band 225MHz - 1500MHz
 B band 108MHz - 185MHz
 C band 24MHz - 2150MHz
 Gain: -10 - +20dB fully adjustable
 Power Source: 9V battery PP3-006P etc.



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In The Air And On The Air

Tune In Medevac Helicopters On Life-Saving Missions

BY CHUCK MANKIN

It was another miserable rainy night outside and I sat intently listening to my scanner. The chatter from an auto accident on the interstate nearby filled the room. The words of the flight nurse aboard the medevac helicopter caught my attention as she gave the report to the trauma physician over the radio. She told him that they were inbound with an eight-minute ETA with a 22-year-old male who had been the unrestrained driver of a pickup truck involved in a head-on MVA. He was unconscious upon the arrival of ground EMS. His pupils were unequal and he was unresponsive to all stimuli.

She indicated that he had a large knot on the front of his forehead and a broken jaw. His airway was intact and he was intubated by ground EMS prior to the helicopter's arrival. His belly was soft, and there were no deformities of the extremities. His pulseox was 99 percent on 15 liters per non-rebreather. He had been given 5 milligrams of Versed prior to flight and had two large-bore IVs running TKO.

The doctor questioned what the BP was; the nurse replied 134 over 96, and that his pulse was 100. He advised that he had no further questions and would see them when they arrived. Then the dispatcher's voice came on stating that the patch was clear and confirming a hot offload.

Many live in areas that are served by one or more medical evacuation helicopters. Most are operated by area hospitals, although in some areas state or local police handle this service. These services all utilize radios to communicate with their ground units whether it's a state or county communications center or a communications center operated by the hospital exclusively for helicopter operations. Many communications centers are not only responsible for dispatching the helicopter, but for making contact with the receiving hospital and checking weather conditions both at the accident site and at the receiving hospital. Dispatchers are highly trained professionals who take calls for helicopter service from dispatchers at local commu-



Philadelphia's PennStar medical helicopter touches down in a field.
(Photo by Chuck Mankin)

nications centers and hospitals throughout an area that may need to have a critical patient flown to a hospital better equipped to handle a particular problem.

Monitoring these helicopters can be very exciting for scanner listeners. Because of the large area covered, most services operate multiple repeater or transmitter sites to handle their communications needs. This—combined with the helicopter being above most things that will block signals from ground units—makes for good listening far from the accident scene.

Learning The Lingo

To the listener who has no involvement in EMS or no medical background, these transmissions can sound like a foreign language. This is an attempt to give listeners some insight into the world of medevac and emergency medicine. The conversation between the flight nurse and the trauma center doctor is really pretty straightforward once you are familiar with the medical terminology.

To decipher the original incident described above:

The patient was driving a pickup truck

that was involved in a head-on collision and was not wearing his seatbelt. The fact that he was unconscious indicates that he probably had a head injury. This further was indicated by the fact that his pupils were different sizes. Being unresponsive to all stimuli means that he did



This is the patch that the flight crew wears on its uniforms aboard University MedEvac helicopters in eastern Pennsylvania.

Medical Helicopter Frequency Sampler

462.975—Delaware State Police medevac (Note: Patient reports are done on UHF MED channels; Trooper 4 is in New Castle County)

44.74—Maryland State Police medevac SYSCOM (Trooper 1 is in northeast Maryland)

44.76—Maryland State Police medevac patient reports

155.385—PennStar F-1, Philadelphia, Pa.

155.355—PennStar F-2, Philadelphia, Pa.

155.325—SkyFlite Care, Coatesville, Pa.

155.220—University MedEvac, Philadelphia and Allentown, Pa.

not react when spoken to, yelled at or pinched.

Even though his jaw was broken, it was not interfering with his breathing. As a precaution, he was intubated, meaning that a tube was placed down his throat into his trachea to assure that he will continue to be able to breath. He was being given 15 liters of oxygen though a face mask that captures the carbon monoxide that he breaths out and which was giving him 99 percent oxygen saturation in his blood. A check of his arms and legs indicated that there were no obvious breaks and a check of his stomach revealed that it was soft, which is normal vs. hard when there is bleeding inside the abdominal area.

He had two intravenous lines in him that were using the largest size intravenous catheters possible. These were flowing fluid into his veins fast enough to keep the IV line open. This is the minimum that an IV can be set at, which means that they are in place more for future need than for any immediate purpose. The flight nurse gave him 5 milligrams of a drug called Versed, which acts as a sedative so he will not struggle and thrash around inside the helicopter. The term "hot offload" refers to unloading the patient with the helicopter running rather than waiting for the rotors to stop turning to do a cold offload.

More medical terminology can be found in the accompanying list. Also, a good advanced first-aid course not only will help you better understand what you are hearing, it may help you save someone's life. Contact your local American National Red Cross chapter for more information on first-aid courses.

Tuning In

Monitoring these helicopters is easy in most areas. In the Philadelphia area, there are three medevac helicopters. University

MedEvac operates two helicopters—MedEvac 1 from Lehigh Valley Hospital Center near Allentown, Pa., and MedEvac 2 from Hahnemann University Hospital in Philadelphia. The University of Pennsylvania operates PennStar from the Hospital of the University of Pennsylvania in Philadelphia, and also supports two medevac aircraft operated by the New Jersey State Police. Northstar covers northern New Jersey and Southstar covers southern New Jersey. Brandywine Hospital near Coatesville, Pa., operates SkyFlight Care, which covers most of Chester, Lancaster and Berks counties, as well as parts of Montgomery and Delaware counties to the north and west of Philadelphia.

Delaware and Maryland are covered by medevac helicopters operated by their state police units. Delaware's Trooper 4 covers New Castle County from the New Castle County Airport. Meanwhile, Maryland's Trooper 1 covers Cecil County and the surrounding areas from Middle River, outside of Baltimore. The frequencies for these helicopters and their locations can be found in an accompanying list.

Aircraft band frequencies also are used by medevac helicopters. Try 123.000, which is the Unicom air to ground frequency, and 122.750, which is a common air-to-air frequency for helicopters and small planes. Another place to look is on the frequencies for any airports in your area. The universal call sign for medical aircraft is "Lifeguard."

Generally, if you are searching out the frequencies used by medical helicopters, be sure to search out the medical frequencies at 155 MHz, as well as the MED channels at 463 and 468 MHz. In some instances, such as in New Jersey, even 800-MHz channels are used.

This information will help you get started in monitoring medevac communications. A good medical dictionary is a great help for unfamiliar terminology. Also many book stores carry the text books used for

Medical Glossary

AED—Automatic electronic defibrillator, which is a unit that checks a person's heart rate and delivers an electric shock to the heart if needed.

Alert and oriented times three—Person is awake and knows who he or she is, where he or she is and what day or date it is.

ALS—Advanced life support, a level of care that provides for advanced care such as IV therapy, heart monitoring and defibrillation, plus drug therapy.

Anterior—Medical term for the front of the body.

Backboard—A hard board that keeps a person's spine straight to prevent further injury.

Bagging—Breathing for the person using an ambubag to pump air into the lungs.

BLS—Basic life support, a level of care just below ALS that provides for the needs to sustain life (breathing, circulation and stopping severe bleeding).

BP—Blood pressure.

CA patient—Shorthand for a person who has cancer

Cervical—The area of the spine from the base of the head to the top of the shoulders

C-collar—Short for cervical collar, which is used to hold the head and neck in place to prevent any further injury to the cervical spine area.

CID—Cervical immobilization device, which is two foam rubber blocks used to keep a person's head from moving from side to side on a backboard.

COPD—Chronic obstructive pulmonary disease; example: emphysema and asthma.

C-spine—Short for the cervical spine.

CVA—Cerebral vascular attack, a medical term for a stroke.

Defibrillation—Shocking the heart with electricity to return it to a normal rhythm.

ET tube—Endotracheal tube.

GSW—Gunshot wound.

MVA—Motor vehicle accident (car wreck).

PEARL—Pupils Equal and Reactive to Light.

various emergency medical courses, including first responder and emergency medical technician (EMT). These can be somewhat expensive but can be a great help in finding out what is really going on during the medevac flights. ■

Clandestine Communique

WHAT'S NEW WITH THE CLANDESTINES

Here Are Some Tough Ones To Try Snagging

We'll start with information on a particularly tough one for North American clandestine hunters to pick up—The Voice of Kashmir Freedom, which airs programs in Urdu on 5300, 5750 and 6300 between 0230 and 0300, as well as on 4115, 5300 and 6300 in Kashmiri from 1530 to 1730. Their address is P.O. Box 102, Muzaffarabad, Azad Kashmir via Pakistan.

Rarely reported is the Radio of the Provisional Government of the National Union and Salvation of Cambodia, formerly the Voice of the Great National Union Front. It was tentatively heard at around 1200 on 5407, apparently in Khmer or one of the Cambodian indigenous tribal languages.

Still being reported is the anti-government Voice of Sudan, on or very near 8000, running from 1715 to sign-off around 1915 or slightly past. This is an all-Arabic broadcast. As we've mentioned before, the government-run station likes to follow this one around to try and confuse listeners, so don't jump to quick conclusions about what you are hearing. The Voice of Sudan also is using 8000, 9000 and 10000 at 0400-0600, which is probably an easier time frame for us. New information indicates that this station may be transmitting from Eritrea.

Abkhaz Radio, in Abkhazia, a part of the former Soviet Republic of Georgia, is active on 9495 and 9585, but the daily sign-on time varies considerably. The schedule may run from 0400-0535 or 0430-0510. Abkhazia desires independence from Georgia.

Steve Pellicciari in Connecticut monitors anti-Castro La Voz del CID on 6305 with an interval signal and station ID in Spanish at 0702. Steve finds Radio Marti on 6030 at 0000, as well as 9825//11930//13820 in Spanish to Cuba at 1700. He says 9825 gets quite a bit of periodic jamming. Steve also notes some unusual signals on 9969, 11542 and 12066, seemingly 24 hours a day. They consist of open carriers, except for a brief burst of apparent radioteletype once each hour. Don't know what this is, Steve, though it's probably not clandestine-related. Does anyone know?

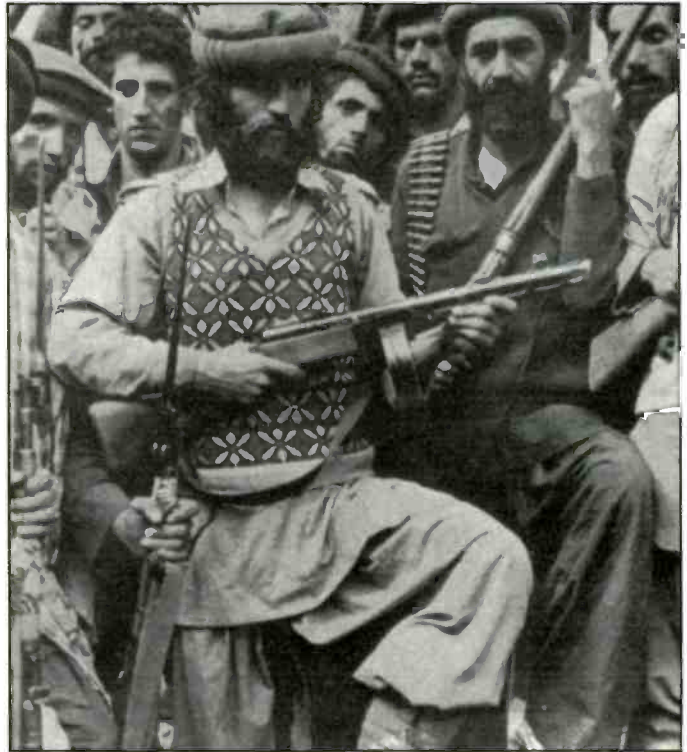
Radio Denge Medya is broadcasting to Kurdistan from a Russian transmitter site. It is using 11985 from 0800-1100 and 1300-1600. 9855, which had been in use earlier, has been discontinued. Another frequency to check is 15255.

A new Afghan clandestine station is the Radio Voice of Sharia (Islamic Law), operating variously on 7000, 7060, 7070 and 7090 from 0300-0420, with broadcasts in both Pashto and Dari. The content seems to support student movements and the Taliban Islamic movement in Afghanistan.

Another Afghan, Radio Message of Freedom, now uses variable 6235 instead of its former 7090 (note above). Its broadcasts begin at 0230 (or as late as 0255) and run to between 0345 and 0410. The station also is on the air from around 0730 to about 0900. The station supports the opposition Islamic Party.

The Voice of Oromo Liberation is being broadcast now over a transmitter in Russia. This is currently on the air on Mondays, Wednesdays and Fridays from 1600-1700 on 5960, which makes reception in North America unlikely. These broadcasts were aired over WHRI for a couple of months sometime ago. The announced address is: Voice of Oromo Liberation, P.O. Box 510610, 13366 Berlin, Germany.

Republic of Iraq Radio/Voice of the Iraqi People, which opposes Saddam Hussein, is operating now on 9380, perhaps in parallel with variable 9570 and 15135, and audible in North America



The Soviet-Afghan war has been over for years but, politically, things still are unsettled and another Afghan clandestine has come on the air.

during the late morning and early afternoons. These broadcasts are a bit unusual in one regard—they apparently are aired over transmitters in three different countries: Saudi Arabia, the United Arab Emirates and Qatar. It seems more than likely, then, that the transmissions have the approval of the government involved.

Radio Echo of Hope, the South Korean clandestine beaming to North Korea, is scheduled now from 0900-1800 and 2000-2300 on 3985 and 0300-0600 on 6348. The station is said to be transmitting from Kimpo, South Korea.

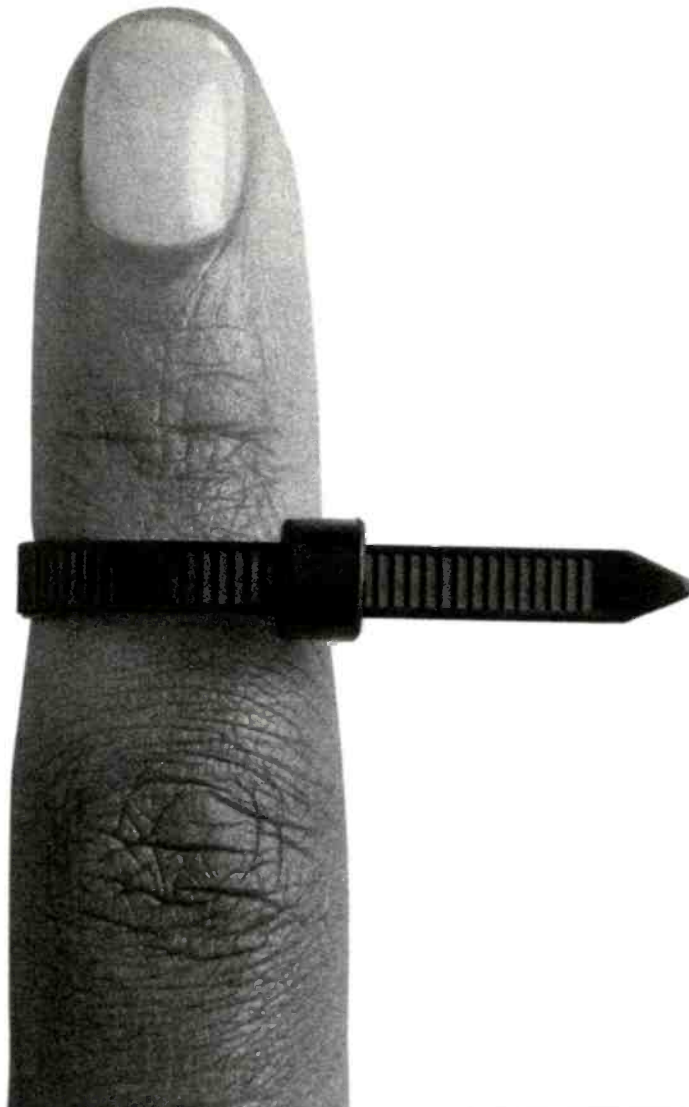
Radio Mogadishu—the Voice of the Masses of the Somali Republic—is using 6880 instead of its former 6870.

We eventually may see a new anti-Iraqi station on the air from Syria. The Iraq Military Industrialization Organization's former director, who defected to Jordan last year, is reported to be planning to set up a station that would beam to Iraq. Jordan has told him he can't construct it there, but apparently Syria has said yes. Not only that, but it's claimed that Washington has promised financial help for the project, using funds taken from Iraqi assets that remain frozen by the U.S. government.

That covers the clandestine news for this time. Remember that your informational input always is welcome. That includes clandestine station loggings, schedules, address information and other station activities.

Until next month, good hunting!

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The Optoelectronics Scout

My wife gets a big kick out of my activities as POP'COMM's Checked Out columnist. She tells me I walk around the house like a kid at Christmas time. Well who wouldn't? Every few weeks I arrive home from a hard day at the office to discover a box delivered by UPS or FedEx. Whenever this happens, I get to open the box and discover the new toy I get to play with for a while. Recently, I excitedly opened one such box that revealed the Optoelectronics Model 40 Scout Frequency Recorder. This is a toy I have wanted to play with for a long time.

Anybody who has been involved in VHF/UHF scanning knows that "frequency acquisition" is an ongoing process. For many years, this process was best accomplished by laying in wait with a traditional frequency counter, hoping that a likely subject would key up his or her microphone long enough for the scannist to read the frequency off the counter's readout. You had to be quick and your attention never could waver. A blink of the eyes at an inopportune time could result in the need to wait around that much longer to catch the desired frequency.

Then there is the problem of occasionally needing to explain what you were doing to people who are in a position to observe your frequency quest. Sitting at a shopping mall—staring at a frequency counter—could result in being thought of as eccentric at least or, at worst, a public nuisance worthy of ejection. This guided exit probably would come at the hands of the very security forces whose frequency you were seeking in the first place.

Anyone in the hobby who ever has had to do a bit of fast talking to explain their frequency-seeking escapades now can breath a sigh of relief. The Scout allows the scannist to proceed with his or her frequency searches with little fear of discovery and no chance of being branded as an eccentric, at least for your radio hobby activities.

It Does The Task

The Scout attacks the basic problems of frequency acquisition head on. This device has the ability to capture frequencies and store them for later evaluation, all without user input or attention during the frequency search. In other words, you set the Scout



The Optoelectronics Scout

Price: \$449

Contact: Optoelectronics,
5821 NE 14th Ave.,
Fort Lauderdale, FL 33334
Phone: (800) 327-5912

for its desired functions, stick it in your pocket and then go about "normal" activities while the Scout does all the work. This ability to conduct frequency searches in the "stealth" mode sets the Scout apart from any frequency counter I previously have experienced.

I'll give some examples of using the Scout under real world conditions, but first let's take a look at the device and some of its features. An obvious place to start is the unit's diminutive size. It has a sturdy metal case that is only 3-3/8 inches in height, 2-5/8 inches wide and 1-1/4 inches deep (1-7/8 inches deep with installed belt clip). On the whole, it is not much larger than a beeper and mine even has been mistaken for such a device on several occasions. The recommended DB32 antenna adds only 1-7/8 inches to the overall height of the unit. The Scout's small size allows it to be placed easily in a jacket pocket or purse for concealed operation. The Scout fits comfortably in the hand and even can be operat-

ed by that same hand's reasonably dexterous thumb with little difficulty.

All of the Scout's functions are managed by three switches and one button. Information is provided to the user by way of a multifunction 2-1/8-by-3/4-inch LCD panel (with switchable backlighting) supported by two small red LEDs. There is a standard size BNC connector for the antenna, jacks for power and serial data interface that conforms to the ICOM CI-V standard. The unit has an internal NiCad battery pack and comes with a traditional "wall wart" charger power source.

First among the Scout's functions is that of frequency counter, with an operational range of 10 MHz to 1.4 GHz. In what is known as normal mode, the Scout operates in the same manner as a traditional "free-running" counter. The unit has four gate settings, allowing for gate times from 800 μ s through 800 mS and measurement resolutions between 10 kHz and 10 Hz. This is more than adequate for the needs of most hobbyists. I've used the Scout in normal mode to set the operating frequency on several experimental circuits on my workbench. The RF signal-strength bargraph on the Scout's LCD front-panel display further aids this process. This signal-strength metering concept is carried over from Optoelectronics line of frequency counters and is very useful in many applications. If you enjoy "hidden transmitter" or "bug" hunting, the Scout's 16-segment bargraph readout married to a directional antenna will put you ahead of the pack.

Filter mode allows the counter to operate in normal mode with the addition of a special digital filtering algorithm. This reduces the frequency counter's response to noise and false signals. By filtering out unwanted signals, the Scout is able to get a more accurate accounting of the frequencies you intend to capture. Stray signals no longer are mistaken for "hits."

Now we come to the primary feature that takes the Scout beyond the realm of more traditional frequency counters. The capture mode allows the Scout to store up to 400 different frequencies in its memory. In addition, it is able to record up to 255 separate "hits" on each of the 400 stored frequencies. In the capture mode, the Scout can be set to signal the user each time a new frequency is captured and each time a "hit" is recorded. This can be set as

either audible "beeps" or by way of a silent pager-style "vibrator." In vibrator mode, the Scout can be used in complete privacy.

The possibilities the capture mode feature represents could be dreamed of only a few years ago. The most obvious (and most desirable) feature is the simple ability to capture frequencies at all compared to traditional frequency counters. Just stick the Scout in your pocket and head into any "frequency-rich" environment. You'll soon have a bunch of frequencies to load in your scanner for examination. But the Scout lets you go beyond simply capturing those frequencies. The features allow the user to discriminate between highly active frequencies (those that have a high number of "hits") as opposed to those with minimal activity (one or two hits). The total of 400 available frequencies is in keeping with many currently popular scanning receivers. It is conceivable that you could use the Scout to get all the information you need on locally active frequencies. A few sessions with the Scout will no doubt turn up frequencies that do not appear in any of the popular resources. Your knowledge of the local scanning environment will be greatly enhanced by use of this feature.

What A Reaction

The Scout also supports "Reaction Tuning" of several popular receivers, including the Icom R7100 and R9000, also AOR's AR2700 and AR8000. RadioShack's Pro-2005, 2006 and 2035 scanners also can be tuned with the addition of Optoelectronics OS456 or OS535 respectively. Using this feature, frequencies passed through the Scout automatically are placed in the memory locations of any of the above-mentioned scanning receivers. This is accomplished by connecting the scanner to the CI-V port on the Scout. The ICOM CI-V interface standard is an asynchronous TTL protocol that can allow the Scout to communicate with personal computers as well as the above-mentioned receivers.

Optoelectronics also offers their Model CX12AR interface converter that allows the Scout to connect directly to a standard RS-232C port. The Scout comes with software to allow downloading of its stored memories to a PC by way of such an interface. Computer analysis of the Scout's output has countless possibilities in the area of frequency use.

Let's take the Scout out for a "test drive." The first experiment I conducted was literally a test drive. I clipped the Scout to my dashboard and went for ride. An hour of cruising my local environs turned up 37 frequencies, most with multiple hits. Among them were two new signals. Plugging these into my scanner revealed the activities of an asphalt contractor resurfacing a nearby road. Running my scanner in a search mode might have missed these

signals if the receiver just wasn't in the right place at the right time. The Scout works like a frequency counter rather than a scanner enabling it to zero in on these frequencies and store them for me.

I work in a facility that uses radio communication on eight frequencies. I hung the Scout on my belt through a morning's work. At lunch time, I was able to get a notion of the relative use of these frequencies by checking the hit count on each. Using the Scout to conduct use analysis such as this opens dozens of possibilities for both the hobbyist and the radio communications professional.

I am an avid "tower chaser" by nature. In the past, I conducted these investigations using a traditional frequency counter (an earlier Optoelectronics Model 2810 to be exact). This process was made much easier with the Scout. If the tower was fairly active with multiple antennas (such as what might be found at a public safety center), the traditional scanner might change display between signals so rapidly that I would become confused by the readout and possibly miss something. The Scout can react with greater speed than I can and it simply stores all the active frequencies on the tower.

I also couldn't pass up the chance to conduct "stealth" operations with the Scout. A nearby mall had just changed security services. I checked several resources and came up with no good intelligence on their operating frequencies. No problem. I just set the Scout for vibrator operation, stuck it under my jacket and went for a stroll through the mall's shops. After spending a little less than an hour being a consumer, the Scout provided me with the frequencies I needed to add this mall to my scanner's memory banks. One bit of advice from my experience: Try out the vibrator mode before you actually go "undercover." The first time the vibrator went off to signal a captured frequency, it startled me. With a little practice, your only reaction to its mild vibrations will be a knowing smile whenever a hit is recorded in memory.

Test Drive

I was able to experiment with the Scout's Reaction Tuning feature thanks to the fact that the folks at Optoelectronics provided me with an AOR AR-8000 receiver for my tests. Reaction Tuning is about as close to an addictive experience as I ever have found in the radio hobby. The Scout connects to the AR-8000 by a simple cable. With both units set to work with one another, I went for yet another drive through the frequency-saturated streets of Philadelphia, Pa. A trip through the center of the city found the Scout happily loading new-found city frequencies into the AOR's memories. The reaction tuning feature seems to be just the ticket for anyone who

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Serendipitous Occurrences

As I mentioned in the article, the good folks at Optoelectronics were nice enough to send along the AOR AR-8000 to allow me to put the Scout through all its paces. Being of a curious nature (and always sniffing around for the next column), I got permission to hang on to the AOR for a while longer so I could give it a good going over for Checked Out. So let's plan to meet right back here next month and I'll give you my thoughts on this powerful handheld "DC-to-daylight" receiver.

travels a great deal and still wants to enjoy the scanning hobby. Instead of sitting in your hotel room working your fingers to the bone entering frequencies into your scanner, the Scout can do the hard work for you. And unlike that frequency list you had from some previous trip, the Scout's reaction tuning gives you up-to-the-minute frequency accuracy.

The Scout is a serious tool for the serious scannist. It packs a lot of features in a small package. It represents a "license to steal" any frequency that comes its way. Once you use the Scout, you'll find it hard to live without it. ■

Telephones Enroute

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

Technology Marches On!

Transcontinental railroads were a giant step beyond conestoga wagons. When they were built, they allowed the industrial revolution to begin. Railroads cut months off east-west travel and helped create and settle hundreds of new inland communities. People used trains for travel and shipping, but complained about how the tracks destroyed the looks of the countryside, how the noisy locomotives belched soot and how they ran over cattle.

One thing can be said about every technological advance. The better it is, the quicker the public realizes its benefits. But there are no free lunches. Every advance has at least one side effect folks don't like. What to do? "Is a puzzlement," said the king of Siam.

A modern case in point is the phenomenal usefulness, success and growth of personal communications services over the past dozen or so years. The expanding cellphone and beeper services are blazing amazing trails, and inspiring the creation of numerous other advanced personal communications services utilizing UHF frequencies. The public is delighted

to have these available.

Sadly, it hadn't occurred to people that more UHF services meant an increasing number of antennas and towers peppered across city skylines, suburban treetops and bucolic landscapes. When cellular was starting out in the early 1980s, they hadn't yet erected enough antennas and towers to draw attention to the structures. Now, cellular suppliers are expanding and improving their signal coverages with additional cell sites. Also, there are UHF beeper services springing up that require high antennas, as well as other new UHF services, plus SMR, public safety, etc.

To say that the public is getting bent out of shape about this would be an understatement. For instance, in Lancaster, Pa., local residents are in a snit. A story by David O'Connor in the *Lancaster New Era* tells how "some residents say that the tall, dominating structures are a blot on the landscape. The towers also have spurred as-yet-unproven worries about health risks, such as cancer. Others ask what would keep a tall, thin tower from blowing down in a serious storm."

The newspaper confirmed that Montgomery County, Pa., located in suburban Philadelphia, is in a constant state of cell site expansion. The county issued guidelines suggesting that cellular companies not erect towers, but use alternative mounting platforms such as smokestacks, water towers and tall buildings. Manor Township, Pa., passed an antenna zoning law aimed at inhibiting new towers. Proposed towers must meet strict location, necessity, size and construction requirements, otherwise the antennas must use existing support structures.

The Lancaster area is merely one of many places where similar problems are starting to arise.

Fact is, people are using these communications services so much that the companies furnishing them must expand their facilities to meet the public's growing needs. Meeting the public interest, need and necessity is a licensee's FCC mandate.

Service suppliers don't mind expanding because they want to increase their business. That's one of the main reasons they operate. Apparently people think the sup-



Motorola's new StarTAC cellphone is smaller than a tape cassette!



When the Motorola StarTAC is opened, it turns into a really great looking communicator straight from the deck of the Starship Enterprise.



Shown above is England's Zonephone, an 800-MHz digital communications service offered as a low-cost alternative to cellphones.

pliers can now dig trenches and bury their unsightly service delivery technology to remove it from view, same as the phone, electric, water, gas, cable TV and sewer utilities. That's not going to happen.

I live in a coastal area that's had some bad hurricanes. A few years ago, the local NOAA office wanted to upgrade its wide-area weather radar to a powerful new NEXRAD system that would be more effective in regional weather and hurricane forecasting. NOAA wanted to construct it on the site of its previous weather radar system. The public appreciated what NEXRAD promised, but nobody wanted it near their property. People whined about how the NEXRAD system and tower would decrease property values, look ugly, cause illness and interfere with TV reception. NOAA ended up building NEXRAD miles away on Department of Energy property.

Pity the poor public. People want to live like Buck Rogers in the 25th century, yet

look out their windows and see Carrier and lves prints. Though enjoying the benefits of the latest technologies, the public never could stomach being near or even looking at the hardware that provides those miracles! Don't you feel just awful about that? A blight on the landscape! Imagine?

POP'COMM's Tim Kridel sent me a relevant clipping by Colleen Bradford that appeared in the *St. Louis Post-Dispatch*. It tells how Valmont Industries of Valmont,

Neb., is successfully marketing incognito cell-site antennas designed to look like pine trees and palm trees. Stealth Network Technologies of Columbus, Ohio, takes another approach. They conceal cell-site antennas inside church steeples, silos, air-conditioning units, outdoor display signs, bell towers and other similar things.

Personally, I'm fed up with the public's whimpering. Somewhere along the line the public is going to have to get a reality check



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Ref: Rye Canyon Antenna Lab File #870529

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

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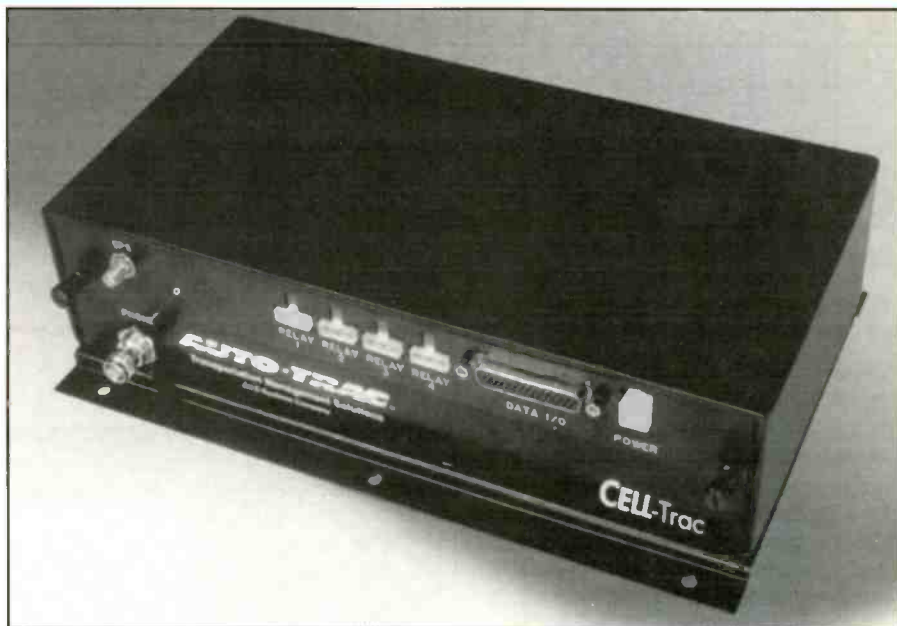
about present-day communications technology. My opinion: Any community that detests UHF antennas and towers should be welcome to ban them, but then be obliged to revert to communicating only via hardwired landline phones, a 110-year-old technology.

If you have your own thoughts about this, I'd very much like you to share them with me. Drop me a note in care of Telephones Enroute, or address e-mail comments directly to me at k2aes@aol.com.

Unexpected Interference

Last year the FCC allocated 15 base and 15 non-paired handset frequencies for use by so-called "46-/49-MHz" cordless telephones. The idea was to provide relief from the interference, crowding and congestion on the 10 channels previously allocated for cordless phone use.

The 30 new frequencies permitted for the low-power cordless phones previously had been designated for the exclusive use of several different licensed land mobile radio services. Under the new arrangements, cordless phones would share the use of the frequencies with licensed stations. The FCC required that the licensed stations be protected from interference from cordless phones on the new frequencies. This is ac-



Cellular technology combines with GPS to provide vehicle tracking and other services in this Cell-Trac unit.

complished by an automatic channel selecting mechanism that prevents operation on any occupied frequency.

The American Petroleum Institute (API), representing a number of the licensees using those frequencies, asked that the FCC reconsider the new regulations. API noted the cordless phone automatic channel switch is required to work only on frequencies not in use by licensed stations. Still, they complained that this didn't protect licensees in the case when one of them attempts to operate on a frequency already in use by a cordless phone. Their suggestion was that the FCC require new 25-channel cordless phones to carry labels on the packaging and phone itself warning of possible interference to the phones from licensed stations, and that such interference must be accepted.

The FCC turned down the API's request, stating it was unlikely that low-power cordless telephones would be a potential source of interference to land mobile service licensees. Furthermore, the FCC pointed out that existing general information supplied with cordless phones advises users that the devices are subject to interference from other stations.

Speaking of Advances

Motorola's new Signature Series' StarTAC handheld cellphone is described by the company as being "wearable." This little thing weighs about 3 ounces, making it 21 percent lighter than Motorola's MicroTAC Elite, the company's previous record holder. In a package smaller than an audio cassette, it's 43 percent smaller than the MicroTAC Elite. When opened to full size,

the StarTAC phone comfortably maintains the proper ear-to-mouth ratio.

With new miniaturized Lithium Ion batteries that provide talk time equal to batteries double their size, the StarTAC can be worn in a holster taking up no more room than a beeper. It's the first set to operate with two removable batteries at the same time. When one battery's power is used up, the second battery automatically kicks in to provide uninterrupted service. With its batteries attached, the StarTAC has four hours of continuous talk time and up to an incredible 47 hours of standby service. Because the batteries are nearly half the size of those previously available, two or three can be conveniently carried along.

There's a "Smart" button, allowing simplified one-hand use of the phone. Another feature is one that vibrates to announce incoming calls silently rather than via usual ringer, and there's a headset jack for hands-free operation. For gadget freaks, StarTAC is available with a wide variety of optional accessories.

Check out this bad boy at dealers handling Motorola cellphones.

Zonephone

Steve Whitt, a reader in Suffolk, England, sent in literature about Zonephone, a novel personal communications system in the United Kingdom. A Zonephone is a handheld portable transceiver intended to communicate through base sites organized in a network. This network has sites in major cities such as London, Manchester, Birmingham, Bristol, Liverpool and Manchester in England, as well as Glasgow and Edinburgh, Scotland. Sites also are locat-



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ed along the main traffic arteries between these cities.

Zonephone is a service intended as an alternative to cellular. This system is digital, and it can't compete with cellular because it doesn't offer roaming capabilities. This deliberate simplicity is intended to keep costs down.

Zonephone transceivers put out 10 mW in the 864-868 MHz band, offering full duplex operation. An external antenna does not protrude from the device. The phones have push-button dialing requiring a PIN code be used before a call can go out. They have 40 hours of standby time on a single battery charge, and take four hours for a recharge.

An excellent feature is that if a phone is lost or stolen, it can be remotely disabled until it is recovered. Users are able to arrange for limiting calls to local only, and even can make prior arrangements that limit their usage to a certain maximum monthly cost.

Here's another feature. You can get your own home or office base station, allowing you to use up to six handsets like cordless extensions. Each phone has its own 10-number memory and shares a 20-number memory with other handsets. Of course, Zonephones are authorized for use only in the United Kingdom.

According to the literature Steve passed along, Zonephones are from Ferranti Creditphone Ltd., P.O. Box 3, Manchester, M10 0PZ, England.

Tracker

Transportation Management Solutions introduces the Cell-Trac to its Auto-Trac product line of vehicle-locating systems. Fleet owners and dispatchers can use it to secure vehicles, protect people and cargo, improve service and improve management.

The device calculates the vehicle's location, speed and direction once per second, and transmits the information to a fleet control center. Vehicles equipped with Cell-Trac can be monitored around the clock, and anywhere there is cellular service.

TMS owns a patent that covers transmission of GPS satellite data combined with status, event or conditions that can be reported over the cellular phone network. The Cell-Trac unit contains a cellphone, modem, GPS receiver, microprocessors and eight optically isolated sensory inputs. Four programmable RS-232 ports allow for security alarm hookup and a door lock/unlock function. Four relays can be programmed to support RF-transmitted, hidden "panic buttons," and fuel-kill buttons. Other options are cellphone handset, monitor-only capability, backup battery and mobile data terminal.

This comes from Transportation Management Solutions, 6250 LBJ Freeway, Suite 201, Dallas, TX 75240; phone (214) 392-1300. When my wife lets me buy the

black Ferrari, one of these puppies definitely will be my next purchase. Add a pair of fuzzy dice hanging from the mirror and I'll be king of the road.

I'm always looking for new product and service news, information and photos.

Readers also are requested to pass along news clippings about personal communications, cellphone, beeper and related comments, news and opinions. Please indicate "For Telephones Enroute" in the address of everything sent to the column.

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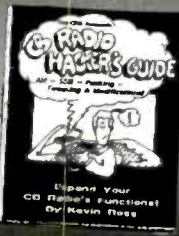
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Checking Out The Overflowing Mailbag

Wow, it's June already! Half the year is gone and the mailbag is full and overflowing, so without further adieu, let's see what you've got to say.

What's With Digital?

Rickard Faivre of Sweden wrote to say that he's facing a problem that's also perplexing many U.S. scanner listeners.

"I am not sure how things are back in the States, but here in Sweden we are allowed to monitor all radio frequencies as long as the information is not passed along. However, what good is that when more and more radio transmissions are digital and encrypted?

"I have so far invested about \$2,000 in scanning equipment and I'm planning on spending another \$1,000 when I visit the States this summer. But the question is, for how long will my analog scanning equipment be any good?

"Over here in Europe, the GSM standard reigns and with the A5 encrypting system there's no chance for civilians to get in on the action. Cordless phones also are becoming encrypted. Police, rescue, etc., are switching more and more to digitally encrypted equipment (as their budget allows it). I have heard that the clipper chip will be introduced in the States and exported to us here in Europe and I am sure the NSA (National Security Agency) is more than happy, I would be, too, if I had the encryption keys. Just imagine being able to pinpoint any conversation in the world and know whose phone it is.

"The question is, what is left for us hobby scanners to listen to? The law both in the States and in Europe prohibits the breaking of encrypted messages. Sure there is equipment developed for the purpose of breaking codes, but who has access to it, let alone who can afford it?

"I predict based on the growth rate of digital transmission here in Sweden that by the year 2001 there will be nothing to monitor except public radio (88-108 MHz) and neighbors' kids playing with walkie-talkies.

"I don't think it will take the States or the rest of Europe much longer to switch to digital encryption. What are your thoughts about this threat that will make the scanner hobbyist extinct?"

Well, Rickard, I choose to be optimistic. Remember, just because a radio system

uses a digital mode of transmission doesn't mean the signal is encrypted. My local police, fire department and ambulance service are planning to switch to a digital system within the next few months. The hardware is being installed now. But only the police will have encryption capability and it's likely it will be used only for particularly sensitive information. As far as I know, there is no prohibition to stop me from monitoring the non-encrypted digital transmissions.

But, and this is a very big but, there is no commercially available, consumer-grade equipment compatible with trunked digital systems currently on the market.

Because relatively few areas use digital systems (or analog trunked systems, for that matter) there's not a large enough customer base yet to economically justify the development of a digital-capable scanner. With several different (and incompatible) trunked and digital radio systems on the market, what customer base there is would be split, with some buyers wanting a Motorola-compatible scanner, while others would want an Ericsson-compatible model.

There is a light on the horizon, however. If the major two-way radio manufacturers adopt the proposed APCO 25 standard, and if these systems become more widespread and more people want to monitor them, then it should become economically feasible for scanner manufacturers such as Uniden, Tandy, AOR and others, to build a trunking capable, digitally-compatible receiver for public safety systems.

It's perhaps ironic that it will be the success and spread of trunked and digital systems that eventually may make it economically possible for hobbyists to have access to the technology.

Tricking the BC9000XLT

The following info on tricks with the Uniden Bearcat 9000XLT was posted on the Internet. The file is credited to Jeff Goldman, WA1UDB; additional credits to Dave Rodriguez, Jeff Zeman and Bob Parnass.

By holding down the 2, 9 and DLY keys as you turn on the BC9000XLT, you enter sort of a test mode. To do a "keycheck test," hit any key or turn the VFO knob either direction—the alpha display will tell you what key you're touching or which direction you're turning the VFO knob.

At this point, if you hit LOCK (to the

right of the VFO knob) and one other button various things will happen:

- LOCK and C—Replaces all memories with 1300 MHz and alpha-tags channels 1-250 with CH 00-249 in the display. Again, this will wipe out your memories!

- LOCK and D—Checksum and firmware version number (v.09 in all 9000s to date).

- LOCK and E—LCD display test.

- LOCK and PROGRAM—Runs a short, continuously repeating demonstration program incorporated specifically for showing at the January 1995 Consumer Electronics Show in Las Vegas, Nev. It also sounds attention tones as the message scrolls on the display! (Note that the word "scanner" is spelled "Scanner" in the demo program; it was too late to change this mistake that originated in Japan.)

The last three tricks will not wipe out memory; only LOCK and C will do that.

Florida Law

Because Florida is such a popular vacation destination and it's the start of the vacation season for some, I think the following radio law is appropriate:

Crimes And Offenses—Obstructing Justice—Installation Of Radio Equipment Using Assigned Law Enforcement Frequencies.

Be it enacted by the Legislature of the state of Florida: Section 1, Subsection (1) and (3) of section 843.16, Florida Statutes, are amended to read:

Florida Statute 843.16. Unlawful to install radio equipment using assigned frequency of state or law enforcement officers; definitions; exemption; and/or penalties.

(1) No person, firm or corporation shall install in any motor vehicle or business establishment, except in an emergency vehicle or crime watch vehicle as herein defined or a place established by municipal, county, state or federal authority for governmental purposes, any frequency modulation radio receiving equipment so adjusted or tuned as to receive messages or signals on frequencies assigned by the Federal Communications Commission to police or law enforcement officers of any city or county of the state or to the state or any of its agencies. Provided, nothing herein shall be construed to affect any radio station licensed by the Federal Communications

Commission or to affect any recognized newspaper or news publication engaged in covering the news on a full-time basis.

(3) This section shall not apply to any holder of a valid amateur radio operator or station license issued by the Federal Communications Commission or to any recognized newspaper or news publication engaged in covering the news on a full-time basis.

Section 2. This act shall take effect on Oct. 1, 1990.

While this is not the complete text of the law, it makes it pretty clear that for most folks mobile-mounted scanners are illegal in Florida unless you have a ham license.

Sounds Odd

In the February column, I published a letter from Lawrence Earl inquiring about some strange signals in the VHF band.

Reader Mike Mollett responded:

"I ran across these signals previously, and came up with the same questions, but have had several explanations for this weird phenomena," Mike wrote.

"The first explanation is 'bumper beepers.' This could be an FBI homing signal that would be placed on a person to track them. The agents then would just track the

person, and could hang back in the car while the suspect had no idea they were being tailed.

"Another idea is radar. Maybe this signal is a harmonic of a radar frequency" Mike wrote.

Those are pretty good guesses. They're at least as good as anything I've come up with. Hopefully, another reader with a more definitive answer will let us know.

Hearing Signals

"I hope your new web site arrives soon. I am new to scanning and enjoy your magazine very much," writes Charles A. Baxley III.

Charles has the RadioShack Pro-23 and Pro-43 scanners. He says though the Pro-43 is a later version, he finds the Pro-23 can pick up frequencies that his Pro-43 won't, especially in the 800 MHz range. He says these frequencies are in the normal operating ranges of both scanners which use their original rubber duck antennas, and according to the specifications, the Pro-43 should be more sensitive.

Charles, you don't say whether the signals you're receiving on the Pro-23 but not on the Pro-43 are valid transmissions, such as a police department on its assigned fre-

quency, or if they're out-of-band images, perhaps of pagers or cellphones. The Pro-43, with its triple-conversion circuitry, should be more immune to images than the Pro-23. Perhaps that's your problem.

Pro-2006 Web Site

Perry Joseph offers an addition to a list of radio-related World Wide Web sites published in the March column.

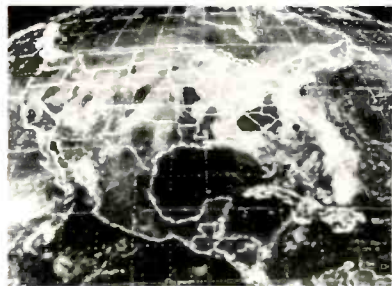
"This site is relevant to RadioShack's Pro-2006 and related news, put together by avid scannist Steve Hancock. The URL is: <http://yrkpa.kias.com/~stevehan>."

Niagara Region Freqs

Mike Iszak, VE3XLS, offers the following frequencies for the Niagara Region in Canada:

142.410, St. Catherines and area police; 142.545, Niagara Falls, Fort Erie police; 142.230, Port Colborne, Welland and Grimsby police; 141.585, Niagara Regional Police simplex; 140.040, Niagara Regional Police Drug Unit; 142.005, Niagara Regional Police Emergency Task Force; 142.770, Ontario police common; 150.100, Ontario ambulance common; 155.130, Niagara Regional ambulance

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dispatch; 152.135, Niagara Regional ambulance to hospital; 149.440, Niagara Regional Ambulance paging; 154.070, Ontario fire marshal common; 153.770, Niagara Regional fire departments; 153.800, Niagara Regional fire departments; 147.300, VE3WCR ham repeater; 147.240, VE3NRS ham repeater; 147.165, VE3RAC ham repeater; 444.725, VE3PLF, ham repeater; 151.205, Niagara Regional Works Department; and 149.495, Niagara Regional Works Department (linked with 151.205).

The following are frequencies that are used for low-power applications: 46.26, 172.290, 454.225, 46.56, 49.845, 151.085, 451.7875, 49.86, 154.570, 454.200, 172.470, 451.187, 49.875, 172.980, 451.6625, 49.83, 172.590, 462.500, 49.890, 151.055, 458.6625, 172.500, 467.650, 172.920, 469.2625, 151.115, 151.625, 154.490, 151.100, 151.580, 172.950, 170.940, 151.070, 451.9625, 453.450, 459.200, 459.225 and 469.425.

Mike says these frequencies are used for everything from astrological research to zoological parks.

Mike also asks that if another reader has any frequencies for Nova Scotia and the Atlantic region of Canada, please pass them his way via the Internet at MIKE_ISZAK@taskware.vaxxine.com.

Virginia Check-In

Sean Ingram, KD4ADV, of Amelia County, Va., says he uses a Uniden Bearcat 200XLT to monitor his local sheriff's office, fire department and rescue squad, as well as the Virginia State Police frequencies and others that he happens to find.

"I am both a ham operator as well as a citizens band operator. I only have a mobile at this time, though I will set up a base station in the future," Sean wrote.

He sent along the following frequencies in use in Amelia County and the Chesterfield-Richmond area:

39.54, Statewide Interdepartmental Radio System (all police departments and correctional centers in Virginia use this); 39.24, Amelia County sheriff dispatch; 154.710, Amelia County sheriff mobile extenders; 46.54, Amelia County fire dispatch; 46.04, Amelia County Rescue Squad; 155.205, statewide mutual aid and medevac helicopters; 155.295, Amelia County Rescue Squad dispatch; and 155.340, Hospital Emergency Area Radio System.

Also, Virginia State Police use 159.000 for Channel 1 (input: 154.935); 158.985 is Channel 2 (input: 154.905); and 458.350 for mobile extenders.

Good Riddance

Responding to comments in the January column regarding the difficulties of scanning General Electric trunked public safety radio systems that use tones (the old GE commercial jingles) at the end of the transmission to tie up scanners, Allan Dunn, K1UCY, of Holbrook, Mass., reminded me that Scanner Master, (800) 722-6701, sells the Comsec SA-78 Trunking Tone Eliminator, which is designed to detect these tones, mute the scanner audio and allow the scanner to resume scanning immediately. It works with the RadioShack Pro-2004, 2005, 2006 and 2026; and Uniden Bearcat models BC-760, 800, 855, 890, 950, 8500 and 9000.

Allan also said Scanner Master sells the Comsec SA-80 Noise and Data Silencer that eliminates tones, digital encryption and buzzsaw sounds from the Pro-2004, 2005 and 2006.

Allan, thanks for the note. As I have no personal experience with these products I mention them here for informational purposes only, and not as an endorsement. If any readers have experience with these units, I'd be interested in hearing from you on how they work.

Request

Theo Theodorou of Panama City, Panama, is looking for frequencies for the U.S. Southern Command bases in Panama.

He asks that anyone with information on those frequencies send e-mail to him at: theo@pan.gbm.net.

Iowa F-16s In Florida

A personal observation here: Last month, a detachment of F-16 "Fighting Falcons" from the Iowa National Guard spent about two weeks in Tampa, Fla., training at MacDill Air Force Base. During their time here, they used the following: Hawkeye Ops, 297.500; AWACS air-to-air on 316.900, 325.800, 269.650, 276.800 and 364.100; and squadron interplane chatter on 138.100, 141.900 and 138.500 AM.

I don't know if they use these same frequencies back home in Iowa, but for those of you in the Hawkeye State, they're worth checking out. Let me know what you hear.

Write In

Send your letters to J.T. Ward, Scanning VHF/UHF, *Popular Communications*, 76 N. Broadway, Hicksville, NY 11801-2909. GENIE on-line subscribers may contact me directly by addressing e-mail to JTWard; via the Internet, send e-mail to JTWard@genie.com. ■

FOR THE HANDICAPABLE COMMUNICATIONS HOBBYIST

One Man's Recollections

Hello again and welcome. As you recall, we ended the April installment by ruminating on the special, almost mystical, attraction of radio, and its role in our daily lives. With your indulgence, I'd like to pursue that thread a little further, and see where it leads. Obviously, what follows will be highly subjective, representing the observations and recollections of one listener, but here goes.

As a theater of the mind, radio has allowed—even encouraged—the cultivation of distinctive on-air personas. Inevitably, listeners form a mental image to complement the voice. Such internalization is one reason for the phenomenal loyalty often accorded radio personalities—from network stars to local platter spinners, farm directors and talk show hosts.

However, this mental image often is wildly out of sync with actuality. As most CBers or hams know, the first face-to-face meeting with even a longtime on-air acquaintance can provide quite a reality check. This principle was hilariously illustrated in a now-forgotten Johnny Cash record from the early 1960s, *Smilin' Bill McCall*. It told the story of a typical hillbilly heartthrob on a local radio station—envied by the boys, idolized by the girls. Only as the song ends does the listener learn that Smilin' Bill was a bald midget.

That reminds me of another radio artifact of my childhood, the deejay as a performer. During the 1950s, many country disc jockeys (the phenomenon was far less common among rock-'n'-rollers) were musicians, often with recording contracts. Of course, they plugged their own records, and sometimes performed live on the air.

Although few became household names, several enjoyed solid local or regional success. Many in Kentucky, Indiana or Ohio will recall names such as Jimmy Osborne, Jimmy Logston, Randy Atcher, Jimmy Skinner and Esco Hankins. But no survey of the Louisville area country music scene during this time would be complete without mentioning PeeWee King and the Golden West Cowboys. King, a former star of the Grand Old Opry and a noted song writer, hosted a weekly Sunday evening program during the 1950s over WKLO, 1080 kHz.

Another manifestation of the radio personality as performer was the remote broadcast. Excluding news or sports events, remotes still are around, usually originating from one of the station's sponsors. Now, however, such productions usually

are done on a piecemeal basis, and often entail nothing more than the announcer periodically reporting from the remote site. Earlier, however, ongoing daily or weekly programs—originating from department stores, record shops, fast-food restaurants, appliance stores and car lots, and featuring either recorded or live music—were common. At one point during the mid-1960s, WLOU, 1350 kHz, did a series of breakfast broadcasts from the homes of faithful listeners. The station furnished the food and beverages, plus an assortment of special prizes, and a good time generally was had by all.

Perhaps the most famous remotes during Louisville's top-40 era were the HiFi Club dances, sponsored by WKLO radio (1080 kHz AM, and, during the latter years, 99.7 MHz FM) between 1958 and 1968. Teens were enrolled through their high school. Membership cards could mean prizes ranging from soft drinks to transistor radios and portable record players. But the big events were the dances. Each Friday and Saturday night during the school year, a team from WKLO would descend on a local high school for a live broadcast, including a talent contest, and snappy repartee from the students—"Uh, yeah, ya know." It was fun!

Another vital element in top-40 radio was promotion. Even in a medium-size market served by only two or three stations, the competition could be intense. Each weekend, disc jockeys fanned out across the primary coverage area, lending their presence to dances, donkey basketball games and anything else the manager could dream up. Crazy contests, bumper stickers, even copies of the weekly survey available free in various local retail outlets were strategic weapons in the battle for the hearts and minds of listeners. One of the most skillful portrayals of this free-wheeling atmosphere was the classic comedy, *WKRP in Cincinnati*. Discounting the obvious comic exaggeration, this little gem, which actually aired several years after the decline of AM top 40, more often than not hit the nail squarely on the head.

The transition from AM to FM came gradually. In December 1966, when we acquired our first home FM tuner, there were merely a handful of area stations. Addition of a rooftop antenna the next summer made a big difference, but, on most days, pickings remained relatively slim. Stereo FM transmitting capability was considered such an important selling point it was fea-

tured in newspaper program listings. One local audio dealer even sponsored broadcast "stereo balance tests," usually consisting of a calibration tone, followed by a demonstration such as *Russian Roulette*—how many of you remember that one? Technical quality varied widely. One commercial classical operation sent its signal to the transmitter over twin phone lines. Overall, it worked pretty well, except for a poor signal-to-noise ratio during quiet passages, particularly the dead air between selections.

Change came slowly throughout the 1970s, with more stations, more formats, and FM stereo becoming the de facto standard. By the dawn of the 1980s, the tide clearly turned; so did the market. The broad consensus that was top-40 rock was gone, replaced by album rock, adult contemporary (also designated "lite rock"), urban (the successor to soul and rhythm and blues), and oldies. Country music grew so rapidly that it eventually became the dominant single format in many areas. While still a devotee of commercial broadcasting, more and more often I find myself turning to my area public radio stations when I want to hear the good stuff. These stations combine eclectic programming with smooth equalization and good dynamics.

As I hinted last time, the most intriguing development on the horizon could be the advent of digital broadcasting, particularly on the mediumwave AM band. Lately, the AM service has been dominated by political charlatans, religious mountebanks and self-help gurus. Given a potential frequency response of 30 Hz to 15 kHz, and a quiet background, could digital audio represent the salvation of AM, or will it stagnate like analog stereo AM? Also, will digital signals propagate well over long distances? At this point, many of us are cautiously optimistic, but only time will tell.

Well, there you have it, one man's recollections, observations, and opinions. For me, as for so many others, commercial broadcasting was where it all started. Furthermore, it's a safe bet that everyone reading this column has similar memories. Please share them, along with your questions and ideas for future columns. Your input is always welcome; in fact, it is vital. Address all letters—Braille, print, cassette or diskette—to HandiChat, *Popular Communications*, 76 N. Broadway, Hicksville, NY 11801-2909. Those with Internet access may reach us at popcomm@aol.com. Until we meet again, take care. ■

Long-Range Radio Advantage: DSP

Emergency communications over long-range medium and high frequencies that use single sideband or various data modes may be enhanced in clarity through the use of digital signal processing, or DSP. Existing commercial and ham radio SSB/digital equipment may accept a retrofit DSB receiver audio network. Newer ham sets and selected commercial high-frequency SSB equipment now may incorporate digital signal processing, for both receive as well as transmit.

Digital signal processing may take analog audio output from a worldwide transceiver and digitize the wave form to create a computer-selected datastream that is tailored to enhance recovered audio, while decreasing random noise. The "computer" is the DSP network built into the add-on box, or built directly into the transceiver.

A process called "sampling" assigns computer values to the incoming analog wave form. User presets enhance the useful analog signal while canceling the constant stream of noise impulses that usually ride along with a recovered SSB received signal. For DSP transmission, outgoing modulation of audio and digital information may be enhanced by selectively eliminating components of the signal that may be unnecessary to the other station that also results in frequency-conservative narrow bandwidth.

Good Voice Benefits

We recently tested a Kenwood amateur radio, the TR-870 digital signal processing

transceiver, on ham bands along with the SG-2000 Power Talk transceiver with the special Adaptive Digital Signal P Head, built-in noise subtraction and tone suppression notch filters. Both transceivers with built-in digital signal processing work just as well as external receive digital signal processors available as an aftermarket installation.

The SGC 2000 ADSP most easily explains how DSP works on an incoming single-sideband voice signal. We tuned in a distant high-frequency American Red Cross net where net control was barely audible through background noise, an annoying heterodyne, and a nearby off-channel data transmission. The first step was to knock out the heterodyne tone; the notch filter does this nicely. Any notch filter can kill a single tone when properly adjusted, but only the more advanced digital signal processor filter could suppress up to five tones simultaneously. Both Kenwood and SGC locked onto the steady tones, and instantly attenuated them by at least 40 dB down. No manual notch tuning was required with DSP.

To reduce unwanted reception either above or below your desired receive and transmit frequency, we adjust the band-pass filters on the SGC ADSP front panel. A small adjustment knob allows you to set the low-frequency filter to around 200 Hz, the high-frequency filter to around 3100 Hz, and the center frequency pass-band for best incoming audio recovery. This leads to recovered audio that sounds a bit brassy and without lows and highs, but it dramatically cuts down on adjacent frequency interference from other stations.

And now on to background noise reduction. The SGC ADSP system calls it "spectral noise subtraction," and the digital circuit analyzes desired audio and undesired background hash, and automatically selectively reduces the roar to give you the effect of tuning in an SSB station punching through a squelch circuit. While this circuit doesn't necessarily pull in recovered audio better than what originally was coming through, it dramatically decreases the fatigue of having to put up with background hash in between each syllable when the operator pauses slowly in a transmission.

On both the Kenwood as well as SGC and other add-on DSP systems, you could hear a remarkable change in recovered single-sideband audio and a fair increase in intelligibility once all of the DSP options have been switched on.

Data Super-Performer

But where high-frequency digital signal processing really shines is in its ability to zero in on incoming data signals, stripping away interference dramatically better than what you can do in recovering voice. The SGC ADSP features preset processing for the following emissions:

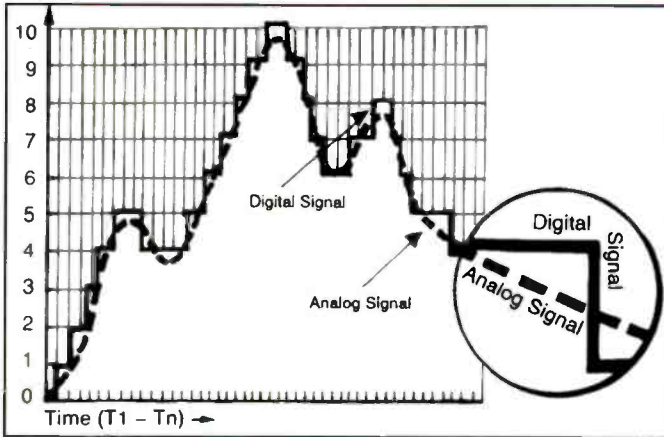
- AMTOR data bandwidth filter on 2175 Hz, +/-150 Hz
- SITOR data bandwidth filter on 1700 Hz, +/-150 Hz
- PACTOR data bandwidth filter on 2175 Hz, +/-200 Hz
- ALE data bandwidth filter on 1725 Hz, +/-1125 Hz



The SGC digital signal processor can adjust background noise to almost zero.



The Kenwood digital signal processor cuts squeals and squawks to a minimum.



▲ MFJ's new DSP add-on unit.

◀ This is how digital signal processing takes place in the sampling stage.

In the data mode, there is a 130-millisecond delay of the filter response to ensure a proper handshake in ARQ modes and other data protocols because of increased switching time between transmit and receive. Therefore, a second, very short, delay filter, approximately 2 milliseconds, is selected with a shade factor of 1.15:1, with extremely steep skirts to reject interference from adjacent frequencies.

You also may preset and memorize specific data filters for other modes, such as long-range weather facsimile reception and CW. In the CW and weather facsimile

modes, you can just about dial in the specific tone you want, and dial out everything else—so what you get is sharp reception with a minimum of interference caused by any other tones not specifically dialed in.

But don't expect an expensive DSP transceiver or DSP add-on unit to pull out signals that aren't really strong enough to be recovered in the first place; it won't happen. DSP is not necessarily a signal enhancer, but rather a selective filter to pull out noise, heterodynes (annoying tones), and adjacent channel signals from cluttering up the reception you want.

On voice, expect that intelligibility increases, but you're going to lose the full fidelity of the natural-sounding voice. Audio will sound pinched. And for the digital modes, DSP will absolutely profound you with how it can lock onto the incoming digital signal of your choice, and knock down interference that might normally be riding along with the signal to upset your computer copy.

For additional technical information about digital signal processors, plus stand-alone ADSP equipment, write: SGC, P.O. Box 3526, Bellevue, WA 98009. ■

DELTACOMM™ DSS

Digital Signal Strength

Option For Your ICOM™ R7000

DELTACOMM™ I-7000 and your MS-DOS computer integrated with the Delta Research custom CI-V interface and optimized software will not just control but will maximize the potential of your ICOM™ IC-R7000's monitoring capability.

- CYBERSCAN function allows scan file tracking control of systems employing frequency hopping techniques.
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- Birdie log during frequency search automatically characterizes your R7000, then locks out those frequencies.
- Activity log function continuously monitors and logs all frequencies of a scan database while displaying active, was active and never active channels.



Optional DELTACOMM™ DSS (Digital Signal Strength) upgrade for your DELTACOMM™ I-7000 communication manager.

- Innovative interface design allows digitizing and storing the R7000 signal level information with 8-bit accuracy via your computer's game/joystick port.
- DSS allows user programmable upper and/or lower signal level detection limits during DELTACOMM™ I-7000's spectrum log, scan and search functions.
- Log signal strength information to printer or delimited log file while DELTACOMM™ I-7000 is scanning or activity logging the selected database file.

DELTACOMM™ I-7000 communication manager program includes all cabling, manual, UL listed power supply and Delta Research custom CI-V interface for \$299.00 + \$8.00 (U.S.) or \$25.00 (foreign) S&H. The DELTACOMM™ DSS interface upgrade comes complete with easy to follow NO SOLDER installation instructions, all cabling and 8-bit DSS A/D converter module (game port required) for \$99.00 + \$8.00 (U.S.) or \$25.00 (foreign) S&H and is available as an upgrade option to registered I-7000 users. Contact us for additional information on DELTACOMM™ communication managers for ICOM™ R7100, R71A, R72 and IC735.



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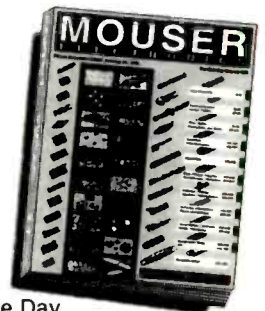
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You Should Know

BY CAPT. WILLIAM MAULDIN, WG4R

INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Notification Systems

You are a free-lance photographer making a living taking the unique news photographs that others don't get. How do you know what is going on in the community? How are you first on the scene? You join one of the new "notification network systems" that tells you what is happening. If there is a building fire at Fifth and Main streets, as soon as the fire trucks are dispatched, the notification network has alerted its members of the event.

What are notification networks and how do they work? In most larger metropolitan areas, the notification network is a paid service. Those who have receivers, alphanumeric pagers or two-way radios pay for the membership on a monthly basis. The service monitors all the possible action frequencies at the central office. When an event takes place, the information is "broadcast" as a bulletin in voice or is sent as a group page to all who subscribe. Subscribers are constantly updated on events of interest. In this case, the notification is a service and the user pays to join and to obtain the information.

There also are notification groups that charge only a minimum fee for "club expenses." Most of these groups use a voice repeater to exchange information. Members themselves monitor action frequencies of interest and then notify all listening members of the event by just announcing what they have heard on the group repeater. Many of these notification groups have working exchange agreements with groups in other cities so the members can monitor when out of their home area. Frequencies, codes and CTCSS tone notes are exchanged in agreements between the clubs or groups.

Most of the members of notification services and groups are those who make their living in photography, news coverage or other related activities. There are others who join just because they want to know what is going on in the community.

Finding The Groups

How do you, as a non-subscriber, find out whether there is a notification service

operating in your area? You can do some serious scanning searches initially. Most notification groups operate on the UHF band, normally on a GMRS or business channel. I have found in my travels that many operate between 461 and 464 MHz. Check out the GMRS frequencies first. With used UHF repeaters on the market at low cost, these active groups get on the air easily. They can be easily discovered on the wide coverage UHF GMRS repeater channels: 462.550, 462.575, 462.600, 462.625, 462.650, 462.675, 462.700 and 462.725 MHz.

If you don't want to just search scan for hours, pick a time when there is a major event taking place in your area, and search scan during that period. Try not to search too many frequencies at once. Listening to a small group of frequencies for a brief period of time will bring better results than searching a large group of frequencies.

Most good scanners have a search capability. You type in the lower frequency limit and the upper frequency limit of the group you want to search. The scanner, when programmed for the search mode, also needs to be set for the correct frequency step if this option is available.

To search from 462.550 to 462.725 MHz, for example, you would want to set the frequency step to 12.5 kHz to ensure you catch everything in that frequency area. Don't expect constant activity. Listen and make notes on the active channels. Later check out the frequencies you have discovered as active.

Another UHF portion of the band that might have notification group activity is 471.000 to 472.500 MHz. Some notification groups in the Boston, Washington, New York City and Los Angeles areas are active on this portion of the UHF band. Also, do some searching just above the GMRS band, up to 464.500 MHz. This portion of the band can bring about some interesting listening.

Tuning In

When listening to a notification "service," you normally will hear only the base dispatcher or scanner listener making the

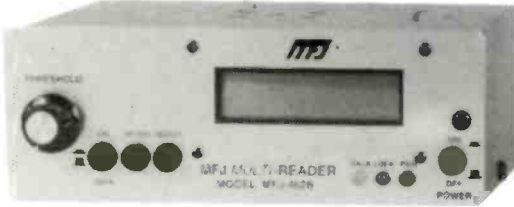


calls. These will be "broadcast" as bulletins. Some of the groups use codes and 10 signals to pass long the information. If there is a scanner group or club in your area, perhaps they can provide you with the codes used. Some commercially produced frequency directories also provide this information. There is an excellent set of directories currently offered for the Northeast with complete listings for these services and membership groups. With a little serious monitoring, you generally can break down the codes used on your own, especially if you also are monitoring the event on public safety frequencies. The codes are not the standard APCO police codes in most cases.

One of the local repeaters that I monitored in Boston was the Newscom repeater on 464.275 MHz. This system uses a CTCSS tone to open the audio on user receivers. This is common on most UHF and VHF frequencies when there are many different users. Each user has its own CTCSS tone so they won't have to listen to the conversations of others on the repeater or same frequency. By using a commercial receiver, walkie-talkie or a scanner such as the Bearcat 760 with the optional CTCSS board, you can selectively listen to the notification system with-

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MFJ-462B
\$169⁹⁵ Plug this self-contained MFJ MultiReader™ into your shortwave receiver's earphone jack.

Then watch mysterious chirps, whistles and buzzing sounds of RTTY, ASCII, CW and AMTOR (FEC) turn into exciting text messages as they scroll across your easy-to-read LCD display.

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Eavesdrop on the world's press agencies transmitting unedited late breaking news in English -- China News in Taiwan, Tanjung Press in Serbia, Iraqi News in Iraq -- all on RTTY.

Super Active Antenna

"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-1024 MFJ-1312, \$12.95.

Indoor Active Antenna
MFJ-1020B
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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-1312, \$12.95.

Compact Active Antenna

MFJ-1022
\$39⁹⁵

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.

Detachable 20 in. telescoping antenna. 9 volt battery or 110 VAC with MFJ-1312B, \$12.95. 3/4x1/4x4 in.

Copy RTTY weather stations from Antarctica, Mali, Congo and many others. Listen to military RTTY passing traffic from Panama, Cyprus, Peru, Capetown, London and others. Listen to hams, diplomatic, research, commercial and maritime RTTY.

Listen to maritime users, diplomats and amateurs send and receive error free messages using various forms of TOR (Telex-Over-Radio).

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime -- from all over the world -- Australia, Russia, Hong Kong, Japan, Egypt, Norway, Israel, Africa.

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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

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MFJ-959B
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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
\$69⁹⁵

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

Dual Tunable Audio Filter

MFJ-752C
\$99⁹⁵

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 MFJ-38
\$16⁹⁵

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

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

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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 MFJ-1782 Loop™ is a \$269⁹⁵

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.

High-Q Passive Preselector

MFJ-956
\$39⁹⁵

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 MFJ-1824BB/BM
\$199⁹⁵

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

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.

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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. 5/4x2 1/2x5 1/4 inches.

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MFJ-108B
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MFJ-105B
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MFJ-108B, dual clock displays 24 UTC and 12 hour local time simultaneously. MFJ-107B, single 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
\$59⁹⁵
MFJ-1702B
\$21⁹⁵

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.

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\$59⁹⁵ kit
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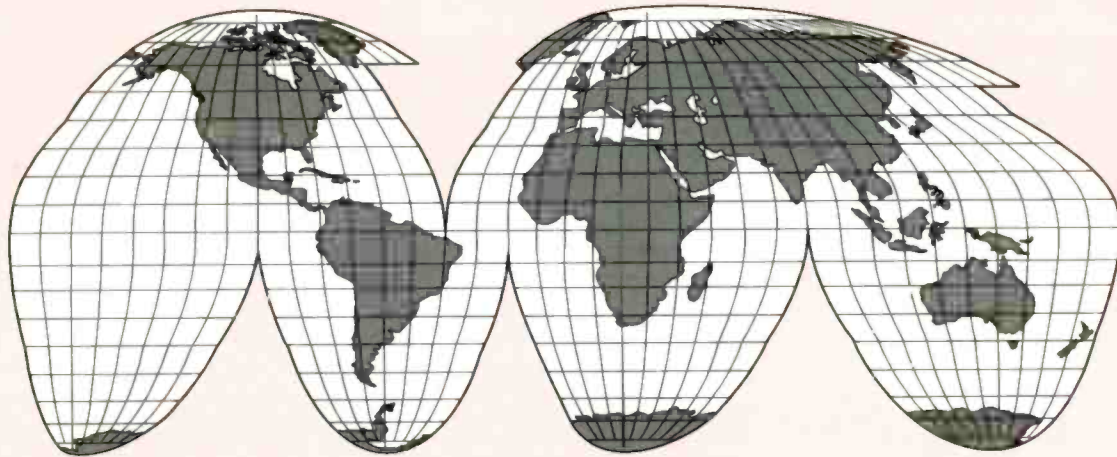
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POP'COMM's World Band Tuning Tips

June 1996

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, PP, etc., are abbreviations for English, French, Portuguese, 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 equals 7 p.m. EST).

Freq.	Country/Station	UTC	Notes	Freq.	Country/Station	UTC	Notes
2360	Radio Maya de Barillas, Guatemala	1100	SS/local	4905	Ecos del Orinoco, Colombia	1000	SS
3200	TWR, Swaziland	0400	GG	4915	Radio Cora, Peru	0330	SS
3250	Radio Lux y Vida, Honduras	0200		4920	Radio Quito, Ecuador	0200	SS
3290	Namibian Broadcasting Corp.	0400		4940	Radio Continental, Venezuela	0915	SS s/on
3300	Radio Cultural, Guatemala	0300		4950	Radio Nacional, Angola	0500	PP
3306	ZBC Radio 2, Zimbabwe	0400	vern.	4955	Radio Nacional, Colombia	0300	SS
3325	Radio Maya, Guatemala	1130	vern.	4960	HRET, Honduras	0230	SS
3356	Radio Botswana	0400		4976	Radio Uganda	0400	
3398	Radio Internacional, Peru	0100	SS	5010	Radio Cameroon, Garoua	0500	irreg.
3925	Radio Tampa, Japan	1000	JJ	5025	Radio Rebelde, Cuba	0200	SS
3955	Channel Africa, South Africa	0330		5045	Radio Cultura do Para, Brazil	0230	PP
4550	Radio Tropico, Bolivia	0100	SS	5055	TIFC, Costa Rica	0400	
4682	Radio Paititi, Bolivia	1000	SS	5060	Radio Tashkent, Uzbekistan	1300	
4725	Radio Myanmar (Burma)	1200	Burmese	5145	China Radio Int'l	1300	
4750	Xizang PBS, Tibet	1100	CC	5235	Radio Apurimac, Peru	1000	SS
4760	ELWA, Liberia	0700		5875	BBC, England	0030	
4770	Radio Nigeria, Kaduna	0500		5895	Croatian Radio	0400	
4780v	Radio Oriental, Ecuador	1000	SS	5900	HCJB, Ecuador	0330	
4785	Ecos del Combeima, Colombia	0200	SS	5910	Radio Vilnius, Lithuania (via Germany)	0000	LL/EE
4790	Radio Atlantida, Peru	0300	SS	6000	Radio Havana Cuba	0530	
4805	Rdif. Amazonas	1000	PP	6015	Radio Austria Int'l, via Canada	0530	
4815	Radio Burkina, Burkina Faso	0700	FF	6015v	Radio Mira, Colombia	0200	SS
4830	Radio Tachira, Venezuela	0200	SS	6019v	Radio Victoria, Peru	0430	SS
4835	Radio Tezulutlan, Guatemala	0200	SS/local	6025	Radio Illimani, Bolivia	1000	SS
4860	All India Radio, Delhi	1300		6035	Deutsche Welle, Germany	0230	
4870	ORTB, Benin	0530	FF	6055	Radio Kuwait	0500	AA
4885	Radio Clube do Para, Brazil	0300	PP	6065	Christian Voice, Zambia	0400	
4890	NBC, Papua New Guinea	1200		6080	Radio Australia	0800	Pidgin EE

Freq.	Country/Station	UTC	Notes	Freq.	Country/Station	UTC	Notes
6095	Radio Portugal Int'l	0030		11730	Trans World Radio, via South Africa	0600	
6105	Radio Universidad, Costa Rica	0100	SS	11734	Radio Tanzania, Zanzibar	1930	Swahili
6110	Radio Japan, via Canada	1100		11735	Radio Oriental, Uruguay	0100	SS
6120	Radio France Int'l, via Japan	1400	VV	11790	Radio Japan	0100	
6135	Swiss Radio Int'l	0100		11800	RAI, Italy	0050	
6140	Radio Tirana, Albania	0230		11805	Radio Globo, Brazil	2300	PP
6150	KNLS, Alaska	0830		11815	Polish Radio Warsaw	1300	
6165	Swiss Radio Int'l	0700		11840	Radio Portugal Int'l	0130	
6180	BBC, via South Africa	0245	s/on	11850	Radio Norway	1600	
6190	Radio Budapest, Hungary	0200		11885	UAE Radio, Abu Dhabi	2300	
6200	RFPI, Costa Rica	0000	SS	11890	Radio Oman	1300	AA
6900	Turkish Meteorological Radio	0500	TT	11895	Radio Japan, via French Guiana	0300	
7115	Trans World Radio, Monaco	0745		11900	Radio New Zealand Int'l	0459	s/on
7115	Radio Sweden	0330		11915	Radio Gaucha, Brazil	0900	PP
7147v	Republic of Iraq Radio	0158	s/on AA	11940	Radio Romania Int'l	1300	
7170	Radio Senegal	0558/0658	s/on	11965	BSKSA, Saudi Arabia	1700	AA
7195	Radio Bulgaria	0200		11970	Radio Jordan	1500	
7200	Radio Afghanistan	0130		11995	FEBC, Philippines	1500	
7205	Radio Ukraine	0400		12005	HCJB, Ecuador	2300	TWR relay
7210	Qatar Broadcasting Station	2100	AA	12085	Radio Damascus, Syria	2030	
7255	Voice of Nigeria	0500		12030	Voice of Russia	1400	
7305	Vatican Radio	0250		12045	Radio Rossii, Russia	1030	RR
7335	CHU, Canada	0200	time sigs	13580	Radio Prague, Czech Republic	1400	
7480	Radio Bulgaria	0000		13670	Radio Vlaanderen Int'l, Belgium	1300	
9025	Radio Omdurman, Sudan	2000	AA	13675	UAE Radio, Dubai	1630	
9420	Voice of Greece	0130		13680	Republic of Iraq Radio	1500	AA
9440	Radio Slovakia Int'l	0100		13730	Radio Austria Int'l	1130	
9445	Voice of Turkey	2330	TT	13750	All India Radio	1330	
9475	Radio Cairo, Egypt	0200		13765	Vatican Radio	2000	GG
9525	Voice of Indonesia	1200	II	15084	VOIRI, Iran	2000	
9540	Radio Espana Exterior, Spain	0100		15110	China Radio Int'l, via Mali	2000	
9548	Radio Bangladesh	1230		15170	Radio Jordan	1100	
9560	Voice of Peace, Ethiopia	0430	EE/FF	15180	Voice of Russia	0300	
9560	Radio Norway	0100		15200	Radio Portugal	1900	PP
9570	Radio Portugal	0230		15210	Radio France Int'l	1700	FF
9570	Radio Romania Int'l	0200		15240	Radio Sweden	1330	
9580	Radio Australia	1200		15244	La Voix du Zaire	1800	
9585	Channel Africa, South Africa	0400		15265	Radiobras, Brazil	1700	
9590	Radio Norway Int'l	1300	NN/EE	15270	Radio Intercontinental, Armenia	1730	EE/GG
9590	Radio Netherlands, via Bonaire	0400		15315	Radio Netherlands, via Bonaire	1830	
9620	Radio Ukraine Int'l	2200		15345	RTV Marocaine, Morocco	1800	AA
9630	Radio Aparecida, Brazil	2300	PP	15350	Voice of Turkey	1330	s/on TT
9655	Voice of Turkey	2300		15400	Radio Finland Int'l	1330	
9655	Channel Africa, South Africa	0430	PP	15405	Radio France Int'l	1400	
9690	China Radio Int'l, via Spain	0300		15435	UAE Radio, Dubai	0500	
9695	Voice of UAE, Abu Dhabi	2200		15445	Radiobras, Brazil	1330	SS
9700	Radio New Zealand Int'l	1100		15460	Adventist World Radio, Costa Rica	2200	
9720	Sri Lanka Broadcasting Corp.	1300		15475	Africa Number One, Gabon	2100	FF
9725	AWR, Costa Rica	2300		15505	Radio Kuwait	1700	AA
9735	Radio Oman	1600	AA	15520	Radio Bangladesh	1230	
9750	Radio Japan	1400		15530	Radio Australia	1200	
9755	Radio Canada Int'l	0000		15540	HCJB, Ecuador	1700	
9770	Voice of UAE, Abu Dhabi	2300		15575	Radio Korea, South Korea	0200	
9780	Republic of Yemen Radio	1800		15590	Vatican Radio	1345	
9805	Radio France Int'l	1200		15630	Voice of Greece	1430	GG
9810	Far East Bc. Assn., Seychelles	1500		15640	Kol Israel	1515	
9820	Radio Havana Cuba	0100	USB	15665	Monitor Radio, USA	1800	
9850	Radio Budapest, Hungary	0330		15675	Radio Pakistan	1400	
9855	Radio Kuwait	0500	AA	17500	RTT, Tunisia	1330	AA
9870	Radio Austria Int'l	0130		17525	Voice of Greece	1330	GG/EE
9870	TWR, Guam	1400	CC	17595	Radio Cairo, Egypt	1230	
9900	Radio Cairo, Egypt	2300		17605	Radio Netherlands	1830	
9915	Voice of Greece	1130	Greek	17625	Radio Bulgaria	1200	
9940	Vatican Radio	1600		17630	Africa Number One, Gabon	1430	FF
11570	Radio Pakistan	1600		17670	Swiss Radio Int'l	1500	
11605	Radio Bulgaria	1230		17740	Radio Finland Int'l	1430	
11615	Radio France Int'l	1600		17800	Deutsche Welle, Germany	1600	
11620	All India Radio	2200		17815	RTM Morocco	1800	EE Sun.
11670	Radio France Int'l, via French Guiana	0130	SS	17825	UAE Radio, Dubai	1300	
11675	Radio Kuwait	0000	AA	17870	RAI, Italy	1730	II
11705	Radio Visao Nova, Brazil	1900	PP	17900	Radio Portugal	2000	PP
11710	RAE, Argentina	0200	EE	21605	UAE Radio, Dubai	1600	AA
11715	China Radio Int'l, via Mali	0300					

out being bothered by the frequency's other users.

Community repeaters are quite common on the business bands. These are repeaters that are bought and serviced by a commercial radio company. They allow several groups or businesses to use the same repeater, each with their own CTCSS tone. When programmed correctly, a member of a group or company will hear only the communications of their own company or group. Busy lights on transceivers tell the users when the frequency is busy. A brief wait sometimes is required before making a transmission.

Many notification groups lease air time on community repeaters. These repeaters are quite dependable and normally offer great range because of their prime transmitter site locations. If you search or monitor with a scanner that does not have a CTCSS board option, you are going to hear all of the signals on the repeater and not just those of the group that you desire to monitor. To be effective in eliminating the chatter of other users, the same CTCSS tone must be used by all transmitters and receivers in a notification system. These are subaudible tones and cannot be heard during transmissions. Open, or carrier, squelch as it is known, will send all trans-

missions to the speaker. Scanners, unless equipped with a CTCSS tone board option, are carrier squelch listening devices. You hear everything on a frequency when searching or scanning.

Popularity Gains

Notification networks and services are gaining rapidly in popularity, especially in metropolitan areas. If you can find the one that is covering your city, you will be able to keep up with just about everything that is going on. If the service is a commercial one, an ad in the telephone directory certainly is possible. I have found that the member groups are more fun to monitor because they exchange comments and other information relating to the event and conditions. The commercial notification services are just a business, and other than "broadcasting" a bulletin, there is little information exchanged in the way of related comments by the users.

Many notification network services use alphanumeric pagers to send the messages to customers. Most use a local or regional area commercial paging service. With several very good pager message readers available today, monitoring the local pager company message frequency is easy and fairly inexpensive. Pager fre-

quencies are easy to find because of their constant beep beep, two-tone noises. Alphanumeric pager messages can be easily displayed or printed out using these pager readers. Most commercial frequency directories list the licensed pager frequencies. Local radio dealers carry these directories. Remember to check out the local pager company frequencies and not those offering nationwide paging services.

The local notification service certainly will use a local company because of the limited area served, keeping costs down.

Notification services also are springing up for other users. With a good pager reader, you can see weather bulletins, stock quotes and sports scores flash across the pager reader screens. This is a growing service with wide interest and use. If you are interested in what is going on, this is one that can bring you some interesting messages! Reading the pages of the nationwide paging services, where considerable alphanumeric activity takes place, can be as interesting as the 6 o'clock news or sports at a glance! During some recent basketball games, scores were flashed across the pager nets before they were broadcast on local sports and news stations. This is truly the way to keep up, regardless of what your interests are. ■

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Many radio amateurs and SWLs are puzzled! Just what are all those strange signals you can hear but not identify on the Short Wave Bands? A few of them such as CW, RTTY, Packet and Amtor you'll know - but what about the many other signals?

There are some well known CW/RTTY Decoders but then there is CODE-3. It's up to you to make the choice, but it will be easy once you see CODE-3. CODE-3 has an exclusive auto-classification module that tells YOU what you're listening to AND automatically sets you up to start decoding. No other decoder can do this on ALL the modes listed below - and most more expensive decoders have no means of identifying ANY received signals! Why spend more money for other decoders with FEWER features? CODE-3 works on any IBM-compatible computer with MS-DOS with at least 640kb of RAM, and a CGA monitor. CODE-3 includes software, a complete audio to digital FSK converter with built-in 115V ac power supply, and a RS-232 cable, ready to use.

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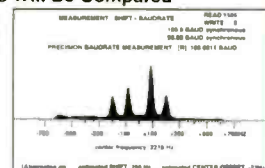
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- ARO-E/ARO1000 Duplex
- ARO-N/ARO1000 Duplex Variant
- ARO-E3-CCIR519 Variant
- POL-ARO 100 Baud Duplex ARO
- TDM242/ARO-M2/4-242
- TDM342/ARO-M2/4
- FEC-A FEC100A/FEC101
- FEC-S • FEC1000 Simplex
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- All modes in typical baud rates with possibility of changing to any desired value of speed and shift.
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Product Parade

REVIEW OF NEW, INTERESTING AND USEFUL PRODUCTS

New Radar Detectors Offer Safety Alert

Two Cobra Trapshooter radar detectors are equipped with the company's Safety Alert traffic warning system. The RDL-216SWS and RDL-8000SWS respond with separate tone and LED patterns to transmitted Safety Alert signals that alert drivers to nearby police, fire, EMS and pub-



The Cobra Model RDL-216SWS Trapshooter radar detector detects all speed monitoring systems in use on the highways.

lic utility vehicles, as well as road hazards.

For instance, the RDL-216SWS detects X, K and KA Superwide band, Safety Alert emergency signals and offers 360-degree laser detection. It has separate visual and audible alarms for all signals, signal-strength LEDs, Cobra Stealth VCO System and anti-falsing circuitry.

"In response to heightened consumer interest in driver safety and the growing number of speed monitoring systems in use, we're taking detection to a whole new level," Gary Sedan, Cobra Electronics Corp. marketing manager, said.

Cobra Electronics Corp. is located at 6500 W. Cortland St., Chicago, IL 60635; phone (312) 889-8870, fax (312) 794-1930.

Software Helps Teach Morse Code

AMECO Corp. has issued version 2.0 of *The Complete Morse Code Instructor* learning software. Included are 5.25- and 3.5-inch diskettes, a 32-page manual on

learning Morse code and a complete software users guide.

Described as ideal for beginners, the program also is good for licensed hams who want to increase speed and upgrade their licenses.

Features in the program include:

- Works with any IBM PC/XT/AT or compatible computer.
- Easy user-friendly setup for both color or monochrome systems.
- Online help screen available for all features.
- Generates true random QSOs, similar to VEC exams.
- Sends any external text file in Morse code.

AMECO publishes learning software, code tapes and study guides that cover all the FCC ham license classes from novice through extra. *The Complete Morse Code Instructor* sells for \$29.95.

For more information, contact AMECO Corp., Technical Sales Department, 224 E. Second St., Mineola, NY 11501, (516) 741-5030, fax (516) 741-5031.

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Books You'll Like

BY R.L. SLATTERY

For Ute Monitors

Utility stations generally are classified as those other than broadcasters and amateurs. That includes voice, CW, fax and all digital modes. North American monitors typically consider utilities to include military, press, diplomatic, meteo, point-to-point, police, broadcast feeders, standard time, maritime and aero, beacons, unidentified, coded numbers and mystery stations. There never has been a shortage of guides listing "utes," as these stations are popularly known to monitors.

One such guide recently was updated—the *1996 Guide To Utility Radio Stations, 14th Edition*, by Germany's Joerg Klingenfuss. This is a large compilation running to 600 pages, plus a fold-out chart and two maps. The guide lists 2,000 utes recently monitored operating on 14,500 measured frequencies. About 5,500 of the listings represent RTTY (including SITOR, FEC-A, MFSK, ARQ-E, VFT, etc.) transmissions, while about 300 are fax.

The primary listings section is sorted by frequency, showing the callsign, location, mode(s), reply frequency, reception times and other relevant details. Then, there's a cross-index by nation that displays frequencies according to station or type of service. Also, an alphabetical list of stations by callsign is provided.

A section lists RTTY press services according to nation and hour of transmission. Meteo RTTY and fax services are listed by nation. Additional appendices list commonly used codes, emission designations,

station class designators, maritime frequencies and bands, international air routes, plus other pertinent information.

To be sure, there is a wealth of hard monitoring data here, well prepared and presented. That being noted, it still doesn't mean that your intrepid reviewer has been completely enraptured.

Bear in mind the author states this guide was primarily compiled by monitoring from sites located outside of North America. The majority of its more than 50 contributors are in Europe, with only two in North America. Therefore, in light of the current mediocre DX conditions, many of the listed stations may be received poorly in North America, if at all. Likewise, utes monitored here aren't necessarily able to be copied in Europe, so might not even be listed in this Eurocentric guide.

Also, many ute fans (especially in the United States and Canada) devote much time to, and derive particular enjoyment from, intercepting certain types of intriguing stations. Those include numbers, tactical military and mystery stations. Such data is not in this guide. The author deliberately ignores these, abruptly dismissing them as foolishness with the comment, "Not listed are ... military stations using tactical call signs, or operating during the term of an exercise, as well as number stations and similar never-identifiable nonsense."

For whatever reasons, the author wastes four pages of his guide knocking various other ute frequency information sources. These ranged from unnamed "hobby publishers" all the way to the prestigious International Telecommunications Union. He is certain that his guide is the only one of value, because other frequency sources offer plagiarized, outdated and worthless data. The author's rant seems pompous and rapidly becomes tiresome. It serves no useful purpose to monitors. The four pages would have been much better used to present listings of the tactical military, numbers and mystery stations plus other never-identifiable "nonsense" North American ute monitors enjoy tuning.

In addition to this book, Klingenfuss also puts out an impressive CD-ROM for PCs with Windows. This contains the 14,500 ute frequencies in his guide, plus 8,500 more entries showing the skeds of international shortwave broadcasters. There also are 1,000 abbreviations and 12,820 formerly active frequencies. You can search by frequency, country, station, callsign, or time, or just browse. This CD-ROM is called the *1996 Super Frequency List*.

Klingenfuss' items are available from some U.S. dealers, or may be ordered di-



rectly from Germany. The price of the ute guide ordered from Germany is US\$58 plus DM10 airmail postage. The CD-ROM is US\$45 plus DM5 airmail postage. You need to check the current exchange rate for the German DM before you order. (For general information, as this is written, there are roughly DM1.5 to US\$1. The rate varies slightly every day.) Order from Klingenfuss Publications, Hagenloher Str. 14, D-72070 Tuebingen, Germany. Phone: 49-7071-62830; fax 49-7071-600849.

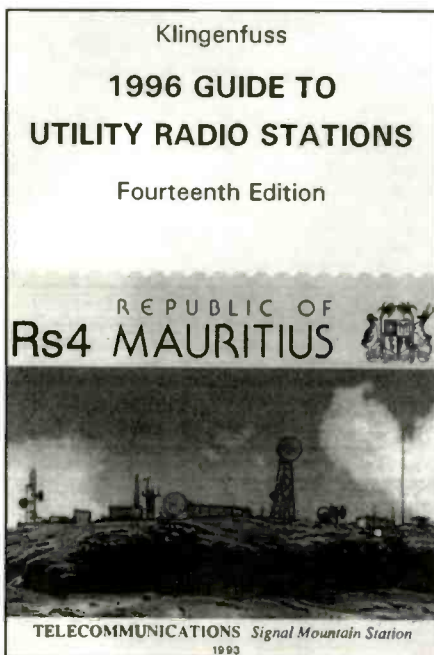
Net Server

The number of Internet servers is growing. Large corporations, governments and organizations (such as IBM, NASA, Pizza Hut, the White House, the Library of Congress and TV networks) are establishing their presence on the World Wide Web (WWW). But the Internet is the ultimate leveler of the playing field, and many smaller organizations and companies are beginning to create large presences on the 'net.

It is not as complicated as you might think to construct an information server and become an Internet publisher from home. In *Internet Server Construction Kit for Windows*, Greg Bean shows users how to turn their PC into an Internet server, making it a permanent part of the Internet. The book and its accompanying CD-ROM provide the reader with step-by-step instructions on how to install the Internet software from the CD-ROM and configure it for Windows 3.1, Windows95 and Windows NT.

The book and CD-ROM set also explains all of the 'net protocols and technologies to set up a server. It provides all the software required. It gives directions for installing and troubleshooting Internet software. Furthermore, it explains how to design WWW home pages using HTML.

The CD-ROM contains WinSock,





Internet Server CONSTRUCTION KIT FOR WINDOWS

Includes CD-ROM

Greg Bean

which is a TCP/IP protocol that allows Windows to work on the Internet. It has WWW HTTP, being a Web server for Windows that lets users create their own home page and lets Mosaic users access information. There's also HGopher to allow Gopher users to access information. You get sample home pages, pretested configuration files for all server software and a sample code for utility programs to increase server function on the WWW.

Internet Server Construction Kit for Windows (including CD-ROM) is \$39.95 from John A. Wiley & Sons Inc., 605 Third Ave., New York, NY 10158-0012. Phone: (800) 225-5945. In Canada (where the book is priced at CAN\$55.95), call (800) 567-4797 to order. Or, check at local and mail-order book suppliers.

Find it Fast

If you have a computer, you can dig up information, and conduct probing personal and business investigations right at your own keyboard. It's the communications along the

information superhighway with all the barriers removed, as explained in Ralph D. Thomas' 136-page handbook, *How To Investigate By Computer, 3rd Edition*.

Within the past five years, more information has become available at lower costs and lightning speed through online computer networks. Thomas' guide shows how to assemble information rapidly and economically. Learn about specialized information services keyed to the needs of those searching out personal, business, phone, employment, credit, motor vehicle, court, financial and other information by gaining access to government databases.

There's information on how to access major newspaper and magazine indexes to add to information. The book contains sample searches to make locating the information you want and need as simple to obtain as possible.

Use this access potential to check out prospective employees, tenants or spouses. Track down long-lost relatives, friends, schoolmates and service buddies, or people who vanished leaving outstanding debts. Be nosy just for the fun of it, or else go ahead and become a professional investigator. Your keyboard connects you with a world of valuable information, once you know the tricks of digging it out.

This is an informative book, brimming over with information explaining everything clearly and completely.

How To Investigate By Computer is \$34.95, plus \$5 shipping (\$6 to Canada) from CRB Research Books Inc., P.O. Box 56, Commack, NY 11725-0056. Residents of New York state, add \$3.30 tax. VISA and MasterCard accepted. Phone orders: (800) 656-0056. Canada/AK/HI orders: (516) 543-9169.

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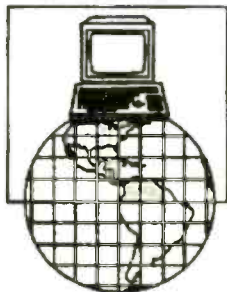
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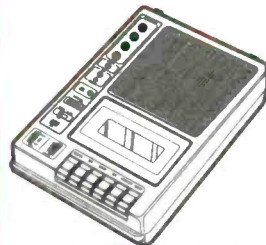
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YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Learn A Language To Aid In Listening

Readers often ask me to recommend various language resources; they wish to gain proficiency in a particular language to better comprehend the communications of a monitoring activity.

One suggestion is to check the catalog of Audio Forum. As an example, German can cost from \$12.95 for vocabulary building, to \$245 for advanced German. Credit card-sized devices that translate foreign languages to English also are available for \$49.95. For more information, write: Audio Forum, Suite LA70A, 96 Broad St., Guilford, CT 06437.

A nice dictionary to have is the *Seven-Language Dictionary*. This modestly priced book, available in bookstores and discount book outlets, covers French, Italian, German, Russian, Hebrew, Portuguese and Spanish. The treatment of each language is foreign to English and English to foreign.

Another good language book is *Languages of Asia and the Pacific*. Compiled by Professor Charles Hamblin, information is presented in an easy-to-use format. Twenty-seven languages are covered; those likely to be encountered by SWLers would be French, Portuguese, Spanish, Japanese, Korean, Cantonese, Mandarin, Vietnamese and Indonesian. The Asian languages could be helpful to U.S. West Coast monitors.

I've had my copy for many years, and haven't seen the title recently in any of my bookstore haunts. It is published by Angus and Robertson, Australia, and bears ISBN 0 207 13628 9.

A note from Al Hemmalin in Rhode Island indicated that Beacon N, 310 kHz, Beavertail Light, R.I., and Beacon WH, 320 kHz, Watch Hill, R.I., were discontinued by the Coast Guard effective Dec. 19, 1995. Al added, "They were the last two marine beacons in Rhode Island. The remaining five active beacons are all aero."

Al uses a Drake R8A with an LF Engineering L-400B active antenna about 25 feet above ground, and an R8 with a Palomar loop.

Ralph Craig of Ohio needs help with some unidentified beacons. RRJ on 368 kHz is at French Lick (Municipal), Ind.; BA on 410 kHz is Columbus (Bakalar Municipal), Ind.; and GF on 521 kHz is Cleveland (Cuyahoga County), Ohio.

I heartily recommend beacon enthusiasts obtain a copy of the *Beacon Guide* by



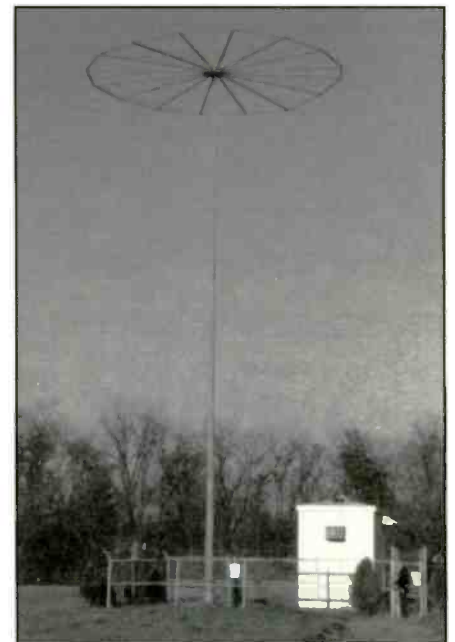
Ralph Craig of Ohio provided these photos of beacon antennas. This one is CCJ, 341 kHz, Springfield, Ohio (just east of the airport). It is an inverted L, 200 feet long.

Ken Stryker. This reference publication greatly aids in identifying and locating beacons. The guide and update can be ordered together for only \$15. Send orders to Ken Stryker, 2856-G W. Touhy Ave., Chicago, IL 60645. For overseas, send \$20.

Also helpful is a subscription to the *Lowdown*, the monthly publication of the Longwave Club of America. Stryker has a monthly column in it that reports current beacon changes. Membership is \$18 in the United States, \$19 in Canada and \$26 by airmail delivery overseas. Write to: LWCA, 45 Wildflower Road, Levittown, PA 19057. Besides beacon coverage, the *Lowdown* covers many LF subjects.

Tom Sevart of Kansas sent in some RTTY traffic he copied last December. "Apparently, 1MSS is the control station and ENCS, IANS, WHOT and YDKS are the outstations. As soon as one station stopped transmitting, another would begin. One thing I noticed was excessive use of RY's at the beginning of each transmission. In the middle of the exchange, they switched to FEC. One last odd thing is on message No. 14, the eighth group is W?EW? That is the way it was copied, and I don't have nay explanation why the message was sent like that."

Let's look at one message. The message



Top hat antenna, 20 feet in diameter, for beacon MDE, 379 kHz, Madeira (Cincinnati), Ohio. Find it in the middle of a traffic circle junction of Ronald Reagan Highway, Cross County Highway and U.S. 22 in Montgomery, Ohio.

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was preceded by RYs. In this case, it was eight lines of RYs followed by the message heading and into the text:

IAN S DE 1MSS MSG NR 14 00
060910 DEC 95 00

DFSNM CNVHJ JRRUU REUIW
OIEWO EWPWO PEWPE W?EW?
DEDFV VCNVC

NCXMF HBVNX JWOIQ QSKDJ
BFURT YRUEI DJHJV JJJHF JBMCV
BDJFH

UYRIW IRORQ WEURP QEWRU
WQEIP YRUIA DSGHF KHJGF KHFGF
KHFLK HFAMN

BCVXZ CNBCX ZGHDF SAHRE
WDFGH JXCZB NFD SA HGJEW UIFDS
HJEW R

EQBND FSAHJ DUYRE WJHHJ
FDSA J HFDSA LUERY EWUIY EQWEW
QESAF

DKJKJ KJHUY TITKJ GHKGF
UYTRH GFQWE RMBVN BVCBV
CXBVX ZLKJH

KHGFH GDGFD APIUO ITYUY
RTREW ERWQK JGJGF DGFND
NVBCH GFYGF

UIHGV TUFY RXDSE SWS ED
NBUBH HNJIK OMLPO OMKMNJIUHBG
YT FCD

DQWAS ZCXDS EWREF DVCBV
GFTRY TYGHG NBMNJ HJYUU IUJKJ
MKOIO

ILPOP LKIJJ HMNBY GQPAL
ZMXNC BVGFH DJSKA LQOWI EUEYR
TTYRY

ZPQLA OEJYC RNTVB RTFGR INT
QSL MSG NR 14
KKKKKKKKKKKKKKKKKK

The frequency was 16172 kHz at 2154, RTTY 57/425. Note the affinity certain letters have for other letters and their respective positions in the alphabet. Without confirming diagnostic routines, the general appearance indicates the possibility of this being practice traffic. I looked through my files and was unable to match up this activity with anything I had retained.

Followers of U.S. Air Force communications may hear references relating to the reactivation of some SR-71 Blackbird aircraft. This intelligence-gathering effort was deactivated by the Air Force in 1990, but subsequent action by Congress resulted in a partial reactivation.

Two of these surveillance aircraft were updated to include a data link that can transmit live images as the spy planes fly over a target.

There are six pilots and reconnaissance systems operators, all with prior SR-71 experience. This provides three two-man crews, with support provided by six ground crew members.

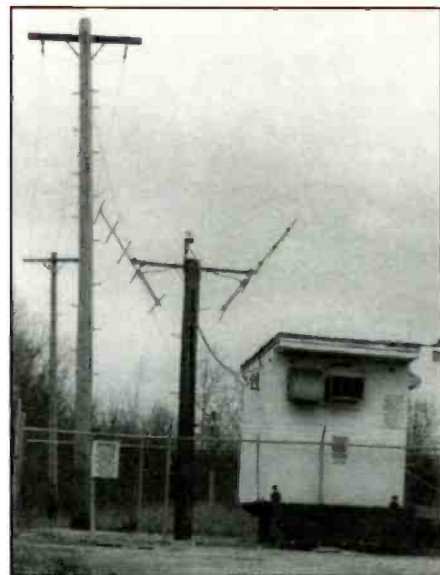
The unit is part of the 9th Reconnaissance Wing located at Beale Air Force Base in California, under control of DARO—Defense Airborne Reconnaissance Office.

The mail just brought this word from Rick Baker of Ohio, who said, "Noteworthy is my 4154.5 kHz log, where the German navy normally can be heard. I recently logged several Italian navy warships, apparently working ICT, Italian navy, Taranto. They also use English phonetics, but much more accented than the Germans, so I have only one ID so far. Also in the 6745 kHz logging, Canadian Forces aircraft flying missions to Bosnia are using the IFB (International Forces Bosnia) prefix."

**Ute loggings
SSB/CW/RTTY/SITOR, etc.**

All times in UTC

- 201:** Beacon GL, La Grande Rivere, Quebec, Canada, at 0951, 886 miles. (AH)
- 204:** Beacon LCQ, Lake City, Fla., at 1220. (WP)
- 205:** Beacon COR, Salyer Farms, Calif., at 0500, 106 miles. (DT)
- 209:** Beacon DKB, DeKalb, Ill., at 0457. (RH-II)
- 210:** Beacon MY, Montgomery Field, Calif., at 2015. (DT)
- 221:** Beacon BJT, Athens, Ga., at 0305. (WP); Beacon PMZ, Plymouth, N.C., at 0613. (PC)
- 227:** Beacon GDV, Upperville, Va., at 0500. (RHII)
- 231:** Beacon BU, Buffalo, N.Y., at 0640. (PC)
- 232:** Beacon GT, Grand Turk Island, British West Indies, at 0758, 1,389 miles. (AH)
- 236:** Beacon CTK, Canton, Ill., at 0520. (PC)
- 243:** Beacon IAK, Palatka, Fla., at 0230. (WP)
- 245:** Beacon AN, Naval Air Station North Island, Calif., at 2320, 90 miles; Beacon TLR, Tulare Municipal Airport, Calif., at 0925, 186 miles. (DT)
- 250:** Beacon YPJ, Terrace Bay, Ontario, Canada, at 0903, 918 miles. (AH)
- 257:** Beacon LW, Kelowna, British Columbia, Canada, at 1909. (RG)
- 260:** Beacon PYA, Penn Yan, N.Y., at 0652, 305 miles. (AH)
- 266:** Beacon YFH, Fort Hope, Ontario, Canada, at 0915, 1,045 miles. (AH)
- 270:** Beacon BKV, Brooksville, Fla., at 1210. (WP)
- 275:** Beacon ADF, Arkadelphia, Ark., at 0533, DSB? (PC)
- 284:** Beacon PDW, Evansville, Ind., at 0154. (RH-II)
- 290:** Beacon AOP, Rock Springs, Wyo., at 0545, 233 miles. (DT)
- 292:** Beacon MIQ, Maiquetta, Venezuela, at 0623, 2,153 miles. (AH)



Beacon AT, 315 kHz, Dayton International Airport, Runway 6L, LOM, "T" antenna. Two five-element Yagi antennas in a V are the array for the 75-MHz outer marker for the ILS.

- 295:** Beacon ATM, Altamira, Brazil, at 0627, 3,318 miles. (AH)
- 308:** Beacon G, Cranberry Island, Nova Scotia, Canada, at 0832, 1,108 miles. (AH)
- 317:** Beacon VC, La Ronge, Saskatchewan, Canada, at 0825, 1,598 miles. (DT)
- 320:** Beacon FLA, Florencia, Colombia, at 0635, 2,771 miles. (AH); Beacon HTN, Mile City, Mont., at 1908; Beacon YQF, Red Deer, Alberta, Canada, at 1910. (RG)
- 323:** Beacon W4, Jenpeg, Manitoba, Canada, at 0136. (RHII)
- 326:** Beacon FG, Frederickton, New Brunswick, Canada, at 0613, 382 miles. (AH)
- 327:** Beacon FXC, Cayenne, French Guiana, at 0904, 2,793 miles. (AH)
- 329:** Beacon YEK, Eskimo Point, Northwest Territories, Canada, at 0820, 1,653 miles. (AH)
- 329:** Beacon AMN, Alma, Mich., at 0618. (PC)



Oxford, Ohio, (Miami University) is the location of Beacon OXD, 282 kHz. The T antenna is about 200 feet long. The small white building houses the transmitter. Typical installation of low-cost "h," state owned.

- ADW - CAMP SPRINGS/ANDREWS AFB, MD
- BIX - BILOXI/KEESLER AFB, MS
- BLV - BELLEVILLE/SCOTT AFB, IL
- DOV - DOVER AFB, DE
- GFA - GREAT FALLS/MAIMSTROM AFB, MT
- GSB - GOLDSBORO/SEYMOUR-JOHNSON AFB, NC
- GUS - PERU/GRISSON AFB, IN
- HIF - OGDEN/HILL AFB, UT
- NBC - BEAUFORT MCAS, SC
- NBG - NEW ORLEANS NAS (ALVIN CALLENDER), LA
- NCA - JACKSONVILLE/NEW RIVER MCAS (MCCUTCHEON FIELD), NC
- NIP - JACKSONVILLE NAS (TOWER FIELD), FL
- NQI - KINGSVILLE NAS, TX
- NQX - KEY WEST NAS, FL
- NRB - MAYPORT NAS, FL
- NUW - WHIDBEY ISLAND NAS, WA
- OFF - OMAHA/OFFUTT AFB, NE
- PAM - PANAMA CITY/TYNDALL AFB, FL

Some location indicators seen in Kawn traffic. Note: ICAO location indicators are telegraphs. Those for the U.S. have "K" as the first letter but in KAWN traffic the "K" is dropped, as shown in the above list.

332: Beacon GUO, Georgetown, Texas, at 0530. (PC)

333: Beacon STI, Mountain Home, Idaho, at 0610, 662 miles. (DT)

335: Beacon CNK, Concordia, Kan., at 0218; LEE, Leesburg, Fla., at 0244; LUK, Cincinnati, Ohio, at 0158; MK, Marion, Va., at 0201. (RH)

336: Beacon LEE, Leesburg, Fla., at 0200. (WP); Beacon LF, La Salle, Manitoba, Canada, at 0658. (PC)

338: Beacon JZ, Lawrence, Kan., at 0701. DSB? (PC)

344: Beacon PPQ, Pittsfield, Ill., at 0104; Beacon VU, unid at 0359. (RH); Beacon XX, Abbotsford, British Columbia, Canada, at 1055, 1,083 miles. (DT)

349: Beacon APG, Aberdeen, Md., at 1059, 288 miles. (AH)

351: Beacon NY, Enderby, British Columbia, Canada, at 1903. (RG)

353: Beacon LWT, Lewistown, Mont., at 0630, 1,023 miles. (DT)

359: Beacon AS, Amherst, N.H., at 0545. DSB. (PC)

VERIFICATION OF RECEPTION

LUFTHANSA 437

Date	Time (UTC)	Frequency	Mode
22 Dec.. 94	0638	2872 kHz	USB

Aircraft Type	Approx. Xmsn Location	Aircrft Registr #
B747-230B	52N / 50W	D-ABYK

Aircraft Home Base
Frankfurt

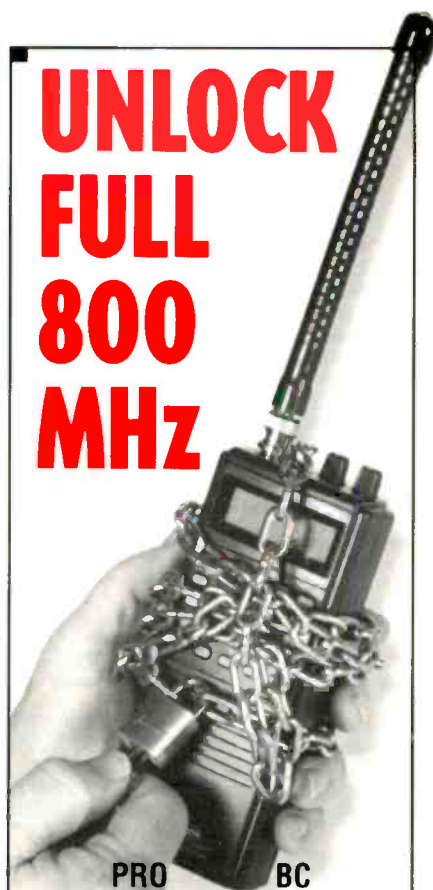
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Signature Capt. Klatte

Official Stamp

Steve McDonald, British Columbia, Canada, says LU437 was working Gander when Steve logged this contact.

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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)

362: Beacon SB, Sudbury, Ontario, Canada, at 0310. Long dash after call. (WP); Beacon GND, Pt. Salinas, Grenada, at 0917, 2,119 miles. (AH)

363: Beacon D3, Ponoka, Alberta, Canada, at 1906. (RG)

365: Beacon FT, Fort Worth, Texas, at 0300. (WP)

365: Beacon FKV, Gainesville, Ga., at 0203; Beacon MRJ, Mineral Point, Wis., at 0209. (RH)

367: Beacon HA, Hao Atoll, French Polynesia at 0645, 3,881 miles. (DT) (367 kHz is freq listed in Beacon Guide.—Editor)

369: Beacon HDI, Cleveland, Tenn., at 0847. (RH); Beacon ZDX, St. Johns, Antigua, at 0753, 1,776 miles. (AH)

371: Beacon ITU, Great Falls, Mont., at 0715, 1,005 miles. (DT)

379: Beacon CM, Channel Head, Newfoundland, Canada, at 0255. Long dash after ID. (WP)

380: Beacon UCY, Cayojobo, Cuba, at 0030. (WP); Beacon CIA, Cuiaba, Brazil, at 0700, 4,068 miles. (AH); Beacon ML, Milledgeville, Ga., at 0902. (RH)

386: Beacon SYF, St. Francis, Kan., at 0903. (RH)

388: Beacon NXX, Willow Grove, Pa., at 0148, 222 miles. (AH)

389: Beacon EN, Kenosha, Wis., at 0211. (RH)

390: Beacon UCA, Ciego de Avila, Cuba, at 0315. (WP)

392: Beacon CF, Chesterfield, Va., at 0228. (RH)

396: Beacon APH, Bowling Green, Va., at 0832, 399 miles. (AH)

402: Beacon SJE, San Jose Del Guaviare, Colombia, at 0847, 2,694 miles. (AH)

407: Beacon RXW, Watersmeet, Mich., at 0321. (RH); Beacon OX, Ocean City, Md., at 1556, 301 miles; Beacon RV, Reedsville, Pa., at 0926, 341 miles. (AH)

410: Beacon GDV, Glendive, Mont., at 1900. (RG)

412: Beacon MTU, Mitu, Colombia, at 0731, 2,793 miles. (AH)

413: Beacon YHD, Dryden, Ontario, Canada, at 0745, 1,182 miles. (AH); Beacon OEG, Eagle, Ariz., at 1050, 215 miles. (DT)

414: Beacon BC, Baie Comeau, Ontario, Canada, at 1220. (RC)

420: Beacon GAS, Gallipolis, Ohio, at 0330. (RH); Beacon CFY, Lake City, S.C., at 0821, 704 miles. (AH)

419: Beacon RYS, Grosse Point, Mich., at 0201, 612 miles. (AH)

421: Beacon TU, Tupelo, Miss., (LOM) at 1210, 480 miles. Not bad for a low-power LOM. (RC)

423: Beacon CKP, Cherokee, Iowa, at 0327; DXE, Dexter, Mo., at 0329. (RH)

426: Beacon FTP, Fort Payne, Ala., at 1110, 923 miles; Beacon IZS, Montezuma, Ga., at 0741, 944 miles. (AH)

430: Beacon LML, Lomalinda, Colombia, at 0833, 2,644 miles; Beacon VA, Varadero, Cuba, at 0832, 1,412 miles. (AH)



Lufthansa

Dear Mr. MacDonald,

as per your request, we gladly confirm your data. please find your QSL-card enclosed, completed as desired.

We thought, you might be interested in some more information concerning Aircraft and flight, here it is.

Our Boeing 747-230B/SCD (SCD stands for side cargo door) Registration D-ABYK, manufacturers serial number 21221, was delivered to Lufthansa on December 15th, 1976. Its given name is "Rheinland-Pfalz", its home base Frankfurt Rhein-Main Airport. It is equipped with four engines, General Electric CF6-50E2, each producing 23,625kgs thrust, max Takeoff weight is 362,900kgs. Until today this aircraft has accumulated a total of 78978 hours flight time and has had 14575 landings.

The date of your reception, this aircraft was on its way from Houston via Dallas to Frankfurt as LH437 and passed position 52N / 50W at your logged time. Our pilots gave a position report to Gander Oceanic Control Centre, callsign "Gander Radio", on your logged frequency.

We hope this data is of some help to complete your logs.

May we suggest, to kindly give us a note prior to an eventual flight on a LH-Jumbo, to arrange an extended Cockpit-visit during take-off and/or landing.

If you should need any further information, please feel free to contact us,

yours sincerely

Lufthansa German Airlines
Department Pilots B747

Sigurd Burchard
(First Officer B747-200)

Steve McDonald received this letter with the return of his PFC.

450: Beacon PPA, Puerto Plata, Dominican Republic, at 1205, 1,604 miles. (RC)

512: Beacon HMY, Lexington, Okla., (U.S. Army) at 0300. (WP)

518: Beacon GCT, Guthrie Center, Iowa, at 1130. (RC)

524: Beacon UOC, Iowa City, Iowa, at 1147. (RC)

526: Beacon RWE, Camp Roberts, Calif., at 1120, 214 miles. (DT)

2118: 3EKU5, M/V River Plate at 0459 in USB wkg VCS, Halifax Coast Guard Radio (on 2514 kHz) for R/T call to Greece. (RB)

2670: NMF44, USCG Southwest Harbor Group at 0420 wkg F/V Enterprise re MEDICO: crewman injured hand. At 0421, NMB, USCG Group Charleston, S.C., w/announcement of overdue 24-foot S/V w/1 POB, then into MIB. At 0528, NNAS, USCGC Escanaba (WMEC-907), wkg F/V Enterprise re their MEDICO, gives ETA. At 0640 GLD, Land End Radio, UK w/announcement, MIB, at 0735, at 0735 w/wx. At 2312, NKEC, USCGC Monomoy (WPB-1326) wkg USCG Group Moriches, N.Y., (NMY42). All USB mode. (RB)

3380: 6FR8 DE 4XML (both unid) at 1355 w/repeating callup. (TY)

4035: YLJEE in AM at 0238 w/5F grps. Signed down w/389 389 245 245 00000. (TS)

4098: ELGH5, M/V Crown Princess, Princess Cruises ship, at 0320 concluding R/T t/c w/WOM, Pennsuco, Fla. At 0421, C6LW2, M/S Regal Empress, Royal Caribbean Cruise ship, concluding R/T t/c w/WOM. Both in USB. (RB)

4106: Unid CW net at 0829 passing 5L/F grps. Stns used "si" as an acknowledgment and signed with "Abrazos y saludos." (TS) (Believed to be Cuban border guard or Cuban navy.—Editor)

4148.9: Two fishing boats, Guardsman & Cavalier, talking to each other at 0610 in USB. The Guardsman was near Eureka, Calif. (RG)

4154.5: DRAV, FGS Karlsruhe (F-212), German navy frigate, at 0429 wkg DHJ59, Wilhelmshaven Naval w/RTTY coordination t/c. At 0535, IAOC, Danaide (F-553), Italian Navy Corvette, wkg unid stn, poss ICT, Italian Navy Tarento, w/RTTY coordination t/c. Both in USB. (RB)

4165: Mossad YL at 1945 w/CIO18T27F38-215R46. (SM)

4191: ENEG, TKH Rakhov at 0549 in 50/170 RTTY w/t/c to Izmil, (IZM/UDP). (RB)

4202.5: UVHA, Ukrainian trawler RTMKS Vasily Lozovskiy at 2151 in 50/170 RTTY w/RV's/DE to UIW, and w/admin TGs to Murmansk Trailflot using hull No./ID MA-1823 for ETA Hamburg. (RB)

4222: XSN, Nigbo, China, at 1342 w/CQ mkr in CW. (TY)

4291.5: IAN, Rome, Italy, at 0700 in CW w/CQ mkr. (RG)

4306.2: JNA, Tokyo, Japan, in CW at 0655 w/CQ mkr. (RG)

4310.9: WNU43, Slidell, La., in CW at 0630 w/CQ mkr. (RG)

4395: "Golf" wkg "Delta" and "Lima" in USB at 0318. Later, "Charlie Whiskey" wkg "Tango" and "Zulu" and numerous other stns in net. Stns referenced **5143.** Data bursts hrd on that freq. Poss USN net. (TS)

4396: Norddeich Radio in USB at 0653 w/sound of clock ticking and YL announcing, "Here is Norddeich Radio." (TS)

4419: Royal Navy, UKMACCS Coastal Control at

der guard or Cuban navy.—Editor)

4148.9: Two fishing boats, Guardsman & Cavalier, talking to each other at 0610 in USB. The Guardsman was near Eureka, Calif. (RG)

4154.5: DRAV, FGS Karlsruhe (F-212), German navy frigate, at 0429 wkg DHJ59, Wilhelmshaven Naval w/RTTY coordination t/c. At 0535, IAOC, Danaide (F-553), Italian Navy Corvette, wkg unid stn, poss ICT, Italian Navy Tarento, w/RTTY coordination t/c. Both in USB. (RB)

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4222: XSN, Nigbo, China, at 1342 w/CQ mkr in CW. (TY)

4291.5: IAN, Rome, Italy, at 0700 in CW w/CQ mkr. (RG)

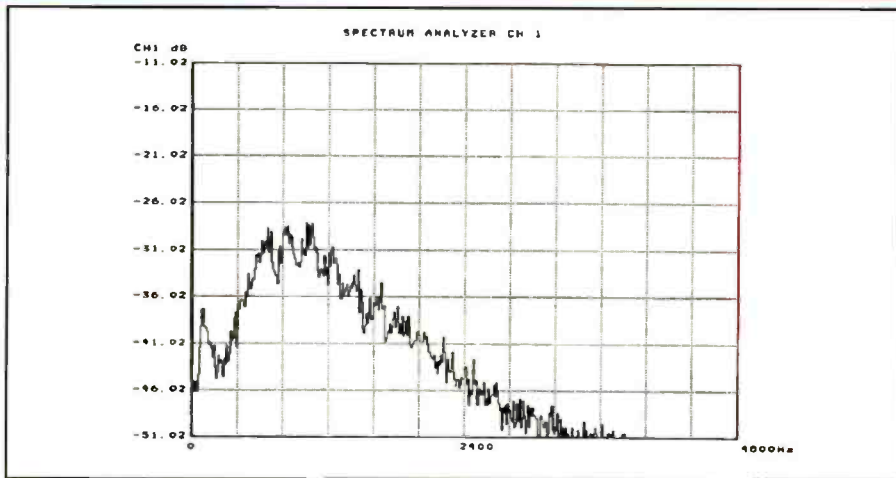
4306.2: JNA, Tokyo, Japan, in CW at 0655 w/CQ mkr. (RG)

4310.9: WNU43, Slidell, La., in CW at 0630 w/CQ mkr. (RG)

4395: "Golf" wkg "Delta" and "Lima" in USB at 0318. Later, "Charlie Whiskey" wkg "Tango" and "Zulu" and numerous other stns in net. Stns referenced **5143.** Data bursts hrd on that freq. Poss USN net. (TS)

4396: Norddeich Radio in USB at 0653 w/sound of clock ticking and YL announcing, "Here is Norddeich Radio." (TS)

4419: Royal Navy, UKMACCS Coastal Control at



Tom Severt of Kansas copied this buzzing signal on 8923 kHz. Analysis performed by Kevin Tubbs of Vermont, who said, "Sounds like a phase-shift-keyed signal being swept across a frequency band. But, without some really good equipment (i.e., expensive), I cannot say for sure."

2310 in USB w/two-tone availability signal. (RB)
4604: Illinois CAP stn Red Fox 4 wkng Red Fox 39 in USB at 0034. (TS)
4625: At 2140 in background of permanent buzzer, CW stn sending 658 658 658 1. then 3150, 120, 3150, 120 and into rapid 5F grps. Ended w/000 000. (SM)
4724: McClellan Air Force Base in USB at 0706 w/EAM. (TS)
4739: White noise in USB at 0030. At 0055, P62 clg Lucas 61 w/no reply. (TS)
4740: At 2210. CW stn sending 56228 then into 5F grps. (SM)
4776: OM/SS in USB at 0443 passing 5L pho-netic grps to unid stn. (TS)
4779: At 2100, Swedish Rhapsody tune foll by YL/GG w/5F grps for 32015. (SM)
4839.5: P7X in CW at 0453 w/120 grp msg. (TS)
5120: At 1900, YL/GG w/old IStasi type voice w/5F x2. Ended w/382 382 114 114 00000. Rptd at 2000 on 4579 kHz. (SM)
5160.5: 5UA, ASEENA, Nigeria, at 0035 in ARQ-M2 96/425 idling w/weak sig, lost sync. (RB)
5235: OM/EE at 2100 w/934. From 2105 318 318 105 105 and into 5F grps. Ended w/00000. (SM)
5320: NIQZ, USCGC Point Baker (WPB-82342) at 0704 clg Group Galveston, no joy. At 0706, NMG, USCG Commsta New Orleans wkg distressed vs! Amy Star. Advises either USCGC Cushing or USCGC Point Winslow out of Grand Isle, La., will be en route to assist them, depending on which can recall its crew first. At 2256, NOY8, USCGC Group Corpus Christi, Texas, wkg R9D to assume their rdo guard. All in USB mode. (RB)
5320.5: REFYMV, Guardia Civil, JECOR Cuenca, Spain, at 0705 in 100/425 SITOR-A w/SS tlx descriptions. (RB)
5404: At 2200, CW stn w/256 256 256 1. Then 316 42 316 42 and into 5F grps. Ended w/000 000. (SM)
5410: YL/GG at 2020 w/807 807 807 000 for 5 mins. Then at 2025, "Ende." (SM)
5419: YL/SS at 0100 w/5F grps. (SM)
5431: At 2100, very slow rptng tune of four notes that ended with rapid musical tones for 3 secs. Rptd at 2110 on 5131 kHz. (SM)
5475: X4U, unid British Military at 0615 in USB wkg unid units w/what sounded like tracking comms. (RB)
5526: Porto Velho (SAM-SE MWARA) at 0836 in USB wkg REACH 40613 w/posn. (RB)
5573.7: Delta 44 in USB at 1003 giving posn and elevation to Honolulu. (RG)
5700: WAR46, Fort Richie, Md., wkg NIGHT-WATCH 1 (NEACP) in USB at 0504 w/rdo ck. Later,

PROXIMATE wkg NIGHTWATCH 1 on P381 (5700 kHz), switched to channel W101 (unk). (TS)
5750: YL/EE in AM at 0420 w/5F grps. (RG)
5821: At 2000, YL/EE after CW NNN sign-on w/Group 15 and into 5F grps. At 2010, "Ended." (SM)
5829: OM/EE at 1700 w/139 then 865 865 112 112 and into 5F grps. Ended w/00000. (SM)
5905: YL/SS in AM at 1105 w/5F grps. Gone at 1118. (SW)
6218.5: XJP52, Upper Lakes Shipping (ULS Ltd), Toronto, Ontario, Canada, in USB at 2113 clg ULS Great Lake ships SS Canadian Mariner, CYMD; M/V Canadian Ranger, VGKD; and Seaway Queen, VDDL, no joy. At 2115, VCFW, Canadian Provider wkg XJP52 for posn. At 2118, VCRQ, M/V Canadian Explorer, bulk carrier, wkg XJP52 re ETA of 1700 on the 10th in the canal. (RB)
6227: ADMU, USAV Hobkirk (LCU-2023) at 0522 in USB clg AADT, no joy on Channel 3. (RB)
6269.5: EFJL, F/V Playa de Mourisca at 0551 in SITOR-A w/NAFO reports, log-in was 08573 ANA MG E, when last logged used abbrev of PLMCAE; poss name change? (RB)
6319.2: WLO, Mobile, Ala., at 0115 w/callsign in CW foll by four long dashes. (FD)
6491.5: VCS, Halifax, Nova Scotia, Canada, in CW at 0620 w/CQ mkr. (RG)
6645: Every Monday at 1900, stn sends a Jean-Michel Jorre composition called Magnetic Fields Part 1 foll by YL/EE w/5F grps. (SM)
6745: IFB98, Canadian Forces a/c deployed on Bosnia mission. At 0429 in USB wkg Trenton Military re wx Shannon. (RB)
6779: DRKM, FGS Rhon (A-1443), German navy replenishment: tanker at 0645 in USB wkg DHJ59, Wilhelmshaven Naval, in EE phonetics w/RTTY coordination. (RB)
6983: At 0200 YL/SS w/attention sign-on sending 5F grps after 04499, 150 callup. (SM)
7490: YL/SS in AM at 0202 w/5F grps. Ended w/"Finale" sent another msg. (TS)
7535: At 1614, apparently precommissioned USS COLE (DDG-61) wkg SESEF w/ANDVT tests although "USS" was used with name. At 1645, NAWR, USS Arthur W. Radford (DD-968) w/test comms. At 1746, NSVN, USS Nicholas (FFG-47) w/request to test two ANDVTs, and into "Green." At 1808, NRLC, USS Conolly (DD-979) w/ANDVT test. At 1823, NTSA, USS Tortuga (LSD-46) w/HF rdo tests. At 1855, NICK, USS Nicholson (DD-982) clg/wkg SESEF for tests, advises at Pier 5, Norfolk. Primary mode of above was USB. (RB)
7536.5: HOPPER 12, USN Landing Craft Air Cushioned hovercraft LCAC-12, at 1615 wkg AC4, Assault Craft Unit 4, Little Creek, Va., w/rdo cks in

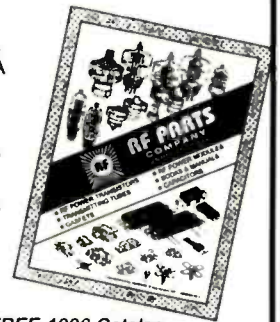
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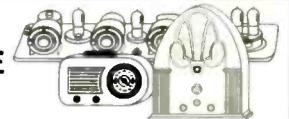
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clear and in the green, foll by roll call including HOPPER 19 (LCAC-9), HOPPER 37 (LCAC-37), HOPPER 39 (LCAC-39) & HOPPER 54 (LCAC-54); ea w/same. At 1715, AC4 wkg HOPPER 07 (aka LCAC-07) for rdo ck, at 1826 w/CHOPPER 26 (LCAC-26) on radio 2 for same. All in USB mode. (RB)

7547: YL/EE in AM at 1315 rptng 3/2F, also noted on 8016 kHz. (TY)

7985: BSB29, Lanzhou Meteo, China, in 75b RTTY w/coded wx at 0938. (TY)

8005: Radio Moscow feeder in USB at 1443. (TS)

8016: YL/EE in AM at 1320 w/3/2F, also noted on 7547 kHz. (TY)

8040: OM/RR at 1600 w/805 805 805 00000. (SM)

8100: OM/RR at 1300 w/824 foll by 149 149 53 53 and into 5F grps. Rptd at 1400. (SM)

8294: ADMP, USAV Five Forks (LCU-2018) at 0640 in USB wkg RAIDER, 1097th Transportation Co., Rodman Naval Station, Panama, w/posn. (RB)

8297: ADMU, USAV Hobkirk (LCU-2023) at 0438 clg ADMT, no joy. At 0513 wkg AAC2, QTH Haiti, at 0501 wkg AAEG. At 0445, AADT, USAV Aldie (LCU-2004) wkg AAEG. At 0446, AAEG, USAV Kennesaw Mountain (LCU-2002) clg ADMU no joy. At 0501, ADMM, USAV Contereras (LCU-2015) wkg ADMU, USAV Hobkirk. At 0505 AAFB, USAV MG Nathaniel Greene (LT-801) wkg AAC2, Harbormaster Fort Eustis, Va., w/posn report on Channel 5. At 0512, ADMO USAV El Caney (LCU-2012) wkg AAC2, then clg AADT no joy. At 0521, ADTK, USAV Col. Seth Warner (LT-806), wkg ADMO, who is relaying his tlc to AAC2. All U.S. Army Transportation Corps in USB mode. (RB)

8381: S6CP, Eagle Auriga at 1552 IN SITOR-A w/AMVER/PR via WLO, Mobile, Ala. (RB)

8392.5: UHBO, TK Novoklav-4, Russian Ammonia tanker, at 0201 in SITOR-A w/NVRTLG crew TGs via UGW, Novorossiysk, Russia. (RB)

8396: URCK, UPS Kurs at 1904 in 50/170 w/RYS/DE-to URL, Sevastopol, then w/administrative mgs from Master, c/s was ESHY. (RB)



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<u>BEACON</u>		<u>KHZ</u>
This will verify your		reception of our beacon.
Date: <u>November 13, 1994</u>		<u>[Signature]</u>
Freq: <u>310 KHZ</u>		Verified by:
Time: <u>0330 UTC</u>		<u>LCDR, JCLG</u>
Elevation: <u>125 feet</u>		Title:
Power: <u>420 watts</u>		Date: <u>1/25/95</u>
Location: <u>27°36'N 82°46'W</u>		<u>DGPS BEACON</u>
Antenna Type: <u>LEHLOU</u>		Remarks:
<u>Egmont Key LS</u>		<u>E: GRAY, JR.</u>
		<u>BY DIRECTION</u>
		<u>Florida</u>

Allen Renner of Pennsylvania shares his PFC with readers.

8404.5: V7AQ2, M/S Malbork II at 1955 in SITOR-A wkg Szczecian, POL W/QLS of mgs, this is the ex-SQJV. (RB)

8407.5: UAAU, NIS Akademik Sergey Vavilov, Russian research vsl, at 2242 in 50/170 RTTY w/RYS/DE to UIW, Kaliningrad, Russia, into DISP-I reports fm Master, also tix to Kaliningrad Meteo and Moscow Oceanologiya. Note this is a change from former c/s UKOS. (RB)

8471: XFL, Mazatlan, Mexico, in CW at 0025 w/CQ mkr. (RG)

8521: VIP, Perth, Australia, in CW at 1419 w/CQ mkr. (TY)

8523.4: FFL2, St. Lys, France, in CW at 0030 w/CQ mkr. (RG)

8682.6: EAD3, Aranjuez, Spain, at 0020 in CW w/CQ mkr. (RG)

8992: MacDill GHFS at 2145 in USB wkg REACH, 1687 w/pp HYLDA re dep MUGM 1924, late departure because of upload problems. (RB)

10352: Much activity from MOSSAD station. YL at 1345 with CIO12L36P15Z46. At 1845 on 4165 kHz w/CIOI. At 0045 w/CIO36F13P36R55. At 1645 CIO12F33R. At 1745 with CIO26P14T12R38L54. At 1945 CIO12Z2T48F54R29. (SM)

10731: CMU967, Santiago Naval, Cuba, wkg RIW, Khiva Naval, Uzbekistan, in CW at 1643. (TS)

10954.7: RFTJF, French Forces, Port Bouet, Ivory Coast, at 2108 in 48/850 ARQ-E3, w/C de V, on circuit JFD. (RB)

11175: Navy 589, NP-3D from Naval Research Lab, Naval Air Station, Patuxent River, Md., BuNo 154589, at 0153 in USB w/MAINSAIL, Ascension GHFS answers, pp 342 DSN re ETA and need fuel and ordnance team. (RB)

11253.5: QUEBEC ECHO wkg unid stn in USB at 1715 w/data bursts. (TS)

11435: OM/EE w/very strong sig at 1400 w/192 foll by 754 754 129 129 and into 5F grps. Rptd at 1500 on 8125 kHz. (SM)

11476: HMF52, KCNA Pyongyang, North Korea, in 50b RTTY w/nx in EE at 0432. (TY)

12498.6: ELEW9, MIV Cabofrio at 0855 in SITOR-A wkg Capetown Radio. (RH2)

12507: AAFB, USAV MG Nathaniel Greene (LT-801) at 2029 in SITOR-A wkg WLO, Mobile, Ala., w/OP+ tlc attempting get SITOR problem worked out. (RB)

12562.5: UNMJ, BATM Dzhaparidze at 1715 in 50/170 RTTY w/RYS and DE to UIW, Kaliningrad and into crew TGs using hull No./ID BATM 6040. (RB)

12831.6: XFM, Manzanillo, Mexico, at 0003 in CW w/CQ mkr. (RG)

12836: KAWN w/coded wx in USB at 1833, foll by report on Tropical Storm Roxanne 75b RTTY. (SW)

12950: High MOSSAD activity here and also on 5230/7605 kHz for few days. At 1345, VLB-38P22215R46. At 1830, VLB26B14D39. At 2245,

VLB12A24G36P43. At 1045, VLB28P: 14Z36B-54T20. At 1245, VLB22P28L44B33Z16. At 1745, VLB29T16L55P16. Next day at 2145, VLB36P12. At 0245, VLB16R. At 1345, VLB55P12T34L62. VLB2 returned after this. (SM)

13032: WCC, Chatham, Mass., in USB at 1851 w/CQ mkr. Tlc list then a thank you for using MCI. Into CQ QRU IMI at 1900. (SW)

13380: OMIEE at 1215 w/942 til 1220 when OM sald 183 183 52 52 and into 5F grps. Ended w/00000. (SM)

13506.2: Unid stn at 1040 in RTTY 75/462 w/5L grps. (RH2)

13866: YL/EE w/Cherry Picker tune here between 1000 and 1400 daily. Also on 14469 kHz in parallel. (SM)

13973: Unid Cuban diplo stn (poss CLPI) in RTTY 50/425 at 1900 w/bulletin in SS. After plain text, a 5F grps msg was sent. (TS)

14373: Russian MFA link KAC in RTTY 75/500 at 2051 w/5L grps. (TS)

14835: Unid stn at 0153 in 75b RTTY w/5L grps. (TY)

14885: Scrambled speech in USB at 2053. Also on 14967 kHz. (TS)

14935: GYA, London (Whitehall) Naval, England, in RTTY 75/850 at 2059 w/RYS & "foxes" test tape. (TS)

14940: YL/SS at 1300 rptng 105 then into 5F grps. Ended w/964 964 123 123 00000. Strong sig. (SM)

15034: Trenton Military in USB at 2128 w/wx. (TS)

15480: OTH radar at 2140. (TS)

15638: CW stn at 2134 w/5F grps. Signed down w/479 479 203 203 00000. (TS)

16135: OTH radar at 2057. (TS)

16793: DZI, Manila, Philippines, in FEC at 2200 w/nx in EE. (TS)

16829: USU, Mariupol, Ukraine, in SITOR-B at 0730 w/tfc list. (RH2)

16946: Unid stn in CW at 2034 w/maritime wx, warnings for Tropical Storm Roxanne. (SW)

17016: KPH, San Francisco, Calif., in CW at 2052 w/tfc list. (SW)

17232: CWA, Cerrito, Uruguay, in CW at 0005 w/CQ mkr. (RG)

18385.6: LOR, Puerto Belgrano NAVRAD, Argentina, at 1325 in RTTY 96/155 w/5L grps. (RH2)

18496.4: CNM80, MAP Rabat, Morocco, at 1337 in RTTY 50/412 w/nx in EE. (RH2)

18966.7: RFHJ, French Forces, Papeete, Tahiti, French Polynesia, in ARQ-E3 96b, idling & 5L grps at 0415. (TY) RFLI, French Forces, Fort de France, Martinique, at 1745 in ARQ-E3 192/425 idling. (RB)

19361.2: AFS, U.S. Air Force Air Weather Service, Omaha, Neb., at 1204 in FAX 120/576 w/air chart (on USB freq). (RH2)

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22	U.S. Naval Academy, MD	Commissioning Week Air Show
25	Moody AFB, GA	Community Appreciation Day
JUNE		
1-2	Chattanooga, TN	Airshow '96
8-9	NAS South Weymouth, MA	Blue Farewell to Boston
15-16	Concord, NC	Airshow Carolinas
22-23	Davenport, IA	Quad City Airshow
29-30	NAS Ft. Worth, TX	Airshow
JULY		
6-7	Traverse City, MI	National Cherry Festival
13	Pensacola Beach, FL	Airshow
20-21	Dayton, OH	Airshow
27-28	Springfield, IL	Air Rendezvous
AUGUST		
3-4	Selfridge ANGB, MI	Airshow
10-11	Seattle, WA	SEAFAIR Airshow
16-18	NAS Miramar, CA	Airshow
24-25	Chicago, IL	Air and Water Show
SEPTEMBER		
31(A)-2	Cleveland, OH	National Airshow
7-8	Scotia, NY	Empire State Aerosciences Museum Flight '96
14-15	Grand Junction, CO	Airshow
21-22	Topeka, KS	The Great Kansas Airshow
28-29	Midland, TX	Confederate Air Force Airshow
OCTOBER		
5-6	NAS Point Magu, CA	Airshow
12-13	San Francisco, CA	Fleet Week Airshow
19-20	Bowling Green, KY	Great American Air Affair
26-27	NAS Jacksonville, FL	Airshow
NOVEMBER		
2-3	NAS New Orleans, LA	Airshow
8-9	NAS Pensacola, FL	Open House

Norm Pihale of Minnesota provided this Blue Angels performance schedule for the remainder of this year. 1996 is the Golden Anniversary of the Navy Flight Demonstration Squadron.

19390.1: German Embassy, Brasilia, Brazil, at 1159 in ARQ-E 96/158 w/tfc in GG to MFA Bonn. (RH2)

20368: YL/EE rptng 3/2F in AM at 0345, also noted on 22970 kHz. (TY)

20600.4: Unid at 1447 in RTTY 73/837 in crypt. Goes on all day. Who is it? (RH2) (Wonder if this might be MKD in Cyprus.—Editor)

21859.2: DFZG, MFA Belgrade at 1430 in RTTY 75/386 w/RVs. (RH2)

22382.5: KPH, San Francisco, Calif., in SITOR-A at 0220 w/tfc list. (TY)

22659.5: JOR, Nagasaki, Japan, in CW at 0220 w/CQ mkr. (TY)

22970: YL/EE rptng 3/2F in AM at 0345. Also noted on 20368 kHz. (TY)

Our thanks this month to these contributors: RB—Rick Baker, Ohio; RC—Ralph Craig, Ohio; FD—Francis Donovan, Massachusetts; RG—Rodney Grussling, Idaho; AH—Al Hemmalin, Rhode Island; RHI—Russ Hill, Michigan; RH2—Robert Hall, South Africa; SM—Simon Mason, England; WP—Walt Petersen, Florida; TS—Tom Sevart, Kansas; DT—Donald Tomkinson, Calif.; SW—Sue Wilden, Indiana; TY—Takashi Yamaguchi, Japan. ■

Broadcast DXing

BY TIM KRIDEL

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Those Hidden Signals On FM


Remember AM stereo? It moved through the radio industry like an elixir salesman, promising an audio quality that would level the playing field between AM and FM and win back the hordes of listeners who had defected to FM. But after its 15 minutes of fame a decade ago, it faded faster than a runner-up in the New Hampshire presidential primary. And while a small number of AM stations still broadcast in stereo, and a handful of AM stereo receivers can be found, it never quite took hold among broadcasters and listeners. A lot had to do with squabbles over which system to use.

But what really stifled AM stereo was a wait-and-see attitude in all camps—manufacturers were hesitant to invest much beyond the development stage, waiting for stations and listeners to show an interest in AM stereo, and broadcasters wouldn't invest in the hardware until AM stereo-capable receivers were commonplace in the consumer marketplace. And listeners wondered whether it was worth the extra money, especially with the paucity of stereo programming on AM and the wealth of it on FM.

Ten years later, it's *deja vu* all over again, except this time it's RDS at the now-or-never stage. Radio Broadcast Data System—known as RBDS or simply RDS—allows an FM broadcaster to piggyback digitally encoded data on its signal. This subcarrier then is decoded by the listener's specially equipped receiver, which sends it to a small display on the radio. Although most of the data currently being sent via RDS ranges from call letters and slogans to greetings to the few listeners with RDS-capable receivers, system developers envision stations providing information ranging from news headlines and stock tickers to traffic and weather updates. The technology also gives listeners the ability to have their receiver tune only to stations programming with their favorite format.

Although RDS technology has been in use in Europe for more than 10 years, it has yet to catch on with broadcasters and audiences in the United States. At last check, some 400 FM stations in 43 states were using RBDS to one extent or another. That's almost 4.2 percent of all U.S. FM stations, translators and boosters, and about 150 more stations than a year ago. In an effort to educate broadcasters and the

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Eugene, Ore.’s KPNW confirmed L. Mark Lussky’s reception of its 50-kW signal in Los Angeles, Calif., with this QSL card.

public about RDS, the Electronic Industries Association has offered hardware, software and radios to stations for two years as part of its ongoing national promotion.

Still, you're more apt to find RDS-ready radios at high-end car-audio shops than at Kmart or Sears. Denon, a manufacturer of home and car receivers, has 15 RDS-ready

models, and has sold about 100,000 so far, according to a *Chicago Tribune* article sent in by Elmer Wallesen of La Grange Park, Ill. And because the company estimates that RDS adds only a few dollars to the cost of a radio, the lack of demand seems to be mostly because of insufficient consumer marketing. Chicago's WXRT,





CONFIRMING YOUR RECEPTION OF THE
AMERICAN FORCES NETWORK, EUROPE

AFN-Serving American Forces in Europe

The U.S. Department of Defense issued this QSL card for reception reports of its American Forces Network in Europe. (Courtesy R.C. Watts, Louisville, Ky.)

NUMBER 1 in Los Angeles
KFWB

ONLY OFFICIAL L.A. FABULOUS FORTY SURVEY

channel 98

KFWB of Los Angeles, Calif., once issued a weekly "Fabulous Forty Survey" of hit songs. This montage of their DJs was on the April 13, 1962, playlist. (Courtesy Bill Hayes, Redondo Beach, Calif.)

which has had RDS for three years, says it wants to display artists' names and song titles, but has held off because the audience for the service simply isn't there. For now, all listeners see is "93 XRT." As the station's engineering director told the *Tribune*, "You need a critical mass of receivers for this to take off ... So far that critical mass is missing."

What does RDS offer to DXers? Besides an easy way—too easy, some might say—to ID a station, apparently not much. But because we at POP'COMM don't claim omniscience, we want to hear from you. Do any stations in your area use RDS? What sort of information are they providing with the service? What have they done to promote RDS? If you own a receiver that is RDS-ready, what prompted you to buy it? If you don't, what would it take to convince you to buy one? More importantly, how much more would you be willing to pay for the RDS capability? Send your answers to Broadcast DXing in care of POP'COMM.

Foreigners Welcome

In an effort to provide capital to allow Canadian radio stations to adopt new technology, the Canadian government will allow foreign investors to own up to a one-third interest in a company with broadcast-

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The Eavesdroppers™ now includes our new Zap Trapper™ Electronic Gas Tube Lightning Arrestors. Receive-only design shunts damaging transients to ground at only 1/7th the voltage buildup of the available 200 watt transmit-type arrestors, providing maximum solid state receiver protection.

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*"The best...built like an antenna should be."—Larry Magne in *World Radio TV Handbook*

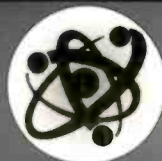
*"Our best seller."—EEB in their recent ads and catalogs

*"Now in use in 45 countries."—Gilfer Shortwave in 1983

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CIRCLE 58 ON READER SERVICE CARD

June 1996 / POPULAR COMMUNICATIONS / 59

Applied for Permit to Construct New AM Station

NV Elko 1340 kHz 1 kW

Applied for Permits to Construct New FM Stations

AK	Anchorage	93.7 MHz	
CA	Healdsburg	96.7 MHz	3 kW
CA	Merced	94.1 MHz	3 kW
CO	Leadville	93.5 MHz	160 watts
GA	Donaldsonville	107.5 MHz	2.9 kW
IL	Ramsey	88.3 MHz	25 kW
MI	Frankenmuth	93.7 MHz	
MO	Miner	107.1 MHz	
MO	Scott City	93.9 MHz	
MO	Stockton	107.7 MHz	6 kW
MT	Missoula	91.1 MHz	250 watts
OR	Grants Pass	91.1 MHz	250 watts
PA	Hawley	89.1 MHz	200 watts
TN	Bulls Gap	100.7 MHz	
TX	Brownwood	91.7 MHz	
WA	Dayton	102.1 MHz	6 kW
WA	Tumwater	99.3 MHz	1 kW (KAYO-FM booster)

Granted Permits to Construct New FM Stations

CA	Santa Barbara	107.7 MHz	710 watts
MO	Branscom	89.7 MHz	250 watts
NE	McCook	93.9 MHz	50 kW
TX	Ganado	104.7 MHz	50 kW
TX	New Ulm	92.3 MHz	6 kW

Changed AM Facilities

KGGN	Gladstone, MO	890 kHz	Dropped to 960 watts.
WRYT	Edwardsville, IL	540 kHz	Added 337-watt night ops.

Reinstated

WNSW Brewer, ME

Canceled

KFKQ	New Holstein, WI	92.9 MHz	3 kW
KIMS	Hutchinson, KS	91.7 MHz	100 kW
WVNU	Greenfield, OH	97.5 MHz	2.75 kW

Applied to Change AM Facilities

KFNN	Mesa, AZ	1510 kHz	Seeks 22 kW/100 watts.
KLYC	McMinnville, OR	1260 kHz	Seeks 850-watt night ops.
WETR	Eden, NC	830 kHz	Seeks move to Kernersville, 50/10 kW.
WJML	Petoskey, MI	1110 kHz	Seeks to add 28-watt night ops.
WKOX	Framingham, MA	1200 kHz	Seeks 50 kW full time.
WKZQ	Myrtle Beach, SC	1520 kHz	Seeks move to 1450 kHz, 1 kW daytime.
WRFD	Worthington, OH	880 kHz	Seeks 23 kW (6.1 kW critical hours).
WYCK	Wilkes-Barre, PA	1340 kHz	Seeks move to Plains, 1 kW/810 watts.

Changed FM Frequency

KWRL La Grande, OR 99.9 MHz Moved to 99.7 MHz

New Shortwave Broadcast Call Letters Issued

WGTG McCaysville, CA

New AM Call Letters Issued

KAON	Gunnison, CO
KUHB	St. Paul, AK

ing subsidiaries. Raising the ownership limit—a radical move in a country that doesn't even allow its own citizens to own more than one AM and one FM station in a single market—is seen as an admission that Canada's private stations are strapped for cash. Fifty-two percent of private stations are losing money, according to a recent article in the industry newspaper *Radio World*, and in the past few years there has been a flurry of station closings and mergers of ailing stations.

In spite of the relaxed ownership limits, Canadian broadcasters remain limited in their programming options by "Canon"—a requirement by the Department of Canadian Heritage that domestic stations play at least 30 percent music that is Canadian in origin. That restriction has in the past been used to limit or exclude hits by artists such as Canadian rocker Bryan Adams simply because the songs were produced in the United States. Commercial stations also must contribute to a musical talent fund, which currently collects about \$1.8 million a year from broadcasters. Annual contributions range from \$400 to \$27,000, based on a station's market size, according to a

Canadian Press article sent in by Trevor Fleicher of Edmonton, Alberta. The fund, says the Canadian Radio-television and Telecommunications Commission, is necessary to develop and promote native talent.

Home Rule

Can a radio station serve its city of license when it doesn't have its main studio in that community? Can a station have the bulk of its management based elsewhere, with only a part-time skeleton staff at the main studio? And what exactly constitutes a main studio? These questions were considered as part of separate FCC actions against two stations in Michigan and Georgia.

The former licensee of Atlanta, Mich.'s WAIR-FM was fined \$7,500 for what the FCC determined was willful and repeated violation of its main studio rule. In its ruling, the commission cited W-AIR Inc. for having the majority of WAIR staff working exclusively at a studio in Petoskey, some 50 miles from Atlanta, the city of license, and outside the 100-kW station's principal community signal contour. WAIR also maintained studios in the northern Michi-

gan cities of Alpena, Atlanta and Gaylord, although the bulk of its equipment was located in Petoskey. In its response to the FCC's initial inquiry, W-AIR Inc. argued that a main studio can't be determined by comparing the amount of employees and equipment at the various studios. The commission rejected this challenge by applying its definition of a main studio—which, at its minimum, is the home base of full-time managerial and staff personnel, who must spend a "substantial amount" of time there on a daily basis—to what WAIR claimed was its main studio in Gaylord. Only one management-level employee worked exclusively out of the Gaylord studio, the commission noted, and the only person at that studio full time was the station's landlord.

In a similar case, the FCC fined the former licensee of WAZK-FM \$9,500 for failure to maintain a "meaningful management and staff presence" at its main studio in Cleveland, Ga., and for failure to locate its public inspection file in the community of license. Although it originally stated that WAZK management was present at the main studio on a daily basis, Allied later conceded that this wasn't the case, and that

Changed FM Call Letters

New	Was	
KAJZ	KHHT	Killeen, TX
KALI-FM	KYMS	Santa Ana, CA
KCFP	KERP	Buffalo, CO
KDTL	KEGT	Lake Village, AR
KEAL	KRRK	Douglas, AZ
KESO	KJIB	So. Padre Island, TX
KHYT	KCYZ	Tucson, AZ
KHHM	KQUA	Lutesville, MO
KUDT	KQEP	Rock Valley, IA
KUHB-FM	KUHB	St. Paul, AK
KYBI	KAQU	Huntington, TX
KYBR	KPZA	Espanola, NM
WBSB	WAPC	Anderson, IN
WKSR-FM	WINJ	Pulaski, TN
WMCC	WLOC-FM	Munfordville, NY
WPIN-FM	WPIN	Dublin, VA
WSVO	WBGT-FM	Staunton, VA
WUFX	WLIQ	Harriman, TN
WXXO	WWCP-FM	Clifton Park, NY
WWKO	WYCQ	Shelbyville, TN
WYXZ	WAPQ	Crestline, OH

Pending FM Call Letter Change

New	Old	
WWRR	WWRD	Brunswick, GA

Pending AM Call Letter Changes

New	Old	
KWPA	KTSJ	Pomona, CA
KXPA	KPPC	Pasadena, CA
KYPA	KGFJ	Los Angeles, CA

Changed AM Call Letters

New	Was	
KSJS	KJJO	St. Louis Park, MN
KRHT	KKIS	Concord, CA
WINF	WVAO	Waynesboro, VA
WINH	WLNT	Winchester, KY
WKDW	WINF	Staunton, VA
WKNV	WCQR	Fairlawn, VA
WNSI	WJXL	Jacksonville, AL
WPIN	WKNV	Dublin, VA
WQNT	WUJM	Charleston, SC

New FM Call Letters Issued

KAOW	Fort Smith, AR
KCDV	Cordova, AK
WJUN	Columbia, AL
WZRZ	Mill Hall, PA

it hadn't discovered the actual situation because of the station's distance from Allied's corporate headquarters in Vermont.

You Can't Win

Remember comedian George Carlin and his list of taboo words, never to be said over the air? Now he can add "casino," thanks to the FCC.

Running commercials for a slot-machine tournament got KBAS-AM in trouble for an apparent violation of the FCC's anti-lottery rules. The commission fined the Bullhead City, Ariz., station \$12,500 for what it charged were ads that "improperly promoted lottery activities and used the term 'casino' in violation of" FCC rules and the U.S. Code. As part of their response, KBAS management argued that the anti-lottery broadcast rules, as enforced, violate the First Amendment because gambling is legal in Arizona and hence such advertisements are protected speech.

The FCC rejected that argument, noting that the Supreme Court has upheld the ban on lottery advertising. Exceptions to the rule exist, however. For instance, the FCC has stayed enforcing the lottery rules as to stations licensed in Nevada after a District Court there found a total ban to be unconstitutional. A loophole also exists, allowing a station to broadcast information about a state lottery so long as it is located in that state. However, a station in state that doesn't allow lotteries can't broadcast information about an adjoining state's lottery.

If all of this sounds like a lot of legal wrangling and hair-splitting, consider the case of WHBS-AM. The FCC fined the Miami Beach, Fla., station \$1,000 for running

commercials that contained the word "casinos." The alleged violation of the anti-lottery rule occurred during live ads for a travel agency's cruise package, in which the announcer mentioned that casinos were on board. WHBS management, while admitting that the incident occurred, pled that the promotion was part of a live broadcast, conducted as an interview, and that the mention of casinos was done "innocently." The FCC wasn't persuaded by this argument, emphasizing that the word "casinos" can be broadcast only as part of an establishment's name, and then only to promote non-lottery activities there.

Rather Fight Than Switch

Just how devoted are the listeners of Calgary, Alberta's CFCN-AM? Enough that they circulated petitions in an effort to thwart a proposed format change that would drop alternative rock for music from the 1940s and 1950s, a switch that would leave the city without a commercial alternative rock outlet.

"People genuinely want to keep Mix 1060 open," one petitioner said in a *Calgary Herald* article sent in by Trevor Fletcher of Edmonton, Alberta. "They're feeling very strong about this. They're saying, 'They can't do this!'"

Management of the 24-hour, 50-kW station say they are considering ending their two-year run with alternative rock because of a dearth of listeners and advertisers. Fans counter that the real issue isn't poor demographics, but rather that management has done a poor job marketing the station to advertisers, who may think that the mix of bands like Pearl Jam and Hole and lesser-

known artists attracts only shallow-pocketed teen-agers and twenty-somethings.

United They Stand

A Canadian station with a rare call sign was at the heart of a ruling by the Canadian Labor Relations Board. The owner of St. John's, Newfoundland's VOXM was ordered to stop interfering with talks between its employees and the Communications, Electrical and Paperworkers Union, as well as give a \$50-a-week raise to certain employees and rehire all laid-off staff.

The board's action resulted from unfair labor practice complaints filed by the union after Colonial allegedly threatened workers with layoffs if the unionizing movement was successful, according to an article in the *CEP Journal*, sent in by Jeff Richardson, VA3QSL/VA3YY, of Bramalea, Ontario. Colonial offered a hint of what would come, a union official said, by immediately laying off eight workers. Employees reportedly sought union help because of low wages and a lack of job security—a plight that is an industry norm, according to the union.

VOXM—the Voice of the Common Man—is one of only a handful of Canadian stations that don't have call letters beginning with a C. Sister station VOFM, and VOAR and VOWR, all in St. John's, were allowed to retain their calls when Newfoundland became a Canadian province in 1949.

Thanks

What's going in your area? Let us know by sending in newspaper clippings about your local stations. Station and shack photos, bumper stickers and QSLs also are welcome, as are questions and comments. ■

The Ham Column

BY KIRK KLEINSCHMIDT, NTØZ
AMERICAN RADIO RELAY LEAGUE

GETTING STARTED AS A RADIO AMATEUR

Software Extravaganza

If you're a typical "modern ham," you use an IBM-compatible computer to log contacts or talk to packeteers. Statistically, up to 80 percent of your peers do the same.

Thanks in part to the availability and affordability of the Internet and major online services, there are thousands of interesting applications to expand and enhance your radio hobby, and many are free.

Take contesting, for example. Computers have totally revamped this pursuit, which was once encumbered by paper work and fast pencil-pushing. Today, no serious contester even turns on a rig without booting up a computer.

And when it comes to instantly accessing information about amateur radio—articles, software, schematics, bulletins, newsletters, magazines, classified ads, callsign databases, packet clusters, propagation forecasts, etc.—the Internet (every ham's best friend) is exploding with resources and will get only bigger and better.

If you haven't caught the fever, this column will introduce you to a variety of ham software and hopefully will inspire further exploration on your part. Dig in!

Finding Ham Software

Ham software isn't available at your local software store. It's too specialized. You'll find most popular (commercial) titles advertised in amateur radio magazines.

Most ham software, however, is released as shareware and isn't advertised. It can be found at computer shows, hamfests and flea markets (look for dealers with hundreds of floppies on display). An excellent mail-order source is AmSoft, P.O. Box 666, New Cumberland, PA 17070, phone (717) 938-8249. (AmSoft's \$19 World of Ham Radio CD-ROM features more than 23,000 ham radio info files and programs.)

Online sources are the preferred way to find ham software. If you don't have access to CompuServe or America Online—or to the Internet (better)—you're missing 24-hour access to thousands of software titles and related info files the world over. Unlike 20 meters, online propagation is almost always "20 over S9!"

Hardware Notes

IBM-compatibles dominate the market, and if you don't have one, you'll find it difficult or impossible to find the right ham

software. (The American Radio Relay League's Educational Activities Department offers an updated list of Apple and Macintosh ham applications. Send a self-addressed, stamped envelope to ARRL EAD, 225 Main St., Newington, CT 06111.)

When evaluating software, make sure your system is up to snuff hardware wise (RAM, CPU, hard drive, video, operating system, etc.). Newer applications need more power, though many run well on older DOS machines.

The following software list is meant to get you started. It's not at all comprehensive. Let me apologize in advance if I have omitted your favorite application.

Logging Software

This category is divided between a few major players and a bunch of shareware contenders. The first two are long-established:

- WJ20's Master Log: It logs, tracks awards, links with CD-ROM callsign databases, etc. Easy to use and fast. Price: \$59. Contact WJ20 at (800) 944-WJ20.

- LOGic 4: Another comprehensive "heavy hitter." DOS version, \$79; Windows version, \$99. Requires 386 or better PC with 4 MB RAM. Contact PDA at (770) 307-1511.

- Shareware loggers can be found at dozens of online sites. The following are listed at <ftp://ftp.funet.fi/pub/ham>, a major software library on the Internet: hamlog3.zip (version 3.1 by VK2VN); hmlog-461.zip (version 4.61 by HB9CQV); and hlog225.exe (HyperLog version 2.25 by AH8B).

Callsign Databases

Many of these info bases, supplied mostly on CD-ROMs, work alone or with modern logging programs:

- SAM Amateur Radio Callsign Database: Find US hams by name, callsign, city, state or ZIP code. Available on floppy disks or CD-ROM. Price: \$49.95. Contact RT Systems at (800) 723-6922.

- QRZ! Callsign Database: A CD-ROM directory that comes with more than 1,000 ham radio shareware applications and info files. Price: \$19.95. Contact Stellar Technology at (602) 966-3804.

- Radio Amateur Callbooks on CD-

ROM: You've used them in paperback for decades and now they're on CD-ROM! North American and international editions come on a single CD-ROM. Price: \$49.95. Contact RAC at (800) 278-8477.

- HamCall CD-ROM: Domestic and international listings on one CD-ROM. Includes thousands of info files and applications, including 22 MB of Macintosh software. Price: \$50. Contact Buckmaster at (800) 282-5628.

Contest Loggers

Contest software helps big guns post stratospheric scores and little pistols have more fun. Try these on for size:

- CT: This program practically started computer-assisted contesting in 1985. Now in version 9.27, CT does just about everything for 15 major contests: score, log, dupe, talk to your packet cluster, print QSL labels, send Morse code and control almost every popular transceiver. Price: \$79.95 (requires 386 or better PC). Contact K1EA Software at (508) 779-5054. (Version 6.26 is available as freeware from <ftp.coast.net:/SimTel/msdos/hamradio/ct626.zip> and elsewhere.

- TR: This program works with almost any contest (35 are built-in). Features are similar to CT. Price: \$50. Contact Geo Distributing at (512) 416-0140. (N6TR Log version 4.5 is available as freeware from <http://www.4w.com/ham/tr/> and elsewhere.

- SD: Super Duper, popular in Europe, supports almost every contest imaginable. It's simple and fast. Price: \$39. Contact author Paul O'Kane, EI5DI, via the World Wide Web at <http://www.iol.ie/~okanep/>.

Contest Trainers

Contest trainers simulate the excitement of Morse code DX contests and help you get used to letting your computer do most of the work:

- PED: This program simulates rip-roaring DX contest pileups with a CT-like interface. Your code speed will soar, as will your familiarity with computerized contesting. It's fun! Shareware, available from <ftp://ve7tcp.ampr.org/software/> and elsewhere.

- RUFZ: This is a PED-like code-speed

(Continued on page 83)

Pirates Den

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

Jump On The Pirate Listening Wagon

We have another long list of pirates to report, so off we go! WKND, at 2009 on 6955 LSB with "dog" humor and Blue Ridge address. (Mike Layden, PA) 2015 with listener letters, claimed the transmitter was a retired VOA 10 kW. "We thank you with a wag of the tail." (Pat Murphy, VA)

Rock of North America (RKNA) 6955 at 0311 with "that old western fella." (Layden)

WMBS/KMBS, on 6955.2 with *The Hemp Line*, sloganizing as "the station with your mind in mind." (Layden)

Radio Free East Coast/WREC, with Anthrax on 6955 at 2040. (Layden) 1600 sign-on. "WREC—some assembly required, batteries not included, void where prohibited by law." (Jeff Ryan, PA)

Radio Free Speech, 6955 at 2008, another day at 1525, another at 0055 with comments pro-free radio, anti-FCC. (Dick Pearce, VT) 0255 with "Bill O. Rights" and commentary about losing rights, "used calendar store." Also other days at 0110, 1501, 2000, 2300, 1400, 1715—the latter on 7425. (Murphy, VA) 0712 with *The Star-Spangled Banner* parody Francis Scott Key, *Why'd You Do This to Me?* (Matt Kiner, PA)

Voice of the Runaway Maharishi, 6954.05 LSB at 0235. Again at 1400 with pro-marijuana bits, including "commercial" for a new "toy" called "Joint-in-the-Box." (Pearce) 1340 with Far East accent, lots of sitar music, *Blue Danube* with ID, "The Maharishi Hashishi." (Murphy)

Radio Mirage, 6955 at 0340, ID tentative. Spells "Wuppertal" phonetically. (Pearce)

The Crooked Man, 6955 at 1832 with music and religious commentaries, a Beatles tune, said he owned the "Galaxy Transmitter Co." "The Crooked Man is calling." (Pearce)

The Voice of Indigestion, 6955 USB at 1847 with commercial for "Red Cock Beer," various songs including *Pipeline*, also other humorous bits. (Pearce)

KOLD, 6955 USB at 2115 with 1930s and 1940s music, including Guy Lombardo, and gave an address in Massachusetts. (Brian McClure, PA) 2110 with many big band numbers. Tremendous QRM from China Radio, a warble jammer and occasional QSOs in Spanish. (Pearce)

WPN (World Parody Network) 6955 LSB at 2243 making fun of gays. The show was run by "The Captain." (Ryan, PA) 2217 announcing "170,000 milliwatts without a license, therefore we don't exist and are a figment of your imagination." Also a spoof about receiving a notice of apparent liability from the FCC, deciding to shut down but changing their mind and QSLing them instead. (Pearce) 1912 with M.C. Hammer, subterranean show, mention of Jesse in Hampton, Va. (Murphy) 0005 with Huntsville address. (Andy Salamone, PA)

RFM, 1630 mediumwave at 0220. African-sounding tune, various parodies and got a call from Phil Muzik on his "RFM Hotline." (Pearce)

The Radio Station on 1620, 1620 mediumwave at 0834 with a killer signal. Non-stop late 1960s and early 1970s songs. (Pearce)

W LIS (We Love Interval Signals), 6955 LSB at 2245 with "We know you hate WWCR" and "Atlanta's (and other city names) Interval Leader since 1990." "You'll never hear Guns and Roses on W LIS—until they record an interval signal." Blue Ridge address given. Also heard another day at 1550, including "You are lis-

Radio Free Speech Freedom Broadcast Special Edition QSL

This confirms reception of the
"Special Edition Freedom Broadcast"
Radio Free Speech
6955 Khz

Be it known _____ heard our signal
Date: _____ Time: _____ U. T. C.

A celebration of that short moment of time in 1995, when
your "life, liberty and property" were not in danger!



To commemorate that special time in our history when the federal government shut down and the FCC was deemed "non-essential" and when Free Speech prospered without intrusion from the government.

Bill O. Rights

Station Manager of Radio Free Speech

[See "Yet More Yet": Is It Known that the
bearer of this QSL is a superior DVC'er.

Radio Free Speech - P.O. Box 452 - Westville, NY 14895

Radio Free Speech sent this special full-size QSL for their
Special Edition Freedom Broadcast.

tening to the interval signals of your life." (Ryan) 2327 with Ohio State marching band. (Salamone)

Radio Free Euphoria, 6955 at 0341 with rock, Captain Ganga and a female named Samantha and various songs and parodies. (Murphy)

Pirate Radio Insanity, 6955 at 0034 with swashbuckling music, repeated ID with echo and "it's not what you're expecting." (Murphy)

Radio Azteca, 6955 at 1535 with Bram Stoker, Dudley Do-Right theme, spoof on Radio Free Speech, *Animal Stories*. (Murphy)

Happy Hanukkah Radio, 6955 at 1611 with children singing, explanations of Hanukkah, *2,000-Year-Old Man* by Mel Brooks. (Murphy)

WRV, 6955 at 1847, "lets go back to WRV 1993 show." (Murphy)

6YVROS, 6955 at 2332, take off on George Stephanopoulos, talk about drinking Whitewater, "this is Cowboy Carl," mention

(Continued on page 79)

Listening Post

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Peru Shuts Down Stations

Peruvian authorities have closed down a number of unlicensed, low-power broadcasters in Rioja province, including shortwavers Radio Frecuencia Popular, Radio Ondas del Mayo and Radio Naranjos, along with a number of medium-wave outlets. The authorities refer to such broadcasters as "clandestines" and confiscated their equipment.

Antarctica

For several years now, there has been a question as to whether the Armed Forces Antarctic Network station in Antarctica (AFAN-McMurdo) still was active on shortwave. We'd hear "yes," then we'd hear "no." Well, it seems the "nays" have it. Officers on the scene say that the shortwave outlet has been off the air for some five years. The transmitter was shipped back to the United States and 50-watt FM transmitters serve the community there.

Ecuador

HCJB is offering a special QSL card for reception of their upper sideband broadcasts on 21455. At present, the regular 1.5-kW transmitter is out of service and a 30-kW transmitter is in use on the frequency.

Malta

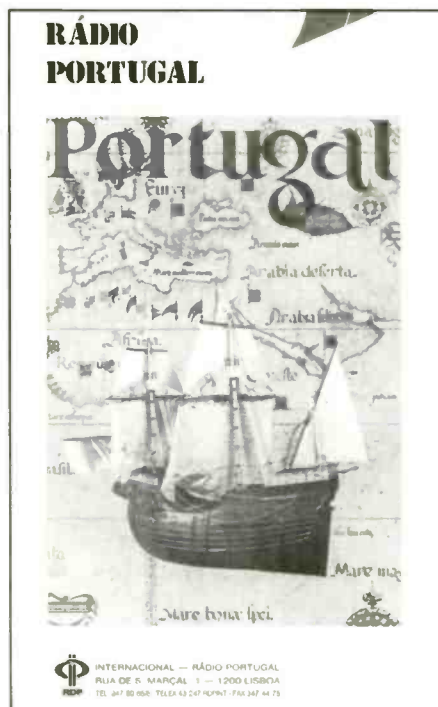
Goodbye to Deutsche Welle's "Cyclops" relay station on Malta. DW had requested some changes in their contract with the Maltese government when it was up for renewal at the end of last year. Malta refused to accept the changes, so the installation has been closed and will be dismantled.

Reports say that a luxury vacation resort will be built on the site. Note that the Voice of the Mediterranean also used this DW complex, so it may have had to close, too. DW's site within Germany—at Julich—is destined to be closed next year.

Meantime, Julich continues on duty. It's now serving up Radio Vilnius, Lithuania broadcasting to North America! The program has been expanded to one hour and currently airs from 0000-0100, with a half-hour in Lithuanian, followed by 30 minutes of English, currently on 5910. Radio Vilnius says it is saving 30 percent on costs by dropping use of the Krasnodar (Russia) transmitter in favor of Julich.



This view of Hungary's capital is on a Radio Budapest QSL issued some 20 years ago to Andy Johns in Texas.



This colorful Radio Portugal folder opens to reveal a world map showing where Portuguese live abroad.

Colombia

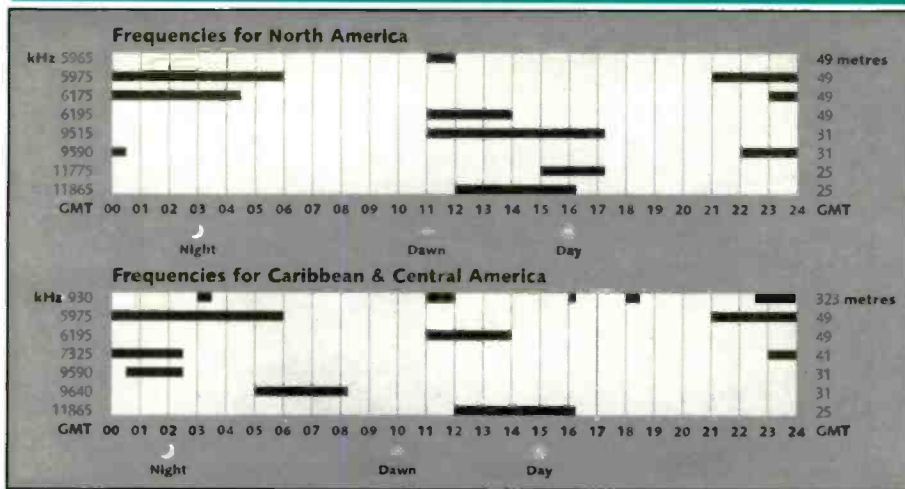
A new Colombian shortwaver now active is Ecos del Orinoco, heard in Spanish on 4905 during local evenings. It's located in Puerto Carreno, on the Venezuelan border. (Years and years ago, there was a Venezuelan shortwave station with the same name.)

Mauritius

Here's our dosage of "odd" for this month. We've seen an item that says Radio Luxembourg is talking to the Indian Ocean island of Mauritius' government about establishing a shortwave service on that island. The station would beam to Africa, Australasia and the Indian Ocean. Radio Luxembourg discontinued its shortwave broadcasts from Luxembourg a couple of years ago. Mauritius has been off shortwave for a long while.

Yemen

Republic of Yemen Radio's broadcasts now include an English segment from 1800-1900 on 9780. Unfortunately, that's not a very good time for reception in most of North America.



The BBC's current time and frequency schedule for North and Central America and the Caribbean.

France

Unlike many government shortwave broadcasters, Radio France International's budget is being increased, and shortwave programming and facilities are being expanded. Are you listening, Canada?

Indonesia

The Voice of Indonesia's international service now has a new 250-kW transmitter in place at Cimanggis, near the capital, Jakarta, the first of a planned three.

It apparently is operating on new 9655, ex-9680. A second 250-kW transmitter has gone on the air from Ujung Pandang, using 6165, 7110, 9565, 11855, 13685, 15165, 17730 and 21660 at various times.

Ireland

You really should be giving the Radio Telefis Eireann (Ireland) relay over WWCR your listenership and support. Reactions to these broadcasts will determine whether the government of Ireland decides to re-establish a shortwave service of its own.

The Irish broadcasts are aired Monday through Friday at 1000-1030 on 5065, 1930-2000 on 12160, Saturdays and Sundays at 1100-1130 on 5065, Saturdays 2000-2030 on 12160, and Sundays at 2100-2130 on 12160. Write them at Donnybrook 4, Dublin, Ireland.

Loggings

Your shortwave loggings are always sought, always welcome!

Please list your items by country, with your last name and state abbreviation after each, and leave some cutting room between the items. We're also anxious to get general station news and information, schedules, news of QSL policies, station address changes, spare QSLs we can use as illustrations, etc.. We'd also like to pub-



This mini-QSL from Radio Norway is under 3 inches square.

lish a photo of you and your shack! We are always delighted to hear from you!

Here are this month's logs. All times are UTC, which is five hours ahead of EST, i.e. 0000 UTC is the same as 7 p.m. EST, 6 p.m. CST, 4 p.m. PST. The language broadcast is assumed to be English (EE) unless otherwise specified. FF=French, AA=Arabic, SS=Spanish, etc.

ALBANIA—Radio Tirana, 6140 at 0145 with a welcome to listeners, news, commentary. (Jones, SD)

ANGOLA—Radio Nacional, 3375 at 0215 in PP with woman, talk, soul and West African music. (Pasciewicz, WI)

ANTIGUA—Deutsche Welle relay, 6075 in GG at 0300. (Klingman, NY) 0525. (Jones, SD)

ASCENSION ISLAND—BBC relay, 9600 at 0424 with news, ID, interview. (Jones, SD)

AUSTRALIA—Radio Australia, 11800 at 1502 with news. (Wilden, IN) 17795 at 0418 with feature, music, *This Day in History*. (Jeffery, NY)

VL8T, Tennant Creek—ABC/CAAMA Radio, 2325 at 0830 in Pidgin with aboriginal music. (Klingman, NY)

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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

SEASON'S 1996 GREETINGS

1 January	S M T W T F S	1 2 3 4 5 6
7 8 9 10 11 12 13		
14 15 16 17 18 19 20		
21 22 23 24 25 26 27		
28 29 30 31		
2 February	S M T W T F S	1 2 3
4 5 6 7 8 9 10		
11 12 13 14 15 16 17		
18 19 20 21 22 23 24		
25 26 27 28 29		
3 March	S M T W T F S	1 2
3 4 5 6 7 8 9		
10 11 12 13 14 15 16		
17 18 19 20 21 22 23		
24 25 26 27 28 29 30		
4 April	S M T W T F S	1 2 3 4 5 6
7 8 9 10 11 12 13		
14 15 16 17 18 19 20		
21 22 23 24 25 26 27		
28 29 30		
5 May	S M T W T F S	1 2 3 4
5 6 7 8 9 10 11		
12 13 14 15 16 17 18		
19 20 21 22 23 24 25		
26 27 28 29 30 31		
6 June	S M T W T F S	1
2 3 4 5 6 7 8		
9 10 11 12 13 14 15		
16 17 18 19 20 21 22		
23 24 25 26 27 28 29		



7 July	S M T W T F S	1 2 3 4 5 6
7 8 9 10 11 12 13		
14 15 16 17 18 19 20		
21 22 23 24 25 26 27		
28 29 30 31		
8 August	S M T W T F S	1 2 3
4 5 6 7 8 9 10		
11 12 13 14 15 16 17		
18 19 20 21 22 23 24		
25 26 27 28 29 30 31		
9 September	S M T W T F S	1 2 3 4 5 6 7
8 9 10 11 12 13 14		
15 16 17 18 19 20 21		
22 23 24 25 26 27 28		
29 30		
10 October	S M T W T F S	1 2 3 4 5
6 7 8 9 10 11 12		
13 14 15 16 17 18 19		
20 21 22 23 24 25 26		
27 28 29 30 31		
11 November	S M T W T F S	1 2
3 4 5 6 7 8 9		
10 11 12 13 14 15 16		
17 18 19 20 21 22 23		
24 25 26 27 28 29 30		
12 December	S M T W T F S	1 2 3 4 5 6 7
8 9 10 11 12 13 14		
15 16 17 18 19 20 21		
22 23 24 25 26 27 28		
29 30 31		

KBS Radio Korea International

The headquarters of Radio Korea International.

AUSTRIA—Radio Austria International, 6015 via Canada at 0644 with commentary, *Report From Austria*. (Jones, SD) 6155 at 0632 with Dixieland. (Foss, AK)

BRAZIL—Radio Cultura Foz do Iguacu, 6105 at 0507 with *Transamerica* program, rock, commercials, mentions of Brazil. (Paskiewicz, WI)

Radio Clube Paranaense, 6040.4 at 0255 with vocals and PP ID in passing. (Paskiewicz, WI)

Radio Brazil Central, 4985 at 0018 In PP with

music. (Jeffery, NY)

Radio Marajoara, 4955 at 0243 with folk songs, PP. (Jeffery, NY)

Radio Nacional, 15265 at 1805 with news, music mix, ID at 1831. (Jones, SD)

Radiodifusora Roraima, 4875 at 0236 in PP, very

faint. (Foss, AK)

BULGARIA—Radio Sofia, 7480 at 0501 with ID, news, commentary, *Bulgaria Presents*. (Jones, SD) 9700 at 0030 with feature on the European Union. (Klingman, NY)

CAMEROON—RTV Cameroon, Douala, 4795 at

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جدول الموجات الإذاعية عن فترة ديسمبر 1994 من 11/6 إلى 4/3/1995
FREQUENCY SCHEDULE FOR THE PERIOD DECEMBER 1994 EFFECTIVE FROM 6/11/1994 TO 4/3/1995

وزارة الإعلام
الشفون الهندسية
إدارة الاتصالات الهندسية
مراقبة الترددات الهندسية

منطقة التغطية TARGET AREA	التردد/هرتز FREQUENCY (HZ)	الجال (بالمتر) METRE BAND	توقيت الكويت KLT 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 00 01 02 03 04 05	توقيت غرينتش UTC 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 00 01 02	المناطق الجغرافية GEOGRAPHICAL ZONES										
دولة الكويت STATE OF KUWAIT	2.5 MHZ	FM	24 HOURS												39
	3.7 MHZ		24 HOURS												
	5.0 MHZ		24 HOURS												
	6.3 MHZ		24 HOURS												
	7.6 MHZ		24 HOURS												
	8.9 MHZ		24 HOURS												
	10.2 MHZ		24 HOURS												
	11.5 MHZ		24 HOURS												
	12.8 MHZ		24 HOURS												
	14.1 MHZ		24 HOURS												
الخليج والجزيرة العربية GULF AREA	6085 KHZ	MW	24 HOURS												39, 40
	11.5 KHZ		24 HOURS												
الشرق الأوسط MIDDLE EAST	6085 KHZ	SW	0200 - 1305												38
	1495 KHZ		0400 - 1305												
شمال أفريقيا NORTH AFRICA	6085 KHZ	SW	2100 - 0200												37
	1495 KHZ		2100 - 0200												
أوروبا وشمال أمريكا EUROPE & NORTH AMERICA	6085 KHZ	SW	1800 - 0400												6,7,8,27,28
	13050 KHZ		1315 - 1600												

دليل البرامج

GUIDE TO PROGRAMME CODES

Main Arabic Programme	البرنامج العام	FM Super Station
Second Arabic Programme	البرنامج الثاني	FM International
Holy Quran	برنامج القرآن الكريم	Arabic Music Programme
English Programme	البرنامج الإنجليزي	Youth & Sports Broadcasting (Arabic)

برنامج (ال آف أم ستريو السوبر)	FM Super Station
برنامج (ال آف أم ستريو الدولي)	FM International
المحطة الغنائية	Arabic Music Programme
إذاعة الشباب والرياضة	Youth & Sports Broadcasting (Arabic)

Radio Kuwait's schedule on shortwave, mediumwave and FM.

0250 in FF and local with announcer and phone-in program. (Yohnicki, ON) (On early or late? — Editor)

CANADA—CFRX relay of CFRB, 6070 at 0505 with weather, music and commentary. (Jones, SD)

Radio Monte Carlo (Monaco) via Canada on 5960//9755 with news in AA, numerous IDs at 0400. (Dybka, TN)

CBC Northern Service, 9625 at 1214 with classical music. (Dybka, TN)

Radio Canada International, 5925 at 2100 with news, weather, Arts in Canada. (Jones, SD)

COLOMBIA—Echo del Orinoco, presumed, on 4905.3 at 0304 in SS with vocals, announcements at 0312, 0329, 0354. (Paszkievicz, WI) (New station. — Editor)

La Voz del Yopal, 5040 at 1137 in SS. (Jeffery, NY)

Radio Nacional, 4955 at 0314 with Latin tune, SS announcer. (Foss, AK)

Radio Buenaventura, 4835.5 at 0337, guitar and chorus. (Foss, AK) (Very rare! — Editor)

Caracol Colombia, 5075 at 0357 with phone-in. (Foss, AK)

COSTA RICA—TIFC, Faro del Caribe, 9645 at 0450 over Voice of Turkey sign-off. (Yohnicki, ON)

Radio For Peace International, 7385 at 0112 with talk about Hungary. (Hallenbeck, ME)

Adventist World Radio, 5030 at 0403 with religious music. (Foss, AK) 0502 with *News Moment*, religion, ID, address. (Jones, SD) 0250 in SS. (Klingman, NY) 9725 at 0009 in FF with classical music, ballad, ID at 0020. (Jeffery, NY)

CROATIA—Croatian Radio—HRT, 7370 at 0000 with news by female announcer with U.S. Mid-western accent. (Dybka, TN)

CUBA—Radio Havana Cuba, 6000 at 0101 with host Ed Numan. (Wilden, IN) 0125 talking about airlines and hotels in Cuba. 9820 at 0210 with news. (Hallenbeck, ME)

ECUADOR—HCJB, 9745 at 0116 with technical problems on a call-in show. (Hallenbeck, ME) 0130 with listener letters. (Wilden, IN) 15115 at 1315 and 15355 at 1320. (Northrup, MO)

La Voz del Upano, 5020 at 1132 in SS. (Jeffery, NY)

EGYPT—Radio Cairo, 9755 with Holy Quran Radio service in AA at 1908. (Dybka, TN)

ENGLAND—BBC, 5975 (via Antigua — Editor) at 0006 and 0200. 6175 (via Canada) at 0230, 7325 at 0150 and 0212. (Hallenbeck, ME) 11680 at 2130 with *Calling the Falklands*. (Jones, SD) 15070 at 1320, 15220 at 1325. (Northrup, MO)

FRANCE—Radio France International, 4890 (via Gabon) and 7120 at 0400 in FF. (Yohnicki, ON) 5945 at 0211 in FF. (Hallenbeck, ME) 15350 in unidentified language at 1400, 15365 in FF at 1355. (Northrup, MO)

FRENCH GUIANA—9800 at 2342 in SS. (Hallenbeck, ME) 0432 in FF. (Foss, AK)

GERMANY—Deutsche Welle, 6045 at 0505 with news, ID, listener letters. (Jones, SD) 6145 in SS at 0001. (Wilden, IN) 15275 at 1300 in GG, 17765 at 1300 in GG. (Northrup, MO)

GREECE—Voice of Greece, 11965 at 0040. (Klingman, NY) (Greek or EE? — Editor)

GUATEMALA—Radio Cultural Coatan, 4779 at 2345 in SS with music. (Jeffery, NY)

Radio Tezulutlan, 4835 at 0239 in SS. (Klingman, NY)

HONDURAS—La Voz Evangelica, 4819.8 at 0350 with emotional evangelist in SS. (Foss, AK)

HUNGARY—Radio Budapest, 6190 at 0208 with interview, ID, sign-off at 0228. (Jones, SD)

INDIA—All India Radio, 4920 at 0241 with love songs in Hindi. (Klingman, NY)

IRAN—VOIRI on 15230 at 1320 in AA with music. No ID but no doubt. (Northrup, MO)

JAPAN—NHK feeder on 3607.5 USB at 0851 in JJ with blues song in JJ. (Foss, AK)

Radio Japan, 5960 (via Canada) at 0210. (Hallenbeck, ME) 11705 (via Canada) at 1430. (Wilden, IN) 11985 (probably via Canada) at 0200. (Yohnicki, ON)

KAZAKHSTAN—Kazakhstan Radio, 0300-0300 daily on 7143 with world news and comment. (Ziegner, MA)

Radio Netherlands relay, 7305 at 0030 with news. (Jeffery, NY)

LESOTHO—BBC Lesotho relay, 3255 at 0345 with sports. (Klingman, NY)

LITHUANIA—Radio Vilnius, 9710 at 0019 with woman announcer and music. Poor and QRM'd. (Hallenbeck, ME)

MALAWI—Malawi Broadcasting Corp., 3381 at 0600 in EE with African pops. (Klingman, NY)

MALI—China Radio Int'l, via Mali, 9710 at 0035 including Chinese lesson. Off at 0057. (Jones, SD)

MEXICO—Radio Educacion, 6185 at 0638 with Mexican music. (Foss, AK)

NETHERLANDS—Radio Netherlands, 6020 at 0050 to 0125, including *Media Network*. (Hallenbeck, ME) 0105 with topics on South Africa. (Wilden, IN)

NETHERLANDS ANTILLES—Radio Netherlands relay, 6165 in EE but into DD at 0445. (Jones, SD)

NIGER—La Voix du Sahel, 5020 at 0515 in FF. (Yohnicki, ON)

NORTH KOREA—Radio Pyongyang, 11780 at 0416 in KK. (Foss, AK)

PAPUA/NEW GUINEA—Radio Central, 3290 at 0818 with U.S. pops, very weak. (Klingman, NY)

PERU—Radio Atahualpa, 4820.8 at 0446 with man and woman in SS. Very poor. (Foss, AK)

PHILIPPINES—Radio Veritas Asia, 15130 at 1310 in SS. No ID, very weak. (Northrup, MO)

RUSSIA—Voice of Russia, 5940 at 2109. (Wilden, IN) 5940//7180//7205//9890 at 2215 with *Focus on Asia and the Pacific*. 9740 at 1950 ending EE, into FF. (Dybka, TN) 7105 at 0002 with news, comment, ID. (Jones, SD) 7330 at 0542 with review of Russian jazz and pop over last 50 years. (Foss, AK) 7400 with World War II-era music at 2143. News at 2200. (Hallenbeck, ME)

SAUDI ARABIA—BSKSA, 15060 in AA with music at 1320. (Northrup, MO)

SINGAPORE—BBC relay to Asia/Pacific, 9740 at 1142 with Meridan. (Jeffery, NY)

SOUTH AFRICA—Channel Africa, 15240 at 1611 with news of Africa, music, ID, *Network Africa*, business news. (Jones, SD)

Trans World Radio, via Meyerton, 9510 at 1930 in unidentified language, EE ID at 1958, back into unidentified language. (Jeffery, NY)

SPAIN—Radio Exterior de Espana, 9540 at 0100 with news, sports and *Panorama*. (Klingman, NY) 0529 *People of Today—Entertainment in Spain*, ID, language lesson. (Jones, SD) 2304. (Hallenbeck, ME)

SWITZERLAND—Swiss Radio International, 6135//9905 at 0420 with *Newsnight*, ID and close of EE at 0428, into presumed FF. (Jones, SD)

TAIWAN—VOFC, via WYFR on 5950 at 0330 with ID, mailbag. (Jones, SD)

THAILAND—Radio Thailand, 11890 at 0409 with interview in Thai. (Foss, AK)

TUNISIA—RTV Tunisienne, 11550 at 1305 in AA with prayer, Koran readings, AA music. (Klingman, NY)

TURKEY—Voice of Turkey, 15350 at 1320 in TT. No ID. (Northrup, MO)

UKRAINE—Radio Ukraine International, 7240 at 2250 with EE to 2300, into Ukrainian. (Dybka, TN)

VATICAN—Vatican Radio, 6095 at 0256. Catholics in Mongolia. (Klingman, NY)

VENEZUELA—Ecos del Torbes, 4980 at 0200 in SS with talk, music. (Yohnicki, ON) 0245. (Klingman, NY)

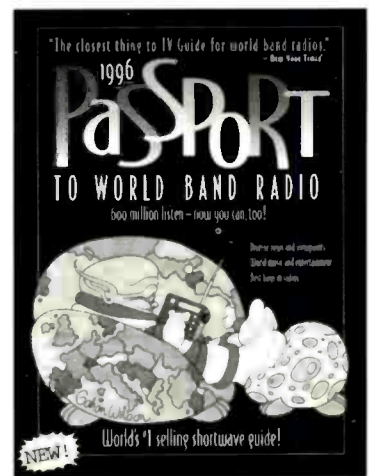
ZANZIBAR—Voice of Tanzania, Zanzibar, 11734 at 1908 in unidentified language and music. Off at 2000. (Jeffery, NY)

Raise your glass and give a cheer to the following who provided you with the tips this month:

Jill Dybka, Nashville, TX; Sue Wilden, Columbus, IN; Richard Klingman, Mount Upton, NY; Terry Jones, Plankinton, SD; Tricia Ziegner, Westford, MA; Dave Jeffery, Niagara Falls, NY; Marty Foss, Wasilla, AK; Michael Yohnicki, London, Ontario, Canada; Don Hollenbeck, Pittsfield, ME; Sheryl Paszkiewicz, Manitowoc, WI; Mark Northrup, Gladstone, MO.

Thanks to each of you.

Until next month, good listening! ■



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CIRCLE 61 ON READER SERVICE CARD

27 MHz COMMUNICATIONS ACTIVITIES

Mobile Rig Tunes In Weather

The folks at Cobra have done it again—they've come out with another new radio that receives the National Weather Service broadcasts on 162 MHz. The new rig is the 21 LTD WX, and I'm quite impressed with it.

The 21 LTD WX is small, measuring 5.75 inches deep by 1.75 inches high by 5.8 inches wide, greatly increasing mounting possibilities in today's cars. The controls are really simple: a power/volume control, a squelch control, a weather channel selector, a CB channel selector and a CB/weather switch. Also on the front of the rig: a plug for the microphone, an illuminated RF/signal-strength meter, a two-digit LED channel indicator, and a three-color LED indicator for TX, RX and WX.

Because there are so few controls on this radio, it seems well-suited to anyone who wants to have citizens band capability, but who isn't a diehard radio enthusiast. Many CBers I know have relatives who think CB is pretty neat, but they are intimidated by a radio that has a whole bank of knobs and switches. Given its capabilities, the 21 LTD WX has the minimum number of controls necessary to get the job done. Because it isn't bristling with knobs and switches, the 21 LTD WX appears a lot more approachable by the CB novice.

The 21 LTD WX receives three of the National Oceanic and Atmospheric Administration weather channels in the 162-MHz band, and it will sound an alert—even if the radio is turned off, as long as there is power

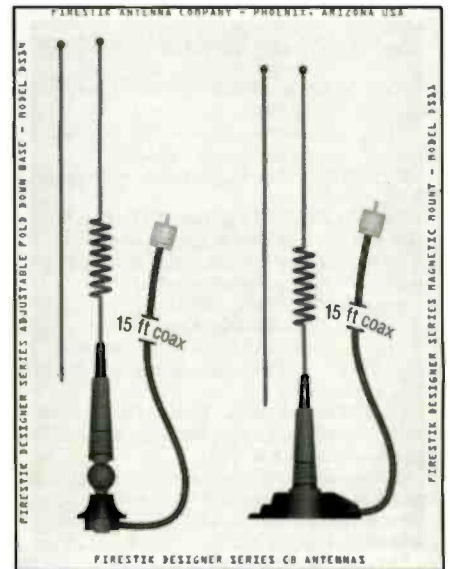
to it—whenever the National Weather Service issues an emergency weather bulletin. To activate this function, all you have to do is to set the CB/weather switch to "weather," then turn the weather channel selector to see which weather frequency is active in your area. Once you find an active weather channel, flip the switch back to CB. That's it—if the weather service sends an alert, you'll hear it, and you'll know to flip the switch again so you can hear whatever weather bulletin is being broadcast.

But what really impressed me about the 21 LTD WX is its performance. The 21 LTD WX may be small, but it acts like one of the big boys. The receiver is quiet and sensitive, and there is built-in noise-limiting circuitry. And on transmit, this mobile rig keys up with a full four-watt carrier, plus a boatload of modulation. The 21 LTD WX proves convincingly that you don't have to sacrifice a lot of performance when you buy a compact radio.

Suggested retail price of the 21 LTD WX is \$119.95, but it's likely you can buy it for less from a dealer who discounts. If you'd like to know more about the 21 LTD WX, call (800) COBRA-22 and tell them you read about it in POP'COMM.

Ultra-Compact Antennas

Don't get me wrong—I love my Jeep Cherokee, and I love my full-size CB antennas. But sometimes the combination of the two causes me grief, like at the fast-food




The Firestik people have a solution for hobbyists who want to avoid the "overhead smash"—a magnetic-mount, 180-degree, fold-down trunk- and roof-mount antenna.

drive-through, or in certain parking garages. Suddenly, there is a tremendous crashing and banging as the height of the Jeep and the antenna combine to clobber some overhead obstruction. Sometimes I have to stop and pull the antenna off the roof in order to continue.

The Firestik people have a solution for



Cobra's new 21 LTD WX receives emergency weather alerts.



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«Calling all over the world»
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Only radio operators with ascertained DX'er qualification can belong to this Group. The Alfa Tango is the Group organizing the world-wide contest and awards on 11 mt. band.

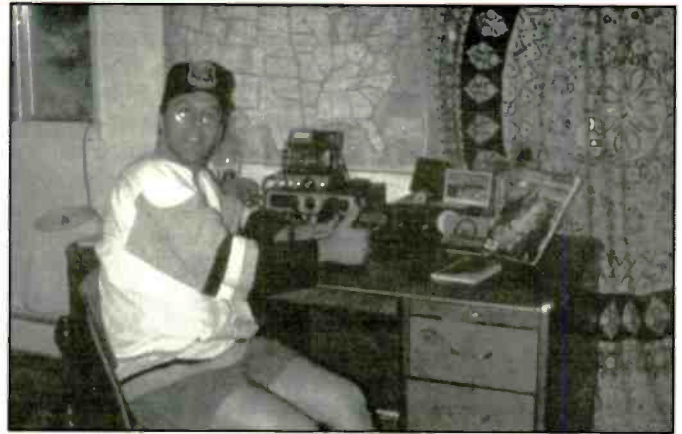
Patrick Burke sent in this neat card from Finland.

GRUPPO RADIO ITALIA
ALFA TANGO
 INTERNATIONAL DX GROUP
 DIVISION: USA
 SPECIAL QSL
 NORTH CAROLINA STATE FLAG CARD

MAY 20th, 1775
 N ★ G
 APRIL 12th, 1776

2 AT 313 BRADY
 2 AT 399 RANDY
 2 AT 733 TERRY
 2 AT 523 JOHN

The final courtesy of QSO/DX is a QSL. « Calling all over the world SPECIAL » Only radio operators with ascertained DX'er qualification can belong to this Group.



Another crisp QSL, this one sent in by Carl Quandt.

Trevor Fletcher is shown at the controls of his neat 11-meter station.

those who want to avoid the "overhead smash" or who simply want a sleeker looking vehicle: a line of CB antennas that are only 14 inches tall. Models include magnetic-mount (model DS11) and 180-degree fold-down trunk- and roof-mount designs (model DS14). Each model is complete with a choice of straight or cellular look-alike coil whip.

If you'd like to know more about these antennas or get a copy of Firestik's new

1996 catalog, write to Firestik at 2614 E. Adams St., Phoenix, AZ 95034-1409 or call (602) 273-7151, and remember to tell them you saw it here.

I Hate To Answer This

A gentleman named Giddings wrote from Canada. I won't tell you from where, exactly, and the reason why will become obvious in just a moment. He asked for the address of a company that makes linear

amplifiers that operate on CB frequencies.

Even if I knew the answer (which I don't), I wouldn't publish the information. Here's why: Most CBers who run linear amplifiers don't know the first thing about operating them properly. In case you are a new CBER, a linear amplifier is an electronic device that goes between a CB radio and the antenna. It makes the signal stronger. Giddings apparently was asking about a model that puts out 600 watts or more.

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- AND MANY MORE

Popular Communications

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There are several problems with the whole business of linears. First, in the United States (and I'm pretty sure in Canada, too), they are illegal. The rules specify transmitter output of 4 watts AM, 12 watts single sideband. Mere possession of a linear in the United States is enough to get you a fine from the Federal Communications Commission. (I'm not fooling; check the CB rules!).

Second, it is illegal in the United States to manufacture linears capable of running on CB frequencies. As a result, the "companies" who manufacture CB linears tend to be cut-

rate operations that pay scant attention to quality control and other good things. As a result, if you manage to lay your hands on one of these illegal toys, you could well be buying a certified piece of junk.

Third, linear amplifiers overwhelmingly are prone to cause problems that will attract unwanted attention. Linears tend to cause television and stereo interference, and they can produce enormous amounts of adjacent channel splatter. That's because frequently the operator who is running a linear has first "tuned up" his CB transceiver until it is overmodulated. This

tends to produce splatter. When the overmodulated signal is fed into a linear, the linear makes everything worse—the splatter is magnified many times over. The next thing you know, someone has called the authorities to get rid of the interference.

I've said it before, and I'll say it again: If you want a really righteous-sounding, powerful signal, there's a simple, sure-fire recipe. First, get yourself a top-of-the-line CB transceiver with SSB capability. Second, put up a beam antenna with a rotator. With that combination, you'll be able to transmit 12 watts SSB, and the antenna, depending upon the number of elements it has, will magnify your signal many times over. Your signal will be louder, and you'll be able to hear other stations better. And, to top it all off, the entire operating setup is completely legal. A side bonus is that you're far less likely to cause grief to your neighbors.

From The Mail Bag

- J. Patrick Burke wrote from Fort Wayne, Ind., to say, "My station has changed since I last wrote to you (his shack photo appeared in the June 1995 issue). I now have a new Cobra 2010 base unit, and you're right, it's one heck of a good radio!" He also enclosed a QSL card from a good friend in Finland with the hope that "you will print it for others to see and perhaps QSL to—he QSLs 100 percent."

Thanks, Patrick, that sure is a good-looking card.

- Carl Quandt of Redford, Mich., sent in another handsome card from the Alfa Tango International DX Group. He writes that he runs a Cobra 2000 with an Antron 99. His callsign is 2 WT 36, and he has been working the 11-meter band for about six years. It's good to hear from you, Carl. Incidentally, if any reader knows how to reach the Alfa Tango headquarters directly, please send me the info here at POP'COMM.

- Frequent contributor Trevor Fletcher wrote from Edmonton, Alberta, with a picture of his operating setup. He thinks the 1996 *CB Radio Buyers Guide* was great, and he would like to see more of this column devoted to "From The Mail Bag."

In addition, he has been trying to locate a copy of a CB magazine that he thinks was published in the 1970s and called *Canadian Transceiver*. If you have a copy and are willing to part with it, or if you know where he can obtain one, write him directly: Trevor Fletcher, SSB-174, 14757 25 St., Edmonton, Alberta T5Y 2E8, Canada.

Well, that's it until next time. Thanks for those cards and letters—and those shack photos! Please keep them coming to me here at POP'COMM. ■

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How I Got Started

Popular Communications invites readers to submit, in about 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 11801-2909, or e-mail to POPCOMM@aol.com.

Our June Winner

This month's winner is an SWL veteran. Meet Norman A. Means Sr. from Ocean Park, Maine:

"I have been interested in monitoring since I started 50 years ago. I originally had a Hallicrafters SW receiver, and within the next few years I collected more than 200 QSL cards.

"In 1965, I received my monitor certificate, WPE1GPI, from *Popular Electronics*. Since then, I wasn't very active due to business reasons. However, now that I am retired, my interest has picked up again.

"Presently I have the following equipment: a Drake SW-8



Meet Norman A. Means Sr., a listener for every season!

receiver; a Si-Tex Compact 55 Ship-To-Shore; a Realistic Pro-2035 scanner; an MFJ-752C Signal Enhancer; an MFJ-959B antenna tuner/ pre-amp; a GRE Super Converter 9001, and a JIM M75 VHF/UHF preamp.

"I also have the following outdoor antennas: a long wire, a dipole, a discone, and a CB; and I use the MFJ-1020 as my indoor antenna.

"During the summer, my ship-to-shore radio is on my boat, though during the winter months I use it to monitor the marine band and to communicate with my son who is a lobster fisherman. Sorry! No samples!"

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CIRCLE 69 ON READER SERVICE CARD

Satellite View

BY DONALD E. DICKERSON, N9CUE

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

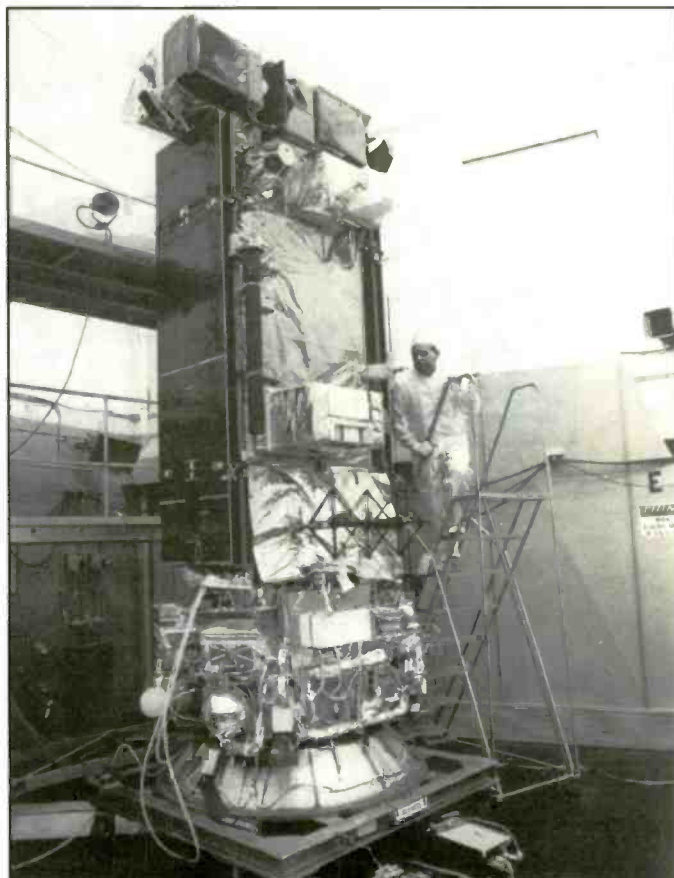
Space Log

There are times when the serious satellite sleuth needs a handy reference for specific satellite frequencies. That is why I have put together this month's space log, a list of operational satellites listed by frequency. You also will find what I hope is useful information on each satellite, including names, orbits, locations, uses, inclination, etc. It seems this has become somewhat of a yearly tradition here at Satellite View.

FREQUENCY	SAT	TYPE	ORBIT/LOC	INCL	MODE
29.357 MHz	RS-10	AMATEUR	POLAR	83°	CW
29.360-.400 MHz	RS-10	AMATEUR	POLAR	83°	SSB/CW
29.403 MHz	RS-10	AMATEUR	POLAR	83°	CW
29.407 MHz	RS-11	AMATEUR	POLAR	83°	CW
29.408 MHz	RS-12	AMATEUR	POLAR	83°	CW
29.410-.450 MHz	RS-11/12	AMATEUR	POLAR	83°	SSB/CW
29.453 MHz	RS-11	AMATEUR	POLAR	83°	CW
29.454 MHz	RS-12	AMATEUR	POLAR	83°	CW
29.458 MHz	RS-13	AMATEUR	POLAR	83°	CW
29.460-.500 MHz	RS-13	AMATEUR	POLAR	83°	CW
29.504 MHz	RS-13	AMATEUR	POLAR	83°	CW
121.750 MHz	SOYUZ-TM	MANNED	ECCENTRIC		FM/VOICE
136.110 MHz	MOS-1/2	WxSAT	SUN-SYNC	99°	FAX



The Atlas Centaur 56 carrying an Intelsat V commercial communications satellite during liftoff.



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Multiple Radios; the **OPTOLINX** is the only interface that allows full duplex receivers, like the AOR AR8000 and AR3000A, to be connected with half duplex receivers, like the ICOM R7000, R7100 and R9000, for multiple radio computer controlled scanning, allowing complete versatility that no other interface can match.

Multiple Functions; the **OPTOLINX** interfaces the Optoelectronics' DC440 decoder with any **OPTOLINX** compatible receiver for CTCSS, DCS, and DTMF decoding under computer control. The **OPTOLINX** also connects the Optoelectronics M1 frequency counter to a PC for real time datalogging using **Optolog** software.

The **OPTOLINX** also incorporates additional features such as the software controlled tape recorder output, 9 pin mini DIN connector for single cable custom radio connection, and the ALL EXCLUSIVE NMEA-0183 interface for GPS or LORAN receivers.

•Future Software Development by Software Design Companies will allow Real-Time position mapping.

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- Interface M1 frequency counter for datalogging with **Optolog** software
- Switch between full and half duplex radios using remote or external switch
- 9 pin mini DIN connector for single cable custom radio connection
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•Built in NMEA-0183 Interface for GPS interface. **OPTOLINX** shown with Trimble GPS, and AOR AR8000 Scanner.

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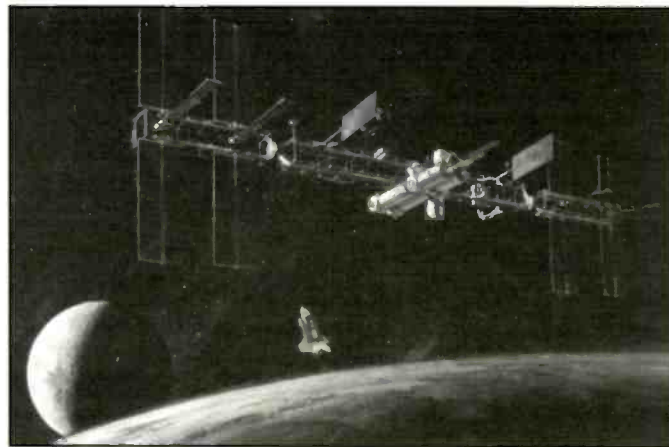
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CIRCLE 151 ON READER SERVICE CARD



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



"Freedom" is dead, but Alpha will rise from the rubble of its predecessor's death.

FREQUENCY	SAT	TYPE	ORBIT/LOC	INCL	MODE
136.370 MHz	ATS-3	NASA-EXP	GEO 105°W	12°	VARIOUS
136.380 MHz	GOES-1/2/3	WxSAT	GEO 81/68/175°W		APT
136.650 MHz	TRANSIT	NAVSAT	POLAR	89.7°	DATA
136.770 MHz	NOAA-11	WxSAT	SUN-SYNC	99°	APT
136.860 MHz	IUE	EXP	LEO	33°	
137.050 MHz	METEOSAT 1	WxSAT	SUN-SYNC	72°	APT
137.076 MHz	METEOSAT 2	WxSAT	SUN-SYNC	72.5°	APT
137.080 MHz	METEOSAT 3	WxSAT	SUN-SYNC	72.8°	APT
137.170 MHz	MARECS A/B	COMSAT	GEO 228°W	5.7°	VOICE/DATA
137.300 MHz	METEOR 3-4	WxSAT	POLAR	82°	APT
137.400 MHz	OKEAN	OBSERVATION		82°	
137.450 MHz	INTERCOSMOS				
137.500 MHz	NOAA 10/12	WxSAT	SUN-SYNC	98.5°	APT
137.626 MHz	NOAA 9/11	WxSAT	SUN-SYNC	99.5°	APT
137.795 MHz	FENGYUN		POLAR	99°	
137.850 MHz	METEOR 2-10	WxSAT	SUN-SYNC	82°	APT
142.417 MHz	SOYUZ	MANNED	ECCENTRIC		FM/VOICE
143.625 MHz	MIR	MANNED	LEO	51°	FM/VOICE
145.550 MHz	SHUTTLE/MIR	MANNED	LEO		FM/VOICE
145.825 MHz	OSCAR 13	AMATEUR	ELLIPTICAL	56.8°	CW
145.825 MHz	UOSAT 11	AMATEUR	POLAR	97°	DATA
145.825-.975 MHz	OSCAR 13	AMATEUR	ELLIPTICAL		SSB/CW
145.852-.932 MHz	RS-14	AMATEUR	POLAR	82°	FM/PACSAT
145.857 MHz	RS-10	AMATEUR	POLAR	82°	CW
145.860-.900 MHz	RS-10	AMATEUR	POLAR	82°	SSB/CW
145.862 MHz	OSCAR-13	AMATEUR	POLAR	56.8°	CW
145.866-.946 MHz	RS-14	AMATEUR	POLAR	82°	PACKET
145.903 MHz	RS-10	AMATEUR	POLAR	82°	CW
145.907 MHz	RS-11	AMATEUR	POLAR	82°	CW
145.908 MHz	RS-13	AMATEUR	POLAR	82°	CW
145.910-.950 MHz	RS-10/12	AMATEUR	POLAR	82°	SSB/CW
145.912 MHz	RS-12/13	AMATEUR	POLAR	82°	CW
145.953 MHz	RS-11	AMATEUR	POLAR	82°	CW
145.958 MHz	RS-12	AMATEUR	POLAR	82°	CW
145.960-.999 MHz	RS-13	AMATEUR	POLAR	82°	SSB/CW
145.987 MHz	RS-14	AMATEUR	POLAR	82°	FM/VOICE
149.900-150 MHz	NAVSATS	US/RUSSIAN	LEO		
153.400-.700 MHz	SYSATS	RUSSIAN	LEO		CW
166.000 MHz	PROGRESS	SUPPLYSHIP	ECCENTRIC		TLM
180.000 MHz	KOSMOS 1870	SCIENCE			TLM

Weather Stations/Scanners/CB

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Weather Stations



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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 or 0.2 mm rain collector part #7852, and the external temperature/humidity sensor, part #7859-Y. The package deal is order #DAV1-Y for \$479.95 plus \$16.00 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-Y. Apple Mac Plus or higher including PowerBook, order part number 7866-Y.

- NEW! Davis Weather Talker 7861-Y Call 313-994-9000 for demo \$334.95
- NEW! Davis Solar Radiation shield 7714-Y, protects temp. sensor \$54.95
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- Davis Weather Wizard III 7425-Y \$154.95
- Davis Perception II indoor stand-alone weather monitor 7400-Y \$124.95
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- Davis 8-Conductor 50' (15.2 m) junction box cable 7881-Y \$24.95
- Davis 8-Conductor 100' (30.5 m) junction box cable 7882-Y \$44.95
- NEW! Davis Electrostatic & RFI Protected Junction Box 7740-Y \$39.95
- NEW! Davis Optically Coupled Weatherlink Isolator Kit 7764-Y \$39.95
- NEW! Davis Grounding Kit, helps protect your station 7780-Y \$19.95
- Davis Modem Adaptor 25-Pin for communications port 7870-Y \$9.95
- Davis Car/Boat/RV Lighter Power Cord 7873-Y \$9.95
- 2400 baud modem for Weatherlink MEXT-Y \$29.95
- NEW! Davis aluminum Sensor Mounting Arm 7702-Y \$54.95
- Davis Anemometer Mast Mount 7890-Y \$15.95
- Weatherlink language disks: Française, Deutsche, Italiana, Española 7863-Y \$24.95
- Barometer, Indoor Hygrometer & Thermometer, Clock/Calendar BAR88-Y \$89.95
- Indoor-Outdoor Thermometer/Barometer & Hygrometer by OSI BA213-Y \$79.95
- Thermometer with transparent calendar & clock display by OSI TC1188-Y \$19.95
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The Bearcat 9000XLT is superb for intercepting communications transmissions with features like TurboSearch™ to search VHF channels at 300 steps per second. This base and mobile scanner is also ideal for intelligence 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; **P5002** 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 Uniden warranty.

VHF Transceiver

RELM® WHS150-Y Transceiver/SPECIAL

Mfg. suggested list price \$481.67/Special \$299.95

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CB/Ham Radios

A National Weather Service receiver with automatic emergency broadcast activation has been added to the legendary Cobra 29X CB radio. The integrated receiver in the Cobra 29LTDWX will automatically activate to receive emergency announcements about severe weather and travel conditions across the United States and Canada.

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- Cobra 148FGTL-Y CB with frequency counter \$209.95
- Cobra 29LTDWX-Y CB with weather alert \$114.95
- Cobra HH140-Y CB 40 channel handheld transceiver \$99.95
- Maxon GMR210+3-Y GMR5 transceiver \$199.95
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- Ranger RC12950-Y 25 watt 10 meter transceiver \$239.95
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- Uniden GRANTXLY-Y SSB CB Mobile \$139.95
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- Sportcat 150-Y handheld with 800 MHz. \$151.95
- Bearcat 148XLT-Y base with weather alert \$83.95
- Bearcat 120XLT-Y handheld \$122.95
- Bearcat 80XLT-Y handheld with 800 MHz. \$134.95
- Bearcat BCT7-Y information mobile \$168.95
- Bearcat BCT10-Y information mobile \$164.95

Other neat stuff

- PH500-Y Waber 500VA/340 Watt uninterruptible power supply \$159.95
- WX70-Y weather radio with automatic severe weather storm alert \$29.95
- WB-Y USA Today Weather Book, Guide to USA weather by Jack Williams \$15.95
- PSUN-Y Partly Sunny, Weather Junkie's Guide to Weather by Alan Fields \$11.95
- Grundig Yacht Boy 230-Y portable shortwave receiver \$109.95
- NEW! Sangean ATS909-Y portable 306 memory shortwave receiver \$283.95
- Sangean ATS800-Y portable 20 memory shortwave receiver \$69.95
- Sangean ATS808-Y portable 45 memory shortwave receiver \$129.95
- Bogen FR3110-Y Digital FAX Friday Fax-on-demand & answering system \$399.95
- SNI ID200-Y Bouncer name/number caller ID, call reject, forward \$89.95
- Bogen FR2000-Y Digital two-line voice mail & answering machine \$279.95
- Uniden LR6299SW-Y Super Wideband Laser/Radar receiver \$99.95
- Uniden AN49500-Y 900 MHz. PBX spread spectrum phone \$599.95
- Uniden EXP9200-Y 900 MHz. 1 or 2 line spread spectrum cordless phone \$289.95
- Uniden EXP9100-Y 900 MHz. 1 line cordless spread spectrum telephone \$224.95
- ICOM GP22-Y handheld global positioning system (GPS) \$489.95
- RELM WHS150-Y VHF handheld 5 watt, 16 channel transceiver \$299.95
- RELM RH256NB-Y VHF 25 watt, 16 channel synthesized transceiver \$284.95
- Ranger RC12950-Y 25 watt 10 meter ham radio transceiver \$239.95
- ANTK-Y VHF scanner/VHF transmitting antenna w/PL259 connector \$29.95
- ANTMMBNC-Y magnet mount scanner antenna w/ BNC connector \$29.95
- ANTMMOT-Y magnet mount scan antenna w/Motorola plug \$29.95
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FREQUENCY	SAT	TYPE	ORBIT/LOC	INCL	MODE
231.500 MHz	RESURS	SCIENCE			TLM
243.100-900 MHz	SDS	SPYSAT	ELLIPTICAL		RELAY
243-244 MHz	FLTSAT	NAVY/AF	GEO VARIOUS		FM&DATA
248-250 MHz	LESAT	MILITARY	GEO VARIOUS		FM&DATA
259.700 MHz	SHUTTLE	NASA	ECCENTRIC		VOICE/FM
251-269 MHz	FLTSAT	NAVY/AF	GEO		FM&DATA
279.000 MHz	SHUTTLE	NASA	ECCENTRIC		VOICE/FM
292-317 MHz	FLTSAT	NAVY/AF	GEO UPLINK		
296.800 MHz	SHUTTLE	NASA	ECCENTRIC		VOICE/FM
324-345 MHz	NAVY	EXP	VARIOUS		VARIOUS
360-370 MHz	NASA	EXP	VARIOUS		VARIOUS
370-375 MHz	AF	EW	VARIOUS		
375-400 MHz	SKYNET	NATO	GEO		VOICE/DATA
400.000 MHz	NAVSAT	US/RUSSIAN	POLAR	90°	TLM
400-401 MHz	VARIOUS	EXP			
401-401.500 MHz	DOD	WxSAT	POLAR	90°	DATA
401.500-403 MHz	DCS	COMSAT	GEO UPLINK		
406-425 MHz	VARIOUS	DOD/EXP			
428.010 MHz	UO-22	COMM/AMA	POLAR	90°	DATA
429.985 MHz	UO-22	COMM/AMA	POLAR	90°	DATA
435.022-102 MHz	RS-14	AMATEUR	POLAR	90°	CW/PACKET
435.025 MHz	UO-11	MEDICAL	POLAR	90°	DATA
435.070 MHz	UO-14	MEDICAL	POLAR	90°	DATA
435.175 MHz	KO-23	AMATEUR	POLAR	90°	DATA
435.675 MHz	RS-14	AMATEUR	POLAR	82°	RUDAK
435.715-999 MHz	OSCAR-13	AMATEUR	ELLIPTICAL	56°	CW/SSB
435.795 MHz	FO-20	AMATEUR	POLAR		CW
435.800-900 MHz	FO-20	AMATEUR	POLAR		CW/SSB
435.940-990 MHz	OSCAR-13	AMATEUR	ELLIPTICAL	56°	CW/SSB/PACKET
437.025 MHz	OSCAR-16	AMATEUR	POLAR		PSK/SSB
437.075 MHz	OSCAR-18	AMATEUR	POLAR		PSK/SSB
437.153 MHz	OSCAR-19	AMATEUR	POLAR		PSK/SSB
468-469 MHz	VARIOUS	WxSAT	GEO		FAX/APT
480.015 MHz	FENGYUN		GEO		DATA
702-726 MHz	EKRAN	TV/RUSSIAN	ELLIPTICAL		VOICE/DATA
800-1000 MHz	MOLNIYA	MIL/RUSSIAN	ELLIPTICAL		VOICE/DATA
920-975 MHz	VARIOUS	DEEP SPACE PROBES	ECCENTRIC		DATA
1.225-1.270 GHz	GLONASS	NAVSAT	ECCENTRIC		DATA
1.225-1.270 GHz	GLONASS	NAVSAT			DATA
1.2276 GHz	GPS	NAVSAT			DATA
1.535-1.542 GHz	INTELSAT	MARINE	GEO		VOICE/DATA
1.5445 GHz	SARSAT	SEARCH & RESCUE			DATA
1.545-1.559 GHz	MSAT	MOBILE	GEO		VOICE/DATA
1.5754 GHz	GPS	NAVSAT			DATA
1.603-1.636 GHz	GLONASS	NAVSAT			DATA
1.614 GHz	GOES	WxSAT	GEO		TLM
1.67592 GHz	METEOR	WxSAT	GEO		FAX
1.691 GHz	GOES	WxSAT	GEO		FAX
1.694 GHz	METEOSAT	WxSAT	GEO		FAX
1.698 GHz	NOAA 8	WxSAT	SUN-SYNC		APT
1.6955 GHz	FENGYUN				
1.7025 GHz	NOAA 9	WxSAT	SUN-SYNC		APT
2.0359 GHz	SHUTTLE	MANNED	LEO		TLM
2.1064 GHz	SHUTTLE	MANNED	LEO		
2.2014 GHz	SHUTTLE	MANNED	LEO		
2.204-2.400 GHz		DEEP SPACE PROBES			
2.205 GHz	SHUTTLE	MANNED	LEO		
2.206 GHz	SPOT	RECON	LEO		FAX
2.209 GHz	GOES	WxSAT	SUN-SYNC		
2.211 GHz	TDRS	RELAY	GEO		
2.214 GHz	SHUTTLE	MANNED	LEO		
2.2155 GHz	SHUTTLE	MANNED	LEO		

FREQUENCY	SAT	TYPE	ORBIT/LOC	INCL	MODE
2.2175 GHz	SHUTTLE	MANNED	LEO		
2.250 GHz	SHUTTLE	MANNED	LEO		
2.280-2.304 GHz	EARLY WARNING	RUSSIAN			
2.2875 GHz	SHUTTLE	MANNED	LEO		
2.560-3.700 GHz		EUROPEAN/RUSSIAN			TV
3.700-4.195 GHz	TELEVISION	C-BAND			TV
7.200-7.500 GHz	NATO III	MILITARY	GEO		VOICE/DATA
7.200-7.700 GHz	DSCS III	MILITARY	GEO		VOICE/DATA
7.200-7.900 GHz	SKYNET	UK/MILITARY	GEO		VOICE/DATA
7.250-7.750 GHz	RADUGA	RUSSIAN/MIL	GEO		VOICE/DATA
8.400 GHz	SPOT	RECON	LEO		FAX
8.430 GHz	JERS	WxSAT	GEO		FAX
11.000-11.500 GHz	SDRN	REALY	GEO		FAX
12.200-12.700 GHz	DBS		GEO		TV
16.600-17.100 GHz	JERS	WxSAT	GEO		FAX
16.600-17.100 GHz		DEEP SPACE PROBES			
17.300-21.200 GHz	DBS		GEO		TV
17.300-21.200 GHz	FIXED & MOBILE SATELLITE SERVICE				
22.500-23 GHz	BROADCASTING ALLOCATIONS				
23-23.550 GHz	INTERSATELLITE/ CROSSLINK				
24-24.500 GHz	AMATEUR ALLOCATION/SATELLITE				
31-33 GHz	RADIONAVIGATION				

I hope this abbreviated list of frequencies meets your approval and provides some interesting listening. Be sure to forward me any additions you might like to make to the next edition of Space Log. See you next month.

Pirates Den (from page 65)

of special QSL only for this program. (Murphy)

Up Against the Wall Radio, 6955 USB at 1422. "We do require your comments for a QSL." and no preprinted are accepted. (Murphy)

Real Radio USA, 6955 USB at 1500, "sponsored by TAB Books" with shots at Andrew Yoder, "your number one T-shirt station," strange, *Three Stooges* type of music. (Murphy)

Star Club Radio, 6955 at 1830 "this is the Crooked Man calling." Included a stream of rambling thoughts about psychiatry, Christ, World War III, people from other planets, "as a baby I fell out of the Hindenburg." (Murphy)

Voice of Smoke, 6956 USB at 2359 with story on how the Jamaican Bobsled Team got started. Wellsville address announced. (Salamone)

KNBS, 6954.6 at 2050 with listener mail. Wellsville address. (Salamone)

Radio Perfect, from Germany, 6955 USB at 2252 with country music. The announcer had a heavy German accent and it was hard to be sure of the station name. (Salamone) (Maybe a relay? — Editor)

Black Swan Radio, 6956 at 2120 with dance music. No address noted. (Salamone)

Terrific, guys! Keep up the great work. Catch ya next month!

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Washington Pulse

FCC ACTIONS AFFECTING COMMUNICATIONS

FCC Annual Report Now Available

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Phone orders will be accepted by calling the Reference Desk at (202) 512-1800. Faxes should be sent to (202) 512-2250. Phone and fax orders may be charged to MasterCard or Visa. Written requests should be addressed to the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Checks and money orders should be made payable to the Superintendent of Documents.

Streamlined Licensing Rules For Fixed Microwave

The commission has adopted streamlined, simpler licensing rules and procedures for the fixed microwave services. Prior to the action, Part 21 of the commission's rules contained the rules governing common carrier fixed microwave services, while Part 94 contained the rules governing private operational fixed microwave services.

Over the last decade, there has been a convergence of these services because of their similar technical standards and sharing of microwave frequency bands. Previously, however, the license application processing for these services was performed by different commission offices, which maintained separate processing practices and policies. As a result, fixed microwave applicants and licensees have been subject to different regulatory requirements dependent upon the particular rule part by which their operations were governed. This item also implements Section 403(j) of the Telecommunications Act of 1996 to provide expedited licensing for fixed microwave services.

By this action, the commission creates a comprehensive, single rule part which governs both common carrier and private operational fixed microwave services, by revising and consolidating Parts 21 and 94 of the commission's rules. Consequently, all fixed microwave applicants and licensees generally will be subject to the same regulatory requirements.

Moreover, this consolidation, combined with a single commission office being responsible for the application processing procedures and policies for these services, will enable the commission to handle fixed microwave applications more quickly and efficiently.

The commission's revision of Parts 21 and 94 of its rules also adopts uniform technical standards for common carrier and private operational fixed microwave licensees. Thus, there should be economies of scale realized in microwave production and lower equipment prices for licensees.

In addition, the commission revised its rules to permit common carrier fixed microwave applicants to commence construction of their facilities, at their own risk, prior to receiving a

license or filing a license application for such facilities. Given that preauthorization construction already was permitted for private operational fixed microwave licensees under Part 94, this action results in similar regulatory treatment for all fixed microwave licensees and facilitates rapid delivery of service to the public. The commission, however, denied a petition for rule making filed by McCaw Cellular Communications Inc. requesting extension of the current temporary fixed procedures to initiate permanent microwave service. The commission has, however, revised its rules to permit fixed microwave carriers to operate their facilities, at their own risk, upon filing of a license application with the commission.

New Experimental Stations

The Federal Communications Commission has granted the following experimental licenses:

KG2XAU, Product Safety Engineering Inc. Fixed in Darby, Fla. Use 27-500 MHz for susceptibility testing of equipment for compliance with international safety and EMC standards.

KA2XEU, Advanced Navigation & Positioning Corp. Fixed in Hood River, Ore., and Dallasport, Wash. Develop a transponder landing system under contract with NASA-Ames Research Center using 108.350, 333.950, 1030 and 1090 MHz.

KA2XEC, IVDS Affiliates Inc. Fixed in United States. Demonstrate IVDS equipment on 218-219 MHz to potential customers at conferences and meetings across the country.

KO2XBV, Schrader Inc. Mobile in central Michigan. Use 315 MHz to develop remote tire pressure monitoring for vehicles.

KS2XF0, Schlumberger Industries MCS Division. Mobile in Columbia, S.C. Use 451.125 MHz for test and development of automatic meter readers.

KS2XFE, Axion Logistics Corp. Mobile throughout United States. Operate on 879.390-879.990 and 880.020-880.620 MHz to develop, demonstrate and test the use of small packet data words on cellular reverse control channels to convey information.

KS2XEN, Northrop Grumman Corp. Mobile in Rolling Meadows, Ill. Use 896-902 MHz for test and development of wireless RF products.

KE2XOH, California EPA. Fixed in El Nido and Corcoran, Calif. Operate a wind profiler on 915 MHz to collect wind and virtual temperature profiles.

KA2XEF, Finest Kind Inc. Mobile in Beach Haven, N.J. Operate an INMARSAT terminal on 1626.5-1646.5 MHz where no alternative means of communication is available.

KA2XEH, Amoco Corp. Mobile in Houston, Texas. Operate a land-based INMARSAT terminal on 1626.5-1646.5 MHz to support disaster preparedness and crisis situations where no reliable communications exist.

KA2XEI, California Microwave Inc. Mobile in United States, Alaska, Hawaii and Puerto Rico. Operate an INMARSAT terminal on 1626.5-1646.5 MHz to demonstrate equipment.

KA2XEW, Landsea Systems Inc. Mobile in

Virginia Beach, Va., and Washington, D.C. Operate on 1626.5-1646.5 MHz to demonstrate and test an INMARSAT-C terminal.

KA2XEY, Ball Aerospace. Mobile in Broomfield, Colo., and continental United States. Operate five INMARSAT-M terminals on 1626.5-1660.5 MHz to optimize antenna design and demonstrate the operation of the system from a moving vehicle.

KS2XCE, Lee County Division Of Communications. Mobile in continental United States. Operate on 1626.5-1646.5 MHz for communications during emergencies.

KS2XFA, Rockwell International Corp. Mobile in continental United States. Use 1626.5-1646.5 MHz in support of GPS-based air traffic control and tracking experiments and for technical demonstrations.

KS2XFF, Able Communications Co. Inc. Mobile within a 64-km radius of Houston, Texas. Operate on 1626.5-1646.5 MHz to demonstrate INMARSAT-B terminals to prospective customers.

KS2XFH, Texaco Inc. Mobile in continental United States. Use an INMARSAT-M terminal on 1626.5-1660.5 MHz for communications in remote areas during emergencies.

KS2XEW, McDonnell Douglas Aerospace. Mobile in continental United States. Use 1710-1750 MHz and 1800-1850 MHz for development and demonstration of video links.

KA2XER, APT Houston Inc. Fixed and mobile in Houston, Texas, metropolitan trading area. Operate on 1850-1865 and 1930-1945 MHz to evaluate PCS equipment.

KA2XEL, APT Alaska Inc. Fixed and mobile in Alaska metropolitan trading area. Operate on 1850-1865 MHz and 1930-1945 MHz to evaluate PCS equipment.

KA2XEN, APT Tampa/Orlando Inc. Fixed and mobile in Tampa-Orlando, Fla., metropolitan trading area. Operate on 1850-1865 MHz and 1930-1945 MHz to evaluate PCS equipment.

KA2XEP, APT Guam Inc. Fixed and mobile in Guam-Northern Mariana Islands metropolitan trading area. Operate on 1850-1865 MHz and 1930-1945 MHz to evaluate PCS equipment.

KS2XEA, Western PCS I Corp. Fixed and mobile in following metropolitan trading areas: Portland, Ore.; Des Moines, Iowa; Quad Cities, Iowa and Ill.; and Oklahoma City, Okla. Use 1850-1990 MHz for test and development of broadband PCS.

KS2XEB, Western PCS II Corp. Fixed and mobile in following metropolitan trading areas: Salt Lake City, Utah; El Paso, Texas-Albuquerque, N.M.; and Honolulu, Hawaii. Use 1850-1990 MHz for test and development of broadband PCS.

KS2XEJ, Western PCS Corp. Fixed and mobile nationwide. Use 1850-1990 MHz to test and develop broadband PCS.

KS2XCT, Celsat America Inc. Fixed and mobile in New Jersey, within 10-km range of base(s). Operate on 1865-1870, 1885-1895, 1945-1950 and 1965-1975 MHz to conduct limited tests of a wireless personal communications network.

KA2XEK, APT Minneapolis Inc. Fixed and mobile in Minneapolis, Minn., metropolitan trading area. Operate on 1870-1885 MHz and 1950-1965 MHz to evaluate PCS equipment.

KA2XEM, APT Kansas City Inc. Fixed and mobile in Kansas City, Mo., metropolitan trading area. Operate on 1870-1885 MHz and 1950-1965 MHz to evaluate PCS equipment.

KA2XES, APT Pittsburgh Limited Partnership. Fixed and mobile in Pittsburgh, Pa., metropolitan trading area. Operate on 1870-1885 and 1950-1965 MHz to evaluate PCS equipment.

KS2XFG, APT Columbus Inc. Fixed and mobile in Columbus, Ohio, metropolitan trading area. Operate on 1870-1885 MHz and 1950-1965 MHz to evaluate PCS equipment.

KS2XEL, Sanders. Fixed in Boston, Mass. Use 1930-1990 MHz to test and develop remote antenna drivers (RAD) for PCS.

KQ2XYU, Motorola Satellite Communications Inc. Fixed in Chandler, Ariz. Use 2040 MHz to support METEOR project.

KQ2XLO, CTA Commercial Systems. Mobile in continental United States. Test and evaluate prototype subscriber ground terminals for communicating with low-earth orbit (LEO) satellites on 149.810-149.900 MHz.

KA2XIC, El Coyote Ranch. Mobile in Brooks and Hidalgo counties, Texas. Track wildlife in the 150-154 MHz band.

KS2XFS, Novalink Technologies Inc. Fixed in Fremont, Calif. Use 896-902 MHz for test and development of wireless devices that send and receive data on the Mobitex Communications Network.

KA2XMT, Viasat Technology Corp. Mobile in continental United States. Hawaii and Alaska. Operate on frequencies 1626.5-1646.5 MHz to demonstrate INMARSAT-C portable terminals for sales purposes.

KA2XEO, Marconi Communications Inc. Mobile in Washington, D.C., Maryland and Virginia. Operate an INMARSAT-M terminal on 1626.5-1660.5 MHz for testing and demonstration purposes.

KE2XGD, Viasat Technology Corp. Mobile in continental United States. Operate on 1631.5-1660.5 MHz for sales demonstrations of satellite terminals.

KA2XAC, Interstate Mobilephone Services Inc. Mobile in Kirkland, Wash. Evaluate the propagation of signals at 1850-1910 and 1930-1990 MHz.

KA2XAF, Airmet Communications Corp. Fixed and mobile in Melbourne, Fla. Perform testing and demonstration of a PCS system at 1850-1910 and 1930-1990 MHz.

KA2XIB, Galaxy Personal Communications Services. Fixed and mobile in the following metropolitan trading areas: Atlanta, Ga.; Birmingham, Ala.; Charlotte-Greensboro, N.C.; Jacksonville, Fla.; Knoxville, Tenn.; Miami, Fla.; Nashville, Tenn.; Richmond-Norfolk, Va.; Tampa, Fla.; and Memphis-Jackson, Tenn. Evaluate PCS technologies and equipment and to measure various propagation characteristics at 1850-1910 and 1930-1990 MHz.

KA2XAR, AP Technoglass. Fixed in Elizabethtown, Ky. Test antennas printed on the rear window of a vehicle in the 88-108 MHz band.

KA2XHR, Schlumberger Industries. Mobile in West Union, S.C. Use 451.125 MHz to test automatic meter readers.

KA2XAV, Ericsson Inc. Fixed and mobile in Lynchburg and Johnson Mountain, Va. Operate on 854.7875-860.8875 MHz to set up a test

bed to verify concept and test-simulated commercial conditions of TDMA-based equipment.

KE2XGD, Aurora Flight Science Corp. Fixed and mobile in United States. Operate on frequencies between 1440.5-1494.5 MHz and 2325.5-2388.5 MHz on a robotic aircraft to perform research for government agencies.

KA2XHG, Mcq Associates Inc. Mobile in continental United States. Use 1626.5-1645.5 MHz, INMARSAT-C, for relaying data from remote collection sites.

KA2XHK, Trimble Navigation Ltd. Mobile in Sunnyvale, Calif., and throughout the United States. Use 1626.5-1645.5, INMARSAT-C, for demonstrations.

KA2XGJ, Natchiq Inc. Mobile in northern coast of Alaska. Use 1626.5-1660.5 MHz, INMARSAT-M, for communications in remote areas of northern Alaska.

KA2XGU, Southern Methodist University. Mobile in continental United States. Use 1626.5-1660.5 MHz for communications support in remote areas and for emergencies.

KA2XHU, 3M Telecom Systems Division. Fixed and mobile within 50-km radius of Austin, Texas. Use 460.725 MHz for development of equipment that locates underground utilities with the aid of GPS.

KA2XBG, Arraycomm Inc. Fixed and mobile in Santa Clara County, Calif. Use 824-849 and 869-894 MHz for test and demonstration of new technologies.

KA2XIA, Pacific Communications Sciences Inc. Mobile nationwide. Use 901-901.05 and 940-940.05 MHz to test, develop and demonstrate communications equipment.

KE2XJI, Westinghouse Communications Services Inc. Fixed in Santa Isabel, Puerto Rico. Use 1030 MHz, 1249-1325 MHz, 1335-1345 MHz, and 2900-3100 MHz to test radars.

KA2XBE, State of Arizona. Mobile in Arizona and vicinity. Operate INMARSAT terminal on 1626.5-1660.5 MHz for emergency communications.

Telecom Act To Reinvent Agency

The Telecommunications Act of 1996, signed into law by President Clinton, includes 21 legislative proposals the FCC submitted to Congress in 1995 as part of the FCC's ongoing "Reinventing Government" initiative.

When the commission first transmitted its legislative proposals to Congress in May 1995, the five FCC commissioners noted in their transmittal letter that nearly all of the FCC's proposals "are deregulatory or pro-competitive in nature in that their enactment will eliminate certain commission functions, privatize other responsibilities, reduce regulatory burdens on industry, increase telecommunications competition, save agency resources, or otherwise streamline agency processes."

These FCC legislative proposals and others first were highlighted in a summary of FCC staff legislative proposals released Feb. 1, 1995, as an appendix to a "Reinventing Government" report by Mary Beth Richards, special counsel to the commission for Reinventing Government. The report was entitled "Report to the Commissioners: Creating a Federal Communications Commission for the Information Age." That report also summarized in another appendix additional FCC staff proposals to further streamline and deregulate that can be carried out under existing legislative authority. The commission

already has implemented, or is in the process of implementing, many of these administrative streamlining proposals.

Following is an executive summary of the FCC's 1995 legislative proposals enacted into law by S. 652. The legislative proposals also are organized by the FCC bureaus and offices that first recommended the proposals and now are expected to implement the new laws.

Cable Services Bureau:

- Change in the definition of a "cable system" and SMATV Systems. (Sec. 602 (7)(B) of the Communications Act of 1934, as amended) (Hereafter just the amended statutory section is cited.) Excludes from the definition of a "cable system" not only commonly owned, but also separately owned dwellings interconnected by wires that do not cross public rights-of-way. This will promote the growth of wireless cable and SMATV systems as competitors to cable systems by substantially reducing the costs of expanding such systems.

- Cable "anti-trafficking." (Sec. 617) Deletes the "anti-trafficking" provision of the Cable Act of 1992 to allow for the free sale of cable systems. This removes an unneeded burden to a free-market, competitive environment for the cable television industry.

Common Carrier Bureau:

- Forbearance authority. (New Sec. 10) Authorizes the FCC not to regulate classes of telecommunications carriers or services where unnecessary to protect the public interest. This will enable the FCC to forbear from, and/or streamline, regulation, such as by eliminating the tariff filing requirement for non-dominant long-distance carriers such as MCI and Sprint. This will save resources, reduce paper work, increase efficiency and promote competition.

- Physical collocation for expanded interconnection. (New Sec. 251(c)(6)) Authorizes the FCC to require physical collocation for expanded interconnection. Requires FCC regulations to provide for actual collocation of equipment necessary for interconnection at the premises of a local exchange carrier (LEC), or virtual collocation if the LEC demonstrates that actual collocation is not practical for technical reasons or if space is limited. This will permit the FCC to require the local exchange telephone carriers to open their central offices to the equipment of competitors.

- Depreciation rates. (Sec. 220(b)) Repeals mandatory FCC setting of depreciation rates for common carriers. This gives the FCC greater flexibility if it determines that setting depreciation rates for some or all telecommunications carriers no longer serves the public interest.

- Use of independent auditors. (Sec. 220(c)) Authorizes the FCC to use independent auditors to augment its carrier audit program. Commission hiring of its own independent auditors will enable the FCC more fully to examine carrier audits. This proposal also saves money by reducing the additional staff auditors the FCC would have to hire to scrutinize the audits of the carriers' independent auditors.

- Regulation of pole attachments. (Sec. 224) Precludes utilities from favoring one competitive entity over another in obtaining pole attachment agreements and in pole attachment rates and practices. This will help assure non-discrimination in the provision of pole attachment space as competing telecommunications services proliferate.

Compliance and Information Bureau:

- Privatization of ship radio inspections. (Secs. 362(b), 385) Authorizes the FCC to use private entities to conduct inspections of ship radio stations and broadens the FCC's authority to waive the now-required annual ship radio station inspection. This will provide more flexibility in scheduling the required annual inspection for U.S. ships operated domestically. It also will save the commission staff and travel resources, improve inspection service to the maritime industry, and promote private sector jobs.

Mass Media Bureau:

- Extension of broadcast license term. (Sec. 307(c)) Extends radio and TV license terms to eight years each. This will reduce costs both for the broadcasting industry and the commission.

- Expedited processing of instructional television fixed service applications. (Sec. 5(c)(1)) Expedites processing of ITFS applications by allowing staff (rather than administrative law judges or the full commission) to issue decisions in routine, paper hearings in comparative ITFS cases. This will streamline agency processes, thereby expediting new or improved ITFS service.

- Modification of construction permit requirement. (Sec. 319(d)) Modifies the prohibition against the commission waiving the requirement for a broadcast construction permit for minor modifications to broadcast stations. This proposal eliminates essentially the duplicative process of filing separately for both a construction permit and license in instances where elimination of the construction permit requirement will create little or no potential for interference.

- Limitation on silent station authorizations. (New Sec. 312(g)) Provides that a license authorization for a station silent for one year automatically cancels. This will save commission resources, eliminate undue protection of non-operational stations and allow operational stations greater flexibility in changing frequencies and upgrading facilities.

- Simplification of broadcast license renewal process. (New Sec. 309(k)) Simplifies the broadcast license renewal process by establishing a two-tiered process: first, the incumbent licensee's performance during the preceding license term will be compared only against statutory standards and not against any competing applications, and second, the renewal application will be automatically granted if the statutory standards are met or exceeded, or designated for hearing and possibly opened to competing applications if the standards are not met. This will streamline broadcast license renewal procedures, eliminating the costly process for both the agency and licensees of considering competing applications to a renewal application even though the incumbent's performance has been in compliance with commission standards.

Office of Engineering and Technology:

- Delegation of equipment testing and certification to private labs. (New Sec. 302(e)) Authorizes the use of private, independent testing labs to test and certify radio equipment to ensure compliance with technical standards for radio frequency (RF) emissions. This will permit a reduction in the number of persons engaged in equipment testing with no adverse impact on the commission's role in ensuring that RF emitting devices are safe.

Office of General Counsel:

- Making license modification uniform. (Sec. 303(f)) Eliminates the public hearing requirement concerning changes in frequencies, authorized power or times of operation of any station so the written procedure provisions of Section 316 will apply uniformly to any appropriate modifications of broadcast authorizations. This will potentially save money and increase efficiency by eliminating the need for any individual public hearings that would be required by existing Section 303(f) of the Act.

Office of Managing Director:

- Auction funding availability. (Sec. 309(j)(8)(B)) Amends the competitive bidding provisions of the Communications Act to provide the FCC with more flexibility in the collection and use of auction funds by authorizing auction collections to remain available until expended. This will permit the FCC to use funds in any year to reimburse itself for the cost of conducting the auctions.

Wireless Telecommunications Bureau:

- Permit operation of domestic ship and aircraft radios without license. (Sec. 307(e)) Permits the FCC to authorize by rule rather than through individual licensing the operation of radio equipment on domestic ships, aircraft, and in some personal radio services such as the citizens band and radio control services. This will streamline the process for placing radio equipment in operation by eliminating the need to obtain specific licensing authority. This amendment alone will eliminate more than 120,000 applications for radio station licenses each year.

- Automated ship distress and safety systems. (New Sec. 365) Authorizes the FCC to fully implement the Global Maritime Distress and Safety System (GMDSS) by giving the agency authority to relieve cargo vessel owners from the burden of current domestic radio equipment carriage requirements. This will enhance worldwide competition in the shipping industry by eliminating a requirement now generally applicable only to U.S. ships.

- Modification of amateur radio examination procedures. (Sec. 4(f)(4)) Eliminates unnecessary conflict-of-interest provisions for publishers and equipment manufacturers to broaden the category of those authorized to administer amateur radio service examinations and eliminates burdensome record maintenance and annual financial certification requirements. This amendment also will eliminate numerous filings with the commission.

- Expedited licensing for fixed microwave services. (Sec. 309(b)(2)) Expedites processing of microwave applications by eliminating requirement that such applications be placed on at least 30 days public notice prior to grant. This will streamline processing by eliminating the delay in granting licenses caused by the mandatory public notice period. (Generally, these applications are not contested or could be petitioned against after the grant, so there is no need for a pregrant public notice.)

- Government-owned stations. (Secs. 305(b), 382(2)) Eliminates FCC jurisdiction over ship radios belonging to other government agencies such as the Department of Transportation and the Panama Canal Zone Authority. This eliminates a duplication of effort between the FCC and other federal government agencies by erasing the need for the FCC to review the operations of vessels run by other agencies.

Modification of Fixed Service Microwave Rules

The Federal Communications Commission has adopted a Notice of Proposed Rulemaking that initiates changes to its fixed service microwave rules to make them compatible with new, emerging technologies for directional antennas. Specifically, the notice proposes to permit directional antennas to comply with requirements for either minimum antenna gain or maximum beamwidth.

These changes are designed to minimize regulatory burdens on microwave users and manufacturers and provide licensees with additional flexibility in using technologically innovative directional microwave antennas. The notice also preserves the intent of the rules to maximize spectrum efficiency and minimize interference.

Experimental Licenses At 1910-1930 MHz

The FCC has allocated the 1910-1930 MHz band for exclusive use by unlicensed Personal Communications Service (UPCS) devices. Part 15 Subpart D of the commission's rules sets forth limits for the transmit power of these devices. In addition, the rules state that UTAM Inc. will manage the transition from microwave use of the band to UPCS devices.

Currently, a number of experimental licenses include authorization for use of the 1910-1930 MHz band. Many of these licenses involve much higher power than is allowed under Part 15. For example, some license holders of broadband PCS licenses wish to conduct propagation testing in this band because of the lower concentration of incumbent microwave licensees.

At least one UPCS device has been certified by the FCC's laboratory in Columbia, Md., and several other certification applications are pending. In its letter dated Feb. 1 to the commission, UTAM indicates the sale and installation of UPCS devices is beginning. UTAM is concerned that testing of equipment that does not conform to the spectrum etiquette developed for UPCS can shut down a properly deployed UPCS device; and such testing could cause interference to incumbent microwave operations in the UPCS band.

UTAM states that "particularly during the early period, public perception of the utility and reliability of UPCS products is critical. Random shutdowns or microwave-incumbent complaints (either which could result from the testing of equipment other than UPCS devices) can cause irreparable harm and prevent this industry from bringing its full benefits to the public."

Accordingly, the commission no longer will grant experimental licenses authorizing use of the 1910-1930 MHz band, except for applications involving low-power, unlicensed PCS devices. These authorizations will be conditioned to require notification to UTAM of the intended operation.

In addition, current licensees authorized to use the 1910-1930 MHz band must terminate any operations in this band that are not consistent with use of the spectrum for UPCS, effective immediately. Such termination of operations in the experimental radio service is consistent with the provisions in Part 5 of the rules. This notice will be followed by letters to appropriate licensees. ■

Thoughtwaves

(from page 5)

6 to 10 p.m. The question, however, is what will become of the ethnic programming. It has been a staple on WJDM for 25 years. Elizabeth is a culturally diverse community and the programming should be seen as necessary in serving its citizens. In less than five years, the FCC will require the permit for 1530 kHz be surrendered and the old transmitter taken off the air. Then, Elizabeth will be left with the 1660 kHz station, and presumably a continuation of the children's format that will be serving the tri-state metropolitan area.

John Quinn, owner of Radio Elizabeth Inc., will run the 1530 kHz operations for Children's Broadcasting Corp. until the license is surrendered. Hopefully, he also will find a way to continue the ethnic programming in some fashion when 1530 kHz goes dark in northern New Jersey in five years.

On the same note, I must admit that it is exciting to have an innovative format like Radio Aahs on the expanded AM band. Several evenings while driving near home in the Midwest with my children, we've tuned in WJDM. My boys have enjoyed

hearing storytelling programs and songs oriented toward children. It's certainly reminiscent of days long past where the family would gather around the console radio in the parlor and listen to highly acclaimed radio shows of the time.

While the new programming on WJDM will serve an apparently unique need in the nation's No. 1 radio market, it also is noted that the death of local radio for one of New Jersey's largest cities is on the horizon. In order for smaller stations near major markets to survive, they must attach themselves to the larger city through dual-city IDs and programming of interest not to the community they call home, but also the bigger city. That's how they rope in the advertising dollars. Unfortunately, as more stations make the switch to the expanded AM broadcast band and can serve a wider audience, you'll see others attach themselves to bigger cities, too.

In all seriousness, WJDM at 1530 kHz was not worth the \$12.5 million that Children's Broadcasting Corp. paid for it. It was the migration to 1660 kHz with a stronger signal that made it worth a price payable for a New York City broadcast outlet. Somehow, it seems askew. But it's going to happen several dozen more times. Stay tuned.
73, Chuck

The Ham Column

(from page 62)

trainer without the CT-like interface. Also lots of fun! Info: Shareware, available from <http://maspar.maspar.com/pub/k2mm/rufz/> and elsewhere.

Learning the Code

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Miscellany

As mentioned, the list is short. Not mentioned are applications for antenna design, propagation, satellite tracking, ATV, SSTV, radio control, digital modes, and many others.

Also not detailed are non-program info files, thousands of which are scattered throughout the Internet. You'll find ham radio clip art, lists of ham radio retail stores, links to manufacturers' web sites, sound files, callsign servers, online packet clusters, Internet-controlled radios with net-delivered real-time audio, and much more.

Surf, surf and surf some more—that's the rule! Keep your photos, letters and column suggestions coming to me at ARRL, Department PCN, 225 Main St., Newington, CT 06111, or send e-mail to kirk@uslink.net. ■



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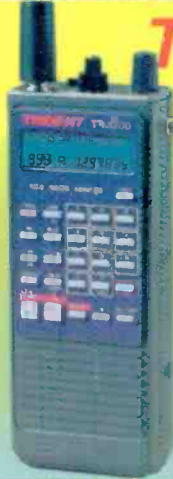
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