



MONITORING TIMES

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1990 Index

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MONITORING TIMES

C-SPAN by Jeff Chanowitz

6

Shortwave broadcasters have found an unlikely entrance into American homes -- through the ever-present television set!

Public affairs cable network C-SPAN has expanded its services to include two audio networks which carry programming from at least twelve international broadcasters. If your cable company doesn't yet carry C-SPAN, check out this article!



Save a Life by Laura Quarantiello

10

Two days can mean the difference between life and death for survivors of a plane crash. Two days is the average time saved in locating a plane if it is equipped with an Emergency Locator Transmitter. ELT's have improved battery life, and have cut down on the false alarms that plagued their early use, but their effectiveness still depends upon the signal being heard by a human being who responds. If you should ever tune in an ELT, know what to do.

Around the World in 24 Hours by Don Moore

14

We're getting the jump on Father Time as we get ready to send 1990 on its way. Don Moore has cooked up a way to celebrate the New Year 24 times and emerge only one year older. Of course, you can chase midnight around the world any night of the year ... if the Sandman doesn't get to you first!



As the World Speaks, He Listens

by Karl Zuk

18

Forget DXing the world with your super-duper shortwave receiver -- Here's a guy who listens to Australia, Japan, and Asia ... on his AM radio! The pastures in Pat Martin's Oregon countryside are strung with Beverage antennas in pursuit of his main joy in life: listening to something nobody else can hear.

COVER: Antenna tower at Fort Meade

And More...



The Scanning Report (p.32) has some real goodies to award to six lucky winners at the end of this month.

Time's awastin'--grab your pen and fill out that card. Meantime, Bob Kay's got some tips for monitoring the day *after* Christmas!

A sneak preview of the soon-to-be-released NRD-535 is only one of the many tantalizing products in What's New? (p.36). Scanner Equipment (p. 90) reveals more specs on the new Realistic PRO2025 and PRO36, while Magne Tests (p.87)... nothing at all! He says it's not the equipment that matters most. Hm-m, should I send back my new ICOM IC R-9000? Maybe I'd better read it first.

Speaking of equipment, if you've hesitated to make a purchase because you're just not ready to trust a mail-order company yet, see what Uncle Skip has to say about the subject (p.40). Having been burnt himself, he's got some good advice.

Hey, what's a picture of the Daughters of Israel Geriatric Center got to do with radio?! You might be surprised -- but then, American Bandscan (p.52) usually has some surprises in store. And so does the rest of *Monitoring Times*. Just open it up and see for yourself!



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LETTERS

"Under your section of letters in the August issue," writes Tony Sorensen of Hinnerup, Denmark, "you write about one Mr. Igor Sannikov from the USSR.

"As you have no information about him, then better consider him to be a KGB-man!!! Is the American attitude still to consider any Russian to be a spy of that like!"

"Let me at once here tell you that Igor Sannikov is a member of our club (Danish Shortwave Club International), he has visited me last year in August as my personal guest and I have just returned from a travel to Kirov where he lives, and I had the very great pleasure being guest (sic) of his home in Novoviatsk a suburb to Kirov together with his family. I stayed there for 14 days and it has been my life's best stay and the most kindly and informative you can't imagine."

No, Tony, we can't imagine. Nor can the hundreds of people who took Igor up on his offer to answer questions about radio in the Soviet Union but who received no answer from him.

We'd also like you to please read the column again, Tony. *Monitoring Times* did not suggest that Igor was a KGB man. One of our readers did. The reader was a Finn. So, in answer to your question, no, it is "still not the American attitude to consider any Russians to be a spy or the like." It is our attitude, however, to be pretty forgiving of people who wrongly accuse us.

Judith Berge of Huntington, West Virginia, passes along an article she wrote about shortwave. The article appeared in a local publication called *The Entertainer*.

"It's not that I am a shortwave expert, but everyone needs some encouragement. So it's not a technical paper but aims to show what kind of fun anybody can have with a simple radio."

True enough, Judith. We need more radio "evangelists" like yourself. Thanks for introducing the hobby to so many people!

A couple of readers have sent in

"hands-on" receiver reviews. Eric Schlosser of Slatington, Pennsylvania, bought a Kenwood R-5000.

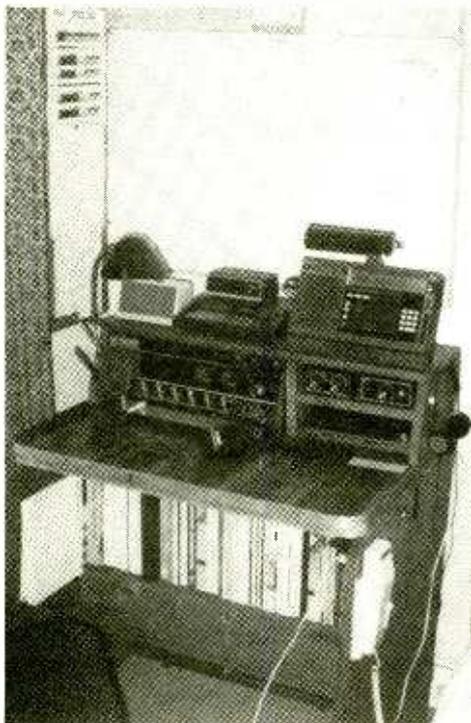
"I was a bit disappointed at how long it took to figure out," says Eric. "But to say that I am well pleased with the receiver would be an understatement.

"For many years," he continues, "I listened to shortwave on a General Electric floor model (circa 1940). I never did replace it when it died, but two or three years ago, after hearing about everything that was on the air, I decided to purchase a DX-440. When I decided that I had to 'hear it all,' I bought the Kenwood."

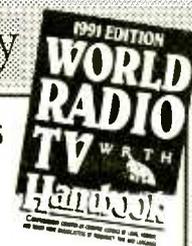
Right now Eric is using a long wire and an active antenna -- the one featured in Clem Small's column in the July 1990 issue. "I built mine on a small circuit board and power it with a 9-volt transformer when using it indoors," boasts Eric. "Eventually, I'll erect one or two vertical dipoles."

Jim Slater of Scranton, also in Pennsylvania, starts his letter by saying, "Local boy makes good. -- thanks to *Monitoring Times*."

[Continued on page 100]



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U.S. Clamps Down on Dominican Pirates

Local television stations in the Dominican Republic have been warned that they must stop pirating American programming or risk losing their licenses. Government action will apparently be swift. According to Dominican director of telecommunications, Leopoldo Nunez, the stations have five days in which to document that they have rights to the programs. If not, he says, "we are ready to suspend their licenses."

The new attitude by the government of the Dominican Republic toward TV pirating was spurred by economic considerations. A U.S. Department of Commerce warning, transmitted via the U.S. embassy, threatened the Dominicans with decreased benefits under the U.S.-sponsored Caribbean Basin Initiative. The CBI is a 10-year-old piece of American legislation aimed at promoting free trade and economic development in the region. "The situation is very worrisome to us," says Nunez.

Both television and radio stations, as well as cable operators, have been implicated in the pirating.

Radio Exhibit

From east to west coast, millions of Americans listened as Walter Winchell barked out his nightly greeting, "Good evening Mr. and Mrs. North America and all the ships at sea." Just two decades after the turn of the century, radio had gained a near stranglehold on the American imagination.

The advances in radio technology and the cultural effects of radio programming are the topics of a new exhibit at the Strong Museum in Rochester, New York. "Radio Daze: The Radio in American Family Life, 1920-1940," looks at how the radio affected family life during its golden era.



How radio has shaped our culture is the topic of "Radio Daze" at the Strong Museum in Rochester, New York. Photo courtesy of the Margaret Woodbury Strong Museum.

The exhibit opens on February 16 and remains on view through June of 1992. For more information contact the Strong Museum at 716-263-2700.

KJAM Crashed

Saying that "misuse of radio frequencies is a serious offense," the San Francisco office of the Federal Communications Commission shut down unlicensed FM station KJAM. An FCC engineer using mobile radio direction-finding equipment located the station at 1448 Ward Road, the residence of Victor Ruiz. That night, Ruiz was fined \$1,000 for unlicensed operation on 90.7 MHz.

Call sign KJAM is assigned to an AM and FM combo in Madison, South Dakota.



Betty Baghdad Fails

Fears that Baghdad's nightly broadcasts to American troops in Saudi Arabia might be effective have withered after an informal survey of troops. According to a Reuter's report, Baghdad Betty, Iraq's version of Tokyo Rose, the female broadcaster who beamed propaganda at U.S. troops in

COMMUNICATIONS

World War II, has been creating laughter, not doubts.

"The bottom line is that it's extremely poor psy-ops (psychological operations)," said Army spokesman Major Doug Biddle. Betty's command of English is less than fluent, as well. "It's really pretty funny," said soldier Richard Carlish of the 27th Engineering Division.

Betty's taste in music is less than up-to-date, too. "It's kind of weird stuff from the 60s and 70s," said Specialist Richard Lawrence of the 27th.

Biddle says that the Army is not concerned about the effects of the broadcasts on the soldiers but recently played tapes of the transmissions to soldiers to see how they reacted. "Let's put it this way," said one soldier, "she does not make me want to lay down my arms."

FBI Probes Taping of Car-Phone Conversations

What reportedly started out as an accidental discovery that car phones could be tuned in on a portable TV has turned into an FBI investigation of two Fayette, Georgia, women.

According to newspaper reports, Nancy Charnock and her daughter, Debbie, taped over 300 car phone conversations, splicing and editing them into "amusing" tapes.

The Charnocks, along with an unspecified number of Fayette residents discovered several years ago that car phone conversations could be monitored on the higher frequencies of television receivers; later they discovered that scanners could do the same thing.

"It was entertainment night -- people all over the country record those things and play them back," said the Charnock's attorney. "They even got Rev. Ike one time when he was in town."

U.S. Attorney Joe Whitely says that

the case under investigation is one of wiretapping by illegally monitoring phone conversations.

Blast Settles VOA Tower

When "a large device" exploded at the base of a tower at the Voice of America's Philippine relay site recently, station engineers were amazed at the result. The explosion shattered the tower's concrete base, digging a large crater but failing to topple the huge structure. According to reports from the site, when the concrete base was destroyed, the tower simply fell straight down into the hole. There was no disruption in service.

VOA engineers must now consider how to replace the tower on a new pedestal.

Too Much Power

Too much of a good thing can be dangerous. At least that's how it probably appears to Harvey Peters, Jr. of Oakland, California. FCC engineers, with the assistance of Engineers from the FCC's San Francisco office, executed a civil *in rem* seizure of illegal radio equipment from Peter's home.

The equipment, valued at some \$2,000, included five non-type accepted (modified) transceivers capable of operating on frequencies not authorized for use in the CB radio service and two CB linear amplifiers capable of boosting transmitter power to 300 watts -- well above the 4 watt legal limit.

Peters' CB fun got the attention of the feds when the FCC received over 30 complaints from area residents stating that Peters' CB transmissions were being picked up on televisions, telephones, and stereo equipment. Letters to Peters from the FCC about his operation allegedly went unheeded and he had reportedly been issued fines for failing to allow an FCC official to inspect his station.

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To television viewers who have never even heard of shortwave radio, cable TV is introducing some of the best in shortwave programming, thanks to

C-SPAN

By Jeff Chanowitz

Imagine being able to listen to shortwave broadcasts that have the sound quality of local stations. Is this idea just a dream? On the contrary, C-SPAN, the public affairs cable network, has combined satellite and cable technology to create a new network that is revolutionizing international broadcasting.

Known as the C-SPAN Audio Networks, this service provides two audio channels that relay broadcasts of international radio services via satellite to homes wired for cable television. Cable subscribers can then tune into C-SPAN 1, which contains a total of 12 networks including Swiss Radio International, Radio Nederland, Radio Canada International, Radio Beijing, Radio Deutsche Welle, Voice of Free China (Taiwan), Radio Korea, Radio Havana (Cuba), Radio Austria International, Radio Japan, the Voice of America and the British Broadcasting

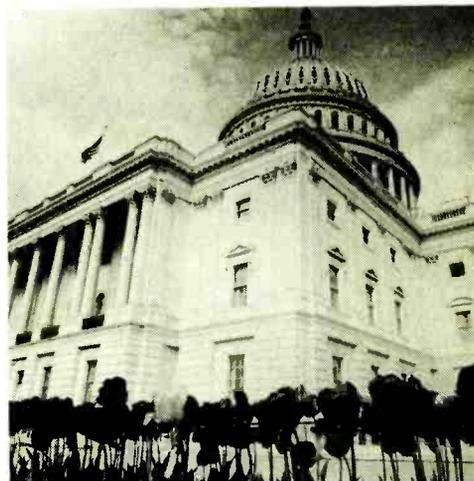
Company's World Service.

C-SPAN 2 also broadcasts the BBC, but on a 24-hour basis.

The novelty of the service is not just that cable subscribers can receive high fidelity shortwave broadcasts, but what makes this service unusual is C-SPAN's pioneering efforts in audio-without-video service technology. This effort could not have taken place if it weren't for relay agreements that Radio Canada International has with many international radio services at their transmitters in Sackville, Canada.

Here's how it works: Many shortwave services relay their broadcasts via satellite to RCI's studios for transmission to North America. C-SPAN downlinks (receives the signal from the satellite) before it goes to the RCI transmitters and relays it to cable companies throughout the United States.

"It provides another point of view of



C-SPAN began as a traditional cable network carrying live coverage of sessions of Congress. Congressional hearings continue to be covered in the Audio 1 schedule.



Seated in front of a bulletin board filled with international broadcast station logos is Beth Glatt, head of Audio Operations, who is proud of the new audio service. "It provides another point of view of world events."

world events," Beth Glatt, audio networks manager, commented on the audio networks mission.

C-SPAN had been a traditional cable network providing live television broadcasts of the U.S. House of Representatives and the U.S. Senate. On September 5, 1989, the audio service was inaugurated with five cable networks carrying the service on a trial basis. Today, 24 cable companies with over a million and a half subscribers carry the audio networks. By 1991 six more cable companies are expected to offer the service.

Off to a bumpy start

Despite the service's current success, getting the project off the ground has been difficult. The audio networks were the brainchild of Brian Lockwood, then network operations vice president. As an avid DXer, Lockwood thought that it would be a good idea to provide C-SPAN's audience with views from different countries. Since foreign television broadcasts were too expensive, he decided to bring shortwave stations to cable

C-SPAN Audio 1 Schedule

Eastern Times	Mondays-Fridays	Saturdays and Sundays
7:00	Radio Japan	Radio Japan
7:30		
8:00	"North Country" Radio Canada International	Classical Music or Live Congressional Hearings
8:30		
9:00 am-8:00 pm	Classical Music or Live Congressional Hearings	
8:00	"Newsdesk" BBC World Service	"Newsdesk" BBC World Service
8:30	Classical Music	Radio Nederland
9:00	Radio Japan	Classical Music
9:30		
10:00	Swiss Radio International	Swiss Radio International
10:30		
11:00	Deutsche Welle (West Germany)	Deutsche Welle (West Germany)
11:30		
midnight	Radio Beijing	Radio Beijing
12:30		
1:00	Classical Music	Classical Music
1:30	Radio Austria International	Radio Austria International
2:00	Daybreak Africa (Voice of America)	Daybreak Africa (Voice of America)
2:30		
3:00-6:00	Classical Music	Classical Music

Other broadcasters have been added since this schedule was published; Write for your own copy of "C-SPAN Update."

television. While the technology for such a service existed, convincing the international radio broadcasters was another matter.

"A lot of things like marketing and technology that we took for granted here required a lot of explanation," Glatt commented. In one incident, Glatt recalled having to describe cable television to Radio Beijing and what C-SPAN was going to do with their programs once they received them.

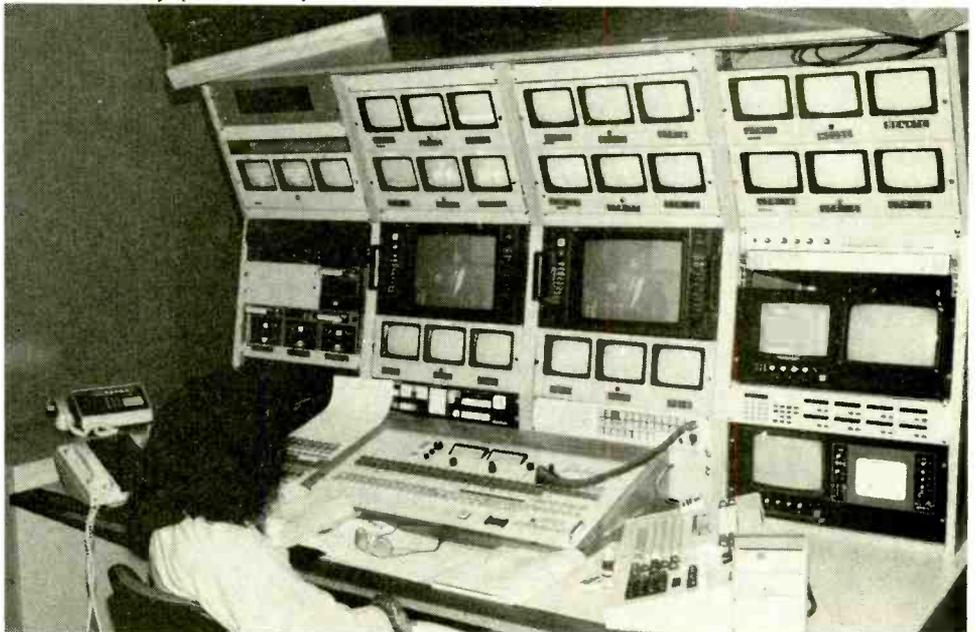
In addition, many international services were so accustomed to American stations only taking excerpts from their newscasts that they were dumbfounded at the fact that C-SPAN wanted the whole broadcasts, unedited, and on a daily basis. But as Glatt explained, "Once the services understood what we were doing, they got the concept of audio cable."

One of the reasons for the success of the audio networks has been the fact that it's a low-cost venture. C-SPAN, which operates off a budget that wouldn't pay the salary of the average network anchorman and is known for its frugality, has managed to offer this service with no additional fee to international radio networks, consumers, or cable operators.

The basic operating budget comes from the standard fee the cable operators pay to

receive the C-SPAN television network. This has enabled big and small cable operators to offer C-SPAN's audio networks to consumers at little additional cost.

The response from the cable operators has been very positive. Says Julie Hall of



The C-SPAN control room

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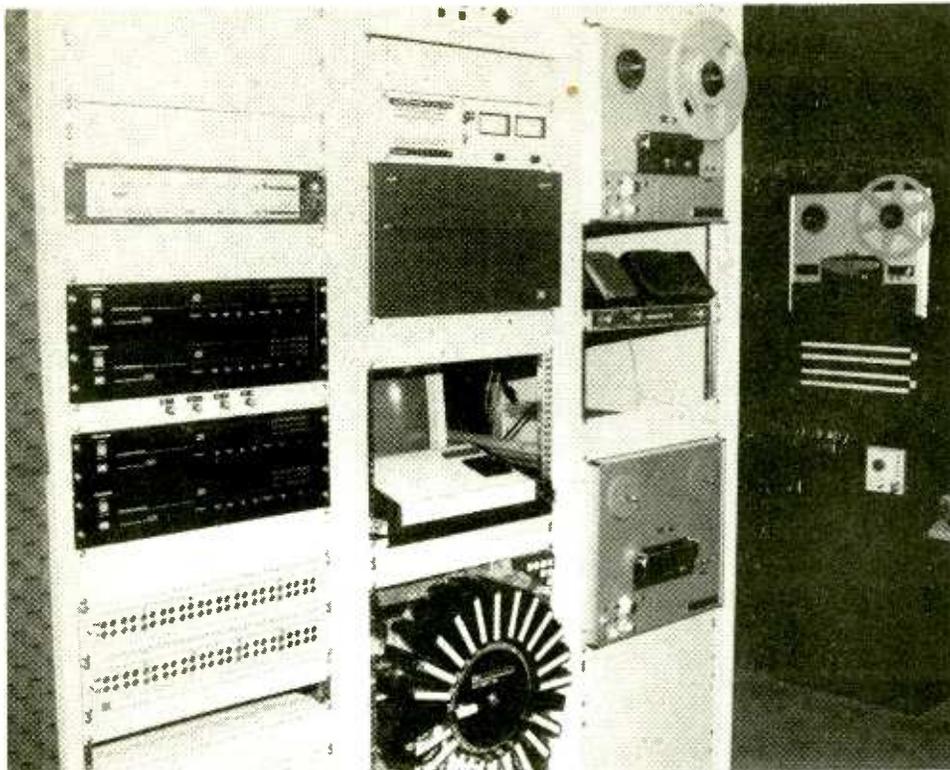
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The system that sends shortwave programs out to the many cable operators is fully automated. Such technology already existed when Brian Lockwood first conceived the audio service, but generating interest from broadcasters, cable companies, and listeners has been a more gradual process.

Jones Intercable in Alexandria, Virginia, "It's an interesting idea... it seems to be what the customers are asking for." Sharon Konze of Cox Cable in San Diego, California stated, "It's fulfilling an important need."

Yet other operators are less enthusiastic and doubt if anybody is listening. The general audience seems to be academic institutions, foreign nationals, shortwave listeners, and the typical C-SPAN "Information Junkie," which Glatt defines as "a person who wants to know everything about everything."

The prospect of audiences tuning in to international broadcasts could be a mixed blessing for shortwave as a medium. Andrew Simon, the executive director at Radio Canada International, expressed the positive effects stating, "The new audio networks are a good complement to shortwave. They enable people who are not shortwave hobbyists to receive our programs."

However, in times of tightening budgets for many international broadcasters and as the audience for C-SPAN's audio networks increases, there will be a greater temptation to bypass shortwave broadcasts and distribute programming to America via cable.

Glatt disavowed this prospect stating, "We did not go into business to do that (replacing shortwave). Part of what we did is say to people that we don't want you producing anything special for us. All we

want to do is ride piggyback to shortwave."

With the audio networks reaching only a small percentage of the listening audience, it's likely that this new service will not replace shortwave, but provide another way to listen to international broadcasts.

Tuning in

The schedule for the C-SPAN audio 1 service is printed in its newspaper "C-SPAN Update." To subscribe, the number is 202-737-3200 or write C-SPAN, 400 N. Capital St., Suite 650, Washington D.C. 20001.

The schedule for C-SPAN's audio 2 service is listed in "London Calling" magazine. Its address is P.O. Box 76, Bush House, Strand, London, England, WC2B 4PH.

Those interested in receiving the C-SPAN audio networks should call their local cable operator. If your local operator offers C-SPAN television, they will have the ability to receive the C-SPAN audio networks. If you don't get any response, then call the C-SPAN marketing office directly at 202-737-3220. They will be glad to contact your cable operator and explain the advantages of carrying the audio networks.

If you have your own satellite TV system, C-SPAN is carried on Galaxy 3, channel 24.

THE C-SPAN AUDIO NETWORKS



A composition



of global voices



in a language



you can understand



Twelve international broadcast stations currently contribute programming to C-SPAN 1, but you can look for more to take advantage of the service; Three were added since this flyer.

Audio 1 can be heard on 5.22 MHz on the sub-carrier and Audio 2 is on 5.40. *MT's* satellite expert, Ken Reitz, reported that, "The channel's policy has always been ... that it will not scramble its video or audio."

We echo Ken's sentiments when he added, "There's little to commend in the overall trend toward more Pay Per View and endless shopping channels. Yet here is C-SPAN quietly and admirably fulfilling a tiny portion of cable's once great promise."



Save A Life

Monitoring for Emergency Locator Transmitters

by Laura Quarantiello

According to the United States Air Force Air Rescue Service, the typical time required to locate a downed airplane is 55.6 hours. If the plane has an Emergency Locator Transmitter (ELT) aboard, the time drops to a mere 13.6 hours -- a difference of almost *two days*. Considering the range of injuries possible during the downing of an aircraft and the potentially large number of people involved, the use of an ELT can mean the difference between life and death for hundreds.

What is an ELT?

Emergency Locator Transmitters are battery-operated electronic radio transmitters which broadcast a characteristic "swept tone" on 121.5 and 243.0 megahertz in the civilian and military aviation bands. Activating upon impact, these devices are designed to broadcast for up to fifty hours, providing

homing and guidance information to search and rescue crews.

Two types of ELTs are currently in use aboard aircraft. One radiates 75 milliwatts of power and is designed for airplanes operating over land areas. The second type is capable of 225 milliwatts of power and is for use by aircraft on over-water flights. Its activation occurs manually by the pilot or following exposure to salt water.

Fifteen Years of False Alarms

In 1974, following a Congressional amendment to the 1970 Occupational Safety and Health Act, the Federal Aviation Administration effected a regulation requiring most civil aircraft of the United States registry to carry ELTs. The only exceptions were agricultural, research, local training flight and signal seat aircraft, helicopters and turbojets.

What followed was fifteen years of troubling false alarms and ELTs that failed to activate when needed. When the devices were not needed, it seemed as though anything could set off these sensitive devices. To make matters worse, early models used lithium sulphur dioxide batteries which were known to vent volatile and caustic gases into the air. For a while it looked like the lifesavers were causing more trouble than good.

Eventually, ELT batteries have been replaced with alkaline or magnesium cells to reduce the risk of corrosion. At the same time, the devices were redesigned to withstand the impact of hard landings and severe braking without going off.

By early April 1990, the FAA had issued a Notice of Proposed Rulemaking to upgrade performance standards of ELTs even further. Under these new standards, ELT G Force sensitivity has been downgraded to reject

U.S. Coast Guard photo: PA1 Carolyn Feldman, photographer



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activations that might result from excessive ground and flight loads. It is hoped that this will help prevent the unnecessary launching of rescuers for aircraft that are not in distress but simply have a malfunctioning ELT. At the current time, ELTs are required to activate at an inertial force of 5 Gs and a force duration of longer than 11 milliseconds.

Search and Rescue

The responsibility for search and rescue (SAR) of downed aircraft belongs to the United States Coast Guard and the United States Air Force through the Civil Air Patrol. In addition, three US and three Soviet satellites eight hundred miles up in space continuously orbit the globe. Their job is to keep their electronic ears wide open for aviation and maritime distress beacons. The majority of signal responses are handled by the Air Force Rescue Coordination Center (AFRCC) located at Scott Air Force Base in Illinois.

AFRCC attempts, through satellite overpasses, flight plans of overdue aircraft, and aircraft passing in the vicinity of the ELT signal, to determine if the signal is genuine. Usually, two satellite passes are needed to confirm true or false. If, on the second hit, it turns out to be an actual distress beacon, controllers at AFRCC open an incident file

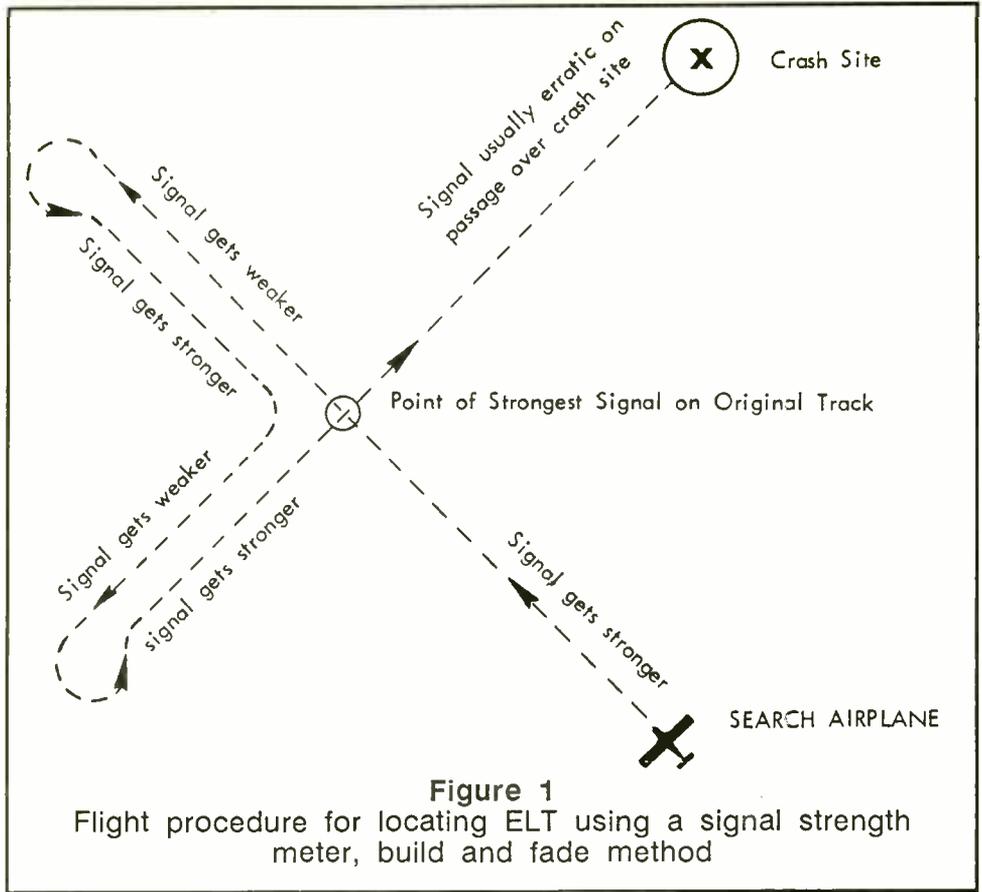


Figure 1
Flight procedure for locating ELT using a signal strength meter, build and fade method

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UFO A:	15.315.000 AM	FREQ UP	SIGNAL LEVEL: 12E456789
UFO B:	9.535.000 AM	FREQ DOWN	CUTOFF LEVEL:
MEM # 98:	9.580.000 AM	LSB RTTY	
STEP SIZE:	0.001.000	USB FM	DATABASE: INT-BRD

STATUS (OFF/ON) AUTUSEEK PRINT LOG DATABASE LOG RECORDER

Evaluator: AUTUSEEK SCANNING ACTIVE Loops complete: 3

FREQUENCY RANGE SCAN DATABASE RECORD 271 of 288

STATUS: ACTIVE	DESC: 31 meter band	START FREQ (MHz): 9.500.000	END FREQ (MHz): 9.775.000
SCAN STEP SIZE (MHz): 0.005.000	MODE (A-U-L-C-R-F): A	MAXIMUM EVAL PERIOD (Seconds): 2	MAXIMUM PAUSE (0=Continuous): 5
MINIMUM SIGNAL LEVEL (0-9): 7	TIMES - START: 01:50	END: 04:00	MAX # OF LOOPS (0=Continuous): 5
LOGGING - TAPE? (Y/N): Y	PRINTER? (Y/N): Y	DATABASE? (Y/N): Y	

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Table 1
Emergency and Search and Rescue Frequencies

121.5	Civilian Emergency
243.0	Military Emergency "Guard"
123.1	SAR
122.925	SAR
122.9	SAR
122.75	Air-to-air
122.85	Air-to-air
123.45	Air-to-air
47.46	SAR
155.160	SAR
155.235	SAR
149.245	SAR
148.150	Civil Air Patrol
4582.0	CAP Emergency Shortwave
282.8	US Coast Guard SAR
3023	US Coast Guard SAR Shortwave
5680	US Coast Guard SAR Shortwave
40.50	US Army SAR

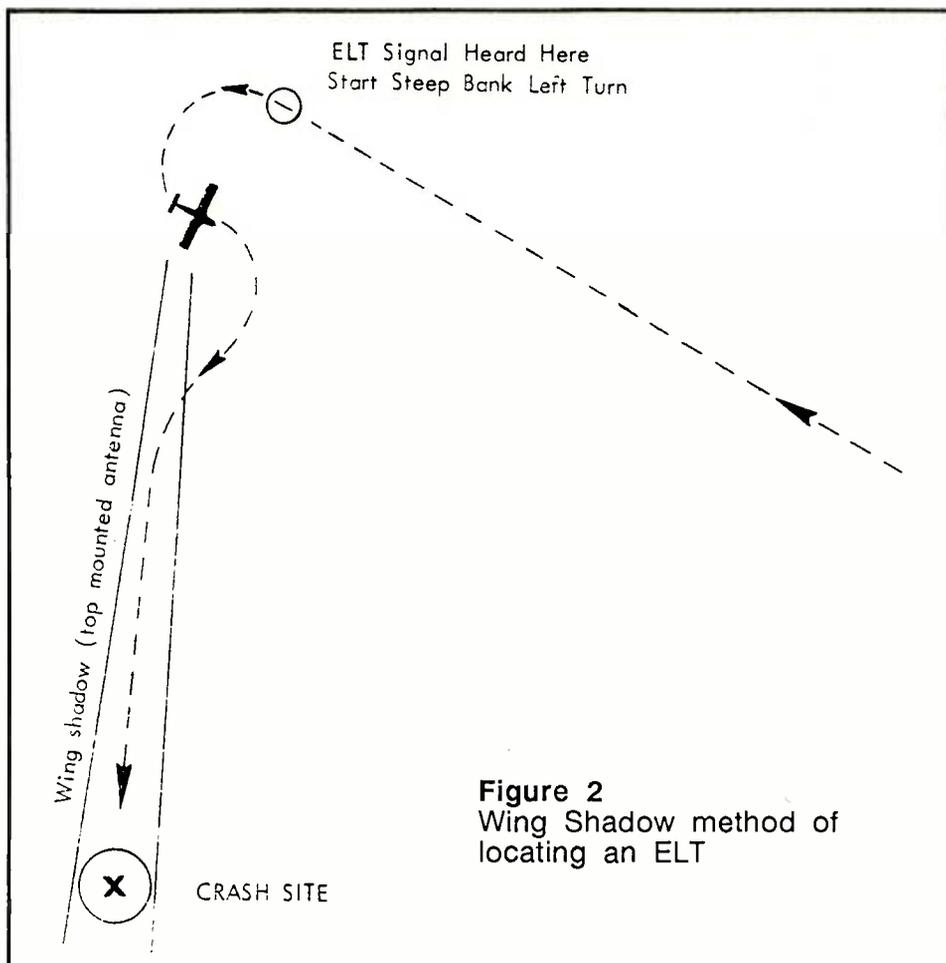


Figure 2
Wing Shadow method of locating an ELT

and institute a telephone search for the aircraft. Airports nearest the signal are contacted to rule out if it is coming from parked aircraft. Air Traffic Control is questioned about overdue flights. All bases are covered before a search team is finally sent out. This part of the process can take up to two hours.

In 1988, out of 54,292 signals processed by AFRCC, 1,863 missions were initiated with 85 downed aircraft recovered.

406 MHz ELTs

In order to move away from the often crowded aviation frequency band, a new ELT has been developed to operate on 406 megahertz. Designed to function in coordination with the Search and Rescue Satellite Aided Tracking System (SARSAT), this ELT will be able to provide aircraft registration number, length of time the transmitter has been activated, and latitude/longitude information (if equipped to operate with Loran C) within its signal.

Performing on 406 MHz, less adjacent-channel interference will be experienced and signal accuracy will be enhanced. 121.5 MHz is an unstable frequency in a cluttered band, making definite position and distance measurements difficult.

The one drawback to this new Emergency Locator Transmitter is its price tag -- nearly two times that of the 121.5/243.0 MHz units. This would place it out of the reach of many civilian aircraft owners and operators. The benefits of what the FAA calls a "triple-frequency" ELT cannot be denied, particularly for aircraft flying in remote areas. It could, say some, mean the difference between rescue and another night out in the cold.

Listening to ELTs

Your scanner, if possible, should always have two slots reserved for 121.5 and 243.0 MHz. In civilian aircraft, this channel is referred to as the "Emergency Frequency." To the military, it is known as "Guard." Military aircraft religiously monitor Guard, as do air traffic control facilities worldwide.

You will recognize an Emergency Locator Transmitter signal immediately by its swept tone. Says one *Monitoring Times* reader who has heard one, "It's a very distinctive siren-like tone that repeats two or three times per second. The sound is something like a police siren or burglar alarm. In any case," he says, "you will recognize it the moment that you hear it. It just jumps out at you."

If you should monitor one, check the

frequency of the nearest air traffic control facility to your location for any communications regarding the ELT. If none are heard, notify the FAA by telephone, stating that you are a radio communications monitor, your approximate geographic location (latitude/longitude, if you know it; street/cross-street if you do not) and the strength of the signal, especially if it has faded since you began listening. Remember to also give your phone number so that the authorities can stay in touch -- you are a vital part of the rescue operation and your continued reports can help save lives.

Voice communications may also be heard on Guard as search and rescue facilities communicate with downed aircraft or aircraft in distress on this frequency. Air traffic controller will also resort to calling military aircraft on Guard if all other means of contact fail. SAR-related frequencies are listed in Table 1. Tuning in these will put you in touch with the action as air, sea and land units work to find the source of the signal.

It is the hope of every professional monitor that they never hear an ELT. The signal can only foretell a tragedy. However, if you should monitor one, do not fail to report it. Emergency Locator Transmitters -- and responsible, professional monitors like yourself -- save lives.

ml

Monitors as Heros

Several real-life* stories in which radio monitors made a difference

Bill Baldwin did not like what he heard. Turning on his scanner he had accidentally tuned to the frequency of a neighbor's baby monitor where he heard a young child receive a vicious beating from an enraged father. Bill's stomach rolled. He listened to the horrified screams of the youngster until the commotion finally subsided some 40 minutes later.

That night, Bill could not sleep. Himself the victim of child abuse, he cursed himself for having established the invisible link between himself and his neighbor with his scanner.

The next day, Baldwin forced himself behind the dial of his radio again. Once again the scanner locked onto the baby monitor and once again the cries of an anguished child spilled into his room. Unsure of the legal implication of "turning in" his neighbor for child abuse, he wrestled with what to do.

"Obviously I knew that I could not, in any form of good conscience, allow this to go on," Baldwin later said. "On the other hand, what right did I have to invade these people's home? Finally I decided that the right of the child overrode the parent's right to privacy."

Turning off his scanner and turning on his electric typewriter, he carefully composed an anonymous letter to the local Department of Children and Youth Services. In the letter, Baldwin carefully explained his hobby and how he came to have access to the most private details of his neighbor's lives. And he expressed his pain at what he was about to do. Finally, he slipped a thin, black, cassette tape recording from his scanner into the envelope, sealed it and mailed it.

Apparently, the screams of this child affected someone at Children and Youth Services in the same way that they affected Bill. Within the week, social workers began an investigation of the neighbor, discovering a long list of convictions for child abuse in several states.

Kenney "O" was a black man with a temper and a tendency to use his fists. "For years I've prayed to God, asking him to take this anger away from me. But so far, no go."

That anger served Kenney well as he saw his neighborhood outside of Philadelphia begin to go downhill. "At first, it was just the local kids, smoking a little dope, drinking a little beer. Before too long, though, I didn't seem to recognize anyone who lived here." At about that time Kenney was mugged for the first time. "Hey, you can't go up against a gun with your hands. It wasn't easy but I

walked away."

Kenney had watched the onslaught of crack in other neighborhoods, anguished as long-loved places gave way to a ghost town appearance of dark streets and boarded-up homes.

The 46 year old ironworker was not about to surrender his neighborhood without a fight. "This is my home. I raised my family here." Kenney turned to his scanner.

"It was like shootin' fish in a barrel," he laughs deeply. "I would punch in a couple of frequencies I got out of a magazine and there they would be: drug dealers, pimps and whatnot, talking on the phone."

Before long, Kenney had local police absolutely astounded at the amount of information he was giving them. "These guys apparently didn't know that anyone could hear what they were talking about. I mean, I got addresses, phone numbers, names, amounts, you name it."

Today, the war on drugs continues on Kenney's street. "I do have to admit that it feels good to know that I've at least been able to keep it at bay, that I've done my part."

"At first I didn't know what to make of it. It was such a small sound. And beside, I really thought it was just somebody playing around with the radio." Ken Gurney installs burglar alarm systems over a several-state region, racking up incredible hours behind the wheel -- and behind the dial. "If I didn't have my scanner in the truck, I would

have gone crazy long ago," he says.

If Ken Gurney didn't have a scanner in his truck, Ed Cunningham probably wouldn't be alive today.

Cunningham, a local farmer, had been plowing his fields when his tractor hit a ditch and rolled over, pinning him to the ground. His only contact was the radio he used to talk to his wife back in the house. This time his wife wasn't there.

"I really had to get to work but something didn't sound right," relates Gurney. "So I kept circling around in the truck until I pinpointed the signal. He was 'way back in the woods. They wouldn't have found him for days."

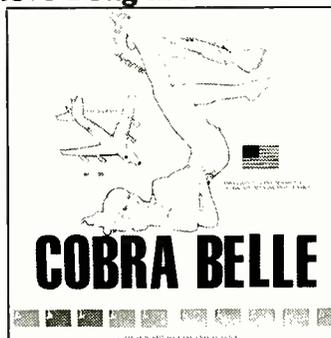
When Gurney arrived, Cunningham was slipping into and out of consciousness. "I tried to make him as comfortable as possible," relates Gurney. "And then I drove down the road until I found a phone and called the sheriff." Local law enforcement officials praised Gurney's decision to investigate that "small sound" he heard on his scanner.

It took time. And in the end Ken lost half a day's wages. "But it sure was worth it to be able to help someone out like that," he says, smiling.

**The above stories have been taken from newspaper accounts or have been related by the monitor himself. The names and places have been changed in order to protect the radio hobbyist.*

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Around the World in 24 Hours

or, Chasing Father Time

by Don Moore

Everybody likes a good New Year's Eve party, right? The only problems are that they are too short and you can't DX. Wouldn't a round-the-clock party you can DX at be great?

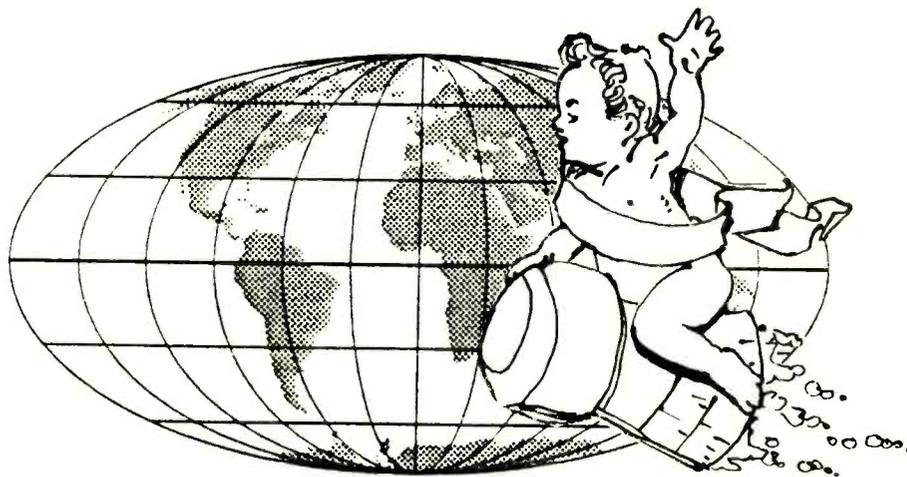
Well, that's just what we're going to tell you about in this article -- how you can have a round-the-clock (two times) New Year's Eve DX party. As we all know, the new year starts at midnight on Dec. 31, but, midnight happens at different times in different places.

What? How was that again? It does sound a bit funny, but midnight, in terms of UTC, is at a different time in each time zone. With the wonder of shortwave radio we can circle the globe, tuning in radio stations in each time zone at local midnight and bring in the new year with them. It's the only way to celebrate the new year 24 times and be just one year older. Of course, if you have a cup of holiday cheer with each hourly celebration, you might not make it through 24 hours, and you might feel more than one year older.

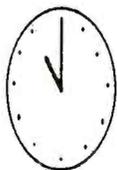
The time zone homework has already been done for you. Below is a list of New Year's Eve midnight DX possibilities, by time zone from 1100 to 1000 UTC. For each time zone, some of the best bets or most interesting listening, preferably in English, are given.

Note that some of these countries aren't Christian and may not celebrate the Christian New Year -- so there won't be any special programming. But, we can still tune them in to chalk up another shortwave New Year. Also, international broadcasters with their prerecorded programming usually don't do anything special when their local midnight comes around (an exception is the BBC). Overall, the best New Year's Eve listening is from the smaller domestic stations on shortwave. As much as possible we'll mention some of those at each hour.

So here it is -- the *Monitoring Times* "DX New Year Around the World" list. If you have the energy, go for the 24 hour celebration. But even if that's too much for your schedule, pick



out a few convenient times, and join in a New Year's toast with some radio friends across the sea. Remember, however, that shortwave broadcasters do change frequencies without warning sometimes, so double-check them in the "Frequency Section" and in Glenn Hauser's "Shortwave Broadcasting" column.



1100: Our shortwave New Year's Eve will start before most people in North America have gotten out of bed yet. New Zealand is on summer-time, which puts their local midnight at 1100. It's a good thing too, because Radio New Zealand is on 9855 until 1100 sign-off.



1200: You've heard *Midnight in Moscow* on Radio Moscow. Now it's midnight on the other end of the Soviet Union at Petropavlovsk. The domestic service on 4485 kHz is usually very strong winter mornings.



1300: Now it's back down south to Melbourne, Australia, and Radio Australia on 9580 kHz. Or, if the Soviets seemed to be real party animals, tune in the Magadan domestic station on 5940, 7320, 9530 or 9600 kHz.



1400: It's now time for a New Year's cheer in Saipan. Give KHBI a try on 9530 or 15385, but don't expect anything special; the programming will probably be canned from Boston. For a more authentic celebration, DXers on the West Coast might still have a shot at the tropical band stations from Papua-New Guinea.



1500: Let's drink a toast with rice wine: it's 1991 in Japan. Join Radio Japan's English service on 21700, 11865 or 11815. The first frequency is cheating, though.

It's actually a relay via Gabon.



1600: As Father Time moves into the Indian Ocean, things will be tough for a few hours for DXers east of the Rockies. The best New Year's Eve broadcast I've ever heard was from VLW9, Perth, Australia, about 10 years ago with two announcers who had obviously had more than their share of the holiday cheer. They said some things about Prince Charles that would really have made Lady Di blush. VLW9 is still on 9610 kHz.



1700: The DX midnight express is now in Southeast Asia, but there's nothing easy and nothing in English. The best bet would probably be the Voice of Vietnam in Vietnamese on 9840 and 15010.



1800: Nothing in English again. Bangladesh is always a tough catch, but punch up their Bengali service to Europe on 11860, 15255 or 17805. If it's coming in, hang around, because English starts at 1815.

1830: It seems India tells time a little bit differently. Official time there is UTC-5 1/2 hours, which puts midnight at 1830. All India Radio has English programming from 1800-2000 on 11935 and 15360. It won't be easy.



1900: Take a nap here. Pakistan is the only country with midnight at 1900, and they're not scheduled on the air.



2000: Three choices here, and they're all in Arabic. The tough one is Radio Oman on 11890. Easier are two stations from the United Arab Emirates. First there's the Voice of the UAE from Abu Dhabi. They change frequencies a lot, but look for them on 11815, 11965, 9695, 9595.

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Next, there's UAE Radio and Television in Dubai, which also changes frequencies a lot, but might still be on 15320, 15300, 11790 and 7185.

2030: With Iran, another split time zone country, things get easier for east coasters. Iran, of course, doesn't celebrate the Christian New Year, but they should be an easy catch in Persian on 15084 or look for their English service

on 9022 kHz.



2100: Now it really is midnight in Moscow, so Radio Moscow would be a good choice. If conditions to East Africa seem good, check out Tanzania on 4785.

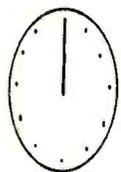


2200: Lots of choices here. The South African domestic services on 4880, 4810, 3320 and 3215 will probably have some special programming. If

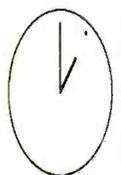
conditions to Southern Africa are especially good, there's Zambia on 4910, Malawi on 3380, and Lesotho on 4800 to try for. Some easier catches include Radio Damascus on 15095 and 12085 and the Voice of Turkey on 9445 and 9665. A tough Middle Eastern catch would be Lebanon's Voice of Hope on 6280.



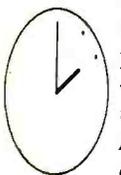
2300: Another full slate of possibilities. Nigeria on 4990 or 4770 would be a good place for some local English programming. Other African possibilities include Cameroons on 4795, 4850 and 5010; Benin on 4870 and Chad on 4905. This is also midnight in most of continental Europe, so check the *MT* "Frequency Section" for any of the big European broadcasters.



0000: There's no choice to make here. A shortwave New Year's Eve wouldn't be complete without tuning in the BBC World Service to hear Big Ben ring in the new year at 0000. If you have two radios, there are several West African countries also welcoming in the New Year at this hour. Take a shot at Burkina Faso on 4815, Ivory Coast on 7210v and 4940, or Mali on 4783, 4835 or 5995. These stations usually sign-off at 0000.



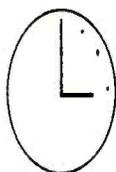
0100: We're now far from land in the middle of the Atlantic Ocean. Do a little bandscanning or take a short nap. There's plenty of New Year's Eve DX still ahead.



0200: Now we move into a region full of lively New Year's parties and radio programming -- Latin America. New Year's is an important holiday in Latin America, and the stations celebrate with lots of lively music and a traditional count-down with lots of shouting

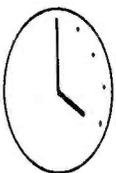
when the big moment comes. You don't have to understand the language to enjoy the party.

We start out in eastern and coastal Brazil, which is currently summertime. The more regular eastern Brazilians include Radio Clube Paranaense, 11935; Radio Bandeirantes, 11925; Radio Gaucha, 11915; Radio Cultura do Belem, 5045; Radio Aparacida, 5035 and Radio Cancao Nova, 4825.

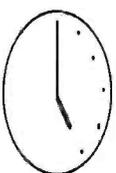


0300: Father Time is now trying to find his way through the Brazilian Amazon.

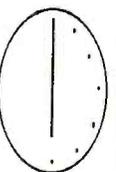
0330: Yes, another odd time zone. It'll be tough, but DXers in the northeast and Canadian maritimes might want to try for CKZN on 6160.



0400: Time for more Latin rhythms, this time from Venezuela. Tune in Ecos del Torbes 4980, Radio Rumbos 4970, Radio Continental, 4940 or Radio Tachira 4830.



0500: We now have three Latin countries to choose from. Caracol, Colombia, should be strong on 5075, as should la Voz del Cinaruco on 4865 and La Voz del Rio Arauca on 4895. For a New Year's Eve, Ecuadorian style, there's Radio Quito 4920 or Radio Zaracay, 3395. Finally, if Andean conditions are reasonably good, there's Radio Ancash, 4990 and Radio Andina, 4996, from Peru.

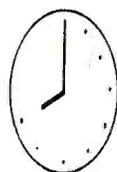


0600: Central America goes to bed early, so there aren't any Central American stations scheduled to be on this late. However, Guatemalan Indians know the value of a good fiesta, so some of their radio stations will probably stay on late. They did last New Year's Eve. Among others, look for Radio Kekchi, 4845; Radio

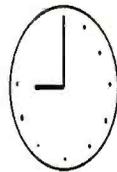
Buenas Nuevas, 4800; Radio Chortis, 3380; Radio Maya, 3325; and ultra-rare La Voz de Atitlan, 2390.



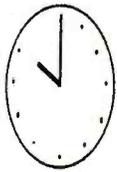
0700: The DX New Year's Eve is starting to wind down. The only SW choices are either WWV or checking KUSW's latest frequency. Western DXers could switch down to AM for a Mountain Time Zone station from the US, Canada or the Gulf of Mexico area in Mexico.



0800: The most interesting shortwave choice now is low-powered CKZU in Vancouver. Otherwise, there's the international broadcasters in California, such as the VOA relay stations and Pacific Zone AM stations for those in the region.



0900: Only one choice here, KNLS, Alaska. They did have English from 0800 to 0900 on 11715, but check for the most current frequency.



1000: Twenty-three hours after starting, we've traversed the globe on our DX New Year's Eve party. Time for the last stop. It's either Hawaii's WWVH time station or Radio Tahiti on 6135, 11825, and 15170. They're scheduled to sign-off at 0930, but maybe they'll stay on late to finish the world's last New Year's celebration of 1990-91.

Are you still awake and with us? I don't know about you, but I'm exhausted. Time to catch a little shut-eye before the football games begin in a few hours. Good night. Oh, yes, and Happy New Year.





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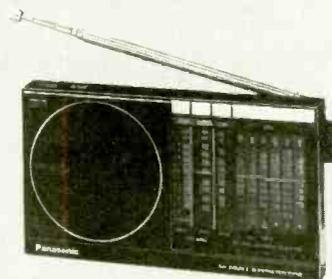


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As the World Speaks, He Listens

by Karl Zuk

Patrick Martin lives in a mobile home "very, very out in the country" near Seaside, Oregon. He loves to tell his friends: "My nearest neighbor to the north is a cow."

Every morning, while most of his neighbors listen to the local radio station from town, KSWB, Pat tunes up and down the dial and hears stations from all around the world. Voices and music from Australia, Japan, and many other unusual places entertain Pat as he gets ready for work. *Pat does not listen to shortwave. He hears these far-away lands on his AM radio.*

Professionally, Martin makes his living as owner and operator of Marty's Locksmith Shop, but his true passion is being an excellent listener. Combining a spectacular location on the edge of the Pacific Ocean, wonderful equipment, and many years of experience, Pat has heard over 2,000 stations from more than 70 countries on good old AM.

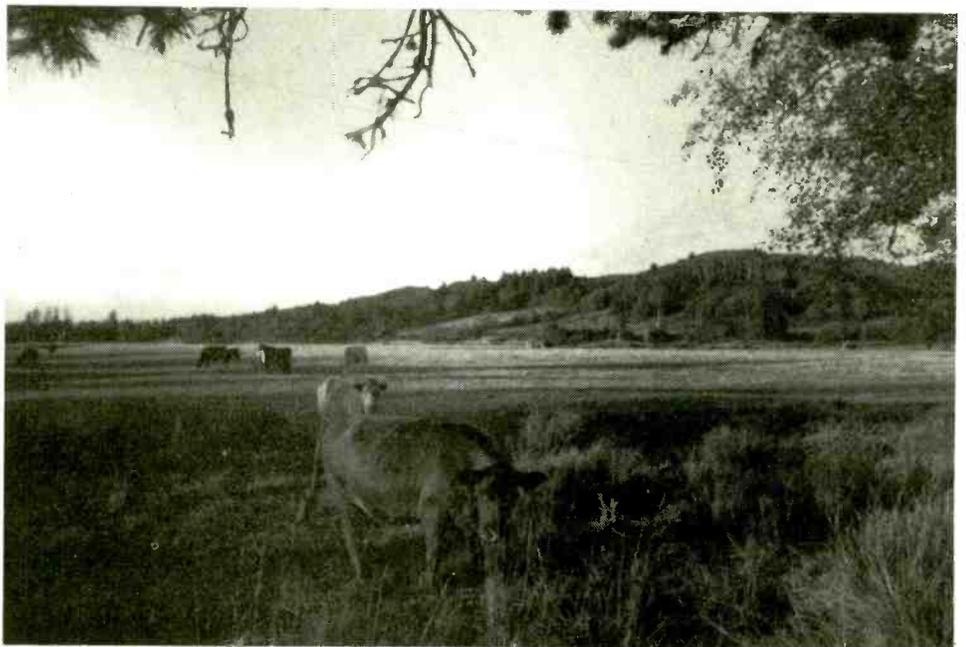
A carefully chosen listening post centers around his old and trusty receiver: A Hammarlund SP-600 Super Pro. With a multitude of tubes and filters, this veteran set can really pull signals out of the mud. Jumping from fencepost to fencepost, for thousands of feet along the cow pastures, are a couple of long wire antennas called Beverages. If you drive up to Pat's place, you'll see endless meadows of brown and Black Angus cattle. You'll also hear your car

radio get louder and louder. His antennas are powerful. "The radiation is just tremendous on these things."

Pat's ground system is equally important to his hobby. Using four scattered nine-foot ground rods, surrounded by rock salt, his reception is optimized for AM. "If I

disconnect the ground, the signals are cut in half, at least."

One accessory is very important to Pat's radio shack. A Yaesu FRT-7700 antenna tuner combines and matches his outdoor antennas with an indoor loop antenna designed by Pat's pal, Ralph Sanserino.



"My nearest neighbor is a cow!" But how many cows reside in a pasture strung with antenna wire?

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Using his Sanserino loop, Martin can null out unwanted signals to reveal the rare ones.

"It works just like a phaser. I can get rid of all my local signals." This ability to adjust the pickup pattern of his antenna farm enhances his reception further.

His motivation to become an ace listener is easily explained. "I want to hear something nobody else can hear. It's kind of interesting and a challenge. I love working with antennas and I have spent hours and hours improving them. When you start making changes in one antenna, it affects the others and sometimes making a little change makes a big difference."

The results are worth the effort. "I've heard all the Australian states including Western Australia. I've gotten about 200 QSLs from Australia, 70 or 80 from New Zealand and Japan, three or four from Taiwan and seven or eight Philipinos. I've got The Voice of Vietnam verified on 1010 kHz and Thailand on two frequencies: 891 and 1575 kHz.

It started in Seward

Pat's interest in mediumwave started in Seward, South Central Alaska. "My dad ran a saw mill for years up there and that's when I started DXing. My dad was a radioman in

World War II in the army and tinkered around with radios and stuff. I heard all sorts of things. I'd listen to Europeans over the pole on the AM broadcast band in the middle of the day. I thought DX was like that everywhere. I was really spoiled."

Eventually he moved south to pursue a career in radio and the recording industry. Eleven years ago he surprised his dad by assuming the ownership and operation of the family locksmith business. "I hate living in cities. I'm a country boy and I'll always be one," confirms Pat.

When Martin realized his new home was a perfect DX location, his career change became a fait accompli. Pat loves being a locksmith because he can make his own hours and almost never misses good reception conditions. Now the world waits to be heard whenever Martin turns on his rig.

Corresponding with stations can be almost as enjoyable as listening to them. "If I can identify a station, I QSL it. I'm an avid QSLer," and he really knows how to get a response. "Most of the time, with my reports I send tapes, because that way I don't have to worry about language barriers. I don't have to worry about getting the name of something wrong. Engineers love tapes because they can hear what their signals sound like. They don't have to dig through a

DX Worldwide - West



PAT MARTIN

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Pat enjoys reporting and corresponding almost as much as he does listening. This stationery header should catch their attention.

bunch of program logs to see what commercials aired. I've had many letters back from chief engineers saying, "Thanks for the tape. It made things a lot easier."

Pat Martin buys inexpensive cassettes, records his reception, and sends them along with a letter. "Sometimes they record music on them and send them back to me. I got a beautiful tape of French music from the Wallis Islands; I got a little Japanese travel clock from JORF in Yokohama, Japan, several years ago. The Australians and Japanese have beautiful QSLs with brilliant colors."



Pat loves his Hammarlund SP-600! He nulls out stations with a Sanserino Loop antenna (on the right).

Your letters might also bring romantic proposals. "I got a nice letter from a Philippino station, and I also got a letter from their secretary. She was looking for a husband. She sent me pictures of herself and her whole family and she told me her measurements and all this stuff in her letter."

Should your radio receptions fly south, Pat offers more strategies: "If you're going to send a reception report to a Latin American station, send it to their street address if you can possibly get it. Post office boxes are used for bills, and the accounting office gets your stuff and they're not going to know what a reception report is for."

Don't forget return postage. Your post office sells International Reply Coupons for 95 cents apiece that can be exchanged for return postage abroad. Send three or more for a prompt response, especially if you would like your cassette recording returned. Possibly your best bet is to include mint stamps issued in the country you are reporting to. Look for them from stamp dealers or philatelic supply houses. Remember these are local stations that are generally not accustomed to QSL requests, so try to make replying as easy as possible for them.

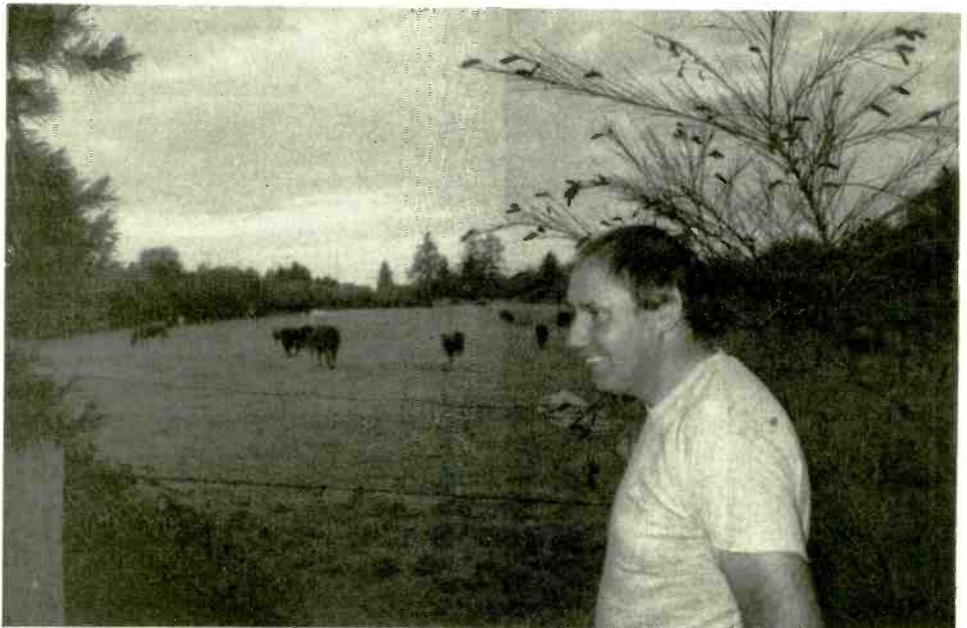
Now it's your turn

Medium wave could be called "water radio," since stations on these frequencies travel about ten times better over water than land. Location is very important for superior reception, so head for the beach. Signals fade rapidly only a few miles inland from shore. "The closer to the ocean, the better," advises Pat.

"Don't give up hope if you live in

Denver." With an excellent antenna and ground system, you can still hear DX worldwide on AM. "If you have some property, put up an antenna if you want to hear some foreign stuff. You can do very well with a simple radio if the conditions are good."

To experienced AM DXers "an antenna" usually means a Beverage. All you need is access to a large plot of real estate. Take a thousand or more feet of wire and string it along any nonmetallic structure in a straight line pointing towards the area you want to hear. Any height above five feet or so is fine. The longer the wire, the more directional and



Pat holds onto a section of one of his powerful Beverage antennas.

stronger it will become.

At the far end of the wire, sink a ground rod into the soil. Connect the end of the wire to the ground rod using a 470 ohm resistor as a termination in line. Ground your receiver as well. Remember, there is no limit on length. Get out as much wire as you can. If you have room for just a few hundred feet, this may suffice. Experiment with different terminating resistor values, by using a potentiometer, to obtain the best signal from your antenna.

It's also important that your receiver has good selectivity to separate signals on the dial. Pat's radio has several different crystal filters that make tuning very sharp.

Listen for the whistle

Almost all stations operating in North America use frequencies that are evenly spaced every 10 kHz along the AM band -- 530, 540, 550 etc. In other places in the world stations are packed tighter by using 9 kHz spacing creating "split frequencies" such as 1584 or 747 kHz.

When a foreign signal is received in North America, the first sign of its presence is an annoying heterodyne whistle familiar to any shortwave listener. For example, if you are listening to KKOB in Albuquerque on 770 kHz and Japan starts to come in on 774 kHz, you will first hear a 4 kHz whistle. Stay with it. If the signal becomes strong enough, and you move your tuner slowly toward 774

Scorpio

ID(Sta): Radio Moscow Location: Leningrad / USSR
 Date: 10-23-90 Begin Prg: 01:30:17 End Prg: Freq: 7,305.00
 Mode: AM Signal: App/Svc: Broadcast QSL: S

Remarks: Contemporary Russian Music and News
 Date: 230: 07/28/89 / 01:00 > 02:15 / 7,305.00 AM / Signal (59-30) #230
 [Radio] [←→] [CLS] Manual Mode [CLD] [S/F] [Q/ueX]

-----LogScan-----Log of John Doe-----[↑↓]

Terminal Unit Display Window

Terminal Unit Command Window

1 [E] [Sta] 2 [Locat] 3 [Signal] 4 [Agency] 5 [Remark] 6 [TimeDN] 7 [TimeCFF] 8 [Clear] 9 [Log] 10 [Optns]

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kHz, some Japanese audio might come out of your speaker. Note where you hear these whistles. When conditions improve, you'll know where to look.

To guide yourself around the band, Martin highly recommends a current copy of *The World Radio and Television Handbook*. Read their listings regarding formats, transmission times, and identification slogans very carefully to gain clues about weak stations. Some broadcasters use several time pips just before the hour. This can be a penetrating signature to identify a station, and the *WRTH* describes these patterns in detail.

Some stations operate shortwave transmitters as well. If the audio of the shortwave frequency matches the medium wave broadcast, you've got your ID. Remember to tape record everything you hear. Your cassettes prove your receptions to station engineers and friends alike.

Becoming familiar with the sounds of many different languages is another important skill. How many people can really tell the difference between Mandarin and Cantonese? The Voice Of America can become your free tutor. After listening to a variety of their multilingual services, you'll be able to recognize one tongue from another and add another clue toward the

identification of a rare foreign AM station.

When it's getting dark, wake up!

Keep in mind that AM radio travels much farther at night. "You have a darkness path to consider and that's the rule of thumb. You're not going to hear Japan in broad daylight." There are exceptions to very rule: Pat once received China on 1040 kHz at 10:40 a.m. local time in the dead of winter. Some interesting enhancements occur at sunrise and sunset at either end of the reception path providing conditions for unusual listening too. The more you listen, the more you'll hear.

East Coast listeners should look for Europeans and African stations between sunset to no later than 1 a.m. local time. By that time the sun will rise on the other side of the Atlantic and signals will fade. The West Coast is at the mercy of its own sunrise, as you try to tune in stations across the Pacific, so early mornings are best.

When you and your DX target are in darkness, start looking. Don't forget to check the station's operating schedule. Pat will tell you, "Some of this stuff comes in like a ton of bricks. Like Vietnam. I still cannot believe that tape. You don't have to strain to hear it.

You can just listen to it like anything."

Start from the bottom. "Nine chances out of 10 the stuff at the lower part of the band will get out much better than the upper part of the band. When you get something on top, you've got a jewel, like Taiwan on 1521 kHz."

With so many stations in his logbook, Martin can hardly decide which one is his best. "If I had to pick one, it would be very, very hard to do. A lot of this is once in a lifetime stuff." How about the Cook Islands on 630 kHz with 500 watts? A 100 watter from Northern Japan on 1584 kHz? Or the fish that got away: a very tentative reception of, possibly, Central India on 1071 kHz?

"I'd still like to hear India. I've been sitting on 1134 kHz, when conditions are favorable toward Calcutta, for years and years. It's heard in Hawaii all the time, and I keep sitting there. One of these days I'm bound to get it." Pat has to fight off JOQR with 100 kilowatts, from Japan on the same frequency, making it quite a challenge. "I also watch for 1071 kHz from Madras. You're picking up these signals over the North Pole."

Pat Martin has met the challenge of DXing the world on AM radio. Now it's your turn.



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Should you wish reprints of any of the above articles, please enclose a self-addressed, stamped envelope plus \$2 per article.

Shortwave Broadcasting

Glenn Hauser

Box 44164-MT
Tucson, AZ 85733

SHORTWAVE STATIONS INTO PRISON VIA CABLE Remember John Demmitt, the Pennsylvania prisoner who was repeatedly refused permission to have a shortwave receiver? We were gratified to get this note from him:

"Now I can 'legally' hear you on RCI. Thanks to your info about C-SPAN audio channels in past *MT* columns, I was inspired to contact the local cable company, mentioning that the service would be especially appreciated at Penn State University. They agreed and the service has been added to our FM cable. The BBC is heard 24 hours a day with excellent audio; the other C-SPAN channels offers such stations as Korea, Japan, Canada, Christian Science Monitor, Cuba, Taiwan, Germany, China, Austria, VOA-Africa, etc. I'm not in the best of health so being able to listen to these stations is especially meaningful to me. It brings the world closer. Thank you for providing information that inspired a solution to my dream, to be able to listen to shortwave legally. Mere words can't express the joy of being able to hear shortwave ..."

INTERNATIONAL HOLIDAYS It may pay to tune these countries for special programming or even extended transmissions: Nov. 28, Mauritania. Nov. 29, Albania, Yugoslavia. Nov. 30, Benin. Dec. 2, Israel (Hanukkah). Dec. 16, Bangladesh. Dec. 17, Bhutan (Universal Almanac via Bruce MacGibbon, Radio Japan)

LONG-TERM PROPAGATION OUTLOOK Average activity levels and solar indices fell dramatically in September compared to August. Daily values for 10 cm flux, sunspot number, and sunspot area fell by nearly 50% in some cases. It is now very unlikely that we will see activity of sufficient magnitude to change the cycle maximum of July 1989. Solar cycle 22 will go on record as the shortest rise to maximum ever recorded. Early outlooks showed low activity around the first of the year, and a pulse of activity about April 1991, but earlier outlooks of future pulses may be tardy. (Space Environment Services Center, Boulder)

ANDAMAN ISLANDS (non) Interference problems to AIR, Port Blair, 4760 kHz: Alma Ata, USSR at 1530-1630 parallel to 5030 and 5260 (G. Galassi, Italy, *Play-DX*) And Radio Beijing, China, 1530-1555 with English lesson from RCI (Arthur Cushen, RNZI *Mailbox*)

AUSTRALIA A real disappointment to see Radio Australia, a station once noted for its interesting QSLs featuring flora and fauna, now sending out plain form letters. Times sure must be tough at RA! (John Fisher, *DX Ontario*)

BOLIVIA Radio 16 de Marzo, 4865, was a mystery station, location unknown and reports unanswered, so I visited it; had to take a taxi from Oruro to Centro Minero Bolivar. Station is unlicensed, so has no call sign; began regular transmissions March 16, 1985, thus the name. Schedule weekdays 1000-0100, weekends 1000-2330, mostly in Spanish, but Quechua at 1000-1100. Postal delivery is hopeless; has not received a single letter from overseas; try registered mail to Correo Central, Oruro, for the station to pick up. Heavy reverb on the IDs makes it difficult to understand (Nobuyoshi Aoi, Radio Japan)

BRAZIL Radio Transamerica is a new station on 5965, heard testing until 2200, from Santa Mario, RGS (Yuji Omiya, Bandeirantes, Parana) Is religious but not Catholic, heard testing at 1100 (Felipe Flosi, Rio via Dario Monferini, *DX Listening Digest*)

Radio Transamazonica, in Acre, still heard until 0230 on 2410 kHz, not the planned 3255. Radio MEC, Rio, no longer a Radiobras station, but ID at 1530 on 11950 says it belongs to Fundacao Roquette Pinto. Radio Nacional do Brasil still has English to North

America on 11745, but heard at 1117 instead of 0200; to Africa at 1800 on 15265. The southern and southeastern states are on DST of UTC-2 from Oct. 21 until Feb. 17 (Antonio Ribeiro da Motta, Sao Paulo, *World of Radio*)

CAMBODIA (non) Voice of the Khmer, clandestine station run by four non-communist resistance groups, on 6325: 0400-0700, 0900-1400, 2230-0200 (Sundays 0300). Publishes *NCR Bulletin*; one of three addresses in Bangkok, Thailand is c/o FUNCINPEC, P.O. Box 12-1014 (Gordon Darling, PNG, *DXLD*)

CANADA Best time to hear Vancouver SW stations is after 0600 when both were clear: CKFX on 6080.1 and CKZU on 6160 (Ernie Behr, Ont., RCI *SWL Digest*)

CBC programs on SW via RCI include the comedy couple *Royal Canadian Air Farce*, and *Double Exposure*, now reunited for the winter UTC Mondays 0000-0100 on 9755, 5960. For those awake or tapping around 0630 UTC on Sackville 6150, 9760; Daventry 6050, 7155, 9740, 11840: Monday, *Inside Track*; Tuesday, *Food Show*; Wednesday, *Open House*; Thursday, *Media File*; Friday, *Arts Tonight* (*DXLD*)

CHAD (non) Voice of the Struggling Chadian People, 11850, has been closed down by Libya, saying the dispute has been referred to the International Court of Justice (BBC Monitoring)

CHINA Among changes monitored on domestic nets, CPBS-2 has replaced CPBS-1 on 7516 and 9065 kHz. Don't you believe *PWBR*-1991 listing of 15100 kHz site of Radio Beijing as domestic Baoding. It is and has been Mali relay (Bruce MacGibbon & gh, *DXLD*)

(non) Voice of Democracy, clandestine on 8057, came back for another series of repetitive broadcasts for a few days leading up to another Chinese holiday -- that's when to look for them (Takashima, Suga & Kondo, *ABI*, Radio Japan)

COLOMBIA Radio Nacional heard closing at 2259 on 5985 and 17863.8, announcing 15335, 11795, 9635, 5985, 4955, 17865 (R. Bruni, Italy, *Play-DX*) Rdif. Nacional at 2130 on 17884, no longer on 11822 (Craig Seager, RA Japanese DX and *ADXN*)

(non?) Radio Patria Libre, clandestine on 6300-6315 at 0030-0100, continues to be jammed by a station in Spanish, Radio El Pueblo Responde, probably operated by CIA from a ship in the Caribbean (Juan Carlos Codina, Switzerland, *Play-DX*)

COSTA RICA Radio for Peace International extended AM 13630 beyond the previous sign-off times to improve reception in western North America. Once new higher-powered transmitters are running next year, weekday program cycle may expand to 4-1/2 hours, with more repeats 24 hours (James Latham, RFPI)

CR is considering DST for 'summer,' probably dry season December-April. Would definitely affect Radio Reloj and TIFC which simulcast local programming on SW (Ken MacHarg, CR, *World of Radio*)

CUBA RHC's *DXers Unlimited* planned to add a second weekly edition, UTC Wednesdays at the same times as on Sundays: 0040, 0240, 0640, 0840; also RHC on audio on very low power SSB somewhere on 11 meterband for propagation testing, special QSL



available (Arnie Coro, CO2KK, RHC *DXUL*)

CHILE More and more private evangelical stations are showing up out-of-band: Radio Eben-Ezer, 6825, Fridays 0230-0400, Saturdays and Sundays daytime only; Radio Central Evangelica, pentecostal on 5825, at 2300-0330; both near Santiago (*WRTH LA News*)

DOMINICAN REPUBLIC Radio Olimpica Internacional, Santiago plans to use 3205, 4980 and 6190 (*DSWCI SW News*)

ECUADOR At least part of HCJB's added hour to the Mideast, 1630-1730 on 21480, has been noted in Arabic instead of English. *DX Partyline* expands to 45 minutes, including these topics: Dec. 1, radio stamps; Dec. 8, Kenya, ODXA perspective; Dec. 15, Radio Rumbo, Costa Rica; Pacific and SPEEDX reports; Dec. 22, HCJB's 59th anniversary; ANARC, SPARC, EDXC reports; Dec. 29, changes in SWBC during 1990. A bit of DX news emerging from DXPL: Radio Cumanda is a new station on 3332-variable from the remote town of Coca, a.k.a. Francisco de Orellana, quite strong but heavy reverb announcing 3390 only, until 0400.

La Voz del Rio Tarqui, 3286 is inactive from Cuenca, but transmitter might be moved to Gualaquiza in the eastern jungle, and renamed. Radio Pastaza, Puyo on 3315 is owned by truckers' union, and changes all its management every two years. Rdf. Sangay, Macas, 3322, does not exist. Ondas Quevedenas, 3325, reported 24 hours but in fact inactive. Radio Puyo, 3440, not yet active. Radio Federacion, Sucua, was to replace 3360 with 5980 for better coverage; 1100-1300 and 2100-0100. Radio Nacional Espejo, 4680, probably inactive. La Voz de los Caras, 4795, only active local evenings 2300-0300. Radio Paz y Bien, 4820, probably inactive on SW in favor of FM. La Voz de Saquisilí, 4900 inactive but hopes to resume. Emisora Gran Colombia 4910, probably inactive as is Radio Tarqui, 4971. Voz del Upano has two services: entertainment on 5040, educational on new 5020, 5965, 6000. Radio Jesus del Gran Poder, 5050, tries to keep going but often off air. (Hermod Pedersen, visiting Ecuador, *DX Listening Digest*)

ESTONIA Radio Nadezhda (Hope), anti-separatist Inter-Movement station, "from a military area" traced on 747 kHz but 25 meters also announced, 0430-0600, 1030-1200, 1630-1800 (*BBCM*)

FINLAND Radio Finland has added Russian experimentally until spring, 2315-2330, 0430-0445 and 0530-0545 on 11755, 6120 and other frequencies, the last timing bumping an English broadcast (*BBCM*) English to North America first weekday broadcast moved up to 1150-1215, then 1300-1325 and 1400-1425, the last also on weekends, longer until 1435 on Saturday, 1440 on Sunday, all on 21550 and 15400. Radio Finland is one of few broadcasters currently experimenting with SSB: 0930-1057 on 17800 to East Asia & Pacific, including English at 0930-0955; and 1100-1145 on 15325 to Europe in German and French. (*DXLD*)

FRANCE RFI terminated its English broadcast best heard in North America, 0315 on 9800 via Guiana. Protests are in order to the embassy, or RFI, Box 9516, Paris (Larry Nebron, TN, *RCI SWL Digest*)

GERMANY As expected, DW has appeared on numerous former RBI frequencies and transmitters but usually with different language services (gh) DW has taken on only 21 of ex-RBI staffers, and only till yearend for a new Berlin bureau which could not function immediately, lacking proper communications with Cologne (Dieter Wernig, DW, *RCI SWLD*) There is no hope of re-opening DW's relay in Sri Lanka, but Radio Moscow has offered to relay DW via former jamming transmitters to Asia! The RBI building was



a former furniture factory and the owner dispossessed when the communists took over now wants to have it back. (Wolfgang Pleines, DW, on *RN Media Network*)

To appeal to former RBI listeners, DW may expand its North American service from 50 to 60 minutes, and introduce a DX program (Dieter Brauer, DW, via Tom Kuca, NY, *DXLD*)

GUAM KHBN is still delayed; equipment on the island, but church-state separation issue prevented it from getting a 50-year lease to government land at Piti; so now looking for private land (Paul Hunter, KVOH, *RNMN*)

INDONESIA RRI Sorong, Irian Jaya, 4874.6, heard with an English program Sunday at 1104-1130 (Chuck Bolland, FL, *RCI SWLD*)

INTERNATIONAL WATERS Voice of Peace, off Tel Aviv, announced new 6370 kHz (*SCDX*)

IRAN (non) Clandestines from Baghdad have gone off: Free Voice of Iran, Voice of Mojahedin e-Khalq, Voice of Ahwaz Revolution; but Radio Iran was still on at 0400-0500 on 7180, 9545, as was the Voice of the Movement of Mojahedin of Iranian Baluchistan, at new time of 0700-0800. Also still active are stations from Kurdish areas and outside Iraq (*BBCM*)

ITALY All unlicensed stations had to apply for a license; if refused, they have up to two years to close down. Up to six shortwave stations will be allowed (Allen Dean, *WDXC Contact*) Radio Marconi was scheduled to test 11390 until 0700, but coincidentally WYFR was also there at the same time, in Italian -- a mixing product of 11770 and 11580 (Paul Routenburg, Ont., *Fine Tuning*)

KASHMIR (non) A separatist leader has accused Indian intelligence of setting up a clandestine to mislead militants involved in Moslem uprising in India's Jammu & Kashmir state. J&K Liberation Front chairman Amanullah Khan, in Pakistan, denied that Hamara Kashmir (Our Kashmir) radio was broadcasting every Friday in the name of JKLF (Reuter via Dave Alpert, *World of Radio*)

KBS **KOREA SOUTH** Radio Korea has resumed a direct broadcast to western North America, 0600-0700 on 9570, 11830, repeating previous day's program (Bill Matthews, OH, *SWLD*) *Listeners' Forum* topics on Fridays: Nov. 30, what and how you like to read; Dec. 7, 14 and 21, your views of 1990. Write in a letter or record on cassette and mail to *Listeners' Forum*, English Service, Radio Korea, KBS, Seoul; or after access and country code, fax to 781-3799 on Seoul (via Tom Kuca, NY, *W.O.R.*)

Clandestines have expanded schedules: Voice of the People, 0000-0100 and 0500-0600 on 3912, 1200-1300 and 1500-1600 on 6600, 1800-1900 on 3912. Voice of Hope, 0500-0600 on 3985, 1100-1400 and 1430-1730 on 6348, 1800-2100 & 2300-0200 on 3985 (Toru Yamashita, Radio Japan *DX Corner*)

LIBERIA (non) VOA optimistically shows extensive Monrovia usage in its current frequency schedule, but 21485 is strong enough to be Greenville (*DX Listening Digest*)

LITHUANIA (non) Voice of America is willing to assist

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See band openings on the map before they happen!

Shortwave Broadcasting

Radio Vilnius in finding a source of transmission outside the Soviet Union; perhaps via US domestic stations (BBCM)

MARSHALL ISLANDS WSZO, Majuro, is still trying to solve broken balun transformer problem and get back on 4940 and 6070 (Maarten van Delft, Micronesia, *DXLD*)

NETHERLANDS ANTILLES Radio Nederland has been using its backup third transmitter for some SSB tests, 0900 on 15360, 1230 on 15330, and may try it for 0030 English broadcast, carrier suppressed 6 dB, to avoid selective fading (RN *Radio-Enlace*)

NEW ZEALAND I visited ZLXA for its inaugural broadcast on 3935; lots of relaxed, jovial chit-chat; catch-phrase is "we turn the printed word into sound". Schedule is Sunday 0600-0900 with religious readings; Monday, Wednesday, Thursday 0630-1030 readings from various sources. DXers may try phoning them at 64-69-82229 in Levin (Bernie O'Shea, *DX Ontario*) Schedule probably advanced one hour now for DST.

Tentatively heard between 0630 and 0800 (Dave Clark, Ont., *FT*) and until closing at 0904 on a Wednesday (Dave Valko, PA, *FT*)

PAPUA NEW GUINEA Mount Hagen used 5965 briefly as late as 0900 when their 3-MHz antenna was out of order, unaware they were required to close by 0700 to avoid interfering with Malaysia (Bob Padula, Australia, *DXLD*)

PERU More new stations: Radio Pilcomoto, Huanuco on 5204, heard around 1200 and 2400 (Rafael Rojas F., Lima, *Play-DX*) Radio Constelacion Radial, 6925, 1.5 kW, is new on SW. Schedules supplied by the stations: 4013, R Frecuencia Popular, 1000-0400. 4418, Radio Frecuencia Lider, 1000-0500. 4530, Radio Naylamp, 0900-0500. 4890, Radio Huanta, 0900-3000. 5030, Radio Los Andes, 1000-0200. 5035-nominal-but-reported-on-4606.5, Radio Ayaviri, 1000-0300. 6242, Radio Calza, 1000-0300 (WRTH *LA News* via *Radio Nuevo Mundo*)

POLAND Radio Polandia's English is not for North America, but best chances are: 0630-0700 on 7270, 9675; 2230-2300 and 2305-2355 on 7270, 6135, 5995. Feature programs on the 2230 and 2305 broadcasts, next UTC day on the 0630, include: *Panorama-current affairs*, Wednesday; *Focus-cultural magazine*, Thursday; *Postbag*, Monday and Friday; *DX Program*, Wednesday; *Request Concert*, Sunday; *What We Said--comments*, Saturday.

ST. KITTS & NEVIS Radio Paradise, my 17th MW harmonic country heard, at 0903-0921 on 2475, clearly parallel much weaker 825 kHz (Don Moore, MI, *DXLD*)

SAUDI ARABIA (non) Holy Medina Radio, from Baghdad (via Kuwait) heard in Arabic with ID at 2127 on 11990, then with Iraqi domestic service 2200-2300 (Stephen J. Price, PA)

SOLOMON ISLANDS With QSL for SIBC on 9545 the verifier asks for reports with 1 IRC and a tape cassette; reports without tape are surely thrown in the paperbasket! This after manager discovered a lot of fake reports from Europe! (M. Toniolo dos Anjos, Brasil via *Play-Dx*)

SWEDEN Sweden Calling DXers has been cut to twice a month in the English broadcasts, first and third Tuesdays, and must concentrate even more on Nordic media news. Printed bulletins suspended, but electronic edition will remain (George Wood, *SCDX*) That latter via computer nets, at least when George is not on vacation.

SWITZERLAND will be 700 in 1991, provoking lots of special programming starting Jan.

10; especially on the 2nd, 4th, and 5th Sundays April-September (SRI via John Carson, OK)

TIMOR RRI Dili frequency varies 3304.4 to 3306.1, perhaps from two different transmitters. Check before local sunrise (Kirk Allen, OK; John Bryant, OK; Kevin Atkins, AL; Guy Atkins, WA; Terry Palmersheim, WA, all *Fine Tuning*)

TURKEY We have received Voice of Turkey's frequency schedule for the winter; trouble is, they forgot to move all the times one hour later from the summer schedule! We've confirmed English to Northeast America really is at 2300 and 0400 on 9445. Just another reason external broadcasters should not allow local DST to affect broadcast times!

Turkish DX targets both sign on at 0458 UTC: meteorological Radio on 6900, and Police Radio, with new 10 kW transmitter, on 7370 (Andy Sennitt, *RNMN*)

UKRAINE Radio Kiev is one of my favorites; English at 0000-0100, best in the west on 17665 and 15180, with fascinating descriptions of the downfall of the Soviet Union and gradual resurgence of Ukrainian nationalism, similar to Radio Vilnius previously (Walt Salminiw, Victoria, BC, *DXLD*)

UNITED NATIONS UN Radio will verify with its own QSL card, reports of its programs heard on Radio for Peace International, Costa Rica (RFPI)

USA VOA, whose mandate excludes broadcasting to Americans whether at home or abroad, belatedly started a "radio postcards" feature from families to hostages in Iraq, daily at 0455, 0555, 0655 (*RNMN*)

WWCR has been repeating *The Original George Kline Elvis Hour* UTC Mondays at 0505 on 7520; the host keeps putting his own name ahead of the King's. (*DXLD*)

It's already public knowledge that KUSW and WRNO are up for sale, perhaps due to FCC's new spectrum usage fees (Jonathan Marks, *RNMN*)

Mediumwave harmonics audible now include: 1760 kHz, WOAY, Oak Hill WV, 2 x 860, at 0000; 2460, WIGS, Gouverneur NY, 2 x 1230 at 0300; 2920, WXRW, Mt. Pleasant TN, 2 x 1460 at 1115; 2720, WMOV, Ravenswood WV, 2 x 1360, around 1200. All had also been heard previous years (Don Moore, MI, *DXLD*)

USSR Chukot Radio, Anadyr, no longer broadcasts on shortwave, but one of its local-language programs is relayed by Magadan Monday-Friday 0815-0900 on 9600, 5940, a unique situation in Soviet broadcasting for a lower-ranking station to be relayed by a higher one (Yoshinori Kato, Radio Japan *DX Corner*)

(non) Voice of Orthodoxy, 9690, at 0400 with a religious program in Russian (Grigori Grigoriev, USSR via Radio Budapest via Mike Fern, *DXLD*) We suspect this is a program on Radio Liberty, frequency perhaps a bit off, rather than a clandestine.

UZBEKISTAN Radio Tashkent in English at 1200 on new 11860 ex-11785, along with 15470, 9715, 9600, 7325, also at 1330-1400 (Craig Seager, *Australian DX News*) But best on unannounced 17740 (Tom Sundstrom, NJ)

YUGOSLAVIA Radio Yugoslavia, retimed one hour later for winter, well heard at 1300-1330 on 21715 (*World of Radio*) Regionally-produced programs air Saturday and Sunday 0700-1100 on 25795, including Radio Slovenia, new name for Radio Ljubljana, Saturday 0900-1000; these play a lot of local music, many accordions and fiddles (Bob Padula, Australia, *DXLD*)

Does this whet your appetite for more? Sample gh's publications *DX LISTENING DIGEST* and *REVIEW OF INTERNATIONAL BROADCASTING* for \$2 each; 10-issue subscriptions \$21 or both for \$40, in North America, US funds on a US bank to Glenn Hauser, Box 1684-MT, Enid, OK 73702.

See last month's column for details on Glenn Hauser's broadcasts. One change: *SWL DIGEST* on RCI, UTC Sun 2236 on 9760, 11945.



Broadcast Loggings

Let other readers know what you're enjoying. Send your loggings to **Gayle Van Horn**, c/o Monitoring Times. English broadcast unless otherwise noted.

0023 UTC on 9815

UNITED STATES: Voice of America. Discussion on Industrial developments in eastern Europe. Monitored also on 6125 kHz at 0608 UTC. (John Carson, Norman, OK) (Frank Hillton, Charleston, SC)

0025 UTC on 11730

YUGOSLAVIA: Radio Jugoslavla. "Science and Technology" program on water management in the Third World. Heard on parallel 7215 kHz. (Bob Fraser, Cohasset, MA) (Carson, OK) (Jack Davis, Birmingham, AL)

0025 UTC on 11605

ISRAEL: Kol Israel. "DX Corner" featuring Ben Dalfen and his amateur radio experiences. Heard also on parallel 9435 kHz. (Fraser, MA) (Carson, OK) (Jack Davis, Birmingham, AL)

0027 UTC on 9630

SPAIN: Spanish Foreign Radio. Music from the Balearic Islands and Minorca. Heard also on parallel 11880 kHz. (Fraser, MA) (Brian Bagwell, St. Louis, MO) (Dennis Green, Atlanta, GA)

0044 UTC on 17705

MALI: Radio Beijing (relay). "Listener's Letterbox" answers questions about the Forbidden City. Heard also on parallel 15100 kHz. (Fraser, MA) (Hillton, SC)

0100 UTC on 7425

PIRATE: WLIS. Interval signal variety from TWR Bonaire, Voice of Free China, KGL Israel, Hillbilly Heaven, and Radio Tahiti. DJ also announced he, "Would never play the awful interval signal from WYFR." (Tim Johnson, Galesburg, IL)

0140 UTC on 6155

BOLIVIA: Radio Fides. Spanish. Andean ballads, and instrumentals to clear Fides ID. Rechecked at 0300 UTC, and caught sign-off in progress, with ID, and presumed national anthem. (Hillton, SC) (Green, GA)

0145 UTC on 9875

AUSTRIA: Radio Austria International. Travelogue program, with discussion on plans for summer of '91. Heard on parallel 9870/13730 kHz. (Fraser, MA) (Carson, OK)

0223 UTC on 7375

COSTA RICA: Radio for Peace International. "World of Radio" program into "Mailbag" show. Additional programming at 2100 UTC on 21566 kHz. (Carson, OK) (T.D. Leinweber, Blytheville, AR)

0300 UTC on 7190

YEMEN-PEOPLE'S DEMOCRATIC REPUBLIC: Republic Yemen Radio. Arabic. Very long national anthem, followed by sign-on and Holy Koran recitations. (Johnson, IL)

0300 UTC on 17675

NEW ZEALAND: Radio New Zealand. Excellent signal for national news, music and weather report. (Andrew Dalgeish, Lancaster, NY)

0310 UTC on 4934

KENYA: Voice of Kenya. Closing news headlines to anthem type music. DJ format for music program of light pops and easy-listening tunes. (Johnson, IL) (Richard Langer, Pittsburgh, PA)

0322 UTC on 13675

UNITED ARAB EMIRATES: UAE Radio. News commentary on Prime Minister Thatcher. Parallel frequencies monitored on 15400/15435 kHz. (Harold Bower, Sunbury, PA) (John Miller, Thomasville, GA)

0328 UTC on 6165

NETHERLANDS ANTILLES: Radio Netherlands. News of the Middle East into "Media Network" program at 0352 UTC. Parallel programming heard on 9590 kHz. Additional monitoring on 15560 kHz at 0051 UTC. (Carson, OK) (Bower, PA)

0330 UTC on 7541

ITALY: Voice of Europe. Pop/rock music program by lady DJ. Station address given with numerous IDs. (Earl Bailey, Oakland, CA)

0527 UTC on 15340

ROMANIA: Radio Romania International. Interval signal and Enesco's "Romanian Rhapsody" (Keanu, HI) Monitored at 0300 UTC on 15380 kHz. (Andrew Dalgeish, Lancaster, NY) (Carson, OK)

0540 UTC on 9670

GERMANY: Deutsche Welle. Interesting discussion on a super nova explosion, to sign-off at 0550 UTC (Carson, OK)

0548 UTC on 9840

UNITED STATES: WCSN. Readings from religious article, in the Christian Science Monitor newspaper to ID at 0550 UTC. (Carson, OK) (Miller, GA)

0550 UTC on 7520

UNITED STATES: WWCR. Discussion on the Middle East situation, and speculation of Israel's role. (Carson, OK)

0610 UTC on 11835

CUBA: Radio Havana. International news and "Spotlight on Latin America" program. Monitored on 11820 kHz at 2358 UTC. Audible at 0440 UTC on 11760 kHz. (Carson, OK)

0657 UTC on 4845

MAURITANIA: Office de Radiodiff-Télévision de Mauritanie. Arabic. Holy Koran recitations at tune in. Station ID and international news at the hour. (Johnson, IL)

0725 UTC on 11040

CHINA: CPBS. Chinese. Nostalgic sing-along tunes by a children's choir to 0755 UTC. Great entertainment. (Jerry Witham, Keauu, HI)

1030 UTC on 3324.8

GUATEMALA: Radio Maya. Spanish. Station IDs, followed by music tunes of guitar, organ, and accordian. (Johnson, IL)

1035 UTC on 3385

PAPUA NEW GUINEA: Radio East New Britain. Pidgin. Island music and pop tunes from the Bee Gees. Lady DJ with chat and references to the Solomon Islands. (Johnson, IL)

1100 UTC on 3394.8

ECUADOR: Radio Zaracay. Spanish. Station ID "Radio Zaracay" and great Andean music. (Johnson, IL)

1130 UTC on 6120

CANADA: Radio Japan (relay). Report on a cooking contest for men only in Osaka. (Fraser, MA) (Green, GA)

1410 UTC on 21550

FINLAND: Radio Finland. Finnish newspaper editorials on the Middle East crisis. Signal interference from Radio Canada International. (Carson, OK) (David Thompson, Houston, TX)

1520 UTC on 15430

SWITZERLAND: Swiss Radio International. March music and IDs to "Dateline" show. (Carson, OK)

1527 UTC on 15420

UNITED STATES: WRNO. "World of Radio" program. Heard also on 7355 kHz at 0030 UTC, and parallel 13720 kHz at 2347 UTC. (Carson, OK)

1740 UTC on 11865

JAPAN: Radio Japan. "Magazine Hour" program discusses the decline of public bathhouses in Japan. Comments included that they are still popular in the city of Kyoto, however new devices and incentives are needed to survive. (Jerry Witham, Keauu, HI)

1750 UTC on 7230

SOUTH AFRICA: Radio South Africa. Portuguese. Bokmakarie interval signal to station ID. Program features heard also on parallel 15270 kHz. (Jerry Witham, Keauu, HI) Monitored at 0400-0455 UTC on 7270/11900 kHz. (Nicholas Adams, Newark, NJ) (Carson, OK)

1800 UTC on 15495

SAUDI ARABIA: Broadcasting service of the Kingdom of Saudi Arabia. Arabic. Station ID as, "Arabiyya Al-Sauyyamin al-Riyadh." Arabic music with talks on Iraq and Kuwait. Sign-off at 2130 UTC. Parallel frequency 9870 kHz not heard. (Stephen Price, Conemaugh, PA)

1835 UTC on 15255

BANGLADESH: Radio Bangladesh. National music program to ID and program schedule. Station sign-off at 1900 UTC, with new programming commencing at 1915 UTC. (Witham, HI)

1850 UTC on 15330

BULGARIA: Radio Sofia. "The Old Treasure Book" featuring cameo carving. (Fraser, MA)

2100 UTC on 11620

INDIA: All India Radio. Station ID and national news to 2105 UTC. Commentary read on the national Literacy Day, classical duet to 2120 UTC. "Faithfully Yours" letterbox program until 2130 UTC. (Nicholas Adams, Newark, NJ) (Donald Westbrook, Columbus, OH)

2127 UTC on 11990

IRAQ: Holy Medina Radio. Arabic. Broadcast from Baghdad, with clear IDs repeated several times, and talks about Saddam Hussein. Second Arabic programming at 2200 UTC identifying as, "Idha atu-saut gamahir min Baghdad." Holy Koran recitations at 2255 UTC, station ID, and Iraqi national anthem to 2300 UTC sign-off. (Price, PA) *Nice log, Stephen-ed.*

2130 UTC on 13660

IRAQ: Radio Baghdad. Lady announcer warns President Bush, "Get out of the region," followed by "You are tuned to Radio Baghdad, the broadcasting service of the Iraqi Arab Republic." (Johnson, IL) (Westbrook, OH)

2130 UTC on 7255

NIGERIA: Voice of Nigeria. French. "Ici Lagos, la voix du Nigeria" ID at tune-in followed by news, station schedule, and drum/bamboo signal. Excellent signal quality to 2300 UTC sign-off. (Price, PA) Monitored on 7255 kHz at 0539 UTC in English. (Carson, OK)

2206 UTC on 15455

USSR: Radio Vilnius. National editorial, "Letterbox" program and "Sports Roundup." Parallel frequency 15485 kHz audible. (Carson, OK) (Bruce Graham, San Antonio, TX)

2215 UTC on 4765

CONGO: Radiodiffusion-Télévision Congolaise. French. Announcer duo chit-chat to Afro pop style music. ID at 2356 UTC as, "Ici Brazaville, la voix de la révolution Congolaise." Frequency quote for mediumwave, shortwave and FM services. National anthem and sign-off at 0000 UTC. (Price, PA)

2230 UTC on 4870

BENIN: Office De Radiodiffusion Et Television Du Benin. French. Light pop and soft soul music nonstop to station and program announcements. (Johnson, IL)

2240 UTC on 6050

NIGERIA: Radio Nigeria-Ibadan. African vernacular. National African vocals, chat to sign-off routine at 0300 UTC with ID and national anthem. (Hillton, SC)

2355 UTC on 6010

BRAZIL: Radio Inconfidencia. Portuguese. Numerous Inconfidencia IDs, with local Belo Horizonte commercials, and chat. (Johnson, IL) (Richard Langer, Pittsburgh, PA)

Utility World

Larry Van Horn

c/o MT, P.O. Box 98
Brasstown, NC 28902

All things strange and surprising

The "Utility World" is exciting and the bands can hold some surprises from time to time. Several of our listeners can vouch for that this month.

● Jeff Mullowney in Richardson, Texas -- that's around the Dallas-Ft. Worth area -- was using a Kenwood R-5000 and JRC NRD-525 and indoor antennas in his apartment when he caught the following Strategic Air Command (SAC) intercept:

"I was listening to SAC on 6761 kHz while reading a book at 0620," says Jeff. "I heard an aircraft contact Skyking. When he said, 'Yeah, we just lost a three by five piece off the number 2 nacelle up near the pylon.' I then started to pay real close attention. It turns out that the aircraft was a B-52, had suffered secondary structural failure, and was returning to Carswell Air Force Base instead of going on a night bomb run to Utah."

Now that is a real good example that, even though SAC is a military outfit, a lot of the comms you will hear you can understand and enjoy.

● Not all military aircraft comms occur on military frequencies. Sam Ricks spent some time listening to 5598 for military aircraft heading to the Persian Gulf. He says:

"It sounded like a 'conga line' of US Air Force aircraft requesting permission to go for their air refueling tankers. An Air France Concorde had difficulty contacting New York Aeradio. He did manage to get everybody's attention when he reported that he was at mach .84."

No doubt he did get everybody's attention, Sam. I'd pay attention, that's for sure. Sam also reports that he is starting to see a lot of RTTY traffic from the "shadow" Soviet Navy, the quasi-military research ships with civilian crews. They all have Soviet Navy call signs. These vessels used to stay within Soviet waters. Sam hopes to round up some additional information on these vessels, so stay tuned to *MT* for the latest. Thanks, Sam.

● Pat Cox over Oxford, North Carolina way, has heard the strangest transmission with regards to Operation Desert Shield. I agree with Pat that this is a very unusual transmission and any help with this one, I'd like some additional information.

Shortly after the announcement we were committing troops to the Middle East, Pat began to scan the shortwave military frequencies. "One evening at 0100 on 8975.5 kHz (LSB) I found a broadcast of music tunes ranging from country to pop to rock and roll with the majority of the titles being popular over 20 years ago. There were no announcements in between the different records. At 0344 there was an identification of the 'Navy Broadcast Service' asking for the return of listeners' surveys. At 0402 there was another ID and AP Network News. Incredible as it may seem, the movement of American troops to the Saudi Peninsula and other gulf related news was the sixth item in the broadcast. The lead story was about highway safety.

"At 0410, the time was announced as 'ten past 6 Wednesday morning.' A short advertisement for college courses at the Navy campus was announced with a phone number of 2574 for inquiries. A family services announcement was made concerning 'Sea View Pines.' This was followed by more music and then more news concerning the Middle East situation."

Pat says in his thirty years of shortwave listening and hamming, this was one of the most unusual broadcasts he has ever heard.

However, in view of the massive troop movements to the Middle East, nothing is surprising. Says Pat, "I have never heard the Navy Broadcasting Service before or since. I turned the rig off at 0430. None of my reference material mentions a Navy Broadcasting Service."

Well, Pat, the reason you have not heard about the service is because this service is normally only heard on closed cable systems of a ship or at Navy shore low power AM radio stations. The Navy Broadcast system is the Navy's arm of AFRTS.

I will hazard a guess that you probably caught a bootleg shortwave transmitter aboard one of the larger ships associated with the Middle East operations. They were probably transmitting to several other ships in the battle group to help entertain the sailors on board. My guess is that they wanted everybody to hear the President's speech and this was how they got the broadcast to the smaller ships. My best guess is the USS Enterprise or the USS Independence, but just about any of the larger ships could have provided the service.

Congratulations on that interesting intercept, but good luck getting it verified!

● Now for the bizarre. Jerry, KE0KI, has been working on a band occupancy report. He started this last March and will finally finish up in a couple of months. Jerry says a large chunk of the spectrum is involved. Recently, while he was doing his watch period, he came across a Morse code station on 6980.5 kHz singing beacon.

A ten second dash followed by about an eight second silent period. Then: V V V V V V V V V DE BEACON 2 2 2 2 2 TESTING.

This was sent three times followed by: End of Test AR

"Three minutes of silence, then it started again. I have my KWM-380 using a seven foot whip standing in a closet monitoring this frequency. The signal strength is substantially the same, about S7, throughout a 24 hour period. About 2100 the signal weakens slightly but it never became unreadable and soon builds back to its normal daily strength."

Jerry, I can tell you that I have discussed this station with a couple of folks and it has more than one frequency it operates on. Here are some additional frequencies to monitor this new CW mystery:

Around 1400 UTC on 7930 -- V V V V V V V V V DE BEACON 6 6 6 6 6 TESTING.

Also check 11133 around 1618 UTC V V V V V V V V V DE BEACON 7 7 7 7 7 TESTING.

On the 11 MHz frequency, a QSA2 was also reported. Probably only time will tell and we might be able to figure out who this is. Stay tuned for further updates; this column will keep you posted.

● Finally, on the somewhat freakish side, *Monitoring Times* publisher Bob Grove says that he copied a plain English text CW signal from bootleggers on or near the famous pirate frequency 7416 between 0030 and 0048 UTC. Bob says he thinks that was interesting that CW also shares in the pirate pool. So do I, Bob.

UK Update

Geoff Halligey over across the pond dropped a note to update some information from official sources. He adds 17084 kHz to the list of official frequencies for VHI-Darwin Radio which we

published a couple of months ago. Thanks again for helping solve another mystery call sign, Geoff.

He has not had any luck solving the UVA mystery. Most all of us agree that it is Soviet, but as of now no other info is known about this station. Any help would be appreciated.

In Spain, Pozuelo del Ray and Aranjuez are not finished, and both of these stations are renamed "Madrid Radio" according to the ITU.

Finally, Geoff mentions that Burma is now MYANMAR and Rangoon is YANGON. Thanks, Geoff, for the update.

Inquiring minds want to know

Bill Buchsbaum, who should be back in San Antonio by now (from Okinawa), wants a good reference on ICAO teletype nets that broadcast international flight plans.

There are two, Bill, that I can think of right off the bat. Check out the Klingenfuss *Air and Meteo Code Book* for some details about the messages and codes used. If you want a very good detailed explanation of the system, pick up a copy of the *Aeronautical Communications Handbook: HF Edition* by Robert Evans. These are the two best sources I know of for the different HF ICAO RTTY nets.

New Middle East book

A Perth, Scotland, firm called Interbooks has released a new title called, *Monitoring the Iraq/Kuwait Conflict*. The author is Langley Pierce. This small paper cover shows how to listen in to the inflight conversations between the fighters in the Gulf, ship to shore calls, the US Navy, or broadcasting stations. It shows where to find the action, saving hours of scanning the bands, and clearly explains what will be heard and the background.

Not only are many frequencies listed which have been monitored by the author, but also sections on the joint US and Gulf Air Forces, VIP and Presidential flights (small list of mystic star channels), commercial aviation and gulf shipping.

You can write for more information to Interbooks, 8 Abbott Street, Perth PH2 OEB Scotland. It's 26 pages and costs \$8.50 US which includes airmail to the US, Canada and Mexico. Visa and Master Charge accepted.

Still another new book

Another good reference book has been authored by James T. Pogue on the US Coast Guard. *Coast Guard Radio* is a very good guide to using and monitoring US Coast Guard communications. There is a wealth of information on the Coast Guard, history, operations, frequencies, ships, aircraft, shore stations and call signs in this 90 page soft cover 8- 1/2 by 11-1/2.

You will get information on the Coast Guard's organization, addresses, weather broadcast, Notice to Mariners Broadcast, Loran and Omega stations, and terminology. Additional chapters provide complete lists of Coast Guard aircraft, air stations, ship fleet, rescue centers and phone numbers. Jim also includes 'Q' and 'Z' signals.

All in all this one deserves a place on your utility reference book shelf but don't expect it to stay there if you monitor the Coast Guard. I use it each and every session I monitor Coast Guard comms.

The book is available from DX Radio Supply, P.O. Box 360, Wagontown, PA 19376. The cost is \$12.95 plus 1.20 book rate or 2.30 UPS. Tell 'em that Ute World sent 'ya.

The best is last

By now, those of you who inquired about this at the convention

are probably saying, "When is that crazy sailor going to talk about SLHFBs." I haven't forgotten you all. I just wanted to save the best for last this time (it's also a clever way to get you to read the rest of the column).

SLHFBs stands for single letter HF ("shortwave") beacons. Yes, those stations that send out a single letter ID such as K or W or some such, in Morse code. They have been on the air for years and while not as much has been written about them as numbers stations, they are no less of a mystery.

Recently, I had the good fortune to meet and talk with a gentleman who worked in one of these stations. He is not associated with the radio hobby and I can vouch for the source. He is credible.

Some of you might remember in the early days we used to get a lot of these beacons with all kinds of letters popping up all over the spectrum. Well, it was a US-run operation. In fact it belonged to US Army Signal Intelligence. Seems they set up an extensive world wide monitoring capability to intercept HF communications. Each station had their own CW beacon on shortwave that served a dual purpose.

One of the purposes was for propagation checks. Say, if you were in Europe and wanted to check propagation to the Far East, then you tuned to the "K" beacon in Tokyo, Japan, for a signal check. Know your alphabet and station location and you had an instant propagation check. So far, so good?

A second purpose for the beacons was to pass traffic through the network coded, of course, on the locations and frequencies of stations they intercepted. Occasionally, these stations would break into FSK transmissions and the encrypted messages would contain that information for the rest of the net.

According to my source, this net flourished for a number of years and worked real well. So well, in fact, that the Russians (in their usual fashion) formed similar nets using single letter beacons. My source says they used to laugh about it and were quite flattered.

After military satellites became the rage, our US nets moved onto the military communications birds, and guess who stayed behind? Yep, the Russians. Heck, they are still using basically the same rocket that launched the Sputnik 1 satellite to launch their men into space today (things change slow in the Soviet Union).

My source says that the reason we radio listeners were confused over locations is because there were two separate nets being run, one US (worldwide) and one Russian (on Soviet soil and a few other places to boot).

Now a bunch of these Soviet beacons have recently left the air and some others have replaced them. I see the Soviet system in a state of flux and could possibly begin moving to satellite as well. My source was unwilling to give me exact dates on the US move to the birds so I can only assume that at this point Dave White has been vindicated. To those who attacked Dave's position that the beacons were located in areas outside the USSR, my source indicates that Dave's monitoring was correct. Shame on you all.

Remember, you read it first, again in the Ute World pages.

As of this writing, I have still not heard any of the K or U beacons on shortwave. George Zellar says he has heard a V beacon on 7394.5 around 0005 UTC. I would be very interested in getting reports of any single letter HF beacon activity you might hear from any corner of the globe. Please on these logs include the date of your reception, frequency and time in UTC as well as your reception location.

Now the only question that remains to be answered at this point about the status of the Soviet system is: "Is it propagation or is it satellites?"

Utility Loggings

Abbreviations used in this column

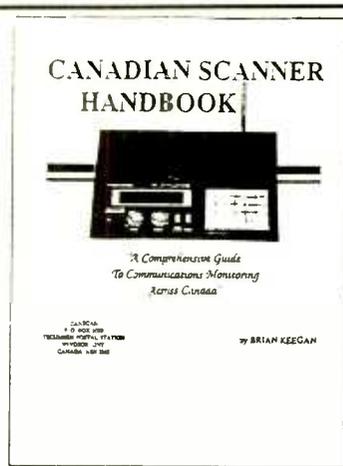
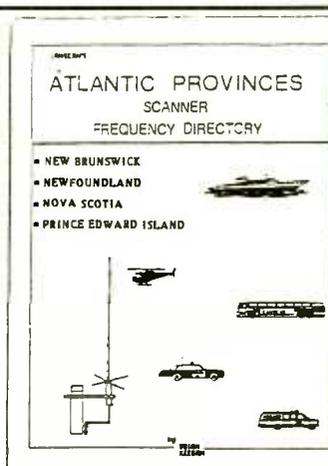
All times UTC, frequencies in kilohertz. All voice transmissions are English unless otherwise noted.

AM	Amplitude modulation	ISB	Independent sideband
ARQ	SITOR	LSB	Lower sideband
CW	Morse code	RTTY	Radioteletype
FAX	Facsimile	UNID	Unidentified
FEC	Forward error correction	USB	Upper sideband
ID	Identification		

- 2182.0 Oil Champion working Wick Radio with position report in USB at 0225. Profiler working Wick Radio with position report at 0017 and a Mayday relay from yacht Donean at 2200. Aberdeen Radio coordinating the operation. (Kiely-Ireland)
- 3203.0 Foxtrot Tango/Oscar 6 and other stations with similar call in a net. Heard references to "Tracks," "Pony," "Romeo Square" and some targets that were "in the red." Sounded like tactical ops, not a training exercise. (Fernandez, MA)
- 3810.0 HD210A-Guayaquil. Ecuador time station heard at 0544 with time pips. (Eric Forslund, Citrus Heights, CA)
- 5421.4 NRPX-USCGC Buttonwood with position report to NMG-USCG New Orleans and summary report on ship fire off Texas coast at 0314. RTTY 170/75R. (Ricks, PA)
- 5598.0 MAC 40637 working New York, Shanwick and Gander Aeradios in USB at 0020. Enroute to aerial refueling with the tanker GALA 51. MAC aircraft in a conga-line with tankers and other aircraft enroute the Middle East for Operation Desert Shield. (Ricks, PA)
- 5616.0 Shanwick and Gander Aeradio working various aircraft at various times in USB. (Tyke, UK)
- 5680.0 R117 (Helo) working Aberdeen Coast Guard at 0831 in USB, mentioned still looking for the Donean. (Kiely, Ireland)
- 5696.0 San Diego Air and San Francisco US Coast Guard COMSTA working various coast guard aircraft at various times in USB. (Kokinda, OH)
- USCG Miami COMSTA working Rescue 1492 declaring an in flight emergency (Low fuel state) in USB at 0500-0547. (Jeff Mullenwey, Richardson, TX) *Welcome to the column, Jeff. Hope you can check in often-Chief.*
- Rescue 1493/2121 working COMSTA Boston and Cape Cod Air at 0915 in USB. (Henry Brown, East Falmouth, MA) *Welcome, Henry. Hope you check in often-Chief.*
- 5762.0 Spanish female five-digit number station in AM heard at 0622. (Fernandez, MA)
- 6473.9 NRCB-USCG Barque Eagle, with position and weather report to NMN-Portsmouth at 1403. RTTY 170/75R. (Ricks, PA)
- 6519.0 USCG COMSTA San Francisco giving medical orders to SS Bonnie to not administer vallum along with morphine for a victim with an extensive leg injury. Heard in USB at 0820. (Plumlee, CA)
- 6736.0 ETD3-Addis Ababa Aeradio, Ethiopia with RTTY 50 bd RY test tape at 2215. (Kiely, Ireland)
- 6748.0 Air Force missile launch practice maneuvers. Tracking missile by updating co-ordinates. A MAC flight did call in the Chilice and Cob Web were the IDs used. (No time or mode.-Chief) (L anonymous)
- 6761.0 Red Wagon working Head Dancer telling him to call Blue 1 on 11220 kHz., nothing heard on this frequency only Head Dancer 1 calling Head Dancer 2 with a radio check at 1110 in USB. (Kiely, Ireland)
- Crystal Palace talking to 30 about hydraulic system malfunction. Told him to standby until maintenance could help. Heard at 1545 in USB. (Thomas Nichols, IN)
- Skybird working Poker 69 (KC-135) for a radio check on S-391 in USB at 0212. (Hill, MI)
- 6868.0 W3 working W5 both enroute to Lajes AFB, Azores. W5 was about one hour behind W3, there was several aircraft in this convoy in USB at 1213. (Kiely, Ireland)
- 6962.9 WTEW-NOAA research vessel Whiting with position report to NMG USCG COMSTA New Orleans (3 miles from me.-Chief). RTTY 170/75. (Ricks, PA)
- 7404.0 German female three/two digit number station in AM heard at 0037. (Fernandez, MA)
- 7541.0 German female four-digit number station in AM at 0035. (Fernandez, MA)

- 7588.0 English female three/two digit number station in AM at 0001. (Fernandez, MA)
- 7845.5 Spanish female five-digit number station in AM at 0605. (Fernandez, MA)
- 8000.0 JYJ-Tokyo, Japan, time station heard at 1100 in AM. (Plumlee, CA)
- 8161.0 Cairns and Darwin Control-Royal Australian Navy shore stations in USB and very active weekdays 0730-1000. Called this channel Alpha four. (Rick Albright, Merced, CA)
- 8213.0 ZLW-Wellington Radio working two Royal Naval ships in USB for ship to shore patches. (Albright, CA)
- 8297.4 UQTH Soviet weather research vessel Mikhail Lomonosov with TESAC weather report for RNO-Moscow at 0329. Position was south of Liberia, near equator. RTTY 170/50. (Ricks, PA)
- 8299.0 UBQP-Soviet oceanographic research ship NIS Vityaz with Russian traffic for UNQ Novorossiysk Radio at 0320. Was at Halifax, NS. RTTY 170/50. (Ricks, PA)
- 8784.0 HEB18-Berne Radio, Switzerland, with a long traffic list in USB at 1820. (Kiely, Ireland)
- 8879.0 Shanwick Aero working various aircraft at various times in USB. (Tyke, UK)
- 8896.0 Heard at 0114 in USB Whiskey Jack and unid in general discussion of propagation. Bad signal with lotsa splatter. (Bill Burghardt, Denville, NY)
- 8980.0 USCG Travis City Air working CG 9691 at 0226 in USB. (Fernandez, MA)
- 8906.0 New York Air radio working Western 900 at 0116 in USB going to London Heathrow. Heard other transmissions as well. (Burghardt, NY)
- 8989.0 Navy 49676 working McClellan AFB, attempting to contact Andrews AFB due to lost contact on 298 Upper. McClellan said to try 212 Upper. (Cegielski, CA)
- 8993.0 Landmine calling MacDill AFB in USB. After contact made, Landmine asked for HF frequency, both switched to 8968.5 and switched into 75 baud encrypted RTTY. Had to send several times before a good copy received at 2305. (Gary Inman, TN)
- 9017.0 NATO 29 working Honorable and requesting a data check, then moved to 6750 kHz, but not reading each other there. Then they went to 11176. Heard at 0855 in USB. (Kiely, Ireland)
- 9034.0 Air Force One working Andrews AFB with radio checks every 10 minutes 0314-0554 in USB. (Jim Thomas, Hamilton, ON Canada) *Welcome to you also, Jim. Nice log of Mystic Star activity.-Chief.*
- 9222.0 Spanish female four-digit number station in AM at 0218. (Fernandez, MA)
- 9325.0 German female with Whiskey Papa (X4), musical tones, then call-up at 0135, then into three/two digit numbers (each group X2). I have copied four/five f groups and five f groups here in the past. Several short texts followed by the first. Heard starting at 0134 in AM. (Fernandez, MA)
- 9381.6 LPL-General Pacheco Radio, Buenos Aires, Argentina in LSB with female Spanish circuit adjustment tape voice marker at 2344. (Fernandez, MA)
- 10069.0 Delta 39 working Berna Radio with a phone patch to flight control. Heard at 1057 in USB. (Kiely, Ireland)
- 10100.0 Spanish female five-digit number station in AM at 0313. (Bilodeau, IL)
- 10361.0 Seven musical notes repeated several times, then about 0310 another musical selection repeated, then off the air without any texts or call-ups at 0309 in AM. (Fernandez, MA)
- 10383.0 German female five-digit number station in AM at 0305. (Fernandez, MA)
- 10400.0 German female three/two-digit number station heard in AM at 0210. Also heard at 0300. (Fernandez, MA) Also 0324. (Bilodeau, IL)
- 10665.0 Spanish female four-digit number station in AM at 2225. (Bilodeau, IL)
- 10970.0 VLB2-Israeli Moshad number station in AM at 0148. (Fernandez, MA)
- 11052.0 Andrews working Air Force One said to try 154 Upper and Navy 696 to try 539 Upper at 2155 in USB. (Cegielski, CA)
- 11108.0 German female three/two-digit number station in AM at 0010. I have heard five-digits here in the past. (Fernandez, MA)
- 11160.0 English female five-digit number station heard in Am at 0142. (Fernandez, MA)
- 11191.0 Various Navy units with typical letter-number-letter call signs referring to themselves as Players in the Alligator Playground, many mentions of Papa Uniform, Black Box and Delta Two Eight Frequency. They seldom went "green" as all meaningful words were coded. Propagationally, aircraft operating in the Caribbean would be very possible. Land based or carrier based? Ops with DEA? Heard her often from 2215 tune-in and past 2300 tune-out. (Perdue, AL)

- 11193.0 Moscow Aeradio with several aircraft IDing with Aeroflot prefix sending flight data in Russian using USB at 2312. (Fernandez, MA)
- 11270.5 Magic 74 working Magic 66 (both E-3 aircraft). They said see you at the party (must have been talking about the MT convention, hi, hi-Larry). Heard at 0756 in USB. Also heard DHN 66 (net call sign for NATO Geilenkirchen, Germany) working Magic 66, had RTTY traffic for him. (Kiely, Ireland)
- 11306.0 Monarch 409 working Portishead with a phone patch to headquarters in Luton, had a problem with refueling in Larnaca, had to keep the reset button in. Had 230 230 PAXs flying from Larnaca to Manchester, was between Cyprus and Rome. In USB at 2107. (Kiely, Ireland)
- 11413.0 Air Force One calling Andrews AFB in USB at 0026 with no apparent reply. (Bilodeau, IL)
- 12494.0 ELDK9-Sky Princess with telex messages for Starship Atlantic (ELAJ4). In SITOR-A 170/100 at 0331. (Bilodeau, IL)
- 12506.4 RMGC-Soviet Navy survey ship Andromeda with Russian traffic for UJY-Kaliningrad Radio at 0302. RTTY 170/50. (Ricks, PA)
- 12520.4 UIGC-24, 800 ton Soviet crane ship KMS Stanislav Yudin with Russian traffic for CLJ-Havana Radio at 0315. Enroute to Cardenas, Cuba. Vessel had helicopter pad at forward deck, large shipyard type crane at stern. RTTY 170/50. (Ricks, PA)
- 12522.9 UKFI-Soviet tracking ship Kosmonaut Yuri Gagarin relaying orbital data for "Object A-014," the Kristall module launched to MIR via Proton launcher on June 1, 1990. UTDX-Kosmonaut Pavel Belyayev and UZZV-Kosmonaut Georgi Dobrovolski on net with Gagarin at 2205. RTTY 170/50. (Ricks, PA)
- 12524.7 UNGT-Soviet motor vessel S. Lazo heading to Havana, Cuba, with Russian cyrillic telexes to Odessa. RTTY 170/50N at 0210. (Bilodeau, IL)
- 12846.3 DZE-Mandaluyong Radio Philippines with CQ CW marker at 0845. (Hardester, Okinawa)
- 12871.5 XSG-Shanghai Radio, China, with CQ CW marker at 0852. (Hardester, Okinawa)
- 13022.0 SPE-Szczecin Radio, Poland, with ID, QSX, frequencies, etc in CW at 0436. (Bilodeau, IL)
- 13040.0 UFN-Novorossiysk Radio, USSR, with DE CW marker at 1142. (Kiely, Ireland)
- 13086.0 IDR6-Italian Naval Radio, Rome, Italy, with a V CW marker at 1034. (Kiely, Ireland)
- 13134.9 WLO-Mobile Radio, AL, USA, with weather for the Gulf of Mexico in USB at 2318. (Kiely, Ireland)
- 13244.0 JIVE 61 working MacDill AFB GCCS with phone patch traffic to Utah Command Post Ops in USB at 1319. (Campagna, CT)
- 13451.5 Spanish female four-digit number station in AM at 0007. (Fernandez, MA)
- 13795.5 Spanish female four-digit number station in AM at 0106. (Fernandez, MA) Also at 0107 (Bilodeau, IL)
- 14392.2 C37A calling 6XMB in RTTY 170/100N also heard RYs, foxes, then encrypted traffic at 0245. No ideas here. (Inman, TN) *Not here either-Chief.*
- 14633.0 9UA-Bujumbura, Burundi, with DE 9UA RY test tape at 0501. RTTY 393/50R. (Bilodeau, IL)
- 14824.5 Spanish female five-digit number station in AM at 0342. (Fernandez, MA)
- 14928.4 WPAC with 24 hour prognosis chart, followed by a formatted infrared global satellite photo of cloud cover over Japan, East Indies and Pacific Ocean. FAX 120/576 at 0342. (Bilodeau, IL) *Looks like another AWS station on the air. Might have to make a few phone calls.-Chief.*
- 15048.0 SAM 203 working MacDill AFB GCCS. They had difficulty hearing each other so they switched to 13210-then back to 15048 around 1518 in USB. (Campagna, CT)
- 15933.0 PWX33-Brazilian Naval Radio, Rio de Janeiro, with RY/SG test tape to 5 KM-Bogota Naval, Colombia at 2335. RTTY 850/75R. (Ricks, PA)
- 16335.9 EmbaCuba Zaire, Embassy at Kinshasa with Sub-Sahara Minirex and Visa applications at 2340. RTTY 850/75R. (Ricks, PA)
- 16666.0 RTMS-Soviet vessel General Ostryakov transmitting weather in coded form using 170/50 RTTY at 1444. (Kiely, Ireland)
- 16666.5 Sea Transporter (J8WL) with message to Mathship Chatham "Stowaway discovered by crew member while attempting to get water, he was hiding in top of funnel, which was not checked before leaving Dakar, say's his passport was impounded by Dakar Police. In SITOR-A at 1650. (Kiely, Ireland)
- 16674.5 9VBT-Arild Maersk with a message to Telex Dept of CPH with an ETA for Wanderlaar (cannot find it in my three atlases) using SITOR-A at 1205. (Kiely, Ireland)



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- 16680.0 VPHC-UK registered vessel with an OBS Meteo Washington DC report in SITOR-A at 1203. (Kiely, Ireland)
- 16678.0 HZGV-M/V Pluto in Sofia with message sent flowers to his mother in UK. In SITOR-A at 1155. (Kiely, Ireland)
- 16681.0 Owl Producer with message to Owl Tankers, Norway, giving position report 36.19N/3.53E with an ETA for Aratu, Salvador. in SITOR-A at 1120. (Kiely, Ireland)
- 16687.5 UUBD-Soviet tanker Krivbass with messages to SNAM Marco-operazione Milano and AGIP S.P.A. Roma, with an ETA for Taranton and said had no information about berthing prospects. In SITOR-A at 1112. (Kiely, Ireland)
- 16699.9 UKMI-Soviet Navy Arctic hydrographic survey ship GS Nikolai Kolomeytsyev with Russian traffic to UVA-Arkhangelsk Radio at 0326. Enroute Lisbon from Montevideo. RTTY 170/50. (Ricks, PA)
- 17070.0 JYJ-Kyodo Tokyo, Japan, with FAX weather chart at 1030. 120/576. (Jacques d'Avignon, Cornwall, ON Canada) *Welcome to the column and I hope you report your logs often.-Chief.*
- 17916.0 Saudi 137 working Stockholm Radio with a phone patch to Casablanca, then moved to 20770 kHz for the phone patch. in USB at 2310. (Kiely, Ireland)
- 18111.2 FDY-French Air Force Radio-Orleans with 425/45 RTTY broadcast heard at 0010. (Ron Bruckman, Hampstead, MD) *Nice to have you on board, Ron. Please check in often.-Chief*
- 19171.0 MAP News Agency-Rabat, Morocco in French about the French Academy Morocco in 425/50 RTTY in 1026. (Kiely, Ireland)
- 19387.6 Unid ID Associated Press (AP) news and sports scores at 1934. VFT mode 85/50N at 1934. (Bilodeau, IL)
- 19505.0 Prensa Latina (Cuban News Agency) via Moscow in Spanish about Nicaragua in 425/50 RTTY at 1018. (Kiely, Ireland)
- 20065.0 Air Cargo Liberia working Portishead Radio with phone patch to UK and Moscow. He was flying from Monrovia to Abidjan, had a meeting with the president of Liberia who wanted products? flown from Conakry to Monrovia, and needed a B-737 or BA-111 for the job. USB signal was weak at 1710. (Kiely, Ireland)
- 20805.2 RFQP-French Military with Controle de Voie test message at 0325. ARQ-M2 mode, channel 2 378/200. (Bilodeau, IL)

The Scanning Report

Bob Kay

c/o MT, P.O. Box 98
Brasstown, NC 28902

The Day After

December 26. Christmas was over. Forget about "Joy to the World," and "Peace on Earth." The inside of my local K-Mart store resembled a war zone. The shelves were in disarray, shoppers were elbowing their way through crowded aisles, and the police were removing two men that had been fist fighting in the "Customer Service Line."

Across the entire nation, December 26 is our first opportunity to return or exchange all those useless gifts that will never get used or worn. In addition to exchanging items and providing refunds, many stores will feature after Christmas sales. As the department stores fill with shoppers, your local frequencies will be filled with activity.

To monitor the day after Christmas, there are several scanning tips that can help you to hear all of the action. Here are a few of my favorites:

- 1) Be sure to punch in your local and state police frequencies. Scanner buffs that live in or near large cities should monitor the traffic, parking and towing frequencies as well.
- 2) Your local ambulance and medevac helicopter frequencies could come alive at any moment. Other medical emergencies can be monitored on the following frequencies: 155.16, 155.28 and 155.34.
- 3) The department store and mall security frequencies will also be active. Here are a few frequency ranges that can be searched: 461 to 465, 502 to 512, 851 to 853, and 902 to 928 MHz.
- 4) Don't forget the television and radio frequencies. Many stations will be covering special events that take place during the entire week of Christmas. To discover your local news frequencies, search between the following ranges: 450.05 to 450.925, 455.05 to 455.925, and 942 to 952 MHz.
- 5) Air traffic will be especially heavy on December 24. For a special thrill, check out the following repair frequencies: 129.3, 129.7, 130.25, 130.6, 130.65, 130.85, 131.150, 131.425, 132.0
- 6) During the entire week of Christmas, be sure to monitor the cordless phone and baby monitor frequencies. These two gadgets are popular gifts, and they can be monitored on the following frequencies: Cordless phones--46.610, 46.630, 46.670, 46.710, 46.730, 46.770, 46.830, 46.870, 46.930, 46.970. Baby monitors--49.830, 49.845, 49.860, 49.875, 49.890.
- 7) Readers can also monitor toy transceivers, FM headsets and camcorder voice transmitters by searching between 49.0 & 50.0 megahertz.
- 8) The itinerant frequencies are often used to coordinate special events. Some scanner buffs have also monitored long distance truckers on the itinerant frequencies: 35.04, 43.04, 151.490, 151.625, 158.40, 464.500, 464.550
- 9) Do you live near a night club that features live entertainment? If so, be sure to check out the cordless microphone frequencies: 170.245, 170.305, 171.845, 171.905. It may be possible to hear the entire show from the privacy of your home.
- 10) Public transportation will be heavily used. Trains, taxi cabs and bus frequencies will be especially busy during the morning and evening rush hours. Scanner buffs that live in



"... not a creature was stirring, not even a mouse."

Chase the mice off your scanner radio and check out some red hot action December 26th.

the northern part of the country, should occasionally monitor the National Weather frequencies. A snow or ice storm is guaranteed to increase the scanning action on all the bands.

The "MARS" frequencies will become very active during the holidays. Soldiers and Sailors will be utilizing the MARS network to send messages home. Here are a few frequencies to check: 41.60, 143.35, 148.01, 138.90, 148.075, 148.95, 142.155.

Scanner buffs that live near coastal areas can monitor the ship to shore radio telephone frequencies. Mariners will be calling home and arranging their holiday plans on the following frequencies: 157.200/161.800, 157.250/161.850, 157.300/161.900, 157.350/161.950, 157.400/162.00.

Finally, if you can't stay home on December 26, an entire day of monitoring can be saved by using a voice activated tape recorder. Listening to a prerecorded tape won't be as exciting, but it will provide you with a permanent souvenir of all the action.

Treasure Hunt

Hurry gang, this is your last chance to win one of six prizes. If you read last month's column, you already know that the folks at GRE America have provided two Super Converters, two Super Converter II's, two Super Amplifiers and two rubber ducky monitoring antennas.

The Super Converters will allow you to explore the entire world of 800 megahertz without having to buy a new scanner radio. The Super Converter 1 converts the standard UHF band to receive all of the action between 806 and 960 megahertz--including cellular!

The Super Converter I is approximately 3" x 5" x 2". The unit is equipped with a short length of coax, and a factory installed Motorola plug. To convert the standard UHF band to 800 megahertz, you simply connect the Super Converter to your scanner radio, and then search between 450 and 512 megahertz.

The Super Converter II is only a few inches long, and it attaches directly to the BNC connector on your scanner radio. The engineers at GRE were able to reduce the unit's size by combining state-of-the-art components with surface mount technology. When standard scanning of the UHF band is desired, there's a switch on the back that allows instant return to normal scanning. Since power is supplied by an internal 9 volt battery, there's nothing to disconnect, and no adjustments are required.

Although the Super Converter II is the more current model, the performance of both units is nearly identical. If you don't want to buy a scanner radio with 800 megahertz capability, either model can save you about \$300.00 bucks.

In addition to providing four Converters, GRE also sent along two "Super Amplifiers." The Super Amplifier is a preamp that has been designed to improve reception on the VHF/UHF bands from 100 MHz to 1 Gigahertz.

The Super Amplifier has an adjustable gain that allows for 20dB of amplification. In appearance, the Super Amplifier is nearly identical to the Super Converter II. Both units are contained in professional quality aluminum boxes that have an attractive black metal finish.

The Super Amplifier connects directly to the BNC connector on your scanner radio. Power is supplied by an internal 9 volt battery and the unit also incorporates "state-of-the-art" circuitry. Best of all, I tested the Super Amplifier and the Super Converters. All the units performed admirably and without exhibiting any major flaws.

If you win the Super Amplifiers, I'll also include one of GRE's rubber ducky antennas. These antennas feature extended range and they can be the ideal companion for hand carried scanner radios.

To keep things simple, we will pick six winners. Two people will win one Super Amplifier with a rubber ducky antenna. Two people will win one Super Converter, and two people will win one Super Converter II. To become a lucky winner, you'll need to find the answers to the following clues:

1. What is the 800 telephone number for GRE America, Inc.?
2. An attenuator reduces the strength of the signal. True or False?
3. "On the second day of Christmas, my true love gave to me -" Name the items that were received.
4. What is the main UHF backup frequency for the Space Shuttle?



DURING THE PAST TEN YEARS, VARIOUS FIRMS IN THE PARCEL DELIVERY BUSINESS HAVE BOOMED IN VOLUME AND TO EFFICIENTLY RUN THEIR OPERATIONS MOST INCORPORATE 2-WAY RADIOS. SOME EMPLOY BASIC SYSTEMS WHILE OTHERS ARE MORE ELABORATE, WITH CRT'S. SEARCH THE BAND TO CATCH THIS FAST PACED OPERATION IN ACTION!

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5. Provide the handset frequency for cordless phone channel #2.

Send your answers to the "Treasure Hunt," P.O. Box 98, Brasstown, N.C. 28902. And don't forget to abide by the Treasure Hunt rules: 1) Please use post cards whenever possible. 2) Entries that have been sent via Grove's FAX number will not be accepted. 3) Multiple entries are okay, but each entry must be mailed separately.

The Super Converter II and the Super Amplifier can be purchased from Grove Enterprises. Check Grove's catalog for the current prices or call 704-837-9200.

Frequency Exchange

This month, we begin the Frequency Exchange atop the Berlin Wall. Here are a few frequencies that are used in Germany:

Fire Dept	Police
85.235 Maintenance	85.575 Berlin
85.255 Reserve frequency	85.755 North Precincts
85.355 Rescue vehicles	85.815 South Precincts
85.375 Rescue Helicopters	85.955 Traffic
85.455 Special Emergencies	

Since it is nearly Christmas, let's return to the United States and visit with Kevin Jackson. Kevin lives in Ohio, and he has invited everyone for Christmas dinner. However, there is a catch. Kevin loves to eat at fast food chains. If you don't mind having a "Big Mac," on Christmas day, Kevin said that he would treat.

The Scanning Report

Here are a few of Kevin's fast food frequencies:

Arby's--154.57
Burger King--30.84, 154.57
Hardee's--30.84, 154.57
Kentucky Fried Chicken--30.82
Macdonald's--154.57, 154.60
Wendy's--460.8875, 461.8125
White Castle--461.8125.

From Ohio, we travel to Pittsburgh, Pennsylvania. Frank Demine has extended his hospitality by providing the following list of Police and Fire Frequencies:

PGH City Police & Fire

453.10 Zone 1
453.25 Zone 2
453.40 Zone 3
453.45 Tactical
453.55 Index
453.70 Fire
453.85 Fire
453.95 Phone Patch & Detectives
462.950 Med channel

Anyone care to visit New Jersey? If so, I've got a confidential listing from "Mr. 'M'." It seems that Mr. M is a railroad fan. Here's a sample of his list:

161.430 Used for company vans that transport train crews
160.680 Police channel #3. Primary channel in NY/NJ/-Allentown
160.560 Police channel #4. Car to car, primary in Phila., PA
160.860 Chemical Coast Line, some yard use
160.230 Morristown & Erie road. Repeater system
161.295 Amtrak Police repeater system

If you want the complete one page list, here's the deal. Send an SASE to the Frequency Exchange, P.O. Box 98, Brasstown, NC 28902. That's right, the list is free! But you'll need to hurry, the supply is limited.

Ready for a quick trip to Connecticut? Kevin Cooper lives in the city of Winsted, and he monitors the FBI on 167.425, 163.8875, 163.8625, and 167.5125.

Since we're already in Connecticut, let's stop in the town of Windsor, and visit with George Fuller. George is also interested in monitoring the FBI. Here are his favorites: 169.225, 172.125, 172.175, 172.900, and 172.950.

Our last holiday visit will be to the home of Mike Cantz. Mike lives in Allentown, Pennsylvania, and he has asked for a complete list of the Federal frequency ranges. No problem, Mike. Here's the breakdown:

29.90 - 30.55	46.61 - 46.99+
32.01 - 32.99	49.61 - 49.99+
34.01 - 34.99	162.025 - 173.20
36.01 - 36.99	173.4125 - 173.9875
38.27 - 38.99	225.00 - 400.00
40.01 - 41.99	406.125 - 419.99375

+Shared with cordless phones

Are you thinking about inviting the Frequency Exchange into your home? If so, simply send your favorite frequencies to the Frequency Exchange, P.O. Box 98, Brasstown, NC 28902.

Scanning with the IRS

Are you thinking about padding your deductions this year? If so, don't talk about it on your cordless phone. Under new guidelines for criminal investigators, the IRS can use a scanner radio to eavesdrop on cordless phone calls.

The new IRS policy comes in the wake of a Supreme Court ruling that removed cordless phone conversations from federal privacy protection.

If you catch the IRS snooping in your neighborhood, don't forget to take their picture and send it to the Scanning Report!

High Tech Car Alarm

"Intercept," is a high tech car alarm system that features vehicle tracking, communication, and remote engine shut-off. When the sensors detect an intruder, the cellular phone in the vehicle is used to contact a local monitoring station. The car phone sends information on the stolen vehicle's make, and model.

Tracking of the vehicle is accomplished by a hidden Loran radar receiver. As most of you know, the Loran system was developed by the Coast Guard, and it can pinpoint a location with a high degree of accuracy.

After the vehicle is located, the monitoring station can shut the engine off by sending a message through the vehicle's cellular phone. I probably shouldn't ask this question, but I simply can't resist. "What happens if the car thief disconnects the cellular antenna?"

Picking on the Ruskies

Sure, I've seen the newspaper headlines and I was watching television when the Berlin Wall came tumbling down. And I will certainly admit that we are closer to world peace. However, I'm not about to invite Gorbachev to dinner.

The man is a con artist. Here's an example: Gorby recently stated that he would eliminate 26 diesel-electric submarines, 7 missile submarines, 4 cruisers, 4 destroyers and 20 patrol boats. Gorby claimed that he was reducing the fleet to promote world peace.

Of course, Gorby neglected to tell everyone that the ships were old and obsolete. Most of them were about 30 years old and had been placed in a reserve or inactive status.

The elimination of these ships from the fleet merely reduces the Soviet Navy's overhead costs, and therefore increases the overall efficiency and effectiveness of the Soviet Navy.

The Christmas Spirit

I was touched by the Christmas Spirit this year. To prove that I had been changed, I actually purchased a gift. And if you live within scanning range of the White House, you're in for a real holiday treat - I sent Dan Quayle a Cordless telephone! Merry Christmas, and Happy Scanning.

Next Month

Do you regularly scan the cellular bands? Have you restored cellular to your radio shack scanner? Would you like to see a no holds barred column on cellular scanning? If so, don't miss the January issue. I'll give you the straight scoop on everything from cellular monitoring antennas to the controversial "Electronic Communications Privacy Act."



SCANNER MASTER



Nationally recognized as the finest scanner/communications manuals ever published!

Not just frequencies, but 10-codes, unit designators, maps and descriptions of radio systems.

Massachusetts Guide -4th Edition

This 520-page monster edition is a complete revision of previous works. Fully typeset and easily legible, the guide has been called The Commonwealth's Public Safety & Radio Communications Handbook, as it was written with the assistance of nearly all state agencies! The new book has every business license, including trunked business radio, as well as our incredibly detailed public safety listings. Station identifiers, unit ID's, radio codes, PL tones, exact channel usage, roll call times and more are found in this edition, too. Super detail on the Metro Police's new 800 MHz system and how to monitor trunking is discussed. The Metro Radio System notification net is presented along with their new codes, and other media and buff nets are discussed. A great new feature is our town & fire department profile section included with over 200 communities. This section discusses all town features, including population, topography and utilities as well as FD apparatus, alarm responses, etc. A frequency sequence sort, new maps, a discussion of interagency microwave, military bases, and so much more! It's the culmination of 13 years of work. 520 pgs. \$29.95.

Massachusetts, Rhode Island & Southern New Hampshire Pocket Guide -3rd edition

Our shirt-pocket sized 3rd edition now includes Rhode Island and so. New Hampshire! Covers police, fire, ambulance and local government listings for each community: and presents a complete breakdown of all state agencies on-the-air. Updated news media list, military bases, buff nets, airports, malls, sports, Coast Guard, utilities, ham, railroads, intercity nets and much more. Filled with PL tones, Metro Radio System ten-codes are listed on the inside back page. 142 pgs. \$12.95.

Nat'l Highway Patrol Frequency Handbook

2nd edition radio guide to the State Police/Highway Patrol agencies around the nation. 118 pgs. \$9.95.

The Scanner Listener's Handbook

The guide to "How to hear more on your scanner." A great guided tour of the hobby. 132 pgs. \$14.95

Haruteq Ontario & Quebec Canada Guides

Public safety, business, ham & more. Indexed by frequency & city, with 10-codes, AM-FM, etc. Includes a fun helpful-hints section. \$16.95 each.

"Unquestionably the most professionally prepared scanner frequency directory in print..."

(referring to our Massachusetts Guide)

Bob Grove, Publisher

Monitoring Times

(September 1990 issue, page 36)

COMING SOON!!!

MONITOR AMERICA

the second edition

SCANNER MASTER

Metro D.C./Virginia Guide

the third edition

may be available by the time of this printing

Call or write for details or to have your name placed on our mailing list.

"This (Scanner Master New York Metro Guide) is probably the most well written, most professionally done directory I have ever received for review."

Bill Mauldin, General Editor

Radio Communications Monitoring Assoc.

(3rd ed. review. September 1988 issue, page 11)

ASK ABOUT OUR OTHER TITLES!

New York Metro Guide -4th edition

This brand new 560-page 4th edition of our New York Metro/Northern New Jersey Guide is the most complete, accurate and comprehensive scanner/communications manual published today. Having written radio guides for over 13 years, the Scanner Master editors are experts at providing exact listings of police, fire, EMS, highway department and interesting business radio frequencies. This New York Metro guide encompasses the northern half of New Jersey (Monmouth County on north), New York City, all of Long Island, and the northern counties up through Albany. (Counties new to this edition are: Albany, Columbia, Greene, Rensselaer & Schenectady.) 10-code, unit designator listings, police and fire station addresses, radio jargon, call signs, communications maps, charts and network explanations permeate this edition. Updated frequencies, new artwork, more counties with their histories - these are just some of the great features of the revised guide. PL tone codes for public safety agencies, data which can be found nowhere else is a new addition. With special frequencies listings for the news media, railroads, marine, airports, utilities, U.S. Gov't, ambulances as well as a frequency sequence sort, this New York Metro/Northern New Jersey Guide is a book that you'll read, not just refer to. \$29.95.

New York Business Radio Guide New Jersey Business Radio Guide

These new books cover: Railroads, Utilities, General Business, Special Industrial, Forestry, Trucking, Towing, Taxis, Buses, Motion Pictures, Manufacturers, Petroleum, GMRS and the like. This list though does not truly indicate the absolute GEMS of license information you'll find: casino channels, real estate and property management security, detective agencies, manufacturers, security outfits, REACT teams, hotels, malls, sports, and so much more. Each of the two editions covers all 30 through 512 MHz non-public safety licenses in their entire respective states. The New Jersey edition sorts its nearly 10,000 licenses by FREQUENCY, by COMMUNITY and by TRANSMITTER CITY. The New York edition, with its approximately 18,000 licenses, has sorts by FREQUENCY and by COMMUNITY. All listings include Frequency, Call Sign, Licensee Name, Licensee City, & Transmitter City. These guides are just shy of 200 pages, and are unbound, 3-hole punched for insertion into a binder (making possible future update sheets easy to add). \$24.95 each.

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what's new?

JRC NRD-535 Coming Soon

As reported in *MT* earlier, Japan Radio Corporation will shortly be releasing their new NRD-535 general coverage communications receiver. While earlier indications were that the new radio would be available in 1992, official JRC contacts assure us that early 1991 will be more likely. For the foreseeable future, the popular and luxurious NRD525 will remain on line.

As revealed by the accompanying photograph, the front panel styling of the new 535 is a radical departure from its predecessor. Special features include variable bandwidth control (BWC), exalted carrier selectable sideband (ECSS) and an internal RTTY demodulator with a 1 kHz filter for the four standard five-level Baudot codes.

Tuning from 100 kHz through 30 MHz, the 535 offers 200 memory channels and 70 MHz up-conversion to remove images. The triple-superheterodyne circuit has a frequency stability of 10 parts per million after warmup and excellent sensitivity along with wide dynamic range for outstanding signal handling capability.

Selectivity bandwidths (6 dB) of 12, 6, 2 and 1 kHz

are standard, and an AM phase lock detector reduces distortion from shortwave fading. Powered up from a standard 120 or 240 VAC source, provisions are made for 13.8 volt mobile installation as well.

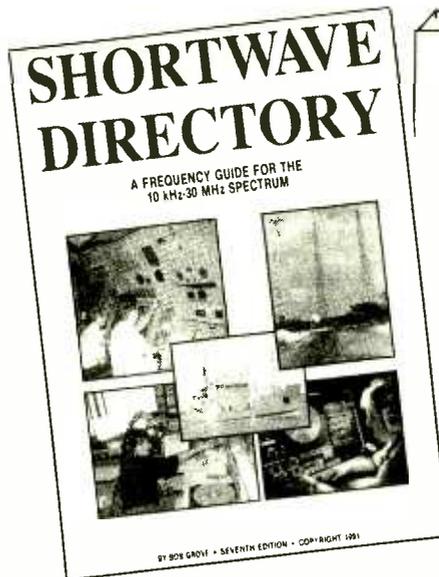
Look for the NRD-535 in the late spring, 1991, time frame with a price tag of under \$2000 from Grove Enterprises and other *MT* advertisers.

7th Edition Directory Released

Utility monitoring, while one of the potentially more exciting facets of radio monitoring, can be difficult. There are 30 MHz (10 kHz to 30 MHz) of radio spectrum to cover and dozens upon dozens of organizations occupying it. One of the best ways to clear away the smoke and dust is the *Shortwave Directory*, edited by *Monitoring Times* publisher Bob Grove.

The book's wide appeal is based on two things: its accuracy and its ease of use.

The new 7th edition of the *Shortwave Directory* is widely revised, bringing in new and updated information. At the same time, *SWD*



Monitoring the Military

retains a format that makes it easy for both beginner and expert to use. Arranged by agency, it takes no prior knowledge to ferret out the hottest frequencies for the Coast Guard or the FBI, for example.

Listings include U.S. and foreign Air Force, Navy, Coast Guard, Army, Energy and State departments, FBI and FCC networks, scientific installations, spies and smugglers, pirates, clandestines, emergency communications, aircraft, ships, NASA -- even a look at English broadcasts to the world.

All utility stations are cross-referenced by agency and frequency for rapid identification of those unknowns. An exhaustive glossary of terms is also included.

The 7th edition of the *Shortwave Directory* is almost 300 pages and retails for \$21.95. It is available now from your favorite radio bookseller.

Monitoring the Military

Monitoring the Military covers hundreds of military installations in the continental USA, including Army, Air Force, Navy, Marine Corps, Coast Guard and Air National Guard. It lists the

VHF/UHF (scanner) frequencies for each base and the usages of these frequencies, such as security, fire/crash trucks, aircraft maintenance, air traffic control, range frequencies, POL trucks, commanders nets, medical, diaster nets, and on and on.

There are over 10,000 verified frequencies and several thousand unverified ones, comprising what is probably the most accurate frequency reference for the military in civilian hands.

Also included is a ten-page tactical call sign identifier list, containing almost 600 tactical call signs. There is also a how-to-use section and a tips and techniques section which explain some of the usages of military freqs. Major units assigned to each base are also included as well as their physical location.

Monitoring the Military by Darryl Symington is \$16.95 plus \$1.55 book rate (\$2.80 UPS) shipping from DX Radio Supply, P.O. Box 360, Wagontown, PA 19376.

Amplified Extension Speaker

One of the most common complaints about radio monitoring





is audio. Granted, these signals aren't always sent with the intention of competing with hi-fi. However, a lot of the time, the mousy-little speakers that manufacturers include in their radios don't help either.

Grove Enterprises is now offering an amplified extension speaker that's designed to combat this problem. The Grove SP10 uses your radio's volume knob to set the speaker output.

Capable of delivering a powerful 10 watts when connected to the radio external speaker or ear-phone jack, the SP10 is rugged, yet small enough for under-dash mounting where it can be powered off the car's 12 volt system. (Order the SP10A for AC operation.)

The sleek, black, SP10 comes complete with a mounting bracket.

Get yours for just \$49.00 plus \$6.00 UPS from Grove Enterprises, P.O. Box 98, Brasstown, NC 28902 or call 1-704-837-9200.



GEO Test

Shortwave listeners smug about their knowledge of geography will be interested in a new board game called "On Assignment."

Players pretend that they are photographers for *National Geographic* magazine and are given assignments.

You may be able to determine your destination by the photo on the card. Or you may need to use the clues on the reverse. With the right response, the card goes into your portfolio.

The game board is gorgeous, as you might expect from *National Geographic*. And it's designed on three levels so that everyone can play.

OK. Some easy questions, taken from the game: (No peeking at the answers!)

1. What is the new name of Burma? (Myanmar)
2. In which two languages would you hear official business conducted in South Africa? (English and Afrikaans)
3. The musical "Evita" takes place mainly in which country? (Argentina)

On Assignment is also a game of chance so your knowledge will only take you so far.

It's a pretty decent way to learn about the

world and a good way to spend a few hours.

For more information on "On Assignment," write to National Geographic Society, P.O. Box 1640, Washington, DC 20077-9952. The price is \$27.95.



New SWR Analyzer for Shortwave

MFJ is now marketing an innovative SWR analyzer for shortwave -- a device that gives the radio hobbyist a complete picture of his antenna SWR over an entire band -- and without a transmitter, SWR meter or other equipment.

By using the MFJ-207, all you do is plug your antenna into the coax connector, set the '207 to the frequency you want, and read your SWR. It makes setting up and trimming your antenna precise and easy.

Actually, the MFJ-207 is several instruments in one. It has a low distortion RF generator that covers 10 to 160 meters, an SWR bridge that gives forward and reflected components, and a computing circuit that

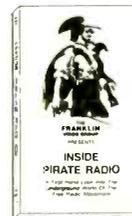
PIRATE RADIO ON VIDEO

INSIDE PIRATE RADIO is a first hand look into the underground world of the growing free radio movement.

In this video, you'll talk to author and Pirate Radio monitoring expert, Andrew Yoder, about when and where to listen, logging, QSL's, drop boxes and more.

Also, sit in the studio and talk with experienced Pirates about why they do it, programming, equipment and more. Then go into the field with them to broadcast!

Plus, a special bonus section: **How To Avoid the FCC if You Broadcast!**



INSIDE PIRATE RADIO retails for \$19.95 (VHS) including S/H. We offer a money back guarantee and accept Visa, MC, checks and UPS C.O.D. **\$19.95**

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Easy to find, accessible from New York City. Take Garden State Parkway (NE portion of N.J.), Exit 172. Gilfer is in the center of Park Ridge, opposite the Borough Hall. Store hours: M-F 10am-5pm, Sat. 10am-3pm.



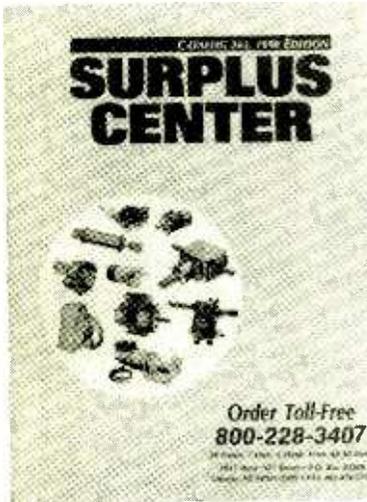
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automatically computes the SWR and displays it on the meter. Everything is automatic.

The '207 runs on a 9 volt battery or can be used with the optional 110 VAC converter.

For more information on the all-in-one SWR analyzer, contact MFJ at 601-323-5869 or write P.O. Box 494, Mississippi State, MS 39762.



Surplus for Your Radio

You never know when you're going to need that special something -- like a computer -- for around the shack. That's why it's always a good idea to keep a copy of the Surplus Center catalogue handy.

Say that you did need a computer. There on page 107 is their item 22-1085, a brand new personal computer for just \$29.95. How could you go wrong?

Perfect for the experimenter, it connects to any TV or outputs to a composite monitor. Using the BASIC language, it will run any program for TIMEX/SINCLAIR computers.

Those interested in exploring the world of computers but not willing to risk any

money on the journey, will find the item 22-1085 personal computer to fit the bill.

Of course there are hundreds of other items, ranging from speakers (\$1.79) to RF noise filters (\$3.95) to meters, lights, and more.

To get your copy of the Surplus Center catalogue, write to 1015 West "O" Street, P.O. Box 82209, Lincoln, Nebraska, 68501-2209 or call 1-800-228-3407.

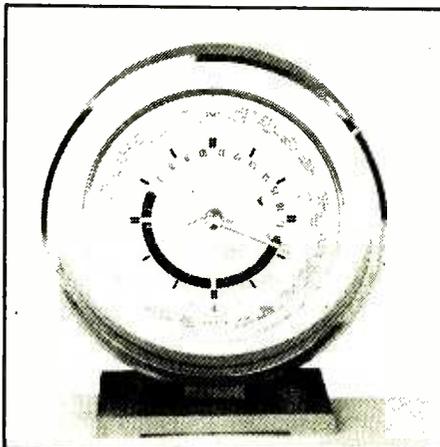
World Time Clock

A company called H & M Jewelry is now offering a world time clock for sale that allows users to read not only their own local time but also the time anywhere in the world -- without confusing conversions.

The names of 65 cities and countries are displayed around the periphery of the World Time Clock. The local hour at those cities is read by the number on the ring adjacent to the city or country name; the minutes after the hour are read from the minute hand.

The World Time Clock comes in a brushed goldtone metal case with a bright, polished faceted bezel and runs approximately one year on a single "C" cell. Overall height is nine inches.

The price is just \$79.95 plus \$5.00 shipping and



insurance.

For more information on this handsome and practical timepiece, contact H & M Jewelry Company, 26 Edgecomb Road, Binghamton, NY 13905 or call 607-797-5458.

Radio Shack: Comic Producer

Most people don't realize it, but Radio Shack is a major publisher of comic books.

The Texas-based company got into the business in 1978 in an effort to provide teachers with an educational tool aimed at elementary and middle school children. Since that time it has mailed out over 35 million copies.

In 1990 alone, more than 4.75 million copies have been distributed to educators, private civic organizations, summer camps, police departments and vocational schools. In one day, the company receives more than 4,500 requests totaling more than 528,000 comic books.

In past years there have been two versions, one

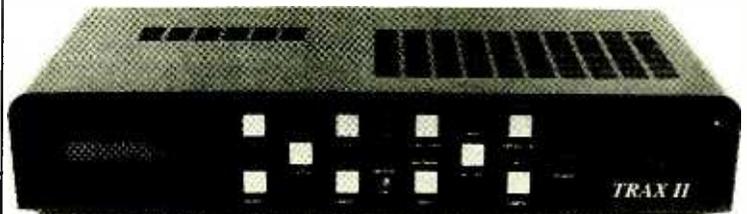
Crazy Birds

Not all satellites are easy to monitor. The fact is that all of satellite technology is vulnerable to the hazards of space. The most obvious is the satellite launch. One in twenty birds is lost at launch. Further, damage from jolts and misfirings of maneuver rockets send satellites to the wrong orbit or cause them to disappear into space.

A good example is GTE's 1988 launch of G Star A3, which ended up in the wrong orbit. GTE's engineers used its station-keeping fuel to move it to a geosynchronous orbit at 125 degrees west. It now has an inclined orbit which requires a tracking system to receive a continuous signal from the bird.

To receive a signal from an inclined satellite, an earth receiving station must continuously follow the figure 8 movement of the satellite. Without a tracking system, a signal may only be received for a few hours each day.

Astroguide, Inc. a LaSalle, Illinois firm, has solved this problem with the manufacture of the TRAX II auto tracking system for satellites in



featuring Archie and the other featuring the "Tandy Computer Whiz Kids." This year, both books will be combined into one.

For more information on how you can help distribute these fascinating comic books, contact Fran McGehee at Radio Shack, 1700 One Tandy Center, Fort Worth, Texas 76102.

inclined orbits.

The Astroguide Trax II interfaces with the consumer system receiver to continuously move the antenna to follow the movement of the unstable satellite as it drifts in and out of its best focal point in its geosynchronous orbit.

For more information on the TRAX II system, contact Astroguide at 815-224-2700.

Review:

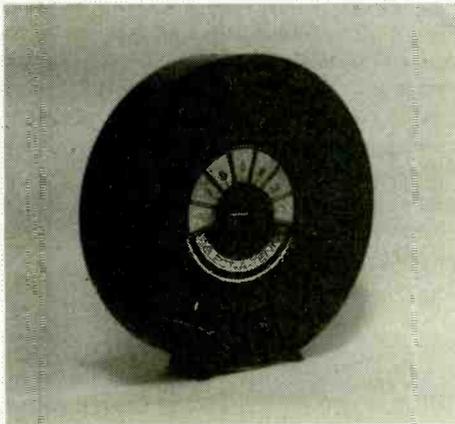
Select-A-Tenna

In the 1950s and '60s, when AM radio still had its allure, there were many products available to enhance reception on consumer-grade radios. But the inevitable saturation by TV has made the AM market a shadow of its former self, attracting few innovative products.

C. Crane Company (147 Watson Lane, Fortuna, CA 95540; phone 1-800-522-8863) still provides down-home service for this market. Owner Robert C. Crane offers the personal touches that set his mail order center out from the crowd. His literature is accompanied by helpful hints for better listening.

His equipment list includes scanners, AM/FM radios, antennas and shortwave portables. Crane's sales philosophy is to provide the best radio in a line and the best value in that line.

We had the opportunity to test one unusual product, the "Select-a-tenna," a tunable loop antenna for improved AM performance on desktop or portable AM radios with no external antenna

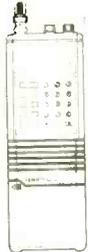


The Select-A-Tenna looks like an 11-inch-wide, brown plastic lazy Susan with a knob in the middle. Set on its edge, it is positioned alongside the radio where it becomes a frequency

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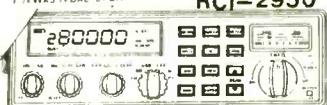
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BC200XLT
200 Channels, 12 band with aircraft & 800 MHz, 10 priority channels, channel lockout, scan delay, automatic search, illuminated LCD display, snap-on battery pack, programmable, track tuning, direct channel access, with AC adapter, leather carry case & earphone.

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NEW



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BC760XLT 100 channel 12 band base/mobile scanner with 800 MHz band & Service Scan Weather, Priority, Lockout, Scan delay, Search, Programmable, Track tuning, Direct ch access

TS2 75 channels, 12 bands, Turbo-Scan, bank scan, Accu-Seek, Private Priority, Instant weather, digital display. (29-30, 30-50, 50-54, 118-136, 136-144, 144-148, 148-175, 406-440, 440-450, 806-950MHz)

REGENCY

POLICE/FIRE SCANNERS

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BC-760XLT 100ch, 29-54, 118-174, 406-512, 806-952	\$289
BC-600XLT 100ch, 29-54, 118-174, 406-512, Service Search	\$229.00
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INF-5 Pre-Programmed, AC Only, Digital	\$99.00
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SHORTWAVE RADIO

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R-2000 150khz-30mhz, Digital, 10 Memories	\$649.00
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ICOM R-71A 100khz-30mhz, 32 Memories	\$849.00
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ICOM R-9000 100khz-2,000mhz, 1000 Memories	\$4795.00
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FRG-9600 60-905mhz, Continuous, 100 Memories	\$559.00
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GRUNDIG-500 1.6-30mhz, Memories, Scans	\$499.00
KENWOOD RZ-1 1mhz-905mhz, Continuous, 100 Memory	\$499.00
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AIR/POLICE/800 MHz

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adjustable, air-coupled RF transformer; there is no active (amplified) circuitry, so no power is required.

Does it work? You bet! We were astounded at how it brought weak, distant signals barely detectable on a tabletop portable up to excellent clarity, and the tuning is sharp as a razor!

Crane's price for the Select-A-Tenna is \$46.95 including shipping (See their ad on page 101).

CSRA Communications

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The Mail-Order Manual

I guess I was about seven or eight years old at the time. I think I first saw the deal on the back of a "Green Lantern" comic book. "Recreate the great battles of World War Two." "Two complete armies." "Over five hundred pieces." "Only \$1.98 plus postage and handling." The picture on the back of the comic book showed all the fun I would have.

Well, how could any red-blooded American kid resist a deal like this? I bugged my dad for several weeks to kick in a little on the old allowance so I could own "Two complete armies" and be the envy of every other kid on the block. Little did I know . . .

Four to six weeks later a teeny box came in the mail. What came in the mail was five hundred tiny, flat, almost featureless pieces of plastic that could barely stand up and looked small and wimpy against the standard "Green Army Men" we all grew up playing with.

Uh ... Uncle Skip, Radio stuff, remember?

Well, hey, I got ripped off, right? Who in the world would set up a scam to burn little kids out of their hard-earned allowance?

The point, Uncle Skip?

The point is most of us can point back to the time when we have shopped via mail order with less than successful results. Mail order shopping is particularly important to radio enthusiasts because most of us can't simply pop down to the neighborhood Shortwave Store to pick up a five pound bag of DX. This can keep a beginner up nights.

Think of it. You have just begun to understand the hobby and you are about to

trust your hard-earned dollars to some character to send you, sight unseen, a receiver that will be your primary DX tool for the next several years. You find yourself asking questions. Were the pictures in the catalog accurate? Will the equipment be shipped safely? *Did I get a good price?*

And if you have had a few experiences where you got "Two complete armies" instead of what you thought you had ordered, you may not want to shop by mail order at all.

So of course, we simply have to segue into ...

UNCLE SKIP'S GUIDE TO MAIL ORDER

Let's start out with a little good news. The radio monitoring hobby is growing by leaps and bounds. It is becoming an increasingly important segment of the consumer electronics industry. This benefits the consumer in that it creates a highly competitive mail-order industry.

If you look through the pages of *Monitoring Times*, it is fairly easy to see that you can deal with half a dozen firms when seeking out a receiver. If any one of these companies were to slip in the quality of equipment and service to the customer which they provided, they would quickly fall by the wayside. Word gets around remarkably fast when half the folks involved have amateur radios.

Also, as you begin to deal with the dealers in the radio monitoring world, you find that many of these entrepreneurs are also dedicated hobbyists just like yourself.

With this said, let's take a look at some guidelines for mail-order shopping that will help make this practice a pleasure.

Catalog Collections

Uncle Skip's first rule of radio purchasing is: *You can never have enough catalogs.* Search through the ads in *MT* and send for the catalogs and price sheets of any of the advertisers that are offering equipment you may be interested in. Don't forget to tell them you saw their ad in *Monitoring Times*. (This helps companies decide where to spend their advertising

dollars.) Within a few days your mailbox will be filled to the gills with books chock full of radio gear ranging from modest to unobtainable.

Now go find a nice comfortable place to sit that has good lighting and read read read read READ. Cover to cover, folks, not just the stuff you are interested in. You will learn a great deal about the radio hobby this way. You will also run across a few things that will need further explaining, but this is also part of the learning process. Besides, grokking catalogs is a blast.

After you have digested the stack, you can narrow your vision to the equipment you have in mind. You may even discover that your in-depth read has turned up a few more interesting possibilities than you initially planned on. At this point you can start to take note of the prices.

Since competition runs high, you will probably find that most of the vendors' prices are in the same ball park. Or are they? Whenever you are dealing in the mail environment, you have to take into the account the policies and procedures of the companies that you intend to work with. The full cost of purchasing from a company must factor in all the details of each considered company's ordering, shipping, servicing, warranty and return policies.

Ordering

Every company's catalog will have a page in it that lists the company's ordering policies. The first thing you will probably want to check out will be the methods of payment that the firm will accept. Most will want to deal in plastic. Determine which credit cards the company will accept -- Visa, Mastercard, Amex, Discover, etc.

If you are not a slave to those cards in your wallet like the rest of us, you will find that most companies will entertain a purchase made with a money order or cashier's check. If a company accepts personal checks -- and many do not -- you will find your order may be delayed in shipping by 10 days or more because it is most likely that the firm will wait for your check to clear with the bank.

Some people prefer to shop C.O.D. (Cash On Delivery). If you choose to go this route, you need to check to see if the company in question will ship via this method and what charges this system will add to your overall cost.

Don't forget that some outfits will have a minimum order amount or may apply a minimum order amount to credit card purchases or certain shipping methods.

Need I say . . . *never never never never send cash.*

Also, give some thought to how you can place your order. Phone ordering is helpful because you can usually get to talk with



Expensive piece of mail-order equipment or peace of mind? Uncle Skip says it is possible to have both!

someone who can give you an idea of shipping times, back order information and other useful stuff. Make sure you have your catalog handy so you can give exact product information and product order numbers to the Customer Service Representative; it makes everybody's day go better. Many consumer advocates recommend that you confirm phone orders with a follow-up letter or fax.

If you are sending your order in by mail or fax, request that you be notified if any items you have ordered are out of stock. This is often helpful information. If a particular item is out of stock you may choose to find it somewhere else.

Shipping

Most modern mail order businesses are set up to utilize several shipping modalities. They may, however, charge significantly different rates for each of these shipping methods. Some methods will also require you to kick in a little extra for insurance so you are going to really want to pay attention to detail. It's those extra charges below the subtotal on the order sheet that empty your bank account.

When you're really eager for something to arrive, even next-day air will seem like a slow boat from China. Alas, all things take time. But you are most definitely going to want to establish just how much time a shipment is going to take. Don't forget that, in most cases, speed can cost money. Only you and your pocketbook can decide if "Next Day" services are worth the additional cost.

Don't forget, only the United States Postal Service can send something to a post office box. Other shipping companies -- United Parcel Service, Federal Express, Purolator -- are going to require a full shipping address. If you don't do this, your post office box will contain a post card that says, "Come and get it, pal."

Warranties

Most electronic devices come with some sort of warranty on parts and service. Many companies also offer warranties over and above those established by the manufacturer. Know your warranty guarantees before you make your purchase. Also, you will want to find out if the company you are dealing with is also an authorized warranty service repair center for the product you plan to buy. If they are not, your only recourse for warranty service will be with the manufacturer.

Some vendors will offer outstanding modifications and improvements to receivers. If you are looking into one of these rigs, make sure you get a written statement about how these modifications affect any warranty issued by the manufacturer.

Servicing

It is helpful to find out if your dealer will also service what they sell after the warranty has expired. The reason this is useful knowledge, besides knowing where you can get your rig fixed, is that operations with service centers tend to be a little more in touch with the hardware and can usually give you excellent technical advice before and after any purchase. If you are dealing with a company that is offering some form of "service contract" to extend the manufacturer's warranty, make sure you take the time to determine if it is really worth the additional expense.

Return Policy

No company can stay in business for very long if it does not stand behind its product line. If you spend good money on a radio and didn't get what you wanted, or if you receive something damaged in shipping, you have every right to return this merchandise.

However, the firm you are dealing with will likely have a few simple expectations surrounding returns. Many companies want you to contact them prior to returning your merchandise to obtain a return

Sophisticated Monitoring

UNIVERSAL M-7000



If you are monitoring only voice shortwave stations, you are missing half the action! Thousands of shortwave stations transmit in non-voice modes such as Morse code, various forms of radioteletype and FAX. The Universal M-7000 will permit you to easily intercept and decode these transmissions. This is the most sophisticated surveillance decoder available. No computer is required. See the world of shortwave excitement you have been missing.

UNIVERSAL M-900

For those desiring to copy the basic modes (Morse code, Baudot, Sitor A/B and FAX), we suggest the affordable M-900. From \$499.95

Huge Communications Catalog

The new Universal 92 page communications catalog covers everything that is new for the amateur, shortwave listener and scanner enthusiast. Equipment, antennas, books and accessories are all shown with prices. Available for \$1 postpaid.

Universal Radio
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Reynoldsburg, OH 43068
☐ Toll Free: 800 431-3939
☐ In Ohio: 614 866-4267

Universal has been serving radio enthusiasts since 1942. Visit our large showroom east of Columbus, Ohio.

authorization number. This helps them to process your return more quickly. Most companies will expect all merchandise to be returned to them in "as shipped" condition. This means that the item should be packed in its original container with its original packing materials and warranty cards.

If your product is being shipped via a company such as UPS and it arrives in obviously damaged condition, you have the right to refuse the shipment from the driver. However, if this happens to you, contact the supplier for advice as well.

If you return an item for refund, many companies will charge you between 10 percent and 15 percent restocking fee.

As stated at the outset, most of these facts can be found in the company's catalog. If you have any questions at all, do not hesitate to contact the firm and clear the air.

One last point that may be helpful to the beginner. The consumer electronics world moves fast. Companies sometimes come and go overnight. You will do well to take your business to established firms whenever possible. This is not to discourage your trading with any new kids on the block. This is simply good sense if you are looking for service and support after the sale. If you are dealing with a relatively new company, try to stick to folks who have operated under the same name and from the same place for at least a year.

Even though this is a hobby that keeps most of us down in our basements for extended periods of time, we do on occasion associate with one another at get togethers and radio conventions. When you show up at these events, you can usually find somebody who has dealt with most any of the major mail order houses in radio land. Ask around. These personal testimonies may just steer you toward a company or two you have not previously considered.

I hope you don't have to stand by the mailbox for too long, Compadre.



The Federal Government in Paradise

"I have a great receiver, an R-7000. I even have a good antenna. But in the 225 to 400 MHz range, I hear very little in the way of military communications and no satellites. What's going on?"

This is a common question and the person who wrote it has followed two of the three main rules of federal monitoring. First, get the best receiver that you can afford. Second, get the best antenna that you can afford. Third -- and here is where most people make their mistake -- get the best feedline that you can afford.

Most folks get their new rig and antenna in, then run down to the nearest radio store and pull a hank of the cheapest coax they can find off the spool. My heart skips a beat at the very thought.

By using cheap coax and connectors, you have effectively thrown away half or better of the signal at the UHF frequencies. Since you have spent all that money on a nice receiver and antenna, spend a little more to get some good feedline.

I usually recommend a good Belden coax if you can afford it, or prowl your local hamfest for a good deal. Hardline coax works extremely well. If you have a specific frequency area you plan to monitor (i.e. 240 to 270 MHz military satellites), you might want to get a low noise gasfet preamp for that range. Again, you are dealing with weak UHF signals and you want as much of that signal to the antenna as possible.

Federal Monitoring in Paradise

Yes, to many the Hawaiian Islands is paradise, and it sure is pretty out there. I have been fortunate to spend some time on the island of Oahu and several of the other islands in the chain. The airwaves here are filled with federal communications.

Well, we now have a reporter to this column from Oahu. That is the island where Honolulu is. His name is Rodney Souza. And while most of his list fits nicely in Bob Kay's column, a few of his frequencies fall into our domain.

US AIR FORCE MARS	148.350	STATEWIDE
CIVIL AIR PATROL	148.150	STATEWIDE
MT. HALEAKALA RANGERS	169.550	
U.S. COAST GUARD DISTRESS	156.800	MARINE CHANNEL 16
RESCUE AIRCRAFT/SHIPS	157.150	
ADVISORIES	157.100	
ARMY MAST (MEDEVAC IN OAHU)	36.50	
MILITARY OPS	32.450	SPECIAL OPS -- PEARL HARBOR

Thanks for the list, Rodney. Rodney is also looking for Air Force, Navy and Hawaiian Air Guard channels for the islands.

Well, Rodney, you have come to the right place, your wish is our command.

US Air Force Hickam AFB, Oahu

139.650	FACILITY OPS
139.750	RECOVERY OPS
139.770	FLIGHT OPS (DOE)
139.950	TRAINING RECOVERY COMMAND
141.680	FLIGHT OPS (DOE)
141.800	CONSOLIDATED COMMAND POST
228.800	FACILITY OPS
235.400	TACTICAL COMMS
250.900	SURVIVAL TRAIN
252.800	AIR RESCUE TRAINING
253.400	SURVIVAL TRAIN
259.700	TACTICAL COMMS
261.700	MAINTENANCE CTL
282.800	SEARCH AND RESCUE OPS

292.500	RECOVERY OPS
293.000	FLIGHT OPS (DOE)
293.700	154CG OPS/CP
296.800	TACTICAL COMMS
300.600	RECOVERY OPS
305.400	DIRECTION FINDING OPS
311.000	SAC CP-PRIMARY
315.100	FLIGHT OPS (DOE)
327.400	HI ANG-TAC COMM
337.400	HI ANG COMMAND/CONTROL
339.200	15ABW OPS CENTER
344.600	HICKAM METRO: WEATHER
349.400	MAC CP/TONIGHT
354.200	HI ANG GCI COMMS
273.200	PILOT-TO-DISPATCH
372.300	HICKAM METRO: WEATHER
374.900	HICKAM ATIS
396.900	AIR TRAFFIC CONTROL COMMS



Pearl Harbor, HI -- US Navy

25.410 (air to ground comms), 32.05, 38.36, 138.550, 138.600, 138.370, 138.775, 138.975, 140.040, 140.075 (NIS), 140.100 (base fire), 140.125, 140.220, 140.300, 140.350, 140.520, 140.575, 140.700, 140.775, 140.800, 140.825, 140.975, 141.000, 141.950, 142.020, 142.100, 142.500, 143.550, 148.325 (probably navy MARS), 148.905, 149.125, 150.150, 233.8 (tactical comms), 301.3 (tactical comms), 309.0, 328.2, 340.3, 353.0, 383.6 (tactical comms)

Hawaiian Air National Guard

In addition to the Hawaii Air National Guard frequencies listed under Hickam, the following bases have ANG activity and frequencies.

Kohee:

Tac Comms - 354.2, 264.8, 271.2, 279.8, 283.0, 303.8, 358.2, 361.7

Kaala:

271.2 (GCI), 275.9 (Air/Ground Ops Ctl), 283.0, 288.2, 358.2, 364.2

Well, folks, that about does it for Hawaii. Anybody else out there in the Hawaii area have some lists? I would like to print them up here. Hawaii gets a lot of tourists to the islands and I am sure more than a few travel with scanners so, folks, let's try to put together a list for the islands.

Let's move east to the mainland

Back here on the mainland, Philip in Vancouver, Washington, has provided some interesting frequencies for his neck of the woods. Philip uses a Grove Scanner Beam and Radio Shack Discone (same here, Philip-Rod) and Radio Shack Pro 2001, 2004 and Regency MX-7000 scanners.

Now on with Philip's look at the Pacific Northwest: *(asterisk indicates you need to watch this one, Philip, I have no idea.-Rod)*

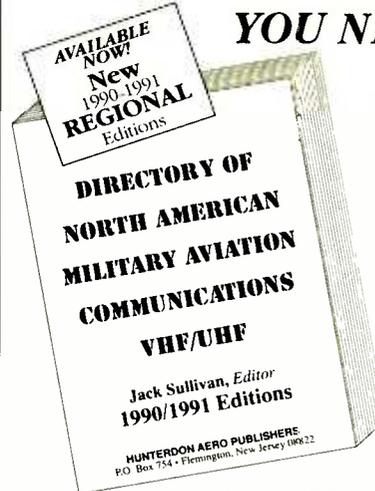
30.45 *		Bearcreek, 3 Delta calling range control
34.60	Fl. Lewis	Flight Following Centr: Bulleye Radio
36.70		3-letter coded groups (Interesting. Probably Yakima Firing Cntr-Rod)
38.90		"You are on range control frequency" (Probably Roberts AAF, CA-Rod)
165.0125	Portland	ANG
227.850 *		(weak)
235.900	Bigfoot	NORAD: WOLF refueling A/C, also tactical
238.900		Unid A/C (Pri air refueling chnl-Rod)
239.300	Hillsboro	Control tower
241.000		Army airfield UHF common (weak)

241.150 * (weak)
 252.000 Bigfoot NORAD: IDs as ch 9, tactical
 252.800 Portland ANG -- Guadle 1/2, Janice, Bulton (?-Rod)
 253.400 McChord AFB IDs as ch 1, tactical
 255.400 Portland FSS: Blue Angel 4, Navy 227, Lizard 7, Army 01194
 257.600 Seattle Center ARTCC: Janice, Phoenix 12/20
 261.575 Hawaii (satellite) Bigboy 2 w/Australia coordinating a general's visit
 261.900 Kingsley Field Pilot to maintenance channel
 266.000 Nationwide PACCS SAC channel: 66 Xray
 267.500 * Base 905, the mission was a success
 269.000 Seattle Center ARTCC: 2010, Expo 93
 271.000 McChord AFB (NORAD: A/G Comms on AR-717A/B-Rod)
 277.350 Bigfoot NORAD:
 280.500 350, I'm 15 minutes out. (Probably or ANG Safety of flight channel in Portland-Rod)
 281.500 (Probably ARTCC Angels Camp remote-Rod)
 282.600 Bigfoot NORAD: Tactical (many aircraft)
 282.800 Astoria USCG on SAR mission
 288.900 Portland ANG, Fox 5, 960129, Expo 93 (maybe ch 5)
 290.300 Portland Lucky 1, Jingles 1 (Departure control-Rod)
 293.600 Bigfoot NORAD: Puppy 2, Bulton 6 go to 317.6 Seattle Ctr
 294.700 Bigfoot Eagle 1, 75 Tango (listed App Ctl-Rod)
 295.400 (SAC Air Refueling primary channel-Rod)
 295.800 (SAC Air Refueling primary channel-Rod)
 298.300 Portland Maintenance, Grunt 1, Baker 3 (142 FIG ANG OPS-Rod)
 299.200 Portland Salt 1, Cougar 6 (Departure Ctl-Rod)
 315.600 *
 317.600 Portland Bulton 5 (ARTCC-Low Alt discrete-Rod)
 342.500 McChord AFB "G61 I'm a KC135 130 miles south of you"; "Cato 87, I'm a C-135 going to Beale"; "Cherokee 16 is E3B A/C 70 miles south of you" (This is McChord Metro-Rod)
 343.500 Bigfoot Refueling, Fox 1/2, Shunk 1/2, Front 1, Grunt 1 (Air refueling channel-Rod)
 348.600 Portland 1071 Mike (Airport Ground Ctl-Rod)
 349.100 Portland ANG (Tactical/Training Comms-Rod)
 349.400 McChord AFB MAC Command Post, MAC 59398, MAC 0004, Navy UR495 (female)
 353.525 Bigfoot NORAD: Wolf refueling aircraft
 355.200 Bigfoot NORAD:
 360.800 Portland Eagle 6 (Approach Ctl-Rod)
 364.200 Bigfoot NORAD: SF644, DX72 go to 260./39 (???)
 372.200 Bigfoot Dispatch, RX756-I have 37 passengers to debark (USAF Pilot-to-dispatcher-Rod)
 381.800 Astoria USCG on SAR mission
 386.000 Bigfoot NORAD: Tactical
 397.800 McChord AFB (weak) (NORAD channel-Rod)
 415.700 Crown AF1 calling Swift, then Swan (Secret Service Echo/Foxtrt combo, check 407.850 Echo for the uplink-Rod)

Other federal:

162.7625 Portland FBI, Keys simultaneously w/163.7625, 163.8375/-8875. Input is 167.4375
 163.200 Portland US Marshall svc transporting prisoners
 163.4375 Portland Dredge Aquina w/WJJ3
 163.4875 Portland Police 1, Police 7 (Image?-Rod)
 163.5375 Portland
 163.625 Portland This is a strange one, calling Southern Pacific 799, 742, 703 etc (Image?-Rod)
 163.750 Portland FBI (This might be INS-Rod)
 163.7625 Portland FBI input is 167.4375, Voice ID is KEX720 Simo w/162.7625, 163.8375/8875 (This is their main channel)
 163.8375 Portland FBI simo w/above
 163.8625 Portland Input is 167.5375, Everybody IDs by first name
 163.875 Portland FBI: DES only
 163.8875 Portland FBI: see 163.7625
 163.925 Portland FBI: Input is 167.740, Voice ID KEX720, CW ID AST725, Ch1 is Alfa 1. This was main channel till DES arrived
 163.9625 Olympia FBI: Voice ID KOD220, Input is 167.465
 163.975 Portland FBI: Voice ID KEX720, CW IC AST720, Channel is Alfa 7, Input is 167.7625. Usually announces night status at 1700 local.
 164.000 "This is 660, I'm going to Portland"
 164.650 Portland Secret Service, used DES when Bush in Portland (SS channel Tango-Rod)
 164.700 Portland Same as above c/s KJS961 (Interesting-Rod)
 164.850
 164.9875 VA Hospital Pager
 165.0875 (weak) May be forest ranger control post
 165/1625 Whiskey 5 calling
 165.185
 165.2375 (Customs) Calls in a/c NRs from Pearson airfield in Vancouver

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165.2875 Portland ATF: (pretty quiet frequency)
 165.375 Secret Service: Portland Base for Bush, (SS channel Charlie-Rod)
 165.950 Portland IRS: c/s 77, C9, Jay
 165.975 "Koleva KSO4 . . . calling"
 166.2125 Secret Service: Channel Hotel
 166.410 Computer Data
 167.4125 Portland Chnl Alfa 7, Input to 163.750
 167.4375 Portland Input to 163.7625
 167.4625 Olympia Input to 163.9625, Also wkg Seattle
 167.475
 167.4875
 167.5375 Portland Input to 163.8625
 167.740 Portland Input to 163.925
 167.7625 Portland Input to 163.975
 168.000 VA maintenance, c/s KES380
 168.175 Phone conversation to Bravo 6
 168.325 C/S 469
 168.500 Post office
 408.825 Portland FAA
 409.025 Portland FAA
 414.100 Portland FBI CW ID AST725, Channel Alfa 3. Keyed into 163.925 (prior to DES) (FBI link-Rod)
 414.175 Portland FBI CW ID AST722 and AST728, Keyed into 163.925 (Prior to DES) (FBI link-Rod)
 414.325 Portland Also keyed into 167.4875 (prior to DES) (FBI link-Rod)
 414.750 Portland Postal Inspectors, Also used for telephone, Believe channel ID is EC1.
 417.200 Portland C/S KPA963, Also Seattle W/C/S KCA966
 418.700 Oregon DEA: Not much activity
 418.750 WA/Oregon DEA: C/S 12, 15, 17, 106, 109, Fling 611, Portland 12
 418.900 WA/Oregon DEA: C/S 11, 12, 13, 18, Flint 611, Blaine 01
 419.175 Portland Input to 417.2
 419.975 CW ID KES 380

Thanks a bunch for the list, Philip. I have added some comments to help sort through the list. I really appreciate the time you have spent submitting this material.



LDOC Stations

As often as space permits, we like to present specific information and frequencies concerning different types of stations (airborne and ground) which can be heard on the shortwave and VHF aero bands. This month, we offer some frequencies for those of our readers who enjoy monitoring shortwave LDOC stations. Listed below are ground stations which are relatively easy to hear in most parts of the world because of their multiple frequencies:

■ Identifying as "Speedbird London," the company station of British Airways works their own flights as well as those of a few other airlines. They can be heard on 5535, 8821, 10072 and 13333.

■ Houston Universal Radio (Universal Weather and Aviation Services) can be monitored on 6637, 10075, 13330, 17940 and 21964. Utilized by many airlines and companies who fly executive jets, they are a contract service and charge according to the number of contacts an airline or biz jet pilot makes with them per month.

■ Portishead Radio (England): 3482 5610 8170 8185, 8960 11306 12133 17405 18210 19510 20065

■ Stockholm Radio: 5541 8930 11345 10066 13342 17916 23210

■ Rainbow Radio: 3378 5604 8819 13285 13420 17910.

VOLMETS

The mention of VOLMETs in a previous column sparked quite an interest with many of our readers. We've received a lot of letters requesting VOLMET frequencies and an explanation of what VOLMET stations actually are. "Plane Talk" aims to please, so here we go:

VOLMET is a contraction of the French for "flying weather." These stations broadcast airport forecasts for designated parts of the world at specific times each hour. In most cases, you'll find that several stations in the same general area of the world will share a frequency or frequencies.

Just as it's used for most other types of aviation communications, English is also utilized for 90 percent of the world's VOLMET broadcasts. Transmission mode is upper sideband (USB). Our VOLMET list shows the broadcast schedule in minutes past the hour (H+) and in sequence. Incidentally, the abbreviation "intl" used after certain cities is short for "international."

NORTH ATLANTIC (NAT): 3485, 6604, 10051, 13270

GANDER AERADIO: H+20, H+30, H+50, H+60
NEW YORK RADIO: H+00, H+30 -- Detroit.

Chicago, Cleveland, Niagara Falls, Milwaukee, Indianapolis

NEW YORK RADIO: H+15 -- Bermuda, Miami, Nassau, Freeport, Tampa, West Palm Beach

NEW YORK RADIO: H+05, H+35 -- Bangor, Pittsburgh, Windsor Locks, St. Louis, Syracuse, Minneapolis

NEW YORK RADIO: H+10, H+40 -- New York, Newark, Boston, Baltimore, Philadelphia, Washington D.C.

SHANNON AERADIO (EUR): 3413, 5640 (night), 8957, 13264 (day)

H+00, H+25, H+30, H+55 -- Shannon, Madrid, Prestwick, London-Heathrow, Amsterdam, Oslo, Copenhagen, Athens, Paris

EUROPE (EUR): 2998, 6580, 11387

BEN GURION RADIO (TEL AVIV): H+05, H+35 -- Tel Aviv/Ben Gurion, Haifa/Ramat David, Elat, Jerusalem, Larnaca, Athens, Ankara/Esenboga, Istanbul/Yesilkoy

SOFIA, BULGARIA: 11273 (same times as above)
PRAGUE VOLMET-OKL: H+15, H+45 -- Prague, Bratislava, Brno, Wien, Munich, Berlin, Warsaw, Moscow, Budapest

SOUTHEAST ASIA (SEA): 2965, 6676, 11387

SYDNEY VOLMET: H+00, H+30 -- Sydney/Kings-ton Smith, Brisbane, Melbourne, Adelaide, Alice Springs, Brisbane, Perth

CALCUTTA RADIO: H+05, H+35 -- Calcutta, Bombay, Delhi, Dhaka/Tezgaon, Mingaladon

BANGKOK: H+10, H+40 -- Bangkok Intl, Mingaladon, Tan Son Nhut, Kuala Lumpur Intl, Singapore Changi/Paya, Lebar, U-Tapeo

PACIFIC REGION (PAC): 2863, 6679, 8828, 13282

HONOLULU RADIO: H+00, H+30 -- Hickam AFB/ Honolulu Intl, Gen. Lyman Field/Hilo, Agana (Guam), Kahuli

HONOLULU RADIO: H+05, H+35 -- San Francisco, Los Angeles, Seattle/Tacoma, Portland, Sacramento Metro, Ontario (CA), Las Vegas

HONOLULU RADIO: H+25, H+55 -- Anchorage, Fairbanks, Cold Bay, King Salmon, Sheyma, Anchorage, Vancouver

TOKYO RADIO: H+10, H+40 -- New Tokyo-Narita Intl, Tokyo Intl, Haneda, Chitose, Nagoya, Osaka Intl, Fukuoka, Kimpo Intl

HONG KONG RADIO: H+15, H+45 -- Kai Tak, Guang Zhou/Baiyan, Chaing Kai Shek Intl, Manila Intl, Naha, Kaohsiung Intl, Mactan Intl, Hong Kong-Kai Tak.

AUCKLAND VOLMET: H+20, H+50 -- Auckland, Christchurch, Wellington, Nandi, Noumean/La Tontouta, Pago-Pago, Tahiti

Okay, these should keep the VOLMET hunters busy for a while. We'll list some more VOLMET frequencies in our next column.

Readers' Corner

■ Bill Battles (NH) contributes the photo of the EC-135 (Looking Glass) aircraft which was on display at Pease Air Force Base. In addition, he reports on the *Directory of North American Military Aviation VHF/UHF*. Bill says that this guide is without question the best frequency directory he's ever seen.

Published in regional editions, each contains a state-by-state listing of frequencies, as well as a nationwide list of common



frequencies and a numerical-by-frequency section so that the reader can look up frequencies found at random. Other sections found in this book include a map of SAC bases in the US, a fuel route map for aerial refueling tracks throughout the country, scan-search ranges, a glossary of terms and other aids for the military aero comms buff.

This book is available from DX Radio Supply (P.O. Box 360, Wagontown, PA 19376) or Grove Enterprises for \$14.95 plus 1.55 book rate or 2.80 UPS shipping. Since the books are produced by region, please specify whether you want the Northeastern, Southeastern, Central, or Western U.S. book.

Bill adds that he's found a bunch of new VHF/UHF military frequencies from the *Directory* including a really great one for MAC flights -- 319.4, which is a nationwide calling frequency for A/C to MAC command posts.

■ While on a business trip to Dallas, Eric Rench, California, also had time to do some VHF aero comms monitoring. He used a Pro 2004 in his motel room and a Uniden 200 in the field. He reports that Love Field is mostly utilized by biz jets and general aviation aircraft and the only commercial airline still flying into this airport is Southwest. However, during the peak hours they have a flight landing and taking off just about every five minutes.

But DFW is where the action is as far as the commercial airliners are concerned. Frequencies to monitor include:

- ATIS (arrivals) - 117.0 and 134.90
- ATIS (departing) - 135.50
- Tower (east) - 126.55
- Tower (west) - 124.15
- Ground (east) - 121.65
- Ground (west) - 121.80
- Clearance delivery - 128.25 and 127.50
- Fire, emergency and medical - 453.05
- Airport maintenance - 453.225
- Airport operations - 453.80
- Airport police - 460.35

The one thing that really impressed Eric was the extreme informality of communications. He relates, "You'd think that at an airport of this size the conversation would be very structured, terse, etc. No way! There was lots of pilot chit-chat about the airplanes, passengers, heat and so on, while the aircraft

were still on the ground. Most of these conversations took place over ground control frequencies.

"The best one I monitored was between a commercial airlines pilot (the airline company name has been deleted to protect the guilty) and the (west) ground controller. Ground control asked the pilot if he would do her a favor. The pilot replied in the affirmative.

"When you land at Phoenix,' asked the ground controller, 'would you say hello to a friend of mine who works at the tower there?' He said he would.

"The controller at Dallas-Fort Worth giggled and thanked him -- then added that Joan would show him a real good time. The pilot's reply to this was 'oooh la-la,' which was followed by the catcalls of other pilots.

"What's interesting about all of this is that the conversation actually occurred after the pilot had received his departure instructions from clearance delivery and was in the process of taxiing to the runway for takeoff. This happened at DFW, one of the nation's busiest airports. This stuff is funny at a rural UNICOM, but at DFW?"

Well, Eric, readers have told me about a lot of unusual aero communications but yours tops everything I've received so far. I'm not too surprised at what you heard. Nowadays, it seems that there's a more relaxed atmosphere at just about every airport and enroute center

-- size of the facility not being a factor. Of course, it also depends a lot on the shift boss and just how tight a ship he/she runs.

However, if an FAA official had been listening to the young lady controller in question, she would have been dead meat -- that I can guarantee you. Has anyone else heard anything like the above at your local airport?

■ English is the international language of aviation operations, but the differences in pronunciation, voice quality and terminology can pose serious safety hazards to flights operating internationally. Especially vulnerable to misunderstanding (in any country) are flight crew/controller/a/g radio operator communications that deviate from standard "handbook" English as well as from the ICAO Lexicon that is supposed to be in usage by ICAO member countries.

However, as aero comms monitors, we've heard transmissions in which either the pilot or the controller had to repeat himself many times and/or quickly correct an incorrect readback because the "English" or phraseology that was used wasn't clearly understood by one or the other party.

As an example, an airline captain who flies internationally reports that on one trip in a far eastern country he was cleared by Tower to position and effect immediate release for

takeoff. He, as pilot in command of flight, taxied into position on runway 14. As the airliner arrived at the center of the runway, the pilot spotted a light plane on final about two miles out. He asked if the light plane was going around (not attempting a landing) and the tower controller answered yes.

The controller then said that the airliner was not cleared on the runway. The first officer replied that they were given position and hold, as the captain thought he did and acknowledged. But the tower controller said no, they were not, that they don't use that phraseology. They were supposed to hold position, not the opposite, and the term utilized in that country for taxiing into position and holding was to "line up on the runway."

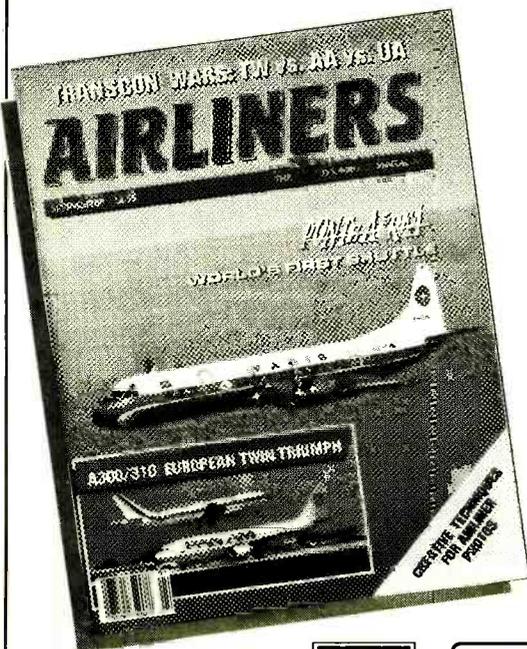
The captain concluded his description of this incident by saying that because of the difference in phraseology, a serious situation could have occurred. That, friends, is the understatement of the year.

That's it for now. Coming up, a look at VHF aero communications from a pilot's point of view contributed by a guest writer. We'll visit the Flight Operations at American Trans Air, wind shear problems, more VOLMETS and lots of contributions from readers.

Until then, 73 and out.



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The Battle of the Bands

Once every few years, government communications officials from all over the world get together to sort out the radio spectrum. "Let's see," they mumble to one another, "the international broadcasters are complaining that they need more frequencies. Hmm. The hams seem weak right now. Let's take some of their frequencies and give them to the broadcasters."

Clearly, when these people meet (in what are known as World Administrative Radio Conferences or "WARC"), there can be big winners and big losers. The radio spectrum is a precious commodity. There are only so many radio frequencies available and it seems that nowadays, everybody and their brother has their hands in the frequency grab bag.

At first glance, it may sound a little premature to be worrying about WARC since the next meeting isn't scheduled to convene until February of 1992. However, the signatory nations of the International Telecommunication Union, the organization from which WARC delegates are drawn, consider these meetings to be very important and will spend literally years developing the policies that they will take with them to the WARC.

A few weeks ago, for example, the U.S. Federal Communications Commission (FCC) released a document detailing the approach it plans to take in '92. It is officially entitled *Second Notice of Inquiry (NOI) Relating to Preparation for the International Telecommunication Union World Administrative Radio*

Conference, for Dealing with Frequency Allocations in Certain Parts of the Spectrum. For the sake of brevity (not to mention humor), detractors refer to the intimidating document as "SNOIRTPFTITUWARCFDW-FAICPOTS."

The NOI reportedly runs some 150 pages and addresses three areas that can greatly impact on amateur radio in the United States. Ham radio operators could lose space in the 40 meter ham band (shortwave), plus allocations at 420 MHz and 2.4 GHz. A fourth issue, concerning the need for 900 MHz spectrum to accommodate emerging wireless personal communications equipment, could hurt ham holdings between 902 and 928 MHz.

All of this started when the international broadcasters began to ask for more room on the shortwaves. According to the *W5YI Report*, fifteen people responded to the FCC request for comments on the subject. George Jacobs, owner of George Jacobs and Associates (an engineering firm that works with most of the commercial shortwave broadcasters in the United States) said that there just aren't enough broadcast frequencies to go around. In fact, stated Jacobs, the ratio of needed channels to available channels varies from a high of over 5:1 at 6 MHz to a low of 2:1 at 15 MHz.

Even the Association of North American Radio Clubs (ANARC), since disbanded, turned out in favor of big broadcast interests, suggesting that an expansion of the current broadcast bands is necessary. Jacobs proposed a new band at 19 MHz and additional segments in the 6, 7, 9, 11, 13, 15 and 17 MHz bands that are adjacent to existing broadcast bands.

The FCC has responded to the situation by saying that "We believe that this situation can be addressed by proposing to make the existing amateur and broadcasting allocations worldwide (in nature). In our opinion," continues the document, "the best way to accomplish this is for both allocations to shift somewhat. We [the FCC] propose that the amateur [sic] receive 300 kilohertz at 6900-7200 kHz and that the broadcasters receive 200 kilohertz at 7200-7400 kHz."

On a more positive note, the American Radio Relay League (ARRL) has proposed that, if time permits, the U.S. delegation to WARC should also pursue the following new amateur allocations: 50-100 kilohertz in the vicinity of 5 MHz, 200 kilohertz near 10.150 MHz, 50 kilohertz near 14.350 MHz, 150 kilohertz near 18.168 MHz and 150 kilohertz near 24.890 MHz.

As an interesting aside, one commentator,

Brian Cassidy, proposed the creation of an international "freeband" at 27.410 and 27.970 between CB channel 40 and the bottom of the ten meter amateur band. Cassidy contends that thousands of U.S. hobbyists already operate there illegally anyhow and that by legalizing the allocation, interference problems would be reduced.

You can get more details on the unfolding drama of WARC-932 by subscribing to Fred Maia's excellent *W5YI Report*, available for \$23.00 a year from P.O. Box 565101, Dallas, Texas 75356-5101. The situation is worth keeping an eye on.

Canadian Ham Deregulation

The Canadians, looking more and more progressive when it comes to the radio hobby, have reportedly deregulated their mode subbands. What this means is that Canadian amateurs may use any mode or emission on any amateur frequency. 16 kHz bandwidth is allowed on 160, 75/80, 40, 20, 17, 15 and 12 meters; 1 kHz on 30 meters; 20 kHz on 10 meters, 30 kHz on 6 and 2 meters, 100 kHz on 220-225 MHz, and 12 MHz on 430-450 and 902-928 MHz. Above 1.215 GHz, bandwidth is not specified.

Thanks to this deregulation, new technologies can be put to use immediately without having to wait for an official government OK. Our hats are off to our far-sighted neighbors to the north.

Looking for Work?

If no-code is coming soon, it hasn't hit the high seas yet. If you have a valid FCC radiotelegraph license with six months endorsement (or one that has not lapsed more than five years), a U.S. Coast Guard license, and are in good health, contact Mr. Bernie Stoller of the ARA (radio officers union) at 201-795-5536.

You must be available for immediate assignment. Assignment will be to a ship from the ready-reserve fleet. Thus far, due to the Persian Gulf crisis, 40 ships have been reactivated and more are due to go on line in the near future.

Mailbag

"What happened to the balloon launch that was mentioned in the May issue on page 3," asks Bob McPherson, KC4ADQ, of

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Rob Gerardi's DX Tips

ALASKA - John Reisenauer, NL7TB, can be located on 28495 kHz daily where he meets several Alaskan and Canadian Arctic stations. QSL to: 1961 Norene St., Anchorage, Alaska 99508

ASCENSION IS - ZD8HF is a new 10 meter code beacon from here on 28291 kHz

BOTSWANA - A22AA appears on 28495 kHz daily at 1600 UTC. QSL to: Charles Lewis, KY4P, 145 Cliffside, Wilmington, NC 28403

BURKINA FASO - XT2BX, Millita, is a regular on the 21345 kHz family hour DX net at 1800 UTC. Reports go to: DL1HH, Herman Groh, An der Bahn 5, D7530 Ptorzheim, Germany

INDIA - Look for VU2ORE between 14160 and 14180 kHz daily starting at 0001 UTC. QSL's to: Richard White, 11564 Grand Point Dr., Jerome, MI 49249

MALAWI - 7Q7LA, Les, is on 14175 kHz at 1700 UTC daily. QSL to: A.R. Hickman, Conifers, High St., Elkesley, Retford, Nottingham, Notts DN22 8AJ, England, U.K.

NEW CALEDONIA - FK8FA, Aimee, is a daily event on 14,210 kHz starting at 1100 UTC. Her address: Aimee Tuband, Lotissement Martin, Box 447, F98607 Mont Dore, New Caledonia

SAN FELIX IS. - It has been a considerable time since there was any ham activity from this Chilean owned island in the Pacific, mainly due to the fact that only military personnel are allowed on the island! Now, rumors have it that a member of the Chilean military will soon be assigned here who is a licensed amateur!

SAN MARINO - T77A, the club station here, shows on 10 RTTY, 28088 kHz at 1530 UTC most days!

SOUTH GEORGIA (DXPEDITION) VP8SGI will be active all bands CW, and SSB (possibly RTTY too!) 'til 10 December. QSL to AA6BB/7, Gerry Branson, 93787 Dorsey Lane, Junction City, OR 97448. Until sometime around the middle of December, VP8CDJ will be active from South Georgia. Look for him on the 14256 kHz DX Net at 2230 UTC several days a week

SOLOMONS - H44AP looks for N Americans on 3795 kHz at 1100 UTC every day and his address: Al Pearce, P.O. Box 11, Honiara, Solomon Islands, Pacific

SOUTH SANDWICH IS. - A DXpedition to this near Antarctic Is. is planned for 26 November and ending 13 December! Look for VP8SSI on all bands RTTY, CW, and SSB. QSL to AA6BB/7 (see address above)

SPRATLY IS. - 3W3RR (a Russian amateur -- on an offshore oil rig? -- near Vietnam) is reportedly hoping for a return trip to the Spratly Islands in mid-December. Look for the same frequencies used last spring (14145, 21295, 28495)

SWAZILAND - 3DA0BX (Christine) and 3DA0BW (Paul) are a wife and husband team who prefer 15 meter (21088 kHz \mp) starting at 2000 UTC each day. QSL to: P.O. Box 57, Big Bend, Swaziland

ZAIRE - 9Q5TE can be located on 21315 kHz at 1400 UTC an 14190 kHz at 0500 UTC most days. QSL to: Leif Hammarstrom, Biger Jarlsg, 38-4 TR, S11429, Stockholm, Sweden....

Etowah, North Carolina.

McPherson, like many others who monitor the ham bands, heard Strato-Net control KB4T announce that the balloon burst a few minutes after liftoff at 4,000 ft. That was on July 14th. "I've heard nothing further," puzzles Bob.

Rob Gerardi sent in a couple of unique news items: According to the ARRL, U.S. amateurs located in New Mexico and West Texas have been asked to refrain from using the 420 to 430 MHz ham band! This is due to concerns of interference with operations at White Sands' Department of Defense/Air Force Communication Command. The FCC is studying that request...

Secondly, those who do not think that amateur radio can be hazardous to your health should consider what happened to EL2M

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VISA —
MASTERCARD

Henry Grimes, very late of Liberia. Poor Henry was assassinated by members of one of the rebel armies fighting in Liberia in late September, **ONLY** because he possessed amateur radio and SWL gear!

Closing Comments

This little "new product announcement" has filtered its way down from a number of sources, notably W6AAQ. It's for a Standby and Field Day Power Source.

Luminescent Electronic Products, Inc., P.O. Box U-235, Trinity Site, New Mexico, offers a self-contained nuclear reactor for communications applications. The reactor will provide power for as long as 12 years. Output is rated at 20 kw, decreasing to 15 kw after 12 years.

To protect users from undue radiation, each reactor comes complete with a shielding kit, comprised of five self-stick lead plates and twenty radiation-monitor film badges. The lead plates attach to the external structure of the reactor. For additional safety, the manufacturer offers an optional 1000 foot long extension cord.

The reactor glows in the dark, making it particularly easy to find on dark nights at remote communications and Field Day sites.

Each reactor package includes a standard 23 volume site evacuation plan. The plan includes a blank Nuclear Regulatory Commission application.

Reactor prices start at 2.3 million. Please allow seven years delivery from receipt of order. License tags and taxes not included. Void where prohibited by law.



AIRCRAFT TRAFFIC

Air Force KING 974, 5696 kHz USB. Full data prepared form card, and unit patch. Received in 15 days for an English utility report and a self-addressed envelope. Unit address: New York Air National Guard, 102nd Air Rescue Squadron, Suffolk County ANG Base, Westhampton Beach, NY 11987-1294. (Preston O. Sewell Jr., Franklin, NJ)

U.S. Coast Guard-9691, USCG CH-3H Helicopter, 5692 kHz. Prepared form card, verified by Lt. J.G. K.A. Stear, comms. officer. Received in 11 days for an English utility report and mint stamps. Unit address: USCGAS Traverse City, Traverse City, MI. (Patrick O'Conner, Hinsdale, NH)

ALBANIA

Radio Tirana, 9500 kHz. Full data QSL card, without verification signer. Also received a souvenir lapel pin and travel brochures of Albania. Received in 44 days for an English report, two IRCs and a souvenir postcard. Station address: Tirana, People's Socialist Republic of Albania. (Brenda Steele, Norridgewock, ME)

CANADA

CKZU, 6160 kHz. Full data QSL card, verified by David Newburg. Received in 15 days for an English reception report and souvenir postcard, one IRC and one dollar (which were returned). Station address: P.O. Box 4600, Vancouver, BC V6B 4A2 (Jerry A. Brown, Dillingham, Alaska)

COLOMBIA

La Voz del Cinaruco, 4895 kHz. Full data frequency form card, without verification signer. Also received three pennants. Received in 300 days for a Spanish report. Station address: Calle 19 No. 19-62, Arauca, Colombia. (Frank Mierzwinski, Reading, Pa.)

ECUADOR

HCJB, 21470/15155 kHz. Full data color scenery cards, verified by Glenn Volkhardt. Also received schedule and station brochures. Received in 37/45 days for an English report and mint stamps. Station address: Casilla 691, Quito, Ecuador. (Nicholas P. Adams, Newark, NJ) (John Carson, Norman, OK)

FRANCE

Radio France International, 15135 kHz. Full data QSL card, without verification signer, and program schedule. Received in 34 days for an English report. Station address: Boite Postal 9516, Paris, France. (Matt Stanley, Astoria, NY)

GERMANY

Sudwestfunk, 7265 kHz. Partial data card, verified by Dr. Krank, technical director. Received in 31 days for an English report and one DM (two 0.5 DM coins) and a souvenir postcard. Station address: Postfach 1115, 7570 Baden-Baden, Republic of Germany. (Harold Frodge, Midland, MI)

MONACO

Trans World Radio, 9480 kHz. Full data QSL, without verification signer. Received in 39 days for an English report. Station address: B.P. 349, Monte Carlo 98007, Monaco. (Matt Stanley, Astoria, NY)

PIRATE

WLIS-"We Love Interval Signal," 7423 kHz. Full data Ian McFarland sheet, without verification signer. Received in eight days for a self-addressed envelope.



La Voz del Cinaruco was verified by Frank Mierzwinski of Pennsylvania.

Station address: P.O. Box 109, Blue Ridge Summit, Pa. 17214 or P.O. Box 6527, Baltimore, MD 21291. (Harold Frodge, Midland, MI)

SHIP TRAFFIC

Gypsum Baron-GUZI (bulk carrier), 156.65 MHz. Full data prepared QSL card. Received in 56 days for an English utility report and return postage. Ship address: Gypsum Transportation, Ltd., Belvedere Building, Pitts Bay Road, Hamilton, Bermuda. (Hank Holbrook, Dunkirk, MD)

Airedale-WZM (commercial fishing), 16463.1 kHz. Prepared form card, verified in 119 days for a utility report and mint stamps. Ship address: M/V Airedale Inc., P.O. Box C5030, 303, 303 NE N, Lake Way, Seattle, WA 98105 (Patrick O'Conner, Hinsdale, NH)

Alexandria-J4UA (bulk carrier), 16463.1 kHz. Prepared form card with illegible signature. Received in 36 days after a follow-up utility report. Total of 447 days. Ship address: N.J. Goulandriss (Agencies) Ltd., The Adelphi, John Adam St., London WC2N 6AP, England. (Patrick O'Conner, Hinsdale, NH)

Gypsum King-GUQT (bulk carrier), 156.8 MHz. Full data prepared QSL card and ship photo. Received in 79 days for an English utility report and return postage. Ship address: Gypsum Transportation, Ltd., Belvedere Building, Pitts Bay Road, Hamilton, Bermuda (Hank Holbrook, Dunkirk, MD) *Hank's at it again-this is his 520th British ship QSLed.*

Shelly Bay-3EKH3 (container), 500 kHz. Full data prepared QSL card. Received in 79 days for an English utility report and return postage. Ship address: c/o Sea-Land Service, Inc., 10 Parsonage Road, Iselin, NJ 08830 (Hank Holbrook, Dunkirk, MD)

SINGAPORE

Radio One, Singapore Broadcasting Corp. 11940 kHz. Full data QSL, without verification signer. Received in 50 days for an English report and one US dollar which was returned. Station address: P.O. Box 60, Singapore, 9128, Singapore. (Bob Combs, Campbell, CA)

TOGO

Radiodiffusion-Television Togolaise, 5046.5 kHz. Full data Togo map card with schedule, without verification signer. Received in 62 days for two IRCs and a French report. Station address: Boite Postal 434, Lome, Togo, Africa. (Tim Johnson, Galesburg, IL)

UNITED STATES

Beacon "HHG", 417 kHz. Full data prepared card, with illegible signature. Received in six days for an English utility report and a SASE. Station address: Huntington Municipal Airport, 1365 Warren Road, Huntington, IN 46750 (Russ Hill, Oak Park, IL)

WHIO-1290 AM. Full data station QSL card, verified by Ronald Gain, chief engineer. Received in

eight days for an English AM report and an SASE. Station address: 1414 Wilmington Avenue, Dayton, OH 45401 (Russ Hill, Oak Park, IL)



WTMJ-620 AM. Full data sports logo station card, verified by John Schweitzer, engineer supervisor. Received in 13 days for an English AM report and a self-addressed envelope which was returned. Station address: 720 E. Capitol Drive, Milwaukee, WI 53201. (Russ Hill, Oak Park, IL)

CAMSPAC San Francisco-NMC 5695/6504 kHz USB. Full data QSL card. Received in 13 days for an English utility report and a self-addressed envelope. Unit address: Commander, Coast Guard Pacific Area and Maritime Defense Zone, Pacific Government Island, Alameda, CA 94501. Additional address: USCG CAMPSAC San Francisco, P.O. Box 560, Point Reyes Station, CA 94956 (Preston Sewell Jr., Franklin, NJ) (Bob Combs, Campbell, CA)

KNLS-Anchor Point, 11715 kHz. Full data winter scenery card, without verification signer. Also received letter from Beverly Jones, and a cloth pennant. Received in 41 days for an English report, souvenir postcard, and a self-addressed envelope. Station address: P.O. Box 473, Anchor Point, Alaska 99556. (Nicholas Adams, Newark, NJ)

WOW-590 AM. Partial data verification on station letterhead, verified by Gene Bridges, Pk. director. Received in 28 days for an AM report and a self-addressed envelope. Station address: 615 N. 90th St. Omaha, NE 68114. (Harold Frodge, Midland, MI)

USSR

Radio Kiev, 7400/11790 kHz. Full data color scenery card, without verification signer. Also received Soviet stamps, schedules, and souvenirs. Received in 77/93 days for an English report. Station address: 26 Kreshchatik Avenue, Ukrainian, SSR., USSR (John Carson, Norman, OK) (Matt Stanley, Astoria, NY) (Bob Combs, Campbell, CA)

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KEEPING DOWN THE NOISE

I receive many letters from readers who have the same problem. It is, in my opinion, the biggest one that plagues hams or shortwave listeners: the computer in the shack. The problem I'm talking about is computer noise.

There really isn't a simple solution to the problem especially if you already have an established shack or listening post, but if you are an apartment dweller or live in a condo or townhouse you can reduce the noise.

The noise that you experience from your computer, for the most part, is generated by the data and address busses. The busses are like wires that connect the Central Processing Unit (CPU) to other microchips inside the computer. The busses transmit zeros and ones or a five-volt signal that is switching on and off at a fast rate. The rate changes as the digital information is passed from one chip to another and it develops many different frequencies. The frequencies change so rapidly that it sounds like noise.

Now that you are confused with all this technical jargon, how do you stop the computer from being a radio noise transmitter? That's the hard part. The only thing you can do is to limit the noise so the signal can only transmit a few feet. I have been operating my computers in the shack for many years with very little trouble. You can have similar results if you follow these guide lines.

1. Keep your antenna as far from a noise source as possible. Remember your neighbor may have a computer, too. So don't try to install it in his back yard. If you are using an active antenna, keep it clear or above any electrical wires. Remember, your house or apartment may have overhead wiring and it can become a transmitting antenna for your computer. The noise can travel through the AC line cord.

2. When you purchase a computer, stick with name brands and make sure they pass FCC part 15. The label on the rear of the computer will indicate the compliance. I first used a Radio Shack Model 1 computer in the late '70s (during the pre-part 15 ruling) and it was terribly noisy. When I changed to a Commodore C64, the noise was greatly reduced. My Tandy 1000 TL is even quieter.

If you try to build your computer by purchasing parts from a computer magazine or buy a private label brand, they may not meet part 15 and you don't have the advantage of the extra shielding. Brand name computers have brass "finger strips" around the cover and they use ferrite filters in the AC chord to insure proper shielding. Super fast computers are nice but the speed isn't usually necessary in the shack or listening post and they may cause interference at higher frequencies.

3. Cables from the computer to the monitor, printer, external modem or even a packet TNC can act as antenna. You can use Snap-on interference chokes such as the Grove ACC-91 between the cables to reduce the problem. I know several readers that have used as many as six on each cable. It can be an expensive proposition but it's the only way to correct the problem. Before you make the purchase, you can make a simple test by disconnecting the suspected cables on both ends while listening to the radio. By the way, the ACC-91 would make a great Christmas "stocking stuffer" from Santa to yourself.

Computer noise may sound like a big problem but it can be reduced to a manageable level. Using the techniques mentioned above, your computer and radio can coexist in the same room without the frustration.

ROCK BOTTOM RTTY

With the winter months upon us the VLF bands are on the top of my monitoring list. The frequencies below 200 kHz are noise free because most of the thunder storm activity is in the southern hemisphere. Here is a mini list of RTTY stations that you can copy. I like to call it "Rock Bottom RTTY." Most of the traffic down there is encrypted but on occasions you can catch them sending in the clear.

The MSK mode (Minimum Shift Keying), according to some, is in the clear but requires a special modem.

FREQ (VHF)	CALL SRVC	LOCATION	MODE
15.1*	FUB Naval	Rosnay, LeBlanc, France	FSK
16.025	GBR Naval	Rugby, Warwickshire, UK	FSK
16.2	UMS Naval	Petropavlosk Kamchatskiy, USSR	FSK/CW
16.4	JXZ Naval	Novik (Helgeland), Norway	FSK/CW
16.8	FUB Naval	St. Assise, France	FSK/CW
17.1	UMS Naval	European USSR (not Moscow)	FSK/CW
17.4	NDT USN	Yosami, Honshu, Japan	100 Bd MSK
18.975	GQD Naval	Anthogn, Cumbria, UK	FSK
19.575	GBZ Naval	Criggion, Powys, Wales	FSK
20.27	ICV Naval	Tqavolara, Sardinia, Italy	FSK
21.4*	NSS USN	Annapolis, MD	200 Bd MSK
22.3	USN	Exmouth, Australia	200 Bd MSK
23.1*	USN	TACAMO aircraft	FSK/CW
23.4	NPM USN	Lualualei, Oahu, HI	200 Bd MSK
24.8*	NLK USN	Jim Creek, Oso, WA	200 Bd MSK
26.2	NOV USN	TACAMO aircraft	FSK/800 Bd/CW
26.3	NJB USN	TACAMO aircraft	FSK/800 Bd/CW
27.9	NJB USN	TACAMO aircraft	FSK/800 Bd/CW
28.5	NAU USN	Aguada, Puerto Rico	FSK/50 Bd
44.0	VHB	Belconnen, Australia	FSK/75 Bd
48.5+	FXL	USAF SAC-Silver Creek, NE	FSK 5/50 Bd
51.6	NSS USN	Anapolis, MD	FSK 75 Bd
51.95	GYA Naval	London, UK	FSK
53.0	NPL USN	San Diego (Chollis Heights), CA	FSK
53.6	RTO	Moscow, USSR	FAX-Meteo
55.5	GXH USN	Thurso, Highland, Scotland	FSK
57.4	CNL USN	Kenitra, Morocco	FSK
58.7	NBH ANMCC	Fl. Ritchie, PA	FSK 5/50 Bd
60.0	WWVB SFTS	Fort Collins, CO	Time Standard
65.8	FUE Naval	Brest, Finistere, France	FSK
66.66	RBU SFTS	Moscow, USSR 2100-1700	FSK
68.0	GBY20 Naval	Rugby, Warwickshire, UK	FSK
68.9	XPH USAF	Thule AB, Greenland	FSK
73.6*	CFH Naval	Halifax NS, Canada	FSK 75 Bd
76.9*	NAM USN	Norfolk (Driver), VA	FSK 50 Bd
77.15*	NAM USN	Norfolk (Driver), VA	FSK 50 Bd
82.75	MKL Mil	Petreavie, Rosyth, Scotland	FSK/CW
83.1	OFS83 Meteo	Helsinki, Finland	FAX 120/576
88.0*	NSS USN	Annapolis, MD	FSK 50 Bd/MUL
117.4	DCF37 Meteo	Mainflingen, GFR	FAX
119.15	CII DND	Shilo, MAN, Canada	FSK
119.85*	NGP USN	San Francisco (Dixon), CA	FSK
122.5+	CFH Naval	Halifax (Mill Cove), NS, Canada	FSK/CW/FAX
124.0	CKN Naval	Vancouver, BC, Canada	CW
125.8	CII DND	Shilo, MAN, Canada	FSK
128.25	NPL USN	San Diego (Chollis Heights), CA	FSK
128.3	VDD DND	Debert, NS, Canada	FSK
128.3	VEX DND	Penhold, ALTA, Canada	FSK
131.05	FUF Naval	Fort de France, Martinique	CW
131.4	VEV DND	Valcartier, PQ, Canada	FSK
131.8	FYA31 Meteo	St. Assise, France	FAX
133.15*	CFH Naval	Halifax (Mill Cove), NS, Canada	FSK
136.3	VEV DND	Valcartier, Canada	FSK
134.9*	NSS USN	Norfolk (Driver), VA	FSK 50 Bd CW
135.95	NGP USN	San Francisco (Dixon), CA	MUL
139.1	VEV DND	Valcartier, PQ, Canada	FSK
140.5	VEV DND	Ottawa, ON, Canada	FSK
142.25	TFK USN	Keflavik, Iceland	FSK
143.5	VDD DND	Debert, NS, Canada	FSK
146.1	NPM USN	Lualualei, Oahu, HI	MUL
148.2	NPL USN	San Diego (Chollis Heights), CA	FSK
148.55	VER DND	Ottawa, ON, Canada	FSK
150.625	USAF	GWEN-Hudson Falls, NY	FSK
162.0	VEX DND	Penhold, ALTA, Canada	FSK
163.0		Canadian net in NWI, MAN and PQ	FSK
163.125	USAF	GWEN-Crownsville, MD	
165.625	USAF	GWEN-Remsen, NY	
168.0	CIF DND	Cp. Borden, ON, Canada	FSK
168.0	KAFB USAF	GWEN-Kirtland AFB, NM	CW/FSK
169.375	USAF	GWEN-Penbroke, GA	
170.625	USAF	GWEN-Lappans, MD	
173.0	USAF	GWEN-Manhattan, KS	
174.0	VER DND	Ottawa, ON, Canada	FSK
175.0	NWA USN	Bumpass, VA/Carroll Is., MD	test freq.
177.0	USAF	GWEN-Ainesworth, NE	
179.0		Canadian net in NWT	FSK
183.0	DND	Cp. Borden, ON, Canada	FSK
183.0	USAF	GWEN-Belen, NM	
183.0		Europe 1-Saarlouis, GFR	
186.0	USAF	GWEN-Colby, KS	
187.0	VEV DND	Valcartier, PQ, Canada	FSK
197.5	VER DND	Ottawa, ON, Canada	FSK

* In the clear on occasion
+ in the clear daily

X*PRESS X*CHANGE

Ever since I first started tuning the shortwave bands back in high school, I've yearned to have a wire service at home. In those days, some twenty years ago, the HF bands were crammed with the tuneful sound of 60 baud radio teletype (RTTY) as many wire services sent their stories around the world. I could hear the transmission, knew they were RTTY, but had no access to the surplus mechanical gear necessary to decode those sounds and turn them into meaningful copy. Cheap as that equipment may seem today, it was unreachable on a high-schooler's budget.

The breakthrough of solid state consumer electronics made it possible for anyone with the money to copy virtually any kind of digital communications but the price was still fairly high. Unfortunately, by the time such gear became available most wire services abandoned the shortwave bands for satellite.

It is possible to get wire services via satellite using such equipment as a TVRO receiver, an ICOM R-7000 and a stand-alone RTTY demodulator such as the M-7000. But, again, the investment for such reception would be significant. Even so, it would not be possible to get more than a few domestic services.

This is it!

General Instrument (GI) has come to the rescue with its InfoCipher 1500R data receiver. The InfoCipher, which connects between the data port on your stand-alone VCII or IRD and your Apple, Macintosh, IBM, Atari or Amiga computers, brings the wire services of the world to your home. The service to which consumers subscribe is called X*Press X*Change and it's fantastic.

By all measures the InfoCipher is an extraordinary device. X*Press data is sent in 9600 baud packets via G1,18 (TBS Superstation, also the home of Electra, the World Standard Teletext service; See *Monitoring Times*, March '90). The InfoCipher data receiver has an authorization module which is a cartridge that is slipped into the back of the InfoCipher when the service is first actuated. The authorization module allows X*Press to turn on or off the InfoCipher in the same manner GI controls your VCII. In the event your subscription runs out, the unit will be deauthorized and the information cannot be accessed.

Installation

Installing X*Press at your home couldn't be simpler. The consumer loads the appropriate software provided for the above listed computers, attaches the data receiver to the

computer via the RS-232, also provided, plugs the data receiver into the wall, aims the dish at G1,18 and enjoys 24 hour per day wire services from around the world.

What you'll see

The information available on X*Press is simply staggering. News from TASS (Soviet Union), Kyodo News International (Japan), Agence France Press (France), Deutsche Presse-Agentur (Germany), Notimex (Mexico in Spanish), Xinhua (China), CNA-Taiwan (Taiwan), Associated Press, Copely News Service, Knight-Rider News Service and more are available around the clock.

X*Press is also a sports fan's dream. Here you can keep up with all the games in progress all evening long by turning to X*Press for SportsTicker just the way the sports journalists do in the pressbox during the game. If there is a pitching change, a rain delay or an overtime in hockey or basketball, on the professional or collegiate level, you'll know about it. On top of that there are standings, personal statistics, sports news stories, columnists and my favorite: "Sports Quiz."

Many will want to take advantage of X*Press' financial services. Thorough financial news is updated all day. Aside from up-to-date figures on the metals, commodities, futures, stocks, bonds and current foreign markets, you can ask X*Press to automatically track your entire stock portfolio while you're at work or out on your boat.

But wait, there's more

Added to all the above you can get a complete daily TV guide including updates on all your favorite soaps, celebrity news and information, book and movie reviews, lifestyle and entertainment columnists, editorials and opinion pieces.

There's in-depth weather data including details for each state broken into regions and provinces (X*Press is for Canadians, too) as well as a full national summary. Climatological data including rainfall this year to date, record highs and lows and sunrise and sunset data is also here. The weather data as well as the sports, news and financial information is updated continuously.

The bottom line

This service only for home dish owners. Cable subscribers can take advantage of this service as well. But whether cable or TVRO, the hardware, software, cable kit and all retails at \$189. After that you'll pay only \$5 per month for a totally advertisement free, 24-hour per day, electronic newspaper.

Big spenders with a budget to match and a need to know can also take advantage of X*Press Executive service which concentrates on serious monetary matters. Here, interest and money rates are quoted from every conceivable angle. All major North American stock exchanges are quoted on a 15-minute delay. Active and volatile issues are reported on seven times daily. Options, commodities, futures, metals and business and financial news, including reports and commentaries from *Business Week* magazine are all at your command. X*Press Executive costs \$25 per month.

Tips on X*Press

Ordering X*Press is as simple as operating it. Call their toll free number and order the kit and a year's subscription with your credit card. Your kit will arrive in about a week. When it does, make sure to seat the module properly in the data receiver. It is shipped not fully pushed in.

The RF cord for connecting your VCII to the InfoCipher is short. They don't recommend using anything longer, but unfortunately many VCIIs are not within 10 feet of the computer. In my case I had to add 50 feet in order to reach the computer. If you do this, you can expect the packet error rate to be higher than it is supposed to be. They look for an error rate under 2 percent. Mine is more like 50 percent. The only problem with that is that it takes longer for X*Press to reach its capacity -- about 250 stories.

Pay attention to the user information sent with the kit. It is very well written and has a good number of hints on how to take full advantage of X*Press.

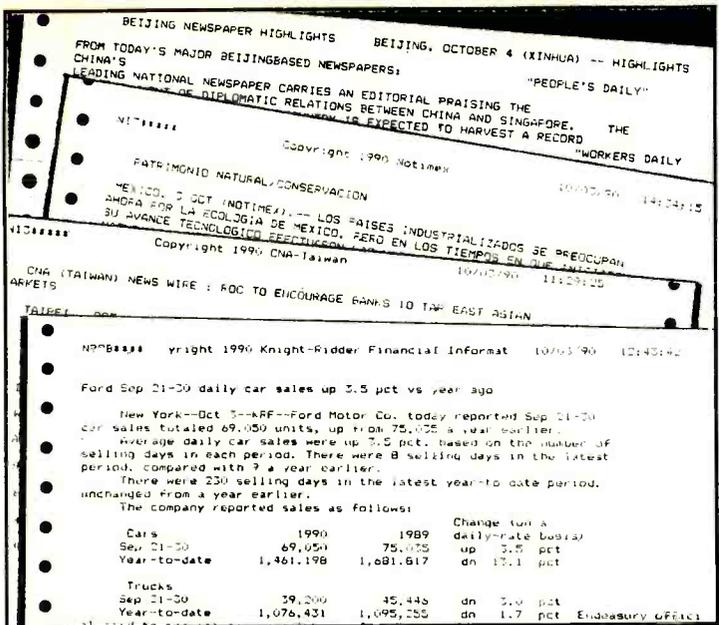
Wall Street wizards

There are other programs you may purchase which are used with X*Press. As an example, X*Press Shadow "... runs X*Change or Executive in the background while using your computer for other tasks. Audible or visual alarms alert you to price changes, volume, high/low prices." That program costs \$79.95. There are at least four other programs available ranging from \$90 to \$300.

Simply put, the basic X*Press X*Change service is the best dollar value in satellite television today. Give them a call at their toll-free number 1-800-7PC-NEWS for best response, or write X*Press X*Change, Regency Plaza 1, 4643 S. Ulster St., Suite 340, Denver, CO 80237.

Mailbag

Ian Menzies, GM1FSU, of Aberdeen, Scotland, wants to know where in the sky our geosynchronous domestic satellites are located, details on the 20-meter TVRO net and a source for do-it-yourself C-band information.



Great questions, Iain, and it's always good to hear from our overseas readers. Below is a chart which should help you locate our domestic satellites.

Satellite	Abbreviation	Location (Degrees)
Spacenet 2	S2	69
Satcom F2R	F2	72
Galaxy 2	G2	74
Satcom F4	F4	82
Telstar 302	T2	85
Spacenet 3	S3	87
Galaxy 3	G3	93.5
Telstar 301	T1	95
Westar 4	W4	99
Anik D	D1	104.5
Anik D2	D2	110.5
Morelos 1	M1	113.5
Spacenet 1	S1	120
Westar 5	W5	122.5
Telstar 303	T3	125
Satcom F3R	F3	131
Galaxy 1	G1	134
Satcom F1R	F1	139

The TVRO net is a long-running net of amateur radio operators which meets weekly each Sunday afternoon at 2 p.m. eastern time, regardless of time change. So, if you tune in during daylight savings time (last Sunday in April to last Sunday in October) it would be 1800 UTC. If you tune in during standard time (the rest of the year), it would be 1700 UTC. There is an "early bird" net which gets together at least a half hour earlier to establish the frequency (around 14.309 MHz). Some call signs to listen for so you'll know you're on the right track are WA4NNJ, VE3LOE, N5EB, W0PYI and KC4GQA. I'll be happy to QSL reports from shortwave listeners, too.

An up-to-date source for all your American C and Ku band information is my own *Satellite Television Source Book* which should be out by the time you read this. It's \$20/ppd to Xenolith Press, Route 5, Box 156A, Louisa, Va. 23093.

David Sheley of Blytheville, Arkansas, has noticed tiny satellite dishes showing up on the roofs of local savings and loans and other thrift institutions. He can't seem to get a satisfactory answer from the institutions themselves.

David, as you know, a lot of people have gotten little satisfaction from S & Ls these days. But these little dishes are actually for data reception. Often a lending institution or brokerage house will utilize satellite delivered data services provided on a subscription basis. These data transmissions take up very little bandwidth and require very small dishes, often only 18 inches in diameter, for delivery. They use

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You may not have noticed small dishes showing up at your local grocery store, auto dealer, or Domino's Pizza place. All these businesses have their own networks which distribute in-store music or sales and service seminars for their own use. Cable television programming is actually a small part of the total satellite picture. Between the hundreds of thousands of phone calls handled via satellite every day, and the over 100 channels available for occasional transmissions, hundreds more channels for data, SCPC (both digital and audio), there's room yet for over 100 TV channels and over 100 separate audio stereo FM subcarriers. The satellite industry is booming.

Data transmissions on the higher power Ku satellites makes use of the smaller dishes possible. SBS II at 97 degrees west is a good example. Using a traveling wave tube amplifier (TWTA) power rating of 20 watts which delivers a signal power of 47 dBW (dB power relative to one watt), this compares to its C band next door neighbor Westar 4 with 7.5 watts and 34 dBW.

SBS II is primarily a wideband digital service satellite with nine of its 10 channels devoted to TDMA/QPSK (Time Division Multiple Access/Quadrature Phase-Shift Keying) which is a sophisticated method of having many unrelated businesses share the same channel without getting in each other's way. This is where you'll find many of these institutions aiming their dishes. A lot of America's business takes place right there. These systems can be of a one way or two way nature.

Thanks to Robert Thomas of Bridgeport, Connecticut, for the clipping from the *New York Post* concerning Sky Cable's future. And to Patrick Paventa who reports that so far World Standard Teletext (WST) is found only on the vertical blanking interval (VBI) of TBS Superstation (G1,18).

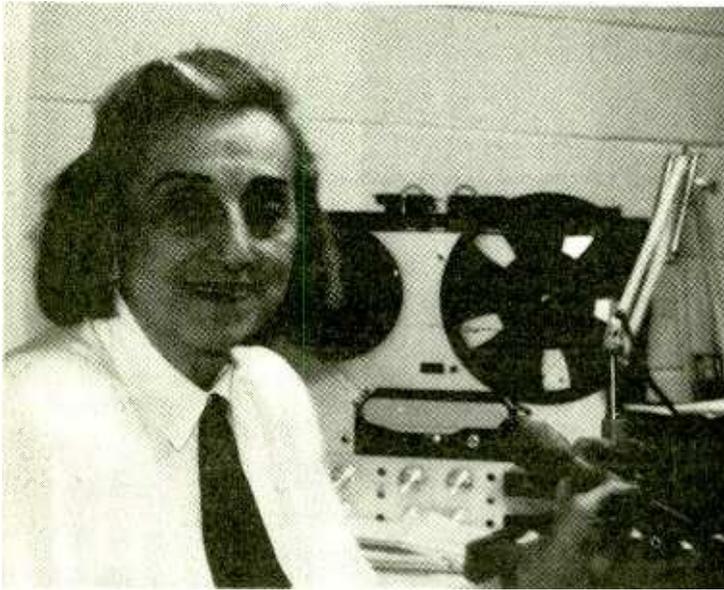


Too Young to be Old

"Hello again. Edna W. Newman broadcasting from your own radio station, WMRF, Daughters of Israel. Please stay tuned and listen."

At the flick of a switch, another broadcast day begins. Andy Williams' "Moon River" starts echoing down the hall and all the residents smile. Two hours a day, five days a week, everyone listens to a place on the dial created for them by somebody they know. All the radios in the building are locked on to 540 a.m.

This little radio station is powered by a big personality: Edna Newman. Along with being WMRF's master of ceremonies, she's also their producer and talent scout. A friend to everyone in The Daughters of Israel Geriatric Center in West Orange, N.J., she's always on the lookout for the new voices to entertain on



Edna loves to be behind the mic and in control.

the airwaves. If you are a poet, sports commentator, political analyst, or a singer, expect a visit from Edna. She'll put you on the air to be heard everywhere. "I put on what I please and so far we've been doing very great."

Celebrity status follows Edna and her famous voice. "I heard one girl who was going up in the elevator and she said to another girl, 'That Edna Newman. You know I think she was a movie star when she was young.' I never was, of course, but she thought so and she relayed it to her friend. They think things in their own mind and they believe it."

Determination and conviction have made the station successful under Edna's guidance. "Whatever I do I do with all my heart and soul. I'm very reliable and I do well. Whatever I've tried, I've done well. I always like to be in

charge of things. I don't like being under anybody and following orders. I like to give orders."

Edna has always shown style and flair throughout her life. "I started out as a fashion model. I did so many things. I'm the type of person that when I make up my mind to do something I do it completely."

An individualist since childhood, she set new standards while in school. "Every child had to speak before graduating and it was always about Lincoln and Washington and all the other presidents. We all listened in the auditorium and I thought that was terrible. So I went to the head of the English department and I said, 'Can I read a poem or something? Not anything about the presidents.' So he said, 'What kind of poem?' Well, I said, 'How about *Little Orphan Annie* by James O'Reilly?"

"So I recited it for him with hand motions and everything in it, and he said, 'That's wonderful,' and let me do it. The kids applauded. They woke up. They weren't sleeping in the auditorium anymore. Everybody came to see me after school and said it was marvelous. So the kids loved me for it."

Her fame was just beginning. "I was the first female president at Central High in Newark. Friends of mine got the idea that I would make a good president of the G.O. (General Organization) and they went

ahead all alone without me. They had a campaign that I had nothing to do with and, sure enough, I got elected because everybody knew my name. I was very friendly."

In later life, her warm and entertaining personality made her a natural for a broadcasting career. "I'm very good at it. I really am. And I enjoy the fact that I can put on whoever I want. I find a lot of talent here and when I find good talent I put them on the air."

On Fridays, the center's Rabbi Karpel handles the microphones at WMRF and presents two hours of Jewish religious programming. His program, "Torah Thoughts," combines inspirational talks with Jewish and cantorial music.

The entire radio station was donated to the center by Morton and Rose Frenchman, and

their initials became the call letters: WMRF. It operates on 540 kHz with a carrier current transmitter that is only heard throughout The Daughters of Israel Geriatric Center. Several hundred listeners tune in every week and WMRF's popularity is at an all-time high.

"We have radios in the lobby, in the day center, in the offices, in the Two Cents Plain Coffee Shop, and in the therapy room. We have radios that we just bought and we put them all around the center. The residents, of course, have their own little radios in their rooms that they listen to."

WMRF has become a lifeline between the center's residents and the world around them. Edna reads the daily calendar of activities making sure they know about ceramics and tile classes, poetry readings, musical performances and everything else that is happening. "It keeps them abreast of what's going on because there are loads of people here who have very poor vision or who cannot read."

Thanks to Edna W. Newman and her energetic personality, happiness is now as close as a radio by your bedside.

Bits 'N' Pieces

■ Up, up and away. There are a lot of radio stations on the air, but only one station floats in the air. To stay on the air, Rhode Island's WKFD used a lot of creativity when their old tower fell into the sea. It would be weeks before they could see delivery of a replacement. Chief Engineer Duffy Egan quickly constructed a makeshift antenna using 120 feet of wire and a bright yellow 12-foot helium filled balloon. The wire flew high into the sky acting like the vertical tower it replaced.

■ A little programming can go a long way in today's marketplace. FM broadcasters have begun to simulcast not only on their AM sister stations, but to other nearby FM stations as well. Long Island's WWHB in Hampton Bays has dropped most of its locally originated programs to simulcast New York City classic rocker WNEW-FM.

WWHB is owned by Saturday Night Live producer Lorne Michaels, singer Paul Simon and his brother, Eddie. If their company, South Fork Broadcasting, purchases WBAB-FM, serving the center of Long Island, they hope to create a three station classic rock network. Listeners won't strain to hear WNEW-FM ever again.

Across the continent in San Francisco KOFY-FM 98.9 constantly bucked horns with nearby KLRS-FM in Santa Cruz on 99.1. Media giant Viacom recently bought both stations, producing a powerful dual transmitter commercial outlet for the bay area and beyond called Double 99 FM. Simulcasting has made both stations more profitable and a more attractive buy for advertisers. KRXV and KXVR, (98/99 FM) in the Mojave Desert of California, and Atlanta, Georgia's "Country Favorites" Y106 and Y104 FM, have also

cash in on the trend. You're not seeing double . . . you're hearing double.

Mailbag

■ "How thin can you slice the meat?" writes Harold Bower of Sunbury, Pa. His tiny county has 17,575 residents and four AM and four FM stations with another on the way. WLGL-FM in Riverside has just hit the air with 3,000 watts on 92.3 MHz.

Their advertising staff has their work cut out for them. Station manager David Bernstein hoped to make WLGL-FM popular by covering nearby high school football games and by airing "Lots of live programming." He has not announced what the format will be, after transmitter tests are completed, leaving his audience in suspense.

"We're leaving that option open until we're ready to start our regular schedule. We're going to do something that hasn't been done in this area." Anyway you look at it, it should be interesting.

■ 50,000 watt clear channel WBZ in Boston is being heard in Saudi Arabia. A special agreement between the station and the Navy Broadcast Service has brought "The Spirit of New England" to American forces stationed in the mideast. An entire day's broadcast was recorded and sent on tape for rebroadcast. Included were numerous messages and best wishes from callers, especially with family members overseas.

WBZ expects to repeat the project regularly, and the Navy is looking for other stations to join the project to raise the morale of the troops and bring a little piece of America to them. Beantown's Malcolm Kaufman mailed us the news.

New station grants

More stations are becoming active every day. Here are the latest allocations: Farmington, IL 95.7; Golconda, IL 105.1; Greenwood, IN 106.7; Lakeville, MN 105.1; Cassville, MO 100.1; Lucedale, MS 106.9; Bassett, NE 90.3; North Platte, NE 91.7; Brownsville, OR 102.3; and Elgin, TX 92.5. Courtesy of the *M Street Journal*.

For Sale

The beautiful northwest is calling you. An AM/FM combo station is ready to go for a cool two million dollars. Serving a top market, the station is very profitable with an excellent cash flow. The current owners are retiring and would like to turn over to you their 10 kilowatt AM on a low frequency and matching 25 kilowatt FM. Call Earl Reilly at 206-282-6914.

Two fully equipped AM stations, complete

with real estate, tower sites and studio buildings, are being sacrificed at a low, low price by an eager current owner. Buy one or take both and get an even larger discount. Call John at 501-483-6314.

A Nebraska Class C FM, with outstanding potential, is bargain priced and ready to go. The owner will accept \$100,000 cash if you will assume a mortgage of \$125,000. A recent 30 percent price reduction and ample real estate make this property a diamond in the rough. Call Bill Kitchen at Beacon Broadcasting, 303-786-8111.

Be an American BandScan Reporter. See any stories about radio in the local paper? Send them to *Monitoring Times*, P.O. Box 98, Brasstown, NC 28902.

International Bandscan

■ A partnership of American and Japanese companies will be transmitting digital audio, via satellite, to Africa and the Middle East by 1993. Starting with nine stereo audio channels, Afrispace, Incorporated intends to expand their service to 100 channels by the end of the century.

The firm has asked various radio manufacturers to offer proposals for 100,000 state-of-the-art digital audio broadcast radios to be sold for about \$200 each. Afrispace will utilize 1470 to 1530 MHz, known as the L band, to bring their sounds to earth. Proposals to establish digital audio broadcasting in America also include use of L band frequencies.

■ The Australian Broadcasting Corporation has begun to compete with private enterprise in television production and supplying news copy to radio stations. Lloyd Capps, national manager of television marketing, said the ABC would start to exploit its facilities and huge resources to raise revenue to support their main task as a nationwide broadcaster.

The ABC is now also producing in-flight programs for British Airways and TV commercials for a variety of clients. Development of TV series for Australia's commercial broadcasters is also underway. A special news copy service, tailored for independent radio stations, will compete with the long-established Australian Association Press Service. Many new journalists will be hired to increase the ABC's already voluminous output.

Credits: Many thanks to Edna W. Newman and Marcie Cooper of the Daughters of Israel Geriatric Center for their patience and time. *Radio World*, *The M Street Journal*, and *Broadcasting* magazines and readers Harold Bower, Malcolm Kaufman, Robert Thomas, Ken Hydeman, W. Earle Doan, Jack Montgomery, John Cassidy, Viorel Lupsa, Mike Westphal and Stacey Sullivan provided valuable information and reports. Until next month, happy trails.

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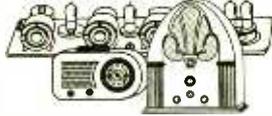
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It's not just for Pirates anymore

The crew of Radio Newyork International made history with their initial broadcast via WWCR. No doubt many "Outer Limits" readers heard it and those which have followed. The RNI gang has been refreshing with their genuine enthusiasm and obvious love of broadcasting. They have given listeners an opportunity to participate and air opinions on a variety of subjects.

Even when I was not an old codger, I never cared that much for rock music. However, Steve Cole's "oldies" show brings back pleasant memories and makes me feel young again. Then there is Johnny Lightning. When you listen to JL, somehow the world just seems better. And the QSL from Randi Steele which showed up in the mailbox was solid evidence RNI wants contact with listeners to be two-way.

Al Weiner and all the RNI personnel deserve a big thank you for their hard work and dedication. Thanks should also go to WWCR for agreeing to relay RNI. As some listeners who have phoned in remarked, it seems like a most unlikely marriage. Perhaps so, but it has worked, and that is all that matters.

But with initial success, RNI faces a new challenge. No longer a pirate, its future will increasingly depend on the quality of its programs and not some sort of mysterious "outlaw mystique." Actually, even among pirates, those with solid programming, such as Radio Clandestine and Radio Confusion, have been the ones which attracted a loyal following and not just been momentary curiosities producing yet another QSL for the collection.

With the talent the RNI staff has, we are betting they can keep their initial audience

and enlarge it in the future. The audience can help them do just that. If you want to keep RNI around for all of us to enjoy, then write or call them and let them know what you liked, did not like, and want in the future. Tell your friends, even those who still think shortwave is ham radio, about RNI. Also, when possible support their advertisers. This is not a 10-watt homebrew operating out of somebody's attic. Give these folks all the support they can. They deserve it.

RNI can be reached at P.O. Box 270, Flushing, NY 11352 (ph. 800-73-69-RNI). If by some chance you have not heard them, the schedule at the time this is written is UTC Mondays (Sunday 9pm-1am EST) from 0200 to 0600 UTC.

Numbers Breakthrough

"Each agent with a radio was given a certain time each day that his message would be broadcast over a special nonstop station that is now computerized: for example, 'This is for Charlie,' then a code of letters in groups of five. The message changed only once a week to give the agent a chance to hear it." So says Victor Ostrovsky in the controversial book, *By Way of Deception: the Making and Unmaking of a Mossad Officer*.

Ostrovsky, who for a brief period of time was a Mossad agent, appears to confirm once again what *Monitoring Times* has often said: Those stations broadcasting groups of letters, rather than numbers, have a Mossad link. These normally identify with calls like Kilo Papa Alpha Two, and are often heard with just the identifier repeated continuously and no traffic.

It is interesting that Ostrovsky claims

Canada is the location for a good deal of Mossad activity. Some years ago a report circulated that Kilo Papa Alpha Two was actually a station in the Yugoslav Embassy in Ottawa. Could this have been a bit of disinformation circulated by Israel's Mossad to conceal the real nature of the station?

If the Mossad has used such a form of communication, is there really any reason to doubt previous *Monitoring Times* reports that the CIA, KGB, Cuba's DGI and other intelligence agencies use similar ones? In short, what are commonly called "spy numbers" in shortwave circles are precisely that.

Middle East Update

Radio communications from the Middle East literally can undergo daily changes. The best advice we can give you is the same as in the October column. Look around. Also, because of time changes you may find some transmissions an hour later than the times given here. Monitoring the Middle East can be some of the most difficult listening you will ever attempt but also some of the most rewarding. Now here is some of what has been heard lately.

Some of the best news coverage in English continues to come from the United Arab Emirates station in Dubai. You will find them on 15435 at 0330 and 21605 at 1330.

Want to find out what Saddam Hussein thinks about free access to the media by the Iraqi public? Tune in 15225 around 0400. You will hear a BBC Arabic program doing battle with one of those notorious Iraqi bubble jammers.

According to the CIA's Foreign Broadcast Information Service, the Kuwaiti government in exile's Huna al-Kuwayt (This is Kuwait) transmissions were to be over frequencies used by Egypt's Voice of the Arabs service from 0400 to 0500 and 1600 to 1900. I have heard Voice of the Arabs before 0400 on 15285, but jamming has made it impossible to tell if the Kuwaitis take over later. In any case, this may be an interesting frequency to watch.

One of the more unusual broadcasting efforts to show up is that from Saudi Arabia. While other things are heard, frequent use is made of phone-in shows. This is all in Arabic, but the signals are strong, and you can often get some idea of what is going on. Saudi Arabia has often transmitted these on 15495 to block Iraqi use of a confiscated Kuwaiti transmitter which is normally heard underneath with Iraq's General Arabic

4647 Old Hydes Ferry Pike, Tennessee 37218 USA

15,690 KHZ
7,520 KHZ

WWCR
World Wide Christian Radio

RNI RADIO
NEWYORK
INTERNATIONAL

The seemingly strange marriage of a Christian broadcasting station and a former pirate seems to be working out.

Service. Another Kuwaiti transmitter will often run parallel programming on 13610 or 13620.

As would be expected, there is plenty of clandestine activity. I had a tentative logging of Iraq's anti-Saudi Voice of the Peninsula and Arabian Gulf (Sawt al-Jazirah wa al-Khalij al-Arabi) on 21675 at 1252 sign-on. A United Arab Emirates Arabic transmission acts as an effective jammer of this, and shows where the UAE's sympathies are.

Iraq's Voice of Arabist Egypt (Sawt Misr al-Urubah) was definitely logged at 1955 on 13610. This one sometimes signs on earlier but appears to have been preempted by a Saddam Hussein speech.

One of the more elusive clandestines is Iraq's Holy Medina Radio, which has been reported on 11990. I may have come across this on 15495 at 1910 to 2005, although if it was them, the broadcast is not daily on that frequency. This one is also anti-Saudi, and the Arabic ID is Ida'at al Madinah al-munawarah.

Finally, you might want to tune in the Royal Dutch Navy's Sunday only show for Dutch sailors in the gulf. It was heard here signing off at 1000, and supposedly sign-on is 0900. Recorded messages in Dutch are aired for servicemen, and there is pop music, much of it in English. The frequency is 21745. Although 25970 is announced, it has not been audible here.

There is, of course, a lot more to hear (see the October column), but this will give you some idea of what is around. Thanks to Frank McGuire, and the BBC Monitoring Service for some of the above information.

Before leaving the Middle East crisis, let's pass along some frequencies from Eob Thomas. He says you can hear the USAF from Turkey, Spain and England on 11176, 13244, 15015, 18848, 19219, 19272 and 19744. All are SSB. An airlift to Saudi Arabia can also be found on 13214 USB.

Here and There

Clandestine harmonics? Yes. Both Dan Owen in Texas and Diddi Hacker in California have found the third harmonic of anti-Castro La Voz del Cid on 29825 (fundamental is 9941.7) between around 2000 and 2300 UTC.

Have we got pirate loggings? Of course. Jim Hale of Arkansas found XERK on 7435 at 0138. Idaho's Frank Aden already has his XERK QSL and, along with California's Robert Plumlee, also received an information sheet from Radio Anarchy (7417 kHz), which claims QSL cards are on the way.

In California Skip Harwood heard KMUD on 7435 at 0412. Skip says they were announcing the old Hilo, Hawaii, maildrop,

The Clandestine File

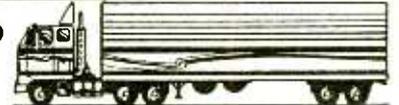
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<p style="text-align: center;">Uno, Dos, Cuatro</p> <p style="text-align: center;">A Guide to the Numbers Stations by Havana Moon.</p> <p>All about the mystery spy/numbers broadcasts. Includes an extensive list of times and frequencies. \$13.95 + \$2 s/h (\$3 foreign)</p>	<p style="text-align: center;">The Pirate Radio Directory by George Zeller.</p> <p>Authoritative survey of No. American pirates on shortwave. Formats, frequencies, times, IDs, DJ names, addresses, QSL info. \$7.95 + \$2 s/h (\$3 foreign)</p>
--	--

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AFFIX OLD LABEL HERE

which has been closed for some time. Apparently the folks at KMUD either did not get word or don't want any mail.

Virginia's Pat Murphy has found still another pirate. How many does this make, Pat? This time it was Radio Beaver on 7415 in USB at 0112. Radio Beaver claims to be Canadian.

And John Braden managed to get his share of pirates up in Massachusetts. He got WORK on 7395 at 0100, One Voice Radio on 7410 at 1948, and Hope Radio International on 7395 at 0142. Ohio's Shaun Erwin now owns a One Voice Radio QSL.

Log it while you still can department: Radio Free Europe's Radio Free Afghanistan program at 0230 on 9555, 11770 and 15370. Reports in English can be sent to Radio Free Europe, 1775 Broadway, New York, NY 10019. The end of the cold war means we may finally get a peace settlement in this troubled land.



Tim Johnson's first QSL from One Voice Radio

Finally, Connecticut's Jim Kalach got a QSL from OZ. We don't know where OZ is, but we realize contributors don't always want us to know where they are either. We understand, and to answer the question asked, we do not publish names *provided* the contributor makes it clear he does not want us to do so.



Tying up loose ends

Why is it that no sooner does one send off the column when something just said is changed? Now I learn that the change of the Montauk Point beacon to 293 kHz and continuous operation (rather than sequenced) is permanent. The notice added that the ID signal will be a little warbly when the signal is being used to broadcast differential corrections to users of the prototype Global Positioning System.

The Coast Guard expects minimal interference with the Breton Reef Light Radio Beacon, BR/295. They say it should not prevent the Breton Reef beacon being used for navigational purposes.

Antenna Follow Up

Back in July, I asked about experiences with commercial antennas and/or home brew types. Bill Bower of Chandler, Oklahoma, sent in a most interesting report about his experiences in Houston (which he referred to as the noise capital of the world). He lived in a condo that allowed no outside antennas. So he "systematically purchased one each of every antenna listed in anyone's catalog that gave specs down to 100 kHz." For two years he ran comparative tests on signal to noise ratio. He used a Sony 2001D and a NRD 525.

His top preference was the LF Engineering L-400B, with the Radio West 24 inch ferrite loop as the next best. He said that sometimes, when there was a lot of noise, the Radio West loop was better. It was, however, trickier to optimize while the LFE required no adjustments.

The other antennas were not listed in any particular order of preference. These included Palomar, Dymek, MFJ, Sony, Ameco, Interceptor Electronics, Ant, Datong and Dressler models.

Out of Range

A couple of months ago, I mentioned some activity in the frequencies between about 1620 kHz and 1800. The signals reported are repeated apparent IDs varying from two or three characters up to seven characters in length. IDs are repeated two or three times and then there may be several minutes of silence.

Marvin Tyndall of Absecon, New Jersey, confirms the theory that these are buoys for fishing nets. He also adds some interesting sidelights to the situation. The buoys are used when fishing 80 miles or more offshore. Their transmitting power is 3 to 8 watts, depending on the package and the battery condition.

There don't seem to be any FCC licenses for

them, possibly because their low power and location makes licensing unnecessary.

Now comes the fascinating part. Most fishermen cannot read Morse Code. So, when they place a particular buoy at the beginning, along the way or at the end of a set of nets, the captain notes only the frequency it transmits on and the visible markings. With the hundreds of these buoys in use, it is not unusual that two or more will be transmitting on the same frequency. Thus, a captain may be following a bearing on someone else's buoy just because it is transmitting on the same frequency. If they could read code, they would save themselves the wrong trip. Such is life on the high seas.

Loggings Time:

These loggings are from Kriss Anderson of North Bend, Oregon. It's a nice collection that includes Canada and Alaska.

200	UAB	Anaheim Lake BC	296	LGD	Quatsino Sound LS BC	333	STI	Mountain Home ID
223	YKA	Kamloops BC	300	L	La Grande OR	335	YXO	Carmi BC
227	CG	Castlegar BC	304	Y	Point Loma CA	338	PBT	Red Bluff CA
230	PD	Pendleton OR	305	ONO	Cape Arago OR	344	FCH	Fresno, CA
	YD	Smithers BC		P	Ontario OR		XX	Abbotsford BC
236	YZA	Ashcroft BC			Pine Island LT BC	347	CO	Coeur d'Alene ID
242	XC	Cranbrook BC	307	G	Sand Heads LS BC		LFA	Klamath Falls OR
251	YCD	Nanaimo BC	308	DST	Missoula MT		NUD	Adak NAS AK
254	SPK	Reno NV	312	CB	Cape Beal LS BC	350	SWU	Idaho Falls ID
257	LW	Kelowna BC	314	F	Farallon Island LS CA	356	FR	Medford OR
260	EU	Eugene OR	317	PB	Piedras Blancas LS CA	359	BO	Boise ID
266	ICK	Mellakatia AK	320	A	Point Arena LS CA		YAZ	Tofino BC
272	XS	Prince George, BC	322	S	Point Sur LS CA	367	2X	St. James BC
274	CQI	Council ID	324	U	Umpqua River LS Or		RD	Redding CA
290	YYF	Penticton BC	326	MCY	Mercury NV	368	ZP	Sandspit BC
292	YCJ	St. James BC	327	CI	Chilco CA	371	YK	Yakima WA
293	MB	Victoria BC	329	D	Carmanah Point BC	373	EP	Estavan Point BC
294	BMC	Brigham City UT		UC	Nicholson Peninsula		MF	Medford OR
296	B	Chetco River Ent. OR			NWT			

Editor's note: It is my firm belief that the success of *Monitoring Times* lies not with any one individual but in the fact that

At first glance, it would seem that the two beacons on 296 using the same ID of B might cause potential conflict. Oregon and British Columbia don't seem that far apart. However, a quick check of the *Aero/Marine Beacon Guide* shows that the Oregon beacon is just barely over 42 degrees, while Quatsino Sound LS is north of 50 degrees. If a sailor doesn't know where he is in relation to either beacon, he is already in deeper trouble than the beacons could have caused. They are many miles apart and the identical IDs should cause no problem.

Double Header

It is not unusual for two or three beacons to begin operation about the same time. They are generally scattered across various parts of the country. It is unusual when two beacons start almost simultaneously in the same city. HFY/318 and UMP/338 are both in Indianapolis. HFY is the new beacon for the Greenwood Memorial Airport and UMP is

we are bound together by a strong love of the radio hobby and of this magazine. We could call ourselves a "club" but the word is not strong enough. Together, we are something more. We are family.

This month, *Monitoring Times* mourns the death of a member of the family, Joe Woodlock. Despite a diagnosis of advanced lung cancer, Joe was adamant: he wanted to continue writing his column 'til the end. Joe had less time than he thought, passing away before he completed his work on this edition.

When Joe first came on board, we openly questioned whether anyone could make such an esoteric facet of the hobby as longwave seem interesting. Your response indicates that he was successful.

We want you to know that Joe Woodlock was a great guy. It was one of the many gifts of this job to have had the opportunity to know him.

-- Larry Miller

MT Program Team

Kannon Shanmugam,
Program Manager

4412 Turnberry Circle
Lawrence, KS 66047

John Carson

Norman, Oklahoma

Jim Frimmel

Willow Park, Texas

program

guide

Sunday

Dec 2nd, 9th, 16th, 23rd, 30th

- 0010 Voice of America (Americas, Caribbean): American Viewpoints. Experts discuss provocative magazine and newspaper articles.
- 0010 Voice of America (East Asia): VOA Morning. Sports, science, business, music, and features about America.
- 0030 BBC: The Ken Bruce Show. A mix of popular music and entertainment news.
- 0030 Voice of America (Caribbean): Weekend Magazine. Music, conversations with correspondents, and talks about the arts.
- 0040 Voice of America (Americas, East Asia): Words and Their Stories (Special English). Explanations of the origins of American expressions.
- 0045 Voice of America (Americas): American Stories (Special English). Fictional tales by great American writers.
- 0045 Voice of America (East Asia): VOA Morning See S 0010.
- 0101 BBC: Play of the Week. Hour-long drama selections.
- 0110 Voice of America (Americas, Caribbean): Communications World. A look at modern telecommunications.
- 0110 Voice of America (South Asia): VOA Morning. See S 0010.
- 0130 Voice of America (Americas, Caribbean): Press Conference, U.S.A. Correspondents ask questions of newsmakers.
- 0209 BBC: British Press Review. Editorial opinion in the British press.
- 0210 Voice of America: VOA Morning. See S 0010.
- 0215 BBC: They Made Our World. Scientists who shaped the future of mankind.
- 0225 BBC: Book Choice. Short reviews of current

- or future best-sellers.
- 0230 BBC: The Making of the Middle East. The conflicts which shaped the Mideast (except December 23rd, 30th: Bury My Heart at Wounded Knee, the Native American today).
- 0310 Voice of America: VOA Morning. See S 0010.
- 0315 BBC: Society Today. A weekly look at changes in Britain.
- 0330 BBC: From Our Own Correspondent. In-depth news stories from correspondents worldwide.
- 0335 BBC (Africa): Postmark Africa. Answers to any question under the sun.
- 0350 BBC: Write On.... Paddy Feeny presents listener letters.
- 0410 Voice of America: VOA Morning. See S 0010.
- 0430 BBC: 'B'-Side Beat. Mike Read plays 'B'-side singles from the '60s and '70s.
- 0435 BBC (Africa): Postmark Africa. See S 0335.
- 0509 BBC: Twenty-Four Hours. Analysis of the main news of the day.
- 0510 Voice of America: VOA Morning. See S 0010.
- 0530 BBC: Financial Review. A look back at the financial week.
- 0540 BBC: Words of Faith. People share how their scripture gives meaning to their lives.
- 0545 BBC: Letter from America. Alistair Cooke's distinctly British view of America.
- 0610 Voice of America: VOA Morning. See S 0010.
- 0630 BBC: Jazz for the Asking. A jazz music request show.
- 0635 BBC (Africa): Postmark Africa. See S 0335.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: From Our Own Correspondent. See S 0330.
- 0735 BBC (Africa): Postmark Africa. See S 0335.
- 0750 BBC: Write On.... See S 0350.
- 1110 Voice of America (Caribbean): Critic's Choice. News from the world of the arts.
- 1110 Voice of America (East Asia): New Horizons. The world of science, medicine, and technology.
- 1115 BBC: Short Story. Brief tales written by BBC listeners (except December 2nd: Seeing Stars, a new monthly series on astronomy).
- 1130 BBC: The Ken Bruce Show. See S 0030.
- 1130 Voice of America (Caribbean): Studio One. Dramatized and narrative documentaries.
- 1130 Voice of America (East Asia): Issues in the News. Members of the Washington press corps discuss current topics.
- 1201 BBC: Play of the Week. See S 0101.
- 1210 Voice of America: Encounter. A discussion program presenting opinions on world issues.
- 1230 Voice of America: Studio One. See S 1130.
- 1310 Voice of America: Critic's Choice. News from the world of the arts.
- 1340 Voice of America: Words and Their Stories (Special English). See S 0040.
- 1345 BBC: Sports Roundup. The day's sports news.
- 1345 Voice of America: People in America (Special English). A feature program about America's diverse people.
- 1401 BBC: Feature. Topical programming on various subjects.
- 1410 Voice of America: The Concert Hall. Classical music and interviews with America's great artists and conductors.
- 1430 BBC: Anything Goes. Bob Holness presents a variety of odd recordings.
- 1455 Voice of America: Editorial. American opinion.
- 1500 BBC (Africa): African Perspective. A look at a major issue affecting Africa.
- 1510 Voice of America: New Horizons. See S 1110.
- 1515 BBC: Concert Hall. Recordings of classical music selections.
- 1530 Voice of America: Studio One. See S 1130.
- 1610 Voice of America (Africa): Nightline Africa. News and reports on world and African issues.
- 1610 Voice of America: Encounter. See S 1210.



The BBC's Cairo correspondent, Bamaby Mason, pursues a story.

legend

- * The first four digits of an entry are the program start time in UTC.
- * The time is followed by the station name, program name, and a brief summary of the program's content.
- * Some listings may be followed by "See X 0000." The letter stands for a day of the week:

S=Sunday M=Monday
T=Tuesday W=Wednesday
H=Thursday F=Friday
A=Saturday

The four digits stand for a time in UTC. Listeners should check back to that date and time to find out more about that particular program.

- * All days are in UTC. Remember that if you are listening in North American prime time, it is actually the next morning UTC.

For example, if you are listening to a program at 8:01 pm [EDT] on your Thursday night, that's equal to 0001 UTC and therefore Friday morning UTC.

- * We suggest that you tune in to a program a few minutes before the

schedule start time, as some stations have tentative schedules which may slightly vary. Consult the frequency section beginning on page 65 for the frequencies in use by that station at that time.

newslines is your guide to news broadcasts on the air. All broadcasts are daily unless otherwise noted by brackets enclosing the day codes.

We invite listeners and stations to send program information to the program manager at the address above.

program guide



The busy newsroom at the Voice of America

- 1615 BBC (Africa): African Perspective. See S 1500.
- 1615 BBC: The Making of the Middle East (except December 23rd, 30th: Bury My Heart at Wounded Knee). See S 0230.
- 1640 Voice of America: Words and Their Stories (Special English). See S 0040.
- 1645 BBC: Letter from America. See S 0545.
- 1645 Voice of America: People in America (Special English). See S 1345.
- 2305 BBC: Words of Faith. See S 0540.
- 2310 BBC: Book Choice. See S 0225.
- 2310 Voice of America: Newslines. News, correspondent reports, interviews, and opinion.
- 2315 BBC: Letter from America. See S 0545.
- 2330 BBC: Feature. See S 1401.
- 2330 Voice of America: VOA Morning. See S 0010.

- 0040 Voice of America (East Asia): Science Report (Special English). Developments in the world of science and technology.
- 0045 Voice of America (East Asia): VOA Morning. See S 0010.
- 0101 BBC: In My Life: Lennon Remembered. The life and career of the great Beale (except December 17th: Let It Be -- Liverpool, excerpts from Paul McCartney's concert this past summer in Liverpool).
- 0110 Voice of America (Americas, Caribbean): New Horizons. See S 1110.
- 0110 Voice of America (South Asia): Newslines. See S 2310.
- 0130 Voice of America (Americas, Caribbean): Issues in the News. See S 1130.
- 0130 Voice of America (South Asia): VOA Morning. See S 0010.
- 0145 BBC: Instruments of the Orchestra. A look at each of the instruments in a typical orchestra (except December 17th).
- 0209 BBC: British Press Review. See S 0209.
- 0210 Voice of America: Newslines. See S 2310.
- 0215 BBC: Andy Kershaw's World of Music. Exotic and innovative music from the world over.
- 0230 BBC: Composer of the Month. A month-long series on a particular classical music composer.
- 0230 Voice of America: VOA Morning. See S 0010.

- 0310 Voice of America: Daybreak Africa. Correspondent reports, news features, and background reports.
- 0315 BBC: Good Books. A recommendation of a book to read.
- 0330 BBC: Anything Goes. See S 1430.
- 0335 BBC (Africa): Network Africa. Hilton Fyle and the team present information, personalities, and music.
- 0410 Voice of America: Newslines. See S 2310.
- 0430 BBC: Off the Shelf. A reading selected from the best of world literature.
- 0430 Voice of America: VOA Morning. See S 0010.
- 0435 BBC (Africa): Network Africa. See M 0335.
- 0445 BBC: The Learning World. Reports on education and training programs worldwide.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0510 Voice of America: Newslines. See S 2310.
- 0530 BBC: Waveguide. How to hear the BBC better.
- 0530 Voice of America: VOA Morning. See S 0010.
- 0540 BBC: Words of Faith. See S 0540.
- 0545 BBC: Recording of the Week. A personal choice from the latest classical music releases.
- 0610 Voice of America (Africa): Daybreak Africa. See M 0310.
- 0610 Voice of America: Newslines. See S 2310.
- 0630 BBC: Feature. See S 1401.
- 0630 Voice of America: VOA Morning. See S 0010.
- 0635 BBC (Africa): Network Africa. See M 0335.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: The Making of the Middle East (except December 24th, 31st: Bury My Heart at Wounded Knee). See S 0230.
- 0735 BBC (Africa): Network Africa. See M 0335.
- 1110 Voice of America (Caribbean): Focus. A look at the major figures and issues that shape contemporary life.
- 1110 Voice of America: Science Report (Special English). See M 0040.
- 1115 BBC: Health Matters. New developments in the world of medical science and fitness.
- 1115 Voice of America: This is America (Special English). A look at various unique aspects of American culture.
- 1130 BBC: Composer of the Month. See M 0230.
- 1130 Voice of America (Caribbean): VOA Morning. See S 0010.
- 1130 Voice of America: Music, U.S.A. (Standards). Classics of American popular music.
- 1210 Voice of America: Newslines. See S 2310.
- 1215 BBC: Hoax. Three guests tell stories in this game show, and one's a hoax. But which?

Monday

Dec 3rd, 10th, 17th, 24th, 31st

- 0010 Voice of America (Americas, Caribbean): Encounter. See S 1210.
- 0010 Voice of America (East Asia): Newslines. See S 2310.
- 0030 BBC: In Praise of God. A half-hour program of worship.
- 0030 Voice of America (Americas, Caribbean): Spotlight. Reports and interviews on people,

newslines

- 0000 BBC: Newsdesk
- 0000 Christian Science Monitor: News
- 0000 Kol Israel: News
- 0000 Radio Australia: International Report
- 0000 Radio Beijing: News
- 0000 Radio Canada Int'l: [S-M]: World at 6 [T-A]
- 0000 Radio Finland: Northern Report [T-A]
- 0000 Radio Havana Cuba: News [T-S]
- 0000 Radio Korea: News
- 0000 Radio Moscow: News
- 0000 Radio New Zealand Int'l: News [M-A]
- 0000 Radio Prague Int'l: News
- 0000 Radio Sofia: News
- 0000 Spanish Foreign Radio: News
- 0000 Voice of America: News
- 0000 WWCR: USA Radio News [T-A]
- 0005 Radio Pyongyang: News
- 0010 Radio Beijing: News About China
- 0030 BRT, Brussels: News [T-A]
- 0030 Christian Science Monitor (Asia): News [M]
- 0030 Christian Science Monitor: News [T-F]
- 0030 HCJB: Latin American News
- 0030 Radio Budapest: News [T-S]
- 0030 Radio Canada Int'l: News [S-M]
- 0030 Radio Havana Cuba: Newsbreak [T-S]

- 0030 Radio Jamahiriya, Libya: News
- 0030 Radio Moscow (World Service): News in Brief
- 0030 Radio Netherlands: News [T-S]
- 0030 Voice of America (Americas, East Asia): News (Special English) [T-S]
- 0030 Voice of America (East Asia): News (Special English) [M]
- 0045 Radio Korea (World News Service): News
- 0051 Spanish Foreign Radio: News Summary [S]
- 0055 KUSW: News [T-S]
- 0055 WRNO: ABC News [H, A]
- 0100 All India Radio: News
- 0100 BBC: News Summary
- 0100 Christian Science Monitor: News
- 0100 Deutsche Welle: World News
- 0100 Kol Israel: News
- 0100 Radio Australia: World and Australian News
- 0100 Radio Canada Int'l: News [S-M]
- 0100 Radio Havana Cuba: News [T-S]
- 0100 Radio Japan: News
- 0100 Radio Moscow: News
- 0100 Radio New Zealand Int'l: News [M-F]
- 0100 Radio Prague Int'l: News
- 0100 Radio Yugoslavia: News
- 0100 Radiotelevisione Italiana: News
- 0100 RAE, Buenos Aires: News [T-A]
- 0100 Spanish Foreign Radio: News

- 0100 Voice of America: News
- 0100 Voice of Indonesia: News
- 0100 WWCR: USA Radio News [T-S]
- 0115 Radio Havana Cuba: Cuban Nat'l News [T-S]
- 0125 HCJB: World News
- 0130 Christian Science Monitor (Asia): News [M]
- 0130 Christian Science Monitor: News [T-F]
- 0130 Radio Austria Int'l: News
- 0130 Radio Budapest: News
- 0130 Radio Havana Cuba: Newsbreak [T-S]
- 0130 Radio Moscow (World Service): News in Brief
- 0130 Voice of Greece: News [M-A]
- 0151 Spanish Foreign Radio: News Summary [S]
- 0155 KUSW: News [T-S]
- 0155 Voice of Indonesia: News in Brief
- 0155 WRNO: ABC News [W, A]
- 0200 BBC: World News
- 0200 Christian Science Monitor: News
- 0200 Deutsche Welle: World News
- 0200 Kol Israel: News
- 0200 Radio Australia: International Report
- 0200 Radio Bras, Brasilia: News [T-S]
- 0200 Radio Canada Int'l: The World at Six [T-A]
- 0200 Radio Havana Cuba: News [T-S]
- 0200 Radio Moscow: News
- 0200 Radio New Zealand Int'l: News [M-F]
- 0200 Radio Romania Int'l: News

the program file

november 1990

- 1230 Voice of America: Magazine Show. Features about culture, science, sports, medicine, and the arts in America.
- 1245 BBC: Sports Roundup. See S 1345.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1310 Voice of America: Focus. See M 1110.
- 1330 BBC: Andy Kershaw's World of Music. See M 0215.
- 1340 Voice of America: Science Report (Special English). See M 0040.
- 1345 BBC: Personal View. See S 0445.
- 1345 Voice of America: This Is America (Special English). See M 1115.
- 1405 BBC: Outlook. Conversation, controversy, and color from Britain and the rest of the world.
- 1410 Voice of America: Asia Report. News, correspondent reports, interviews, and opinion.
- 1430 BBC: Off the Shelf. See M 0430.
- 1445 BBC: They Made Our World. See S 0215.
- 1455 BBC: Book Choice. See S 0225.
- 1455 Voice of America: Editorial. See S 1455.
- 1510 Voice of America: Newslines. See S 2310.
- 1515 BBC (Africa): Focus on Africa. African politics, sports, economics, medicine, and media.
- 1515 BBC: In My Life: Lennon Remembered (except December 17th, Let It Be -- Liverpool). See M 0101.
- 1530 Voice of America: Magazine Show. See M 1230.
- 1610 Voice of America (Africa): Nightline Africa (until 1700). See S 1610.
- 1610 Voice of America: Focus. See M 1110.
- 1615 BBC (Africa): Focus on Africa. See M 1515.
- 1615 BBC: New Ideas. A look at new products and technological developments.
- 1635 BBC: Tales From Wales. Four strange Welsh stories from somewhere west of London!
- 1640 Voice of America: Science Report (Special English). See M 0040.
- 1645 BBC (Middle East): Gulf Link. Information of relevance on the Gulf crisis.
- 1645 BBC: The World Today. News analysis on a selected location or event in the news.
- 1645 Voice of America: This Is America (Special English). See M 1115.
- 2305 BBC: Commentary. Background to the news from a wide range of specialists.
- 2310 BBC: Financial News. News of commodity prices and significant moves in currency and stock markets.
- 2310 Voice of America: Newslines. See S 2310.
- 2315 BBC: Poems by Post. Michael Rosen presents your poetry requests.

A BEEB CHRISTMAS: Check out "Holiday Highlights" elsewhere in this program section for details on special BBC holiday programming. In addition, the BBC also features these specials in their regular weekly programs:

In "Off the Shelf," producer Richard Dunn selects several spooky Christmas tales, including one or two by Charles Dickens. These "Christmas Chillers" can be heard from the 24th to the 28th at 0430 UTC, repeated at 1430 UTC.

In "Play of the Week" on December 16th, hear "The White Carnation," a bizarre Christmas story about time travel, ghosts, and deserted houses! Tune in to find out more at 0101 UTC, repeated at 1201 UTC.

On December 30th, "Financial Review" presents the "Financial Review of 1990," a year in which East Germany moved rapidly toward unification -- and a market economy. The program airs at 0530 UTC.

Hear the UK Christmas pop charts in "Multitrack 1" on the 24th. The top twenty best-selling singles of 1990 are counted down in "Multitrack 2" on the 26th, and "Multitrack 3" reviews the year in pop music on the 28th. All three programs are broadcast at 2330 UTC, with repeats the following day at 1215 UTC.

Finally, some readers will be glad to hear that the special concert featuring Carreras, Domingo, and Pavarotti in Rome during this summer's World Cup will be broadcast on "Concert Hall," December 23rd at 1515 UTC, with a repeat Christmas Day at 2315 UTC. Why will only some readers be glad? Because others -- like me -- plunked down \$10 for the album version!

WHILE WE'RE ON THE SUBJECT: Two final comments on the BBC's holiday programming. First, "The Queen's Speech" can be heard on several additional

frequencies during the 1500 UTC broadcast on Christmas Day; see the "Holiday Highlights" for details. In addition, the 1502 UTC broadcast of "The Festival of Nine Lessons and Carols" is simulcast on National Public Radio in the U.S. and is telecast on a delayed basis that evening on many PBS television stations. Check local listings for details; needless to say, NPR on FM has slightly better fidelity than does the BBC on shortwave!

Here are some of the nine carols on this year's program: Peter Cornelius' "Three Kings," Harold Darke's "In the Bleak Midwinter," "Hark, the Herald Angels Sing," "O Come, All Ye Faithful," and the traditional opener, "Once in Royal David's City."

BBC SHUFFLE: As expected, the BBC has shuffled many of their regular programs. Among other changes, "From Our Own Correspondent" has expanded to 20 minutes, with Paddy Feeny's letterbox program "Write On..." becoming a regular, 10-minute feature. Please consult the program guide to make sure you don't miss your favorite regulars.

HAPPY NEW YEAR, FOLKS: That does it for another year of the *MT* program section. Quite a year, too -- Radio Berlin International and Radio RSA (most of it, anyway) left the air and entered the history books, and Radio Moscow continued to open up to the world. Big changes are in store for the program section, too, starting from the January issue -- but it's a secret, so I'll keep you guessing.

On behalf of the entire program section staff, best wishes for the holidays and the New Year.

-- Kannon Shanmugam
Program Manager

- 0200 Swiss Radio Int'l: News
- 0200 Voice of America: News
- 0200 Voice of Free China: News
- 0200 WWCR: USA Radio News [T-A]
- 0215 BBC (Asia): Newsreel
- 0215 Radio Cairo: News
- 0230 Christian Science Monitor (Af,Eur):[M]
- 0230 Christian Science Monitor: News [T-F]
- 0230 HCJB: Latin American News
- 0230 Radio Havana Cuba: Newsbreak [T-S]
- 0230 Radio Moscow (World Service): News in Brief
- 0230 Radio Portugal: News [T-A]
- 0230 Radio Tirana, Albania: News
- 0245 Radio for Peace Int'l: UN Radio News [T-A]
- 0245 Radio Korea (World News Service): News
- 0255 KUSW: News [T-S]
- 0300 BBC: World News
- 0300 Christian Science Monitor: News
- 0300 Deutsche Welle: World News
- 0300 Radio Australia: World and Australian News
- 0300 Radio Beijing: News
- 0300 Radio Havana Cuba: News [T-S]
- 0300 Radio Japan: News
- 0300 Radio Moscow: News
- 0300 Radio New Zealand Int'l: News [M-F]
- 0300 Radio Prague Int'l: News
- 0300 Voice of America: News

- 0300 Voice of Free China: News
- 0300 WWCR: USA Radio News [T-S]
- 0309 BBC: News About Britain
- 0310 Radio Beijing: News About China
- 0315 Radio Cairo: News
- 0315 Radio France Int'l: News
- 0315 Radio Havana Cuba: Cuban Nat'l News [T-S]
- 0325 HCJB: World News
- 0330 BBC (Africa): African News
- 0330 Christian Science Monitor (Af,Eur):[M]
- 0330 Christian Science Monitor: News [T-F]
- 0330 Radio Havana Cuba: Newsbreak [T-S]
- 0330 Radio Moscow (World Service): News in Brief
- 0330 Radio Netherlands: News [T-S]
- 0330 Radio Tirana, Albania: News
- 0330 UAE Radio, Dubai: News
- 0340 Voice of Greece: News [M-A]
- 0350 Radio Yerevan: News
- 0350 Radiotelevisione Italiana: News
- 0355 KUSW: News [T-S]
- 0355 Radio Japan: News [M-F]
- 0400 BBC: Newsdesk
- 0400 Christian Science Monitor: News
- 0400 Deutsche Welle: World News
- 0400 Radio Australia: International Report
- 0400 Radio Beijing: News
- 0400 Radio Canada Int'l: News

- 0400 Radio Havana Cuba: News [T-S]
- 0400 Radio Moscow: News
- 0400 Radio New Zealand Int'l: News [M-F]
- 0400 Radio Prague Int'l: News
- 0400 Radio Romania Int'l: News
- 0400 Radio RSA: News
- 0400 Radio Sofia: News
- 0400 Swiss Radio Int'l: News
- 0400 Voice of America: News
- 0400 Voice of Turkey: News
- 0400 WRNO: ABC News [F]
- 0400 WWCR: USA Radio News [M-A]
- 0405 Radio New Zealand Int'l: NZ News [M-F]
- 0405 Radio Pyongyang: News
- 0410 Radio Beijing: News About China
- 0425 Radiotelevisione Italiana: News
- 0430 BBC (Africa): African News
- 0430 Christian Science Monitor (Africa, Europe, NE Asia): News [M]
- 0430 Christian Science Monitor: News [T-F]
- 0430 Radio Canada Int'l: News [T-A]
- 0430 Radio Havana Cuba: Newsbreak [T-S]
- 0430 Radio Moscow (World Service): News in Brief
- 0430 Radio Tirana, Albania: News
- 0455 KUSW: News [T-S]
- 0455 WYFR (Network): News [T-A]
- 0500 BBC: World News

program

guide

- 2330 BBC: Multitrack 1: Top 20. Tim Smith presents what's hot on the British pop music charts.
2330 Voice of America: VOA Morning. See S 0010.

Tuesday

Dec 4th,11th,18th,25th

- 0010 Voice of America (Americas, East Asia): Newslines. See S 2310.
0010 Voice of America (Caribbean): Caribbean Report. The latest news, sports, financial news, and weather reports for the Caribbean.
0030 BBC: Megamix. A compendium of music,



*Mary Christmas
from the Voice of
Turkey!*

*QSL from
Tim Johnson,
Galesburg, IL*

- sport, fashion, health, travel, news and views for young people.
0030 Voice of America (Caribbean): Music, U.S.A. (Standards). See M 1130.
0040 Voice of America (Americas, East Asia): Science Report (Special English). See M 0040.
0045 Voice of America (Americas): This Is America (Special English). See M 1115.
0045 Voice of America (East Asia): VOA Morning. See S 0010.
0101 BBC: Outlook. See M 1405.
0110 Voice of America (Americas, Caribbean): Report to the Americas. News, correspondent

- reports, interviews, and opinion.
0110 Voice of America (South Asia): Newslines. See S 2310.
0125 BBC: Financial News. See M 2310.
0130 BBC: Personal View. See S 0445.
0130 Voice of America (South Asia): VOA Morning. See S 0010.
0145 BBC (Asia): The World Today. See M 1645.
0145 BBC: Europe's World. A magazine program reflecting life in Europe and its links with other parts of the world.
0155 Voice of America (Americas, Caribbean): Editorial.
0209 BBC: British Press Review. See S 0209.
0210 Voice of America (Americas, Caribbean): Focus. See M 1110.
0210 Voice of America (South Asia): Newslines. See S 2310.
0215 BBC: Network UK. A look at the issues and events that affect the lives of people throughout the UK.
0230 BBC: Sports International. Feature program on a topic or person making sports headlines.
0230 Voice of America (South Asia): VOA Morning. See S 0010.
0310 Voice of America: Daybreak Africa. See M 0310.
0315 BBC: The World Today. See M 1645.
0330 BBC: John Peel. Tracks from newly released albums and singles from the contemporary

- music scene.
0335 BBC (Africa): Network Africa. See M 0335.
0410 Voice of America: Newslines. See S 2310.
0430 BBC: Off the Shelf. See M 0430.
0430 Voice of America: VOA Morning. See S 0010.
0435 BBC (Africa): Network Africa. See M 0335.
0445 BBC (Middle East): Gulf Link. See M 1645.
0445 BBC: Europe's World. See T 0145.
0509 BBC: Twenty-Four Hours. See S 0509.
0510 Voice of America: Newslines. See S 2310.
0530 BBC: Financial News. See M 2310.
0530 Voice of America: VOA Morning. See S 0010.
0540 BBC: Words of Faith. See S 0540.
0545 BBC: The World Today. See M 1645.
0610 Voice of America (Africa): Daybreak Africa. See M 0310.
0610 Voice of America: Newslines. See S 2310.
0630 BBC: The Compleat Collins. The career of Phil Collins, one of the most successful pop musicians of our generation.
0630 Voice of America: VOA Morning. See S 0010.
0635 BBC (Africa): Network Africa. See M 0335.
0709 BBC: Twenty-Four Hours. See S 0509.
0730 BBC: New Ideas. See M 1615.
0735 BBC (Africa): Network Africa. See M 0335.
0750 BBC: Tales From Wales. See M 1635.
1110 Voice of America (Caribbean): Focus. See M 1110.
1110 Voice of America (Special English): Agriculture Report. Developments in agriculture.
1115 BBC: Waveguide. See M 0530.
1115 Voice of America (Special English): Science in the News. The role of science in everyday life.
1125 BBC: Book Choice. See S 0225.
1130 BBC: Megamix. See T 0030.
1130 Voice of America (Caribbean): VOA Morning. See S 0010.
1130 Voice of America: Now Music, U.S.A. Rock and soul music from old favorites to the latest hits, and profiles of the stars.
1210 Voice of America: Newslines. See S 2310.
1215 BBC: Multitrack 1: Top 20. See M 2330.
1230 Voice of America: Magazine Show. See M 1230.
1245 BBC: Sports Roundup. See S 1345.
1309 BBC: Twenty-Four Hours. See S 0509.
1310 Voice of America: Focus. See M 1110.
1330 BBC: Network UK. See T 0215.
1340 Voice of America (Special English): Agriculture Report. See T 1110.
1345 BBC: 'B'-Side Beat. See S 0430.
1345 Voice of America (Special English): Science in the News. See T 1115.

newslines cont'd from p.59

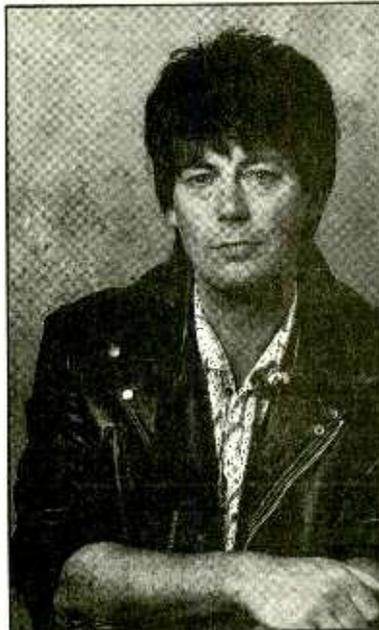
- 0500 Christian Science Monitor: News
0500 Deutsche Welle: World News
0500 HCJB: Latin American News
0500 Kol Israel: News
0500 Radio Australia: World and Australian News
0500 Radio Beijing: News
0500 Radio Havana Cuba: News [T-S]
0500 Radio Japan: News
0500 Radio Moscow: News
0500 Radio New Zealand Int'l: News [M-A]
0500 Spanish Foreign Radio: News
0500 Voice of America: News
0500 WWCR: USA Radio News [T-A]
0510 Radio Beijing: News About China
0515 Radio Havana Cuba: Cuban Nat'l News [T-S]
0530 Christian Science Monitor (Africa, Europe, NE Asia): News [M]
0530 Christian Science Monitor: News [T-F]
0530 Radio Austria Int'l: News
0530 Radio Finland: Northern Report [T-A]
0530 Radio Havana Cuba: Newsbreak [T-S]
0530 Radio Jordan: News
0530 Radio Moscow (World Service): News in Brief
0530 Radio Romania Int'l: News
0530 UAE Radio, Dubai: News

- 0530 Voice of Nigeria: News
0545 Voice of Nigeria: News About Nigeria
0551 Spanish Foreign Radio: News Summary [S]
0555 HCJB: World News
0555 KUSW: News [S, T-F]
0600 BBC: Newsdesk
0600 Christian Science Monitor: News
0600 Deutsche Welle: World News
0600 Radio Australia: International Report
0600 Radio Havana Cuba: News [T-S]
0600 Radio Moscow: News
0600 Radio New Zealand Int'l: News [M-F]
0600 Voice of America: News
0605 Radio New Zealand Int'l: NZ News [M-F]
0605 Radio Pyongyang: News
0618 Radio Canada Int'l: News [M-F]
0630 BBC (Africa): African News
0630 Christian Science Monitor: News [M-F]
0630 Radio Havana Cuba: Newsbreak [T-S]
0630 Radio Moscow (World Service): News in Brief
0630 Radio Polonia: News
0630 Radio Tirana, Albania: News
0630 Swiss Radio Int'l: News
0640 Radio Prague Int'l: News
0645 Radio Romania Int'l: News
0655 KUSW: News [S, T-F]
0700 BBC: World News

- 0700 Christian Science Monitor: News
0700 Radio Australia: World and Australian News
0700 Radio Havana Cuba: News [T-S]
0700 Radio Japan: News
0700 Radio Moscow: News
0700 Radio New Zealand Int'l: News [M-F]
0700 Radio Tirana, Albania: News
0700 Voice of Free China: News
0715 Radio Havana Cuba: Cuban Nat'l News [T-S]
0730 BBC (Africa): African News
0730 BRT, Brussels: News [M-F]
0730 Christian Science Monitor: News [M-F]
0730 HCJB: Latin American News
0730 Radio Austria Int'l: News
0730 Radio Finland: Northern Report [T-A]
0730 Radio Havana Cuba: Newsbreak [T-S]
0730 Radio Moscow (World Service): News in Brief
0730 Radio Netherlands: News [M-A]
0730 Radio Prague Int'l: News
0730 Radio Sofia: News
0730 Swiss Radio Int'l: News
0755 KUSW: News [S]
0755 Radio Japan: News [M-F]
0800 BBC: World News
0800 Christian Science Monitor: News
0800 Radio Australia: International Report
0800 Radio Jordan: News Summary

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- 1405 BBC: Outlook. See M 1405.
- 1410 Voice of America: Asia Report. See M 1410.
- 1430 BBC: Off the Shelf. See M 0430.
- 1445 BBC: Instruments of the Orchestra. See M 0145.
- 1455 Voice of America: Editorial. See S 1455.
- 1510 Voice of America: Newline. See S 2310.
- 1515 BBC (Africa): Focus on Africa. See M 1515.
- 1515 BBC: A Jolly Good Show. Dave Lee Travis presents requests, the Record of the Month, and the album charts.
- 1530 Voice of America: Magazine Show. See M 1230.
- 1610 Voice of America (Africa): Nightline Africa (until 1700). See S 1610.
- 1610 Voice of America: Focus. See M 1110.
- 1615 BBC (Africa): Focus on Africa. See M 1515.
- 1615 BBC: Omnibus. A half-hour program on practically any topic.
- 1640 Voice of America (Special English): Agriculture Report. See T 1110.
- 1645 BBC (Middle East): Gulf Link. See M 1645
- 1645 BBC: The World Today. See M 1645.
- 1645 Voice of America (Special English): Science in the News. See T 1115.
- 2305 BBC: Commentary. See M 2305.
- 2310 BBC: Financial News. See M 2310.
- 2310 Voice of America: Newline. See S 2310.
- 2315 BBC: Concert Hall. See S 1515.
- 2330 Voice of America: VOA Morning. See S 0010.



Remember what was on the flip side of those '60s and '70s hits? Mike Read plays them on the BBC's "B" Side Beat" in the ultimate trivia quest.

Wednesday

Dec 5th, 12th, 19th, 26th

- 0010 Voice of America (Americas, East Asia): Newline. See S 2310.
- 0010 Voice of America (Caribbean): Caribbean Report. See T 0010.
- 0030 BBC: Omnibus. See T 1615.
- 0030 Voice of America (Caribbean): Now Music, U.S.A. See T 1130.
- 0040 Voice of America (Americas): Agriculture Report (Special English). See T 1110.
- 0040 Voice of America (East Asia): Science Report (Special English). See M 0040.
- 0045 Voice of America (Americas): Science in the News (Special English). See T 1115.
- 0045 Voice of America (East Asia): VOA Morning. See S 0010.
- 0101 BBC: Outlook. See M 1405.
- 0110 Voice of America (Americas, Caribbean): Report to the Americas. See T 0110.

- 0110 Voice of America (South Asia): Newline. See S 2310.
- 0125 BBC: Financial News. See M 2310.
- 0130 BBC: Mediawatch. Keith Hindell presents media developments.
- 0130 Voice of America (South Asia): VOA Morning. See S 0010.
- 0145 BBC (Asia): The World Today. See M 1645.
- 0145 BBC: Country Style. David Allan presents British country music.
- 0155 Voice of America (Americas, Caribbean): Editorial. See S 1455.
- 0209 BBC: British Press Review. See S 0209.
- 0210 Voice of America (Americas, Caribbean): Focus. See M 1110.
- 0210 Voice of America (South Asia): Newline. See S 2310.
- 0215 BBC: Health Matters. See M 1115.
- 0230 BBC: Storm Clouds Over the Himalayas. Mike

- Bullen looks at the political disharmony along the world's highest mountains.
- 0230 Voice of America (South Asia): VOA Morning. See S 0010.
- 0310 Voice of America: Daybreak Africa. See M 0310.
- 0315 BBC: The World Today. See M 1645.
- 0330 BBC: Discovery. An in-depth look at scientific research.
- 0335 BBC (Africa): Network Africa. See M 0335.
- 0410 Voice of America: Newline. See S 2310.
- 0430 BBC: Off the Shelf. See M 0430.
- 0430 Voice of America: VOA Morning. See S 0010.
- 0435 BBC (Africa): Network Africa. See M 0335.
- 0445 BBC (Middle East): Gulf Link. See M 1645.
- 0445 BBC: Country Style. See W 0145.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0510 Voice of America: Newline. See S 2310.
- 0530 BBC: Financial News. See M 2310.
- 0530 Voice of America: VOA Morning. See S 0010.
- 0540 BBC: Words of Faith. See S 0540.
- 0545 BBC: The World Today. See M 1645.
- 0610 Voice of America (Africa): Daybreak Africa. See M 0310.
- 0610 Voice of America: Newline. See S 2310.
- 0630 BBC: Meridian. The world of the arts, including music, drama, and books.
- 0630 Voice of America: VOA Morning. See S 0010.
- 0635 BBC (Africa): Network Africa. See M 0335.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: Development '90. Aid and development issues.
- 0735 BBC (Africa): Network Africa. See M 0335.
- 1110 Voice of America (Caribbean): Focus. See M 1110.
- 1110 Voice of America: Science Report (Special English). See M 0040.
- 1115 BBC: Country Style. See W 0145.
- 1115 Voice of America: Space and Man (Special English). Various aspects of life in space.
- 1130 BBC: Meridian. See W 0630.
- 1130 Voice of America (Caribbean): VOA Morning. See S 0010.
- 1130 Voice of America: Now Music, U.S.A. See T 1130.
- 1210 Voice of America: Newline. See S 2310.
- 1215 BBC: New Ideas. See M 1615.
- 1230 Voice of America: Magazine Show. See M 1230.
- 1235 BBC: Tales From Wales. See M 1635.
- 1245 BBC: Sports Roundup. See S 1345.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1310 Voice of America: Focus. See M 1110.
- 1330 BBC: Development '90. See W 0730.

- 0800 Radio Korea: News
- 0800 Radio Moscow (World Service): News
- 0800 Voice of Indonesia: News
- 0805 Radio Pyongyang: News
- 0825 HCJB: World News
- 0830 Christian Science Monitor: News [M-F]
- 0830 Radio Beijing: News
- 0830 Radio Moscow (World Service): News in Brief
- 0830 Radio Netherlands: News [M-A]
- 0830 Swiss Radio Int'l: News
- 0840 Radio Beijing: News About China
- 0840 Voice of Greece: News
- 0855 KUSW: News [S]
- 0855 Voice of Indonesia: News in Brief
- 0900 BBC: World News
- 0900 Christian Science Monitor: News
- 0900 Deutsche Welle: World News
- 0900 Radio Australia: World and Australian News
- 0900 Radio Finland: Northern Report [T-A]
- 0900 Radio Japan: News
- 0900 Radio Moscow (World Service): News
- 0915 Radio Korea (World News Service): News
- 0930 Christian Science Monitor: News [M-F]
- 0930 Deutsche Welle (Africa): African News [M-F]
- 0930 Radio Beijing: News
- 0930 Radio Finland: Northern Report [T-A]
- 0930 Radio Moscow (World Service): News in Brief

- 0940 Radio Beijing: News About China
- 0955 KUSW: News [S]
- 0955 Radio Japan: News [M-F]
- 1000 All India Radio: News
- 1000 BBC: News Summary
- 1000 BRT, Brussels: News [M-F]
- 1000 Christian Science Monitor: News
- 1000 HCJB: Latin American News
- 1000 Radio Australia: International Report
- 1000 Radio Jordan: News Summary
- 1000 Radio Moscow (World Service): News
- 1000 Swiss Radio Int'l: News
- 1000 Voice of America: News
- 1030 Christian Science Monitor: News [M-F]
- 1030 Radio Austria Int'l: News [M-F]
- 1030 Radio Korea: News [M-S]
- 1030 Radio Moscow (World Service): News in Brief
- 1030 Radio Netherlands: News [M-A]
- 1030 UAE Radio, Dubai: News
- 1040 Voice of Greece: News
- 1055 All India Radio: News Summary
- 1055 HCJB: World News
- 1055 KUSW: News [S]
- 1100 BBC: World News
- 1100 Christian Science Monitor: News
- 1100 Deutsche Welle: World News
- 1100 Kol Israel: News

- 1100 Radio Australia: World and Australian News
- 1100 Radio Beijing: News
- 1100 Radio Japan: News
- 1100 Radio Jordan: News Summary
- 1100 Radio Korea: News
- 1100 Radio Moscow (World Service): News
- 1100 Radio RSA: News
- 1100 Swiss Radio Int'l: News
- 1100 Trans World Radio, Bonaire: News [M-F]
- 1100 Voice of America: News
- 1105 Radio Pyongyang: News
- 1109 BBC: News About Britain
- 1110 Radio Beijing: News About China
- 1115 Radio Korea (World News Service): News
- 1130 Christian Science Monitor: News [M-F]
- 1130 Deutsche Welle: African News [M-F]
- 1130 Radio Austria Int'l: News [M-F]
- 1130 Radio Moscow (World Service): News in Brief
- 1130 Radio Netherlands: News [M-A]
- 1150 Radio Finland: Northern Report [T-F]
- 1155 KUSW: News [S]
- 1155 Radio Japan: News [M-F]
- 1200 BBC: News Summary [S]; Newsreel [M-A]
- 1200 Christian Science Monitor: News
- 1200 Radio Australia: International Report
- 1200 Radio Beijing: News
- 1200 Radio Jordan: News

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- 1340 Voice of America: Science Report (Special English). See M 0040.
- 1345 Voice of America: Space and Man (Special English). See W 1115.
- 1405 BBC: Outlook. See M 1405.
- 1410 Voice of America: Asia Report. See M 1410.
- 1430 BBC: Off the Shelf. See M 0430.
- 1445 BBC: Business Matters. A weekly survey of commercial and financial news.
- 1455 Voice of America: Editorial. See S 1455.
- 1510 Voice of America: Newsline. See S 2310.
- 1515 BBC (Africa): Focus on Africa. See M 1515.
- 1515 BBC: Poems by Post. See M 2315.
- 1530 BBC: Smash of the Day. A comedy series.
- 1530 Voice of America: Magazine Show. See M 1230.
- 1610 Voice of America (Africa): Nightline Africa



Paula Wolfson serves as White House correspondent for the Voice of America.

- (until 1700). See S 1610.
- 1610 Voice of America: Focus. See M 1110.
- 1615 BBC (Africa): Focus on Africa. See M 1515.
- 1615 BBC: The Compleat Collins. See T 0630.
- 1640 Voice of America: Science Report (Special English). See M 0040.
- 1645 BBC (Middle East): Gulf Link. See M 1645.
- 1645 BBC: The World Today. See M 1645.
- 1645 Voice of America: Space and Man (Special English). See W 1115.
- 2305 BBC: Commentary. See M 2305.
- 2310 BBC: Financial News. See M 2310.
- 2310 Voice of America: Newsline. See S 2310.
- 2315 BBC: Good Books. See M 0315.
- 2330 BBC: Multitrack 2. Graham Bannerman presents new pop records, interviews, news,

- and competitions.
- 2330 Voice of America: VOA Morning. See S 0010.

Thursday

Dec 6th, 13th, 20th, 27th

- 0010 Voice of America (Americas, East Asia): Newsline. See S 2310.
- 0010 Voice of America (Caribbean): Caribbean Report. See T 0010.
- 0030 BBC: Smash of the Day. See W 1530.
- 0030 Voice of America (Caribbean): Now Music, U.S.A. See T 1130.
- 0040 Voice of America (Americas, East Asia): Science Report (Special English). See M 0040.
- 0045 Voice of America (Americas): Space and Man (Special English). See W 1115.
- 0045 Voice of America (East Asia): VOA Morning. See S 0010.
- 0101 BBC: Outlook. See M 1405.
- 0110 Voice of America (Americas, Caribbean): Report to the Americas. See T 0110.
- 0110 Voice of America (South Asia): Newsline. See S 2310.
- 0125 BBC: Financial News. See M 2310.
- 0130 BBC: Waveguide. See M 0530.
- 0130 Voice of America (South Asia): VOA Morning. See S 0010.
- 0140 BBC: Book Choice. See S 0225.
- 0145 BBC (Asia): The World Today. See M 1645.
- 0145 BBC: The Farming World. Developments and issues in the world of agriculture.
- 0155 Voice of America (Americas, Caribbean): Editorial. See S 1455.
- 0209 BBC: British Press Review. See S 0209.
- 0210 Voice of America (Americas, Caribbean): Focus. See M 1110.
- 0210 Voice of America (South Asia): Newsline. See S 2310.
- 0215 BBC: Network UK. See T 0215.
- 0230 BBC: Assignment. Examinations of current topical issues.
- 0230 Voice of America (South Asia): VOA Morning. See S 0010.
- 0310 Voice of America: Daybreak Africa. See M 0310.
- 0315 BBC: The World Today. See M 1645.
- 0330 BBC: Hoax. See M 1215.
- 0335 BBC (Africa): Network Africa. See M 0335.
- 0410 Voice of America: Newsline. See S 2310.
- 0430 BBC: Off the Shelf. See M 0430.

- 0430 Voice of America: VOA Morning. See S 0010.
- 0435 BBC (Africa): Network Africa. See M 0335.
- 0445 BBC (Middle East): Gulf Link. See M 1645.
- 0445 BBC: Andy Kershaw's World of Music. See M 0215.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0510 Voice of America: Newsline. See S 2310.
- 0530 BBC: Financial News. See M 2310.
- 0530 Voice of America: VOA Morning. See S 0010.
- 0540 BBC: Words of Faith. See S 0540.
- 0545 BBC: The World Today. See M 1645.
- 0610 Voice of America (Africa): Daybreak Africa. See M 0310.
- 0610 Voice of America: Newsline. See S 2310.
- 0630 BBC: Poems by Post. See M 2315.
- 0630 Voice of America: VOA Morning. See S 0010.
- 0635 BBC (Africa): Network Africa. See M 0335.
- 0645 BBC: The Farming World. See H 0145.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: Storm Clouds Over the Himalayas. See W 0230.
- 0735 BBC (Africa): Network Africa. See M 0335.
- 1110 Voice of America (Caribbean): Focus. See M 1110.
- 1110 Voice of America: Science Report (Special English). See M 0040.
- 1115 BBC: The Farming World. See H 0145.
- 1115 Voice of America: The Making of a Nation (Special English). See H 0045.
- 1130 BBC: Feature. Topical programming on various subjects.
- 1130 Voice of America (Caribbean): VOA Morning. See S 0010.
- 1130 Voice of America: Now Music, U.S.A. See T 1130.
- 1210 Voice of America: Newsline. See S 2310.
- 1215 BBC: Multitrack 2. See W 2330.
- 1230 Voice of America: Magazine Show. See M 1230.
- 1245 BBC: Sports Roundup. See S 1345.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1310 Voice of America: Focus. See M 1110.
- 1330 BBC: Network UK. See T 0215.
- 1340 Voice of America: Science Report (Special English). See M 0040.
- 1345 BBC: Folk in Britain or Jazz Now and Then. A look at folk or jazz music on the British Isles.
- 1345 Voice of America: The Making of a Nation (Special English). See H 0045.
- 1405 BBC: Outlook. See M 1405.
- 1410 Voice of America: Asia Report. See M 1410.
- 1430 BBC: Off the Shelf. See M 0430.
- 1445 BBC: Recording of the Week. See M 0545.
- 1455 Voice of America: Editorial. See S 1455.

newsline cont'd from p.61

- 1200 Radio Moscow (World Service): News
- 1200 Radio Polonia: News
- 1200 Radio Romania Int'l: News
- 1200 Voice of America: News
- 1210 Radio Beijing: News About China
- 1215 Radio Korea: News
- 1230 Christian Science Monitor: News [M-F]
- 1230 Radio Cairo: News
- 1230 Radio France Int'l: News
- 1230 Radio Moscow (World Service): News in Brief
- 1230 Trans World Radio, Bonaire: News [M-A]
- 1235 Voice of Greece: News
- 1255 KUSW: News [S]
- 1300 BBC: News and Twenty-Four Hours on Sunday [S]; World News [M-A]
- 1300 Christian Science Monitor: News
- 1300 Radio Australia: World and Australian News
- 1300 Radio Beijing: News
- 1300 Radio Canada Int'l (Asia): News
- 1300 Radio Canada Int'l (N.Am.): World Report [M-F]
- 1300 Radio Finland: Northern Report [T-F]
- 1300 Radio Moscow (World Service): News
- 1300 Radio Romania Int'l: News
- 1300 Radio Tirana, Albania: News
- 1300 Radio Yugoslavia: News

- 1300 Swiss Radio Int'l: News
- 1300 Trans World Radio, Bonaire: News [S]
- 1300 Voice of America: News
- 1300 WWCR: USA Radio News [S-F]
- 1305 Radio Pyongyang: News
- 1310 Radio Beijing: News About China
- 1325 HCJB: News [M-F]
- 1328 Radio Cairo: News Headlines
- 1330 All India Radio: News
- 1330 BRT, Brussels: News [M-F]
- 1330 Christian Science Monitor: News [M-F]
- 1330 Radio Austria Int'l: News
- 1330 Radio Korea (World News Service): News
- 1330 Radio Moscow (World Service): News in Brief
- 1330 Swiss Radio Int'l: News
- 1330 UAE Radio, Dubai: News
- 1330 Voice of America: News (Special English)
- 1330 Voice of Turkey: News
- 1346 All India Radio: UN Radio News [A]
- 1355 WYFR (Network): News [M-F]
- 1400 BBC: News Sum [A-S]; 5-Min News [M-F]
- 1400 Christian Science Monitor: News
- 1400 Radio Australia: International Report
- 1400 Radio Beijing: News
- 1400 Radio Canada Int'l: News [S]
- 1400 Radio Finland: Northern Report [T-A]
- 1400 Radio France Int'l: News

- 1400 Radio Japan: News
- 1400 Radio Jordan: News Summary
- 1400 Radio Korea: News
- 1400 Radio Moscow (World Service): News
- 1400 Radio Peace and Progress: News
- 1400 Voice of America: News
- 1400 WWCR: USA Radio News [M-F]
- 1405 Radio Pyongyang: News
- 1410 Radio Beijing: News About China
- 1425 HCJB: News [M-F]
- 1430 Christian Science Monitor: News [M-F]
- 1430 Radio Austria Int'l: News [M-F]
- 1430 Radio Moscow (World Service): News in Brief
- 1430 Radio Netherlands: News [M-A]
- 1430 Radio Polonia: News
- 1455 All India Radio: News
- 1500 BBC: Newsreel
- 1500 Christian Science Monitor: News
- 1500 Deutsche Welle: World News
- 1500 Radio Australia: World and Australian News
- 1500 Radio Beijing: News
- 1500 Radio Finland: Northern Report [T-A]
- 1500 Radio Japan: News
- 1500 Radio Moscow (World Service): News
- 1500 Radio Romania Int'l: News
- 1500 Radio RSA: News
- 1500 Voice of America: News

program

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- 1510 Voice of America: Newslines. See S 2310.
- 1515 BBC (Africa): Focus on Africa. See M 1515.
- 1515 BBC: Music for a While with Richard Baker. Classical music with the well-known broadcaster.
- 1530 Voice of America: Magazine Show. See M 1230.
- 1610 Voice of America (Africa): Nightline Africa (until 1700). See S 1610.
- 1610 Voice of America: Focus. See M 1110.
- 1615 BBC (Africa): Focus on Africa. See M 1515.
- 1615 BBC: Assignment. See H 0230.
- 1640 Voice of America: Science Report (Special English). See M 0040.
- 1645 BBC (Middle East): Gulf Link. See M 1645.
- 1645 BBC: The World Today. See M 1645.
- 1645 Voice of America: The Making of a Nation (Special English). See H 0045.
- 2305 BBC: Commentary. See M 2305.
- 2310 BBC: Financial News. See M 2310.
- 2310 Voice of America: Newslines. See S 2310.
- 2315 BBC: Music Review. Classical music events and developments from around the world.
- 2330 Voice of America: VOA Morning. See S 0010.

Friday

Dec 7th, 14th, 21st, 28th

- 0010 Voice of America (Americas, East Asia): Newslines. See S 2310.
- 0010 Voice of America (Caribbean): Caribbean Report. See T 0010.
- 0030 BBC: The Great Musicals. A look back at some of the best musicals ever produced.
- 0030 Voice of America (Caribbean): Now Music, U.S.A. See T 1130.
- 0040 Voice of America (Americas, East Asia): Science Report (Special English). See M 0040.
- 0045 Voice of America (Americas): The Making of a Nation (Special English). See H 0045.
- 0045 Voice of America (East Asia): VOA Morning. See S 0010.
- 0101 BBC: Outlook. See M 1405.
- 0110 Voice of America (Americas, Caribbean): Report to the Americas. See T 0110.
- 0110 Voice of America (South Asia): Newslines. See S 2310.
- 0125 BBC: Financial News. See M 2310.
- 0130 BBC: Folk in Britain or Jazz Now and Then. See H 1345.

HOLIDAY HIGHLIGHTS

The holidays are always a special time on the BBC World Service, with some of the best programs to be heard all year. So grab a cup of eggnog, move your radio close to the fireplace, and give these featured programs a listen!

Sunday: December 23rd

1430 BBC: Tim Rice's Christmas Past. Seasonal musical oddities from the award-winning lyricist and author.

Monday: December 24th

0101 BBC: Uncle Christmas. A selection of stories from the world over relating to the Christmas holiday.
0330 BBC: Tim Rice's Christmas Past. See 23rd, 1430.

1502 BBC: Festival of Nine Lessons and Carols. Ninety minutes of the annual Christmas concert from King's College, Cambridge. See "The Program File" for more details.

Tuesday: December 25th

0030 BBC: Festival of Nine Lessons and Carols. See 24th, 1502.
0230 BBC: The Christmas Experience. People worldwide talk about what the festival of Christmas means to them.
1500 BBC: The Queen's Speech. Queen Elizabeth II speaks to the Commonwealth. Extra frequencies: 6195, 9515, 15200, 15260, 15390, and 17830 kHz.
1645 BBC: The Christmas Story. Excerpts from the Gospels about the birth of Christ.
2300 BBC: The Queen's Speech. See 25th, 1500.

Wednesday: December 26th

0315 BBC: The Christmas Story. See 25th, 1645.
0545 BBC: Holly. A fictional story about a teacher killed in a road accident at Christmastime.
1530 BBC: The Christmas Experience. See 25th, 0230.
1615 BBC: Sportsworld Extra. Boxing Day English league soccer and the second Cricket test between England and Australia for the Ashes.

Thursday: December 27th

0030 BBC: A Taste of Christmas Soul. Robbie Vincent digs through his collection of Christmas soul and jazz records.

Saturday: December 29th

1430 BBC: Sports Review of 1990. Paddy Feeny takes a look back at the sporting year just past.

Monday: December 30th

1430 BBC: Tim Rice's Christmas Past. See 23rd, 1430.

Tuesday: December 31st

0330 BBC: Tim Rice's Christmas Past. See 23rd, 1430.
1405 BBC: Bob's New Year Revolutions. "Anything Goes" host Bob Holness plays New Year requests.
2305 BBC: Bob's New Year Revolutions. See 31st, 1405.

Wednesday: January 1st, 1991

0230 BBC: Sports Review of 1990. See 29th, 1430.



- 1500 WWCR: USA Radio News
- 1505 Radio Pyongyang: News
- 1510 Radio Beijing: News About China
- 1515 Radio Canada Int'l (Europe): News
- 1525 Radio Finland: News Summary
- 1530 Christian Science Monitor: News [M-F]
- 1530 Deutsche Welle: African News [M-F]
- 1530 FEBA, Seychelles: News
- 1530 Radio Moscow (World Service): News in Brief
- 1530 Radio Tirana, Albania: News
- 1530 Swiss Radio Int'l: News
- 1530 Voice of Greece: News [M-A]
- 1545 Radio Korea (World News Service): News
- 1600 BBC: World News
- 1600 Christian Science Monitor: News
- 1600 Deutsche Welle: World News
- 1600 Radio Australia: International Report
- 1600 Radio Beijing: News
- 1600 Radio France Int'l: News
- 1600 Radio Jordan: News Summary
- 1600 Radio Korea: News
- 1600 Radio Moscow (World Service): News
- 1600 Radio Polonia: News
- 1600 Radio Portugal: News [M-F]
- 1600 Radio RSA: News
- 1600 Voice of America: News
- 1600 WWCR: USA Radio News [M-F]

- 1609 BBC: News About Britain
- 1610 Radio Beijing: News About China
- 1630 BRT, Brussels: News [M-F]
- 1630 Christian Science Monitor: News [M-F]
- 1630 Radio Austria Int'l: News
- 1630 Radio Moscow (World Service): News in Brief
- 1630 Radio Netherlands: News [M-A]
- 1630 Radio Polonia: News
- 1630 UAE Radio, Dubai: News
- 1630 Voice of America (exc Africa): (Spec English)
- 1655 WYFR (Network): News [A]
- 1700 BBC: World News [S-F]; News Summary [A]
- 1700 Christian Science Monitor: News
- 1700 Radio Australia: World and Australian News
- 1700 Radio Beijing: News
- 1700 Radio Japan: News
- 1700 Radio Jordan: Newsdesk [S-H]
- 1700 Radio Moscow (World Service): News
- 1700 Radio New Zealand Int'l: News [M-F]
- 1700 Radio Prague Int'l: News
- 1700 Radio RSA: News
- 1700 Voice of America: News
- 1705 Radio New Zealand Int'l: NZ News [M-F]
- 1705 Radio Pyongyang: News
- 1709 BBC (Africa): African News [A-S]
- 1710 Radio Beijing: News About China
- 1715 Radio Canada Int'l: News

- 1715 Radio Korea (World News Service): News
- 1730 Christian Science Monitor: News [M-F]
- 1730 Radio Moscow (World Service): News in Brief
- 1730 Radio Peace and Progress: News
- 1730 Radio Romania Int'l: News
- 1735 WYFR (Network): News [M-F]
- 1740 BBC (Africa): African News
- 1755 KUSW: News [M-F]
- 1800 All India Radio: News
- 1800 BBC: Newsdesk
- 1800 Christian Science Monitor: News
- 1800 Kol Israel: News
- 1800 KVOH: UPI News
- 1800 Radio Australia: International Report
- 1800 Radio Bras, Brasilia: News [M-A]
- 1800 Radio Canada Int'l: News
- 1800 Radio Korea: News
- 1800 Radio Moscow (World Service): News
- 1800 Radio New Zealand Int'l: News [S-F]
- 1800 Radio RSA: News
- 1800 RAE, Buenos Aires: News [M-F]
- 1800 Voice of America: News
- 1800 WWCR: USA Radio News [A]
- 1825 WYFR (Network): News [A]
- 1830 BRT, Brussels: News [M-F]
- 1830 Christian Science Monitor: News [M-F]
- 1830 Radio Moscow (World Service): News in Brief

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- 0130 Voice of America (South Asia): VOA Morning. See S 0010.
- 0145 BBC (Asia): The World Today. See M 1645.
- 0145 BBC: Global Concerns. Issues of an environmental nature.
- 0155 Voice of America (Americas, Caribbean): Editorial. See S 1455.
- 0209 BBC: British Press Review. See S 0209.
- 0210 Voice of America (Americas, Caribbean): Focus. See M 1110.
- 0210 Voice of America (South Asia): Newslines. See S 2310.
- 0215 BBC: Seven Seas. A weekly program about ships and the sea.
- 0230 BBC: Feature. See H 1130.
- 0230 Voice of America (South Asia): VOA Morning. See S 0010.
- 0310 Voice of America: Daybreak Africa. See M 0310.
- 0315 BBC: The World Today. See M 1645.
- 0330 BBC: Focus on Faith. Comment and discussion on the major issues in the worlds of faith.
- 0335 BBC (Africa): Network Africa. See M 0335.
- 0410 Voice of America: Newslines. See S 2310.
- 0430 BBC: Off the Shelf. See M 0430.
- 0430 Voice of America: VOA Morning. See S 0010.
- 0435 BBC (Africa): Network Africa. See M 0335.
- 0445 BBC (Middle East): Gulf Link. See M 1645.
- 0445 BBC: Folk in Britain or Jazz Now and Then. See H 1345.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0510 Voice of America: Newslines. See S 2310.
- 0530 BBC: Financial News. See M 2310.
- 0530 Voice of America: VOA Morning. See S 0010.
- 0540 BBC: Words of Faith. See S 0540.
- 0545 BBC: The World Today. See M 1645.
- 0610 Voice of America (Africa): Daybreak Africa. See M 0310.
- 0610 Voice of America: Newslines. See S 2310.
- 0630 BBC: Meridian. See W 0630.
- 0630 Voice of America: VOA Morning. See S 0010.
- 0635 BBC (Africa): Network Africa. See M 0335.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: What Do Muslims Believe? Yet another BBC series on the beliefs of a particular religion. (Remember "Why I Am An Atheist"?)
- 0735 BBC (Africa): Network Africa. See M 0335.
- 1110 Voice of America (Caribbean): Focus. See M 1110.
- 1110 Voice of America: Science Report (Special English). See M 0040.
- 1115 BBC (Asia): Dateline East Asia. A look at the political and economic affairs of Asia.
- 1115 BBC: Global Concerns. See F 0145.



David McNeil is the BBC's correspondent in Washington, D.C.

- 1115 Voice of America: American Mosaic (Special English). A feature program in s-l-o-w English.
- 1130 BBC: Meridian. See W 0630.
- 1130 Voice of America (Caribbean): VOA Morning. See S 0010.
- 1130 Voice of America: Country Music, U.S.A. Current popular country music tunes with a sprinkling of old favorites.
- 1145 BBC (Asia): Dateline East Asia. See F 1115.
- 1210 Voice of America: Newslines. See S 2310.
- 1215 BBC: What Do Muslims Believe? See F 0730.
- 1230 Voice of America: Magazine Show. See M 1230.
- 1245 BBC: Sports Roundup. See S 1345.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1310 Voice of America: Focus. See M 1110.
- 1330 BBC: Quote...Unquote. Nigel Rees presents the long-running game show about the origins of various quotes.
- 1340 Voice of America: Science Report (Special English). See M 0040.
- 1345 Voice of America: American Mosaic (Special English). See F 1115.
- 1405 BBC: Outlook. See M 1405.
- 1410 Voice of America: Asia Report. See M 1410.
- 1430 BBC: Off the Shelf. See M 0430.
- 1445 BBC: The Learning World. See M 0445.
- 1455 Voice of America: Editorial. See S 1455.
- 1510 Voice of America: Newslines. See S 2310.
- 1515 BBC (Africa): Focus on Africa. See M 1515.
- 1515 BBC: Music Review. See H 2315.

- 1530 Voice of America: Magazine Show. See M 1230.
- 1610 Voice of America (Africa): Nightline Africa (until 1700). See S 1610.
- 1610 Voice of America: Focus. See M 1110.
- 1615 BBC (Africa): Focus on Africa. See M 1515.
- 1615 BBC: Science in Action. The latest in scientific developments.
- 1640 Voice of America: Science Report (Special English). See M 0040.
- 1645 BBC (Middle East): Gulf Link. See M 1645.
- 1645 BBC: The World Today. See M 1645.
- 1645 Voice of America: American Mosaic (Special English). See F 1115.
- 2305 BBC: Commentary. See M 2305.
- 2310 BBC: Financial News. See M 2310.
- 2310 Voice of America: VOA Morning. See S 0010.
- 2315 BBC: Worldbrief. A roundup of the week's news headlines and human-interest happenings.
- 2330 BBC: Multitrack 3. Sarah Ward surveys the British alternative music scene.

Saturday

Dec 1st, 8th, 15th, 22nd, 29th

- 0010 Voice of America (Americas, Caribbean): Newslines. See S 2310.
- 0010 Voice of America (East Asia): VOA Morning. See S 0010.
- 0030 BBC: From the Weeklies. A review of the weekly British press.
- 0030 Voice of America (Caribbean): Country Music, U.S.A. See F 1130.
- 0040 Voice of America (Americas): Science Report (Special English). See M 0040.
- 0040 Voice of America (East Asia): Words and Their Stories (Special English). See S 0040.
- 0045 BBC: Recording of the Week. See M 0545.
- 0045 Voice of America (Americas): American Mosaic (Special English). See F 1115.
- 0045 Voice of America (East Asia): VOA Morning. See S 0010.
- 0101 BBC: Outlook. See M 1405.
- 0110 Voice of America (Americas, Caribbean): Report to the Americas. See T 0110.
- 0110 Voice of America (South Asia): VOA Morning. See S 0010.
- 0125 BBC: Financial News. See M 2310.
- 0130 BBC: Short Story (except December 1st: Seeing Stars). See S 1115.

newslines cont'd from p.63

- 1830 Radio Netherlands: News [M-A]
- 1830 Radio Polonia: News
- 1830 Radio Prague Int'l: News
- 1830 Radio Tirana, Albania: News
- 1830 Swiss Radio Int'l: News
- 1830 Voice of America: News (Special English)
- 1840 SLBC, Sri Lanka: News
- 1840 Voice of Greece: News [M-A]
- 1855 BBC (Africa): African News [M-F]
- 1855 KUSW: News [M-A]
- 1900 All India Radio: News
- 1900 BBC: News Summary
- 1900 Christian Science Monitor: News [M-A]
- 1900 Deutsche Welle: World News
- 1900 HCJB: Latin American News
- 1900 KVOH: UPI News
- 1900 Radio Australia: World and Australian News
- 1900 Radio Beijing: News
- 1900 Radio Canada Int'l: News [M-F]
- 1900 Radio Havana Cuba: News [M-A]
- 1900 Radio Japan: News
- 1900 Radio Jordan: News Summary [S-H]
- 1900 Radio Moscow (World Service): News
- 1900 Radio New Zealand Int'l: News [S-F]
- 1900 Spanish Foreign Radio: News

- 1900 Voice of America: News
- 1900 WVCB: USA Radio News [M-F]
- 1903 Radio Jamahiriya, Libya: News Headlines
- 1910 Radio Beijing: News About China
- 1920 Voice of Greece: News [M-A]
- 1930 Christian Science Monitor: News [M-F]
- 1930 Deutsche Welle: African News [M-F]
- 1930 Radio Austria Int'l: News
- 1930 Radio Budapest: News
- 1930 Radio Canada Int'l: News [M-F]
- 1930 Radio Finland: Northern Report [M-F]
- 1930 Radio Havana Cuba: Newsbreak [M-A]
- 1930 Radio Moscow (World Service): News in Brief
- 1930 Radio Romania Int'l: News
- 1930 Radio Sofia: News
- 1930 Radio Yugoslavia: News
- 1935 Radiotelevisione Italiana: News
- 1945 Radio Korea (World News Service): News
- 1947 Radio Jamahiriya, Libya: News
- 1955 HCJB: World News
- 1955 KUSW: News [M-F]
- 1955 Radio Finland: News Summary
- 1955 WYFR (Network): News [M-A]
- 2000 BBC: World News
- 2000 Christian Science Monitor: News
- 2000 Kol Israel: News
- 2000 KVOH: UPI News

- 2000 Radio Australia: International Report
- 2000 Radio Beijing: News
- 2000 Radio Havana Cuba: News [M-A]
- 2000 Radio Jordan: News Summary [S-H]
- 2000 Radio Moscow (World Service): News
- 2000 Radio New Zealand Int'l: News [S-F]
- 2000 Radio Polonia: News
- 2000 Radio Portugal: News [M-F]
- 2000 Radio Prague Int'l: News
- 2000 Voice of America: News
- 2000 Voice of Indonesia: News
- 2005 Radio New Zealand Int'l: NZ News [S-H]
- 2005 Radio Pyongyang: News
- 2010 Radio Beijing: News About China
- 2025 Radio Havana Cuba: Cuban Nat'l News [M-A]
- 2025 Radiotelevisione Italiana: News
- 2030 Christian Science Monitor: News [M-F]
- 2030 Radio Havana Cuba: Newsbreak [M-A]
- 2030 Radio Korea: News
- 2030 Radio Moscow (World Service): News in Brief
- 2030 Radio Netherlands: News [M-A]
- 2045 Radio Korea (World News Service): News
- 2055 KUSW: News [M-A]
- 2055 Voice of Indonesia: News in Brief
- 2100 All India Radio: News
- 2100 BBC: News Summary
- 2100 Christian Science Monitor: News [M-A]

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- 0145 BBC (Asia): South Asia Survey. An in-depth analysis of developments in South Asia.
- 0145 BBC: Here's Humph! All that jazz with Humphrey Lyttelton.
- 0155 Voice of America (Americas, Caribbean): Editorial. See S 1455.
- 0209 BBC: British Press Review. See S 0209.
- 0210 Voice of America (Americas, Caribbean): Focus. See M 1110.
- 0210 Voice of America (South Asia): VOA Morning. See S 0010.
- 0215 BBC: Network UK. See T 0215.
- 0230 BBC: People and Politics. Background to the British political scene.
- 0310 Voice of America: VOA Morning. See S 0010.
- 0315 BBC: The World Today. See M 1645.
- 0330 BBC: The Vintage Chart Show. Paul Burnett presents top ten hits from the music charts of yesteryear.
- 0335 BBC (Africa): Saturdays Only. Special programs for Africa, featuring talk, music, and a monthly quiz.
- 0410 Voice of America: VOA Morning. See S 0010.
- 0430 BBC: Here's Humph! See A 0145.
- 0435 BBC (Africa): Saturdays Only. See A 0335.
- 0445 BBC (Middle East): Gulf Link. See M 1645.
- 0445 BBC: Worldbrief. See F 2315.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0510 Voice of America: VOA Morning. See S 0010.
- 0530 BBC: Financial News. See M 2310.
- 0540 BBC: Words of Faith. See S 0540.
- 0545 BBC: The World Today. See M 1645.
- 0610 Voice of America: VOA Morning. See S 0010.
- 0630 BBC: Meridian. See W 0630.
- 0635 BBC (Africa): Saturdays Only. See A 0335.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: From the Weeklies. See A 0030.
- 0735 BBC (Africa): Saturdays Only. See A 0335.
- 0745 BBC: Instruments of the Orchestra. See M 0145.
- 1110 Voice of America (Caribbean): American Viewpoints. See S 0010.
- 1110 Voice of America: Focus. See M 1110.
- 1115 BBC: Worldbrief. See F 2315.
- 1130 BBC: Meridian. See W 0630.
- 1130 Voice of America (Caribbean): Music, U.S.A. (Jazz). Willis Conover looks at jazz of yesterday and today, in the U.S.A. and abroad.
- 1130 Voice of America: Press Conference, U.S.A. See S 0130.
- 1210 Voice of America: Communications World. See S 0110.
- 1215 BBC: Multitrack 3. See F 2330.
- 1230 Voice of America: Weekend Magazine. See S

- 0030.
- 1245 BBC: Sports Roundup. See S 1345.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1310 Voice of America: American Viewpoints. See S 0010.
- 1330 BBC: Network UK. See T 0215.
- 1340 Voice of America: Words and Their Stories (Special English). See S 0040.
- 1345 BBC: Good Books. See M 0315.
- 1345 Voice of America: American Stories (Special English). See S 0045.
- 1401 BBC: John Peel. See T 0330.
- 1410 Voice of America: Music, U.S.A. (Jazz). See A 1130.
- 1430 BBC: Sportsworld. The weekly sports magazine.
- 1455 Voice of America: Editorial. See S 1455.
- 1500 BBC (Africa): Arts and Africa. A forum for Africa's musicians, painters, and performers.
- 1510 Voice of America: Focus. See M 1110.
- 1515 BBC: Sportsworld. See A 1430.
- 1530 Voice of America: Press Conference, U.S.A. See S 0130.
- 1610 Voice of America (Africa): Nightline Africa. See S 1610.
- 1610 Voice of America: American Viewpoints. See S 0010.
- 1615 BBC: Sportsworld. See A 1430.
- 1640 Voice of America: Words and Their Stories

SUGGESTIONS? SOMETHING MISSING?

Let us know your corrections, additions, and suggestions of what you'd like to see to Program Manager Kannon Shanmugam at 4412 Turnberry Circle, Lawrence, Kansas 66047.

Send us your special photos of station personnel (or good photocopies) to share with other readers as we have space. Please let us know if you would like them returned; we'll copy them and return your originals.

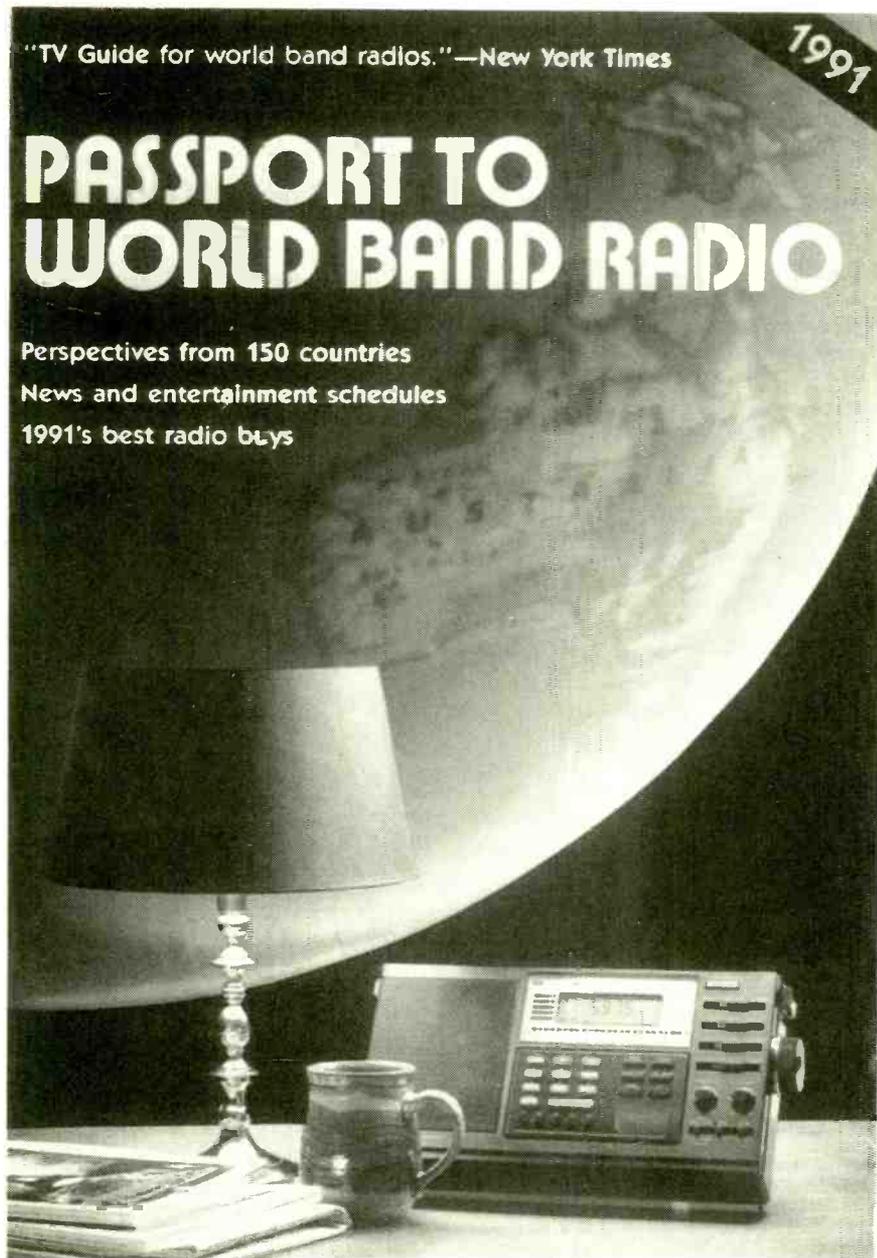
- (Special English). See S 0040.
- 1645 Voice of America: American Stories (Special English). See S 0045.
- 2305 BBC: Words of Faith. See S 0540.
- 2310 BBC: Book Choice. See S 0245.
- 2310 Voice of America: Newslines. See S 2310.
- 2315 BBC: A Jolly Good Show. See T 1515.
- 2330 Voice of America: VOA Morning. See S 0010.



It looks like Christmas in July for these Japanese boys at KNLS Summer Camp.

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> 2100 Deutsche Welle: World News 2100 KVOH: UPI News 2100 Radio Australia: World and Australian News 2100 Radio Beijing: News 2100 Radio Japan: News 2100 Radio Jordan: News Summary [S-H] 2100 Radio Moscow (World Service): News 2100 Radio New Zealand Int'l: News [S-F] 2100 Radio Portugal: News [M-F] 2100 Radio Prague Int'l: News 2100 Radio Romania Int'l: News 2100 Spanish Foreign Radio: News 2100 Swiss Radio Int'l: News 2100 Voice of America: News 2100 Voice of Turkey: News 2110 Radio Beijing: News About China 2125 WYFR (Network): News [M-F] 2130 Christian Science Monitor: News [M-F] 2130 Radio Budapest: News 2130 Radio Cairo: News 2130 Radio Canada Int'l: News 2130 Radio Moscow (World Service): News in Brief 2130 Radio Sofia: News 2155 KUSW: News [M-A] 2200 All India Radio: News 2200 BBC: Newshour 2200 BRT, Brussels: News [M-F] | <ul style="list-style-type: none"> 2200 Christian Science Monitor: News 2200 Radio Australia: International Report 2200 Radio Beijing: News 2200 Radio Canada Int'l (Asia): News 2200 Radio Canada Int'l (Europe): The World at Six [M-F]; News [A-S] 2200 Radio Finland: Northern Report [M-F] 2200 Radio Havana Cuba: News [M-A] 2200 Radio Moscow (World Service): News 2200 Radio New Zealand Int'l: News [S-F] 2200 Radio Peace and Progress: News 2200 Radio Yugoslavia: News 2200 Radiotelevisione Italiana: News 2200 Voice of America: News 2200 Voice of Free China: News 2208 Voice of America (Carib): Caribbean News [M-F] 2210 Radio Beijing: News About China 2225 Radio Havana Cuba: Cuban Natl News [M-A] 2230 Christian Science Monitor: News [M-F] 2230 Kol Israel: News 2230 Radio Havana Cuba: Newsbreak [M-A] 2230 Radio Moscow (World Service): News in Brief 2230 Radio Polonia: News 2230 Radio Sofia: News 2230 Radio Tirana, Albania: News 2230 Radio Vilnius: News 2230 Swiss Radio Int'l: News | <ul style="list-style-type: none"> 2230 Voice of America: News (Special English) 2230 WYFR (Network): News [M-F] 2255 KUSW: News [M-F] 2255 WYFR (Network): News [M-A] 2300 BBC: World News [A-S]; Five-Minute News [M-F] 2300 Christian Science Monitor: News [M-A] 2300 Radio Australia: World and Australian News 2300 Radio Canada Int'l: News 2300 Radio Japan: News 2300 Radio Moscow: News 2300 Radio New Zealand Int'l: News [S-F] 2300 Radio Vilnius: News 2300 Voice of America: News 2300 Voice of Turkey: News 2305 Radio Polonia: News 2305 Radio Pyongyang: News 2315 All India Radio: News 2315 Radio for Peace Int'l: UN Radio News [M-F] 2330 Christian Science Monitor: News [M-F] 2330 Radio Moscow (World Service): News in Brief 2330 Radio New Zealand Int'l: News [S-H] 2330 Radio Tirana, Albania: News 2333 Radio Jamahiriya, Libya: News Headlines 2335 Voice of Greece: News [M-A] 2355 KUSW: News [M-A] 2355 Radio Japan: News [M-F] |
|--|---|--|

Your Bible for Shortwave Listening Worldwide



"Passport is probably the only accessory you'll ever need for your radio."
Popular Mechanics

North America's best-selling guide to shortwave listening is now on sale throughout the U.S. and Canada.

The completely updated 1991 *Passport To World Band Radio* covers shortwave listening from nearly every conceivable angle: by frequency, by country, and hour-by-hour. For DXing, there are *Passport's* exclusive Blue Pages, which provide you with innumerable details for every transmitter—from Afghanistan to Zaire—known to be on the air. For 1991, several thousand records have been revised... and over four *thousand* new entries have been added.

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At electronics dealers and bookstores everywhere. See why *Passport* has become the largest-selling shortwave publication in North America. For further information, write *Passport To World Band Radio*, Box 300A, Penn's Park, PA 18943.

MT Monitoring Team

**Greg Jordan,
Frequency Manager**

2144-F Ravenglass Place
Raleigh NC 27612
Also on Fidonet, Shortwave Echo
Compuserve 72260,317

Larry Miller
Pennsylvania

frequency section

0000-0100	Voice of America-East Asia Service	7120	9770	11760	15185
		15290	17735	17820	
0000-0100	Radio for Peace Int'l, Costa Rica	7375	13630	21566	
0000-0100	WHRI, Noblesville, Indiana	7315	9495		
0000-0100	WINB, Red Lion, Pennsylvania	15145	ML		
0000-0100	WRNO Worldwide, Louisiana	7355			
0000-0100	WWCR, Nashville, Tennessee	7520			
0000-0100	WYFR, Okeechobee, Florida	5985	13695	15170	
0030-0100	T-S Radio Canada Int'l, Montreal	5960	9755		
0030-0100	Radio Australia, Melbourne	11880	15160	15240	15465
0030-0100	T-S Radio Budapest, Hungary	6110	9520	9585	9835
		11910	15160		
0030-0100	Radio Netherlands Int'l, Hilversum	6020	6165	11740	
0035-0100	HCJB, Quito, Ecuador	15155	17875	25950ssb	
0050-0100	Vatican Radio, Vatican City	9605	11780	15180	

0000 UTC [7:00 PM EST/4:00 PM PST]

0000-0015	Radio Prague Int'l, Czechoslovakia	7345	11680	11990	
0000-0025	Radio Finland, Helsinki	11755	15185		
0000-0030	Radio Canada Int'l, Montreal	5960	9755		
0000-0030	Kol Israel, Jerusalem	9435	11605	12077	
0000-0030	Radio Australia, Melbourne	11880	13605	15240	15380
		15465	17600	17630	17750
0000-0100	All India Radio, New Delhi	9535	9910	11715	11745
		15110			
0000-0100	Radio New Zealand, Wellington	17675			
0000-0100	BBC World Service, London, England	5975	6005	6175	6195
		7325	9590	9915	11750
0000-0100	Adventist World Radio, Costa Rica	9725	11870		
0000-0100	Radio Moscow N.American Service	11710	11730	11780	11850
		11980	12040	15425	15580
0000-0100	Radio Sofia, Bulgaria	11660	11720		
0000-0100	Radio Kiev, Ukraine	7400	9860	11790	13645
0000-0100	Radio Moscow World Service	15280	17670	17890	21690
0000-0100	CBC Northern Quebec Service, Can	9625(ML)			
0000-0100	CBN, St. John's, Nfld, Canada	6160			
0000-0100	CBU, Vancouver, British Columbia	6160			
0000-0100	CFCF, Montreal, Quebec, Canada	6005			
0000-0100	CFCN, Calgary, Alberta, Canada	6030			
0000-0100	CHNS, Halifax, Nova Scotia, Canada	6130			
0000-0100	Christian Science World Svc, Boston	7395	9850	13760	15225
0000-0100	CKWX, Vancouver, British Columbia	6080			
0000-0100	CFRB, Toronto, Ontario, Canada	6070			
0000-0100	FEBC Radio Int'l, Philippines	15490			
0000-0100	KSDA, Guam	15125			
0000-0100	T-A KUSW, Salt Lake City, Utah	15590			
0000-0100	Radio Beijing, Beijing, China	15100	17705		
0000-0100	Radio Luxembourg, Junglinster	6090			
0000-0100	Spanish National Radio, Madrid	9630	11880		
0000-0100	Voice of America-Americas Service	5995	9775	9815	11580
0000-0100	Voice of America-Caribbean Service	6130	9455	11695	

0100 UTC [8:00 PM EST/5:00 PM PST]

0100-0105	Vatican Radio, Vatican City	9605	11780	15180	
0100-0115	All India Radio, New Delhi	9535	9910		
0100-0125	RAI, Rome, Italy	9575	11800		
0100-0125	Radio Netherlands Int'l, Hilversum	6020	6165	11740	
0100-0130	Kol Israel, Jerusalem	9435	11605	12077	
0100-0130	S,M Radio Norway, Oslo	9615	11925		
0100-0130	Radio Australia, Melbourne	11880	15160	15240	15465
		15560	17630	17750	17795
0100-0130	Radio Canada International, Montreal	5960	9755		
0100-0130	Radio Japan Americas Svc, Tokyo	17755			
0100-0130	Radio Prague Int'l, Czechoslovakia	5930	7345	11680	
0100-0130	CBC Northern Quebec Service, Can	9625	(ML)		
0100-0130	Radio Sweden, Stockholm	15405			
0100-0145	Radio Yugoslavia, Belgrade	5980	6005	11735	
0100-0150	Deutsche Welle, Köln, West Germany	6040	6145	9565	
0100-0200	Radio Thailand, Bangkok	4830	9655	11905	
0100-0200	WINB Red Lion, PA	15145	ML		
0100-0200	Radio Moscow North American Svc	11690	11710	11730	11780
		11850	11980	12040	15290
0100-0200	BBC World Service, London, England	5975	6005	6175	7325
		9590	9915	11750	12095
0100-0200	CBN, St John's, Newfoundland	6160			
0100-0200	CBU, Vancouver, British Columbia	6160			
0100-0200	CFCF, Montreal, Quebec, Canada	6005			
0100-0200	CFCN, Calgary, Alberta, Canada	6030			
0100-0200	CHNS, Halifax, Nova Scotia, Canada	6130			
0100-0200	Christian Science World Svc, Boston	7395	9850	13760	15225
		15610	17555	(+17865 A.S)	
0100-0200	CKWX, Vancouver, British Columbia	6080			

the frequency file

december 1990

As promised, here are the results from the poll we conducted a couple months ago concerning the most important event covered on radio this year. My apologies to those of you whose comments were not received in time due to my recent move and the resultant mail delays.

Primarily, the attention focused on the Middle East, although there were some interesting alternative thoughts put forward. Mrs. Leslie Edwards, a faithful reader in Pennsylvania, wrote in to comment on the *Christian Science Monitor's* purchase of KYOI (now KHBI) in Saipan. The main item, however, was the Iraqi invasion of Kuwait, and specifically Radio Kuwait's ability to stay on the air as long as it did in the aftermath of the invasion. Thank you all for writing in.

Since this is the holiday season, I have a gift for all of you: I will save my boring tirades this month and use the remainder of this space to wish you all a very pleasant season. I have moved again, as you can see from the masthead, for the second time in less than five months. It's not easy to uproot oneself and move on, and sometimes it's not productive, either. It's very difficult for me - difficult is a grave understatement - to leave friends and family behind. Yet, in each instance, one can see a part of oneself left behind in them, but somehow still remaining an

integral part of your being.

Each of you are a bit like that, with your support and constant feedback. I look forward to being with you all again next year.

-- Greg Jordan, Frequency Manager

Are You the Person We're Looking For?

As one who makes use of the *MT* frequency section, you more than anyone can appreciate the importance of maintaining its accuracy. In order to do that, we need one or two dedicated monitors across the continent to help verify what can be heard in their area.

What makes a good frequency monitor? Well, it requires some familiarity with tuning across the bands and in recognizing station ID's. It also requires some intensive monitoring for perhaps five days out of the month. Most of all it requires reliability. But that's it!

If you'd like to give it a try, please contact Greg Jordan at the address above and let him know how he can get in touch with you to talk it over. Help us keep the frequency section the best shortwave guide around!

frequency

section

0100-0200	CFRB, Toronto, Ontario, Canada	6070	
0100-0200	FEBC Radio Int'l, Philippines	15490	
0100-0200	HCJB, Quito, Ecuador	17875	15155
0100-0200	T-A KUSW, Salt Lake City, Utah	15590	
0100-0200	Radio Havana Cuba	11820	
0100-0200	Radio Japan General Svc, Tokyo	5960	17765 17810 17835
		17845	
0100-0200	Radio Luxembourg, Junglinster	6090	
0100-0200	Radio for Peace Int'l, Costa Rica	7375	(T-A add 13630)
0100-0200	Spanish National Radio, Madrid	9630	11880
0100-0200	Voice of America-Americas Service	5995	9775 9815 11580
		15205	
0100-0200	Voice of America-Caribbean Service	6130	9455
0100-0200	Voice of America-East Asia Service	7115	7205 9740 11705
		15205	21525
0100-0200	Voice of Indonesia, Jakarta	11753	11785
0100-0200	WHRI, Noblesville, Indiana	7315	9495
0100-0200	WRNO Worldwide, Louisiana	7355	
0100-0200	WOCR, Nashville, Tennessee	7520	
0100-0200	WYFR, Okeechobee, Florida	5985	9505 11720 17612
0130-0200	Radio Budapest, Hungary	6110	9520 9585 9835
		11910	15160
0130-0200	M-A Voice of Greece, Athens	11645	9395 9420
0130-0200	Radio Baghdad, Iraq	11755	11810 11830 21585
0130-0200	Radio Austria International, Vienna	9870	9875 13730
0130-0200	S,M Radio Canada Int'l, Montreal	5960	9755
0130-0200	Radio Australia, Melbourne	11880	15160 15240 15465
		15560	17630 17750 17795
		21525	21740 21775
0145-0200	Radio Korea, Seoul	6165	9640 15575
0145-0200	Vatican Radio, Vatican City	9650	11750 15135

0200 UTC [9:00 PM EST/6:00 PM PST]

0200-0220	Radio Veritas-Asia, Philippines	15220	15360
0200-0230	SLBC Domestic Service, Sri Lanka	4940	
0200-0230	Kol Israel, Jerusalem	9435	11605 12077
0200-0230	H,A Radio Budapest, Hungary	6110	9520 9585 9835
		11910	15160
0200-0230	FEBC Radio Int'l, Philippines	15490	
0200-0230	T-A Voice of America	5995	9775 9815 11580
		15205	
0200-0230	S,M Radio Norway, Oslo	9615	11735
0200-0230	British Forces Radio, UK	7125	9640 13745
0200-0230	Swiss Radio International, Berne	6095	6135 9650 9885
		12035	17730

LEGEND

- * The first four digits of an entry are the broadcast start time in UTC. The second four digits represent the end time.
- * In the space between the end time and the station name is the broadcast schedule.

S=Sunday M=Monday T=Tuesday W=Wednesday
H=Thursday F=Friday A=Saturday

If there is no entry, the broadcasts are heard daily. If, for example, there is an entry of "M," the broadcast would be heard only on Mondays. An entry of "M,W,F" would mean Mondays, Wednesdays and Fridays only. "M-F" would mean Mondays through Fridays. "TEN" indicates a tentative schedule and "TES" a test transmission.

The last entry on a line is the frequency. Several codes may be found after a frequency as follows:

- * SSB indicates Single Sideband transmission.
- * v after a frequency indicates that it varies
- * Notations of USB and LSB (upper and lower sideband transmissions) usually refer only to the individual frequency after which they appear.
- * [ML] after a frequency indicates a multi-lingual transmission containing English-language programs. All other frequencies may be assumed to be English language programs directed to various parts of the world.
- * Listings followed by an asterisk (*) are for English lessons and do not contain regularly scheduled programming.

We suggest that you begin with the lower frequencies that a station is broadcasting on and work your way up the dial. Remember that there is no guarantee that a station will be audible on any given day. Reception conditions can change rapidly, though, and if it is not audible one night, it may well be on another.

0200-0250	Deutsche Welle, Köln, W. Germany	7285	9615 9690 11835
		11945	15235 17770
0200-0300	Radio Thailand, Bangkok	4830	9655 11905
0200-0300	T-A Radio Canada Int'l, Montreal	9535	11845 11940 13720
0200-0300	BBC World Service, London, England	5975	6005 6110 6175
		7135	7325 9410 9590
		9915	11750 12095 15260
		15390	21715
0200-0300	RAE, Buenos Aires, Argentina	11710	
0200-0300	KSDA, Guam	13720	
0200-0300	Radio Moscow North American Svc	11690	11710 11780 11850
		11980	12040 12050 13605
		13675	15290 15315 15425
		15435	15530 15580 15595
0200-0300	Radio Moscow World Service	15280	17690 21690 21790
0200-0300	CBC Northern Quebec Service, Can	9625	(ML)
0200-0300	CBN, St. John's, Newfoundland, Can	6160	
0200-0300	CBU, Vancouver, British Columbia	6160	
0200-0300	CFCF, Montreal, Quebec, Canada	6005	
0200-0300	CFCN, Calgary, Alberta, Canada	6030	
0200-0300	CHNS, Halifax, Nova Scotia, Canada	6130	
0200-0300	Christian Science World Svc, Boston	9455	9850 13720 13760
		(+ 17865 & 17555 A,S)	
0200-0300	CKWX, Vancouver, British Columbia	6080	
0200-0300	CFRB, Toronto, Ontario, Canada	6070	
0200-0300	HCJB, Quito, Ecuador	15155	17875 25950ssb
0200-0300	T-A KUSW, Salt Lake City, Utah	15590	
0200-0300	Radio Australia, Melbourne	11880	15160 15240 15320
		15465	15560 17630 17750
		17795	21525 21740 21775
0200-0300	Radio Baghdad, Iraq	11755	11810 11830 21585
0200-0300	T-A Radio For Peace Int'l, Costa Rica	7375	USB (T-A add 13630)
0200-0300	Radio Romania Int'l, Bucharest	5990	6155 9510 9570
		11830	11940 15380
0200-0300	Radio Cairo, Egypt	9475	9675
0200-0300	Radio Havana Cuba	9710	11820
0200-0300	Radio Luxembourg, Junglinster	6090	
0200-0300	Voice of America-South Asia Service	7115	7205 9740 11705
0200-0300	Radio Cultura, Guatemala	3300	
0200-0300	Radio New Zealand, Wellington	17675	
0200-0300	Voice of Free China, Taiwan	5950	7445 9680
0200-0300	WHRI, Noblesville, Indiana	7315	9495
0200-0300	WRNO Worldwide, Louisiana	7355	
0200-0300	WOCR, Nashville, Tennessee	7520	
0200-0300	WINB, Red Lion, Pennsylvania	15145	
0200-0300	WYFR, Okeechobee, Florida	6065	9505 11720

HOW TO USE THE PROPAGATION CHARTS

Propagation charts can be an invaluable aid to the DXer in determining which frequencies are likely to be open at a given time. To use the propagation charts, choose those for your location (they are divided into east coast, midwest and west coast of North America). Then look for the one most closely describing the geographic location of the station you want to hear.

Once you've located the correct charts, look along the horizontal axis of the graph for the time that you are listening. The top line of the graph shows the Maximum Useable Frequency [MUF] and the lower line the Lowest Useable Frequency [LUF] as indicated on the vertical axis of the graph.

While there are exceptions to every rule (especially those regarding shortwave listening), you should find the charts helpful in determining the best times to listen for particular regions of the world. Good luck!

0230-0245	Radio Pakistan (Slow speed news)	9545 15115 17640 17690
		17725 21730
0230-0300 T-A	Radio Portugal, Lisbon	9600 9680 9705 11840
0230-0300	Radio Sweden, Stockholm	9695 11705
0230-0300	Radio Tirana, Albania	9500 11825

0300 UTC [10:00 PM EST/7:00 PM PST]

0300-0315	Azad Kashmir Radio, Pakistan	7286 4980 3665
0300-0330	WINB Red Lion, PA	15145 ML
0300-0330	Radio Australia, Melbourne	11880 15160 15240 15320
		15465 15560 17630 17750
		17795 21525 21740 21775
0300-0330	Radio Cairo, Egypt	9475 9675
0300-0330	Radio Japan, Tokyo	15325 17825 21610
0300-0330	Radio Prague Int'l, Czechoslovakia	5930 7345 11680
0300-0330	Radio Baghdad, Iraq	11755 11810 11830
0300-0350	Deutsche Welle, Köln, West Germany	6085 6120 9545 15205
		11810
0300-0355	Radio Beijing, China	9690 11715 15100
0300-0400	Radio New Zealand, Wellington	17675
0300-0400	BBC World Service, London, England	5975 6005 6175 6195
		7135 7325 9410 9600
		9915 11750 12095 15220
		15260 15420 17705 21715
0300-0400	CBC, Northern Quebec Service, Can	9625 (ML)
0300-0400	Radio Moscow North American Svc	9635 12050 13605 15180
		15425 15455 15530 15580
		15595
0300-0400	Radio Moscow World Service	15280 17690 21690 21790
0300-0400	CBN, St. John's, Newfoundland, Can	6160
0300-0400	CBU, Vancouver, British Columbia	6160
0300-0400	CFCF, Montreal, Quebec, Canada	6005
0300-0400	CFCN, Calgary, Alberta, Canada	6030
0300-0400	CHNS, Halifax, Nova Scotia, Canada	6130
0300-0400	Christian Science World Svc, Boston	9455 9850 13720 13760
		15225 (+17865 & 17555 A,S)
0300-0400	CKWX, Vancouver, British Columbia	6080
0300-0400	CFRB, Toronto, Ontario, Canada	6070
0300-0400	Faro del Caribe, San Jose, Costa Rica	5055 9645
0300-0400	HCJB, Quito, Ecuador	17875 15155
0300-0400	Radio Cultural, Guatemala	3300
0300-0400	Radio Havana Cuba	9710 11820
0300-0400	Radio Japan, Tokyo	15195 17810 (+ 7125 to 0330)
0300-0400 T-A	KUSW, Salt Lake City, Utah	15590/11695
0300-0400	Trans World Radio, Bonaire	9535 11930
0300-0400	Voice of America-Africa Service	6035 7170 7280 9525

Computer Aided Scanning

a new dimension in communications from Datametrics



Now you can enhance your ICOM communications receiver through a powerful computer controlled system by Datametrics, the leader in Computer Aided Scanning. The system is as significant as the digital scanner was five years ago and is changing the way people think about radio communications.

The Datametrics Communications Manager provides computer control over the ICOM R7000 or R71A receiver. Comprehensive manual includes step-by-step instructions, screen displays, and reference information.

Powerful menu driven software includes full monitoring display, digital spectrum analyzer and system editor. Extends ICOM capabilities including autolog recording facilities, 1000 channel capacity per file, and much more.

Innovative hardware design requires no internal connections. Overcomes ICOM limitations such as ineffective scan delay.

Datametrics, Inc

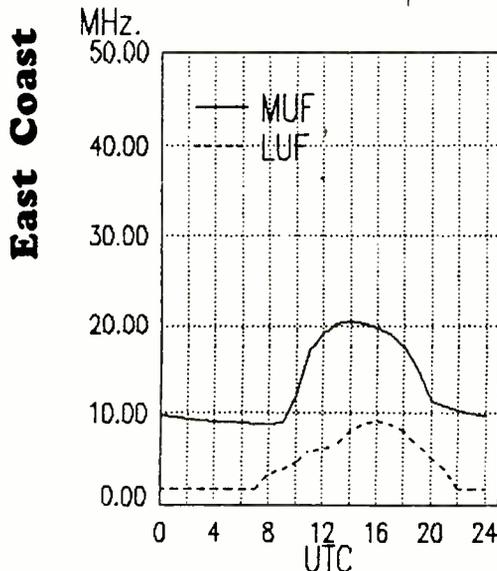
R7000 system \$ 349
R71A system \$ 349
Manual and demo disk \$15

Requires ICOM receiver and IBM PC with 512K and serial port. The R71A version also requires an ICOM UX-14.

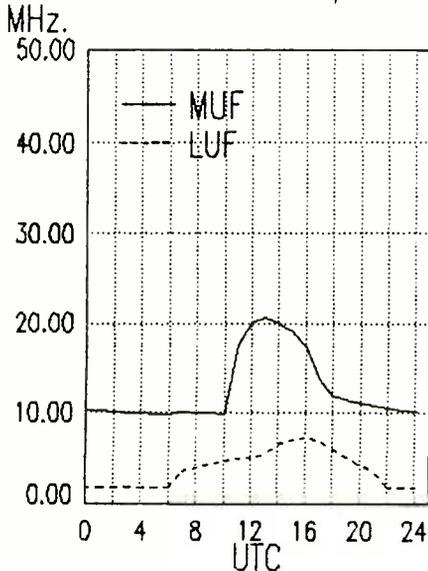
Send check or money order to Datametrics, Inc., 2575 South Bayshore Dr. Suite 8A, Coconut Grove, FL 33133. 30 day return privileges apply.

0300-0400	Voice of Free China, Taiwan	9575 11835
0300-0400	WHRI, Noblesville, Indiana	5950 7445 9680 9765
0300-0400	WRNO Worldwide, Louisiana	7315 9495
0300-0400	WWCR, Nashville, Tennessee	7355
0300-0400	WYFR, Okeechobee, Florida	7520
0310-0325	Vatican Radio, Vatican City	6065 9505 15440
0315-0330	Radio for Peace Int'l, Costa Rica	11725
		7375 USB

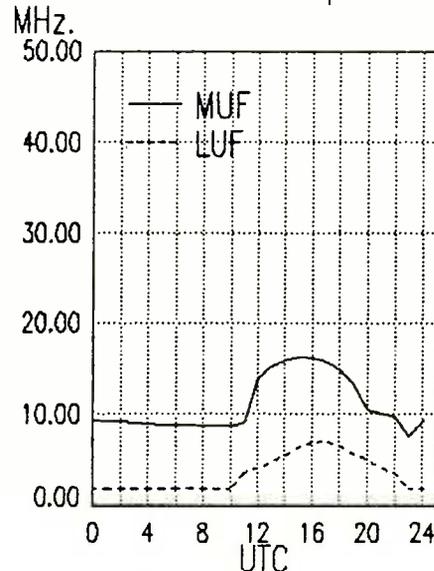
East Coast To Western Europe



East Coast To Eastern Europe



East Coast To Arctic Europe



frequency

section

0315-0345	Radio France International, Paris	3965 5990 7135 7280 9745 9790 9800 11705
0330-0400	Radio Netherlands Int'l, Hilversum	9590 11720
0330-0400	Radio Tirana, Albania	9500 11825
0330-0400	Radio Tanzania	9684
0330-0400	Radio Australia, Melbourne	11880 15160 15240 15320 15465 15560 17795 21525
0330-0400	United Arab Emirates Radio, Dubai	11945 13675 15400 15435
0340-0350 M-A	Voice of Greece, Athens	11645 9395 9420
0349-0357v	Radio Yerevan, Armenia	11675 11790 15180 15455 15485 17555
0350-0400	RAI, Rome, Italy	11905 15330 17795 17690 17665

0400-0500	Radio Sofia, Bulgaria	7115 11720 11735 11760
0400-0500	Voice of Turkey, Ankara	9445 17880
0400-0500	Radio Moscow World Service	15280 17690 21690 21790
0400-0500	CBC, Northern Quebec Service	9625 (ML)
0400-0500	Radio for Peace Int., Costa Rica	7375 USB
0400-0500	Radio RSA, Johannesburg	7270 11900
0400-0500	CBN, St. John's, Newfoundland, Can	6160
0400-0500	CBU, Vancouver, British Columbia	6160
0400-0500	CFCF, Montreal, Quebec, Canada	6005
0400-0500	CFCN, Calgary, Alberta, Canada	6030
0400-0500	CHNS, Halifax, Nova Scotia, Canada	6130
0400-0500	Christian Science World Svc, Boston	9455 9840 13720 13760 15225 17780 (+17555 A,S)

0400-0500	CKWX, Vancouver, British Columbia	6080
0400-0500	CFRB, Toronto, Ontario, Canada	6070
0400-0500	HCJB, Quito, Ecuador	17875 15155
0400-0500	KSDA, Guam	15225
0400-0500	Radio Havana Cuba	9710 9750 11760 11820
0400-0500 S-F	WMLK Bethel, Pennsylvania	9465
0400-0500	Voice of America-Middle East Service	3980 5995 6040 6140 7170 7200 11785 15205
0400-0500	WHRI, Noblesville, Indiana	7315 9495
0400-0500	WRNO Worldwide, Louisiana	6185
0400-0500	WWCR, Nashville, Tennessee	7520
0400-0500	WYFR, Okeechobee, Florida	6065 9505
0425-0440	RAI, Rome, Italy	5990 7275
0430-0500 M-F	NBC Windhoek, Namibia	3270 3290
0430-0500	Radio Australia, Melbourne	11880 15160 15240 15320 15465 15560 17630 17750 17795 21525 21740 21775
0430-0500 IRR	Radio Truth (clandestine intended for Zimbabwe)	5015
0430-0500	Radio Tirana, Albania	9500 11835
0455-0500	Voice of Nigeria, Lagos	7255

0400 UTC [11:00 AM EST/8:00 PM PST]

0400-0410 M-F	Radio Zambia, Lusaka	4910
0400-0410	RAI, Rome, Italy	11905 15330 17795
0400-0415	Radio Prague Int'l, Czechoslovakia	5930 7345 11680
0400-0425	Radio Cultural, Guatemala	3300
0400-0425	Radio Netherlands Int'l, Hilversum	9590 11720
0400-0430	Radio Tanzania	9684
0400-0430	Radio Thailand, Bangkok	4830 9655 11905
0400-0430	Radio Romania Int'l, Bucharest	5990 6155 9510 9570 11830 11940 15380
0400-0430	Radio Australia, Melbourne	11880 15160 15240 15320 15465 15560 17795 21525 21740 21775
0400-0430	Swiss Radio International, Berne	6135 9650 9885 12035
0400-0430	Trans World Radio, Bonaire	11930 9535
0400-0450	Deutsche Welle, Koln, West Germany	7225 7150 9765 9565 11765 15265
0400-0450	Radio Pyongyang, North Korea	15180 15230 17765
0400-0455	Radio Beijing, China	11685 11840
0400-0500	Voice of America-Africa Service	6025 6035 7280 9525 9575 11785 11835
0400-0500 T-A	KUSW Salt Lake City, Utah	9815 IRR
0400-0500	Radio Canada Int'l, Montreal	11925
0400-0500	Radio Moscow North American Svc	9635 11895 12050 13605 15180 15425 15455 15530 15595(+17605 from 0430)
0400-0500	Radio New Zealand, Wellington	17675
0400-0500	BBC World Service, London, England	5975 6005 6195 7105 7120 9410 9580 9600 9610 9670 9915 12095 15070 15245 17885 21470 21715

0500 UTC [12:00 AM EST/9:00 PM PST]

0500-0505	Radio Lesotho	4800
0500-0515	Kol Israel, Jerusalem	9435 11605 11655 12077 15640 17575
0500-0515	Azad Kashmir Radio, Pakistan	7268 4980 3665
0500-0520	Vatican Radio	6185 9645
0500-0530	Vatican Radio African Service	17710 17730 21650
0500-0530 M-F	NBC Windhoek, Namibia	3270 3290
0500-0550	Deutsche Welle, Koln, West Germany	5960 6120 9670 11705 11845



valid, impaired, crippled, handicapped, retarded, mangled, disabled, slow

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frequency

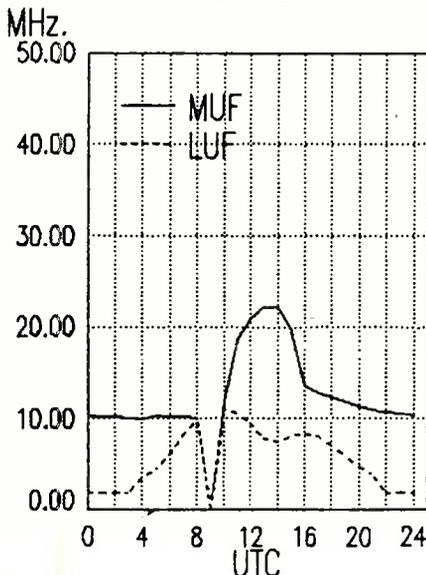
section

0500-0600	BBC World Service, London, England	5975	6005	6195	7120
		9410	9600	9640	9915
		12095	15070	17740	17885
		21470	21715		
0500-0600	CBU, Vancouver, British Columbia	6160			
0500-0600	CFCF, Montreal, Quebec, Canada	6005			
0500-0600	CFCN, Calgary, Alberta, Canada	6030			
0500-0600	Radio Thailand, Bangkok	4830	9655	11905	
0500-0600	WRNO New Orleans, Louisiana	6185			
0500-0600	CHNS, Halifax, Nova Scotia, Canada	6130			
0500-0600	S-F WMLK Bethel, Pennsylvania	9465			
0500-0600	Christian Science World Svc, Boston	9455	9840	13720	13760
		15225	17780	(+17555 A,S)	
0500-0600	Radio Moscow North American Svc	9635	11895	12050	13605
		15180	15425	15455	15530
		15595	17605		
0500-0600	Radio Moscow World Service	15280	17690	21690	21790
0500-0545	Radio New Zealand, Wellington	17675			
0500-0600	CKWX, Vancouver, British Columbia	6080			
0500-0600	CFRB, Toronto, Ontario, Canada	6070			
0500-0600	HCJB, Quito, Ecuador	15155	17875		
0500-0600	Radio Australia, Melbourne	11880	15160	15240	15320
		15465	15560	17630	17750
		17795	21525	21740	21775
0500-0600	Radio Havana Cuba	5965	9710	11760	11820
0500-0600	Radio Japan General Service, Tokyo	15195	17765	17810	17825
		17890			
0500-0600	Radio for Peace Int., Costa Rica	7375	USB		
0500-0600	Spanish National Radio, Madrid	9630			
0500-0600	Voice of America-Africa Service	3990	6035	7280	9540
		9575			
0500-0600	Voice of America-Middle East Service	3980	5995	6140	7170
		7200	11785	15205	
0500-0600	Voice of Nigeria, Lagos	7255			
0500-0600	WHRI, Noblesville, Indiana	7315	9495		
0500-0600	WWCR, Nashville, Tennessee	7520			
0500-0600	WYFR, Okeechobee, Florida	5985	11580	17640	15566
0510-0530	M-A Radio Botswana	3356	4830	7255	
0530-0600	Radio Austria International, Vienna	6015			
0530-0600	Radio Romania Int'l, Bucharest	15340	15380	17720	17745
		17790	21665		
0530-0600	M-F NBC Windhoek, Namibia	3270			
0530-0600	UAE Radio Dubai	15435	17830	21700	
0545-0600	Radio New Zealand, Wellington	9855/17675			
0555-0600	Voice of Malaysia, Kuala Lumpur	6175	9750	15295	

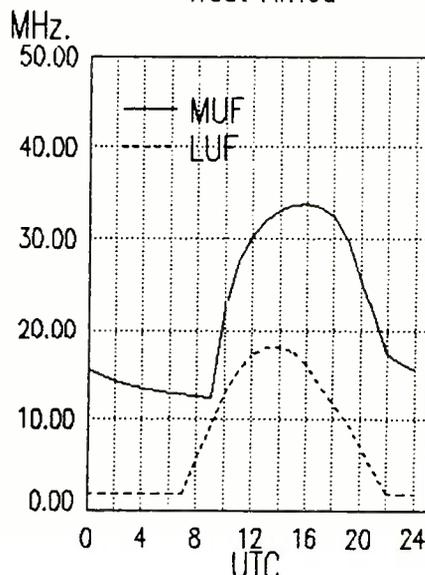
0600 UTC [1:00 AM EST/10:00 PM PST]

0600-0645	Radio For Peace, Int., Costa Rica	7375	USB		
0600-0650	Radio Pyongyang, North Korea	15180	15230		
0600-0650	Deutsche Welle, Koln, W. Germany	11765	13790	15185	17875
0600-0650	CBU, Vancouver, British Columbia	6160			
0600-0700	Radio Australia, Melbourne	11880	13700	13705	15240
		15465	17630	21525	21740
0600-0700	Radio Havana Cuba	5965	11760	11820	
0600-0700	M-A Vatican Radio	6248	9645	11740	ML
0600-0700	BBC World Service, London, England	5975	6180	6195	7120
		7150	9410	9580	9600
		9640	12095	15070	15245
0600-0700	CFCF, Montreal, Quebec, Canada	6005			
0600-0700	SIBC Solomon Islands	5020	9545		
0600-0700	Radio New Zealand, Wellington	9855/17675			
0600-0700	WYFR, Okeechobee, Florida	5985	6065	7355	13760
0600-0700	ABC Domestic Network, Australia	15425			
0600-0700	S-F WMLK Bethel, Pennsylvania	9465			
0600-0700	CFCN, Calgary, Alberta, Canada	6030			
0600-0700	CHNS, Halifax, Nova Scotia, Canada	6130			
0600-0700	Christian Science World Svc, Boston	9455	9840	11705	13720
0600-0700	CKWX, Vancouver, British Columbia	6080			
0600-0700	CFRB, Toronto, Ontario, Canada	6070			
0600-0700	Radio Moscow North American Svc.	9635	12050	13605	15180
0600-0700	Radio Moscow World Service	15280	17690	21690	21790
0600-0700	Voice of the Mediterranean, Malta	9765			
0600-0700	HCJB, Quito, Ecuador	15155	17875		
0600-0700	ABC Brisbane, Australia	9660			
0600-0700	Radio Tonga, Kingdom of Tonga	5030v			
0600-0700	Voice of America-Africa Service	3990	6035	6080	6125
		7280	9530	9540	9575
0600-0700	Voice of America-Middle East Serv	3980	5965	5995	6060
0600-0700	WHRI, South Bend, Indiana	7315	9495		
0600-0700	Voice of Hope, Lebanon	6280			
0600-0700	Voice of Malaysia, Kuala Lumpur	6175	9750	15295	
0618-0700	M-F Radio Canada International, Montreal	6050	6150	7155	9740
		9760	11840	17840	
0630-0700	Radio Finland, Helsinki	11755	9560	6120	
0630-0700	Vatican Radio African Service	17710	17730	21650	
0630-0700	BRT, Brussels, Belgium	13675	11695		
0630-0700	Radio Tirana, Albania	9500	7205		
0630-0700	Radio Polonia, Warsaw, Poland	6135	7270	15120	9675
0630-0700	Swiss Radio International, Berne	15430	17570	21770	
0645-0700	A Radio for Peace Int., Costa Rica	7375	USB		
0645-0700	GBC Radio, Accra, Ghana	6130			
0645-0700	HCJB, Quito, Ecuador	9610	11835	(alt 6050)	
0645-0700	Radio Romania Int'l, Bucharest	11810	11940	15335	17720
		17805	21665		

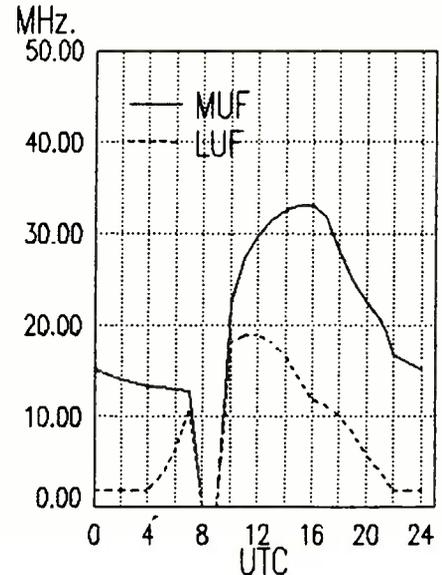
East Coast To Middle East



East Coast To West Africa



East Coast To Central Africa



East Coast

frequency

section

0700 UTC [2:00 AM EST/11:00 PM PST]

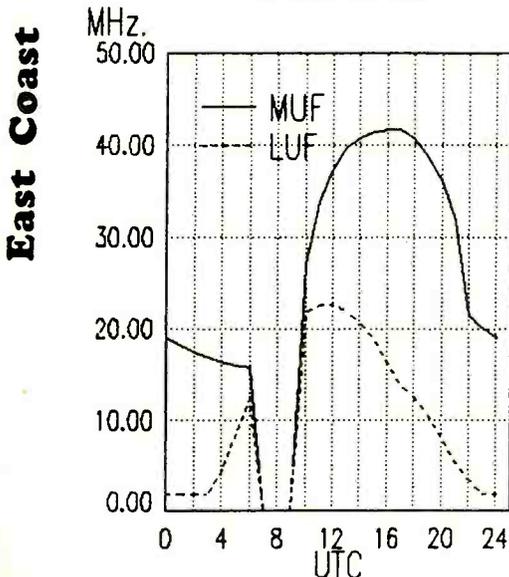
0700-0710	Sierra Leone Brdcstng.Svc.,Freetown	3316			
0700-0715	Radio Romania Int'l, Bucharest	11810	11940	15335	17720
		17805	21665		
0700-0725	BRT Brussels, Belgium	21815	11695	6035	
0700-0730	Radio Australia, Melbourne	11880	13705	15240	15465
		17630	21525	21740	21775
0700-0730	Radio Tirana, Albania	11835	9500		
0700-0750	Radio Pyongyang, North Korea	15340	17795		
0700-0800	A Radio for Peace Int'l, Costa Rica	7375	USB		
0700-0800	Voice of Hope, Lebanon	6280			
0700-0800	CBU, Vancouver, British Columbia	6160			
0700-0800	TWR Monte Carlo	9480			
0700-0800	Radio Havana Cuba	11835			
0700-0800	WYFR, Okeechobee, Florida	6065	7355	13760	15566
0700-0800	Voice of the Mediterranean, Malta	9725			
0700-0800	ZBC-1, Zimbabwe	7283			
0700-0800	Radio New Zealand, Wellington	9855			
0700-0800	BBC World Service, London	5975	7150	9410	9600
		9640	9760	11940	12095
		15070	15280	15360	15400
		21715			
0700-0800	Solomon Islands Broadcasting Co.	5020	9545		
0700-0800	Voice of Free China, Taiwan	5950			
0700-0800	WHRI Noblesville, Indiana	7315	9495		
0700-0800	ABC Brisbane, Australia	9660			
0700-0800	CFCF, Montreal, Quebec, Canada	6005			
0700-0800	CFCN, Calgary, Alberta, Canada	6030			
0700-0800	CHNS, Halifax, Nova Scotia, Canada	6130			
0700-0800	Christian Science World Svc, Boston	9455	9840	11705	13720
		15225	17780		
0700-0800	Radio Moscow World Service	15280	17690	21690	21790
0700-0800	CFRB, Toronto, Ontario, Canada	6070			
0700-0800	GBC Radio, Accra, Ghana	6130			
0700-0800	Radio Korea, Seoul	7550	13670		
0700-0800	HCJB, Quito, Ecuador	9610	11835	15270	
0700-0800	KNLS, Anchor Point, Alaska	9785			
0700-0800	Radio Japan, Tokyo	17765	17810	17890	21590
		21690			
0700-0800	Voice of Malaysia, Kuala Lumpur	6175	9750	15295	
0710-0800	HCJB, Quito,Ecuador(S. Pacific Sv.)	6130	9745	11925	
0730-0800	Radio Prague Int'l, Czechoslovakia	17840	21705		
0730-0800	ABC, Alice Springs, Australia	2310	(ML)		
0730-0800	ABC, Katherine, Australia	2485			
0730-0800	ABC, Tennant Creek, Australia	2325	(ML)		
0730-0800	Radio Austria Int'l, Vienna	21490	15410	13730	6155
0730-0800	HCJB Quito, Ecuador	9745	11925		

0730-0800	KTWR, Agana Guam	15200			
0730-0800	Radio Australia, Melbourne	6035	11880	13705	15240
		17630	21525	21775	
0730-0800	Radio Netherlands, Hilversum	9630	15560		
0730-0800	Radio Sofia, Bulgaria	11720	15160	17825	
0730-0800	Swiss Radio Int'l European Service	3985	6165	9535	

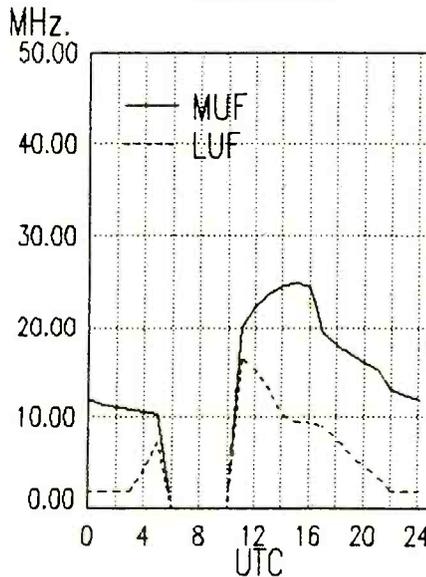
0800 UTC [3:00 AM EST/12:00 AM PST]

0800-0803	Radio Pakistan	17555	21575		
0800-0810	Sierra Leone Brdcstng Co., Freetown	3316			
0800-0825	Radio Netherlands Int'l, Hilversum	9630	15560		
0800-0825	Voice of Malaysia, Kuala Lumpur	6175	9750	15295	
0800-0825	Radio Finland, Helsinki	17800	21550		
0800-0830	Radio Australia, Melbourne	13705	15160	15240	17630
		17750	17795	21525	21775
0800-0830	Voice of Islam, Dacca, Bangladesh	15195	11705		
0800-0850	Radio Pyongyang, North Korea	15180	15230		
0800-0900	Radio Moscow World Service	15280	17690	21690	21790
0800-0900	KTWR, Guam	15200			
0800-0900	Trans World Radio, Monte Carlo	9480			
0800-0900	ABC Brisbane, Australia	9660			
0800-0900	BBC, London	15280	9640	12095	15070
		15360	21715	15400	9410
		21660			
0800-0900	ABC, Alice Springs, Australia	2310	(ML)		
0800-0900	ABC, Katherine, Australia	2485			
0800-0900	ABC, Perth, Australia	15425			
0800-0900	ABC, Tennant Creek, Australia	2325	(ML)		
0800-0900	A Radio for Peace Int'l, Costa Rica	7375	USB		
0800-0900	Voice of Hope, Lebanon	6280			
0800-0900	CBN, St. John's, Newfoundland, Can	6160			
0800-0900	CBU, Vancouver, British Columbia	6160			
0800-0900	Radio Havana, Cuba	11835			
0800-0900	Radio Australia (Southwest Pacific)	6020	6035	6080	9710
0800-0900	WHRI, South Bend, Indiana	7315	7355		
0800-0900	CFCF, Montreal, Quebec, Canada	6005			
0800-0900	CFCN, Calgary, Alberta, Canada	6030			
0800-0900	CHNS, Halifax, Nova Scotia, Canada	6130			
0800-0900	Christian Science World Svc	9455	9530	9840	13720
		15225	15610		
0800-0900	CKWX, Vancouver, British Columbia	6080			
0800-0900	CFRB, Toronto, Ontario, Canada	6070			
0800-0900	HCJB, Quito, Ecuador	6130	9610	11835	
0800-0900	HCJB, Quito, Ecuador (alt pro)	9745	11925	15270	
0800-0900	KNLS, Anchor Point, Alaska	11715			
0800-0900	Solomon Islands Broadcasting Co.	5020			
0800-0900	Voice of Indonesia, Jakarta	11753	11785		

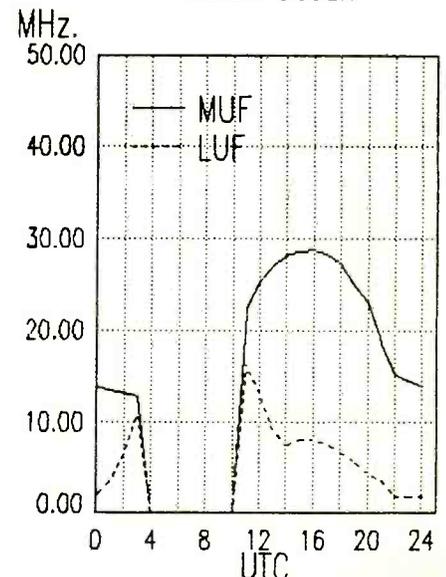
East Coast To South Africa



East Coast To East Africa



East Coast To Indian Ocean



frequency

section

0800-0900	Voice of Nigeria, Lagos	7255
0815-0830	Radio Korea, Seoul	9570 13670
0815-0900	S Italian Radio Relay Svc, Milan	9815
0815-0900	A,S Radio New Zealand, Wellington	9855
0830-0855	M-F Radio Netherlands Int'l, Hilversum	15190
0830-0900	Radio Australia, Melbourne	9580 15240 17630 17750
		21525 21775
0830-0900	Radio Netherlands Int'l, Hilversum	9630 17575 21485
0830-0900	Radio Finland, Helsinki	21550 17800
0830-0900	Swiss Radio International, Berne	9560 13685 17670 21695
0837-0841v	Radio Tikhly Okean, Vladivostok	4485 5940 7210 7320
0840-0850	Voice of Greece, Athens	15625 17535
0845-0900	KTWR, Agana, Guam	15210

0900-1000	CKWX, Vancouver, British Columbia	6080
0900-1000	CFRB, Toronto, Ontario, Canada	6070
0900-1000	FEBR Radio Int'l, Philippines	11845
0900-1000	HCJB, Quito Ecuador	6130
0900-1000	HCJB, Quito, Ecuador (alt pro)	9745 11925
0900-1000	Radio Japan Australian Svc., Tokyo	15270 17890
0900-1000	Radio Japan General Service, Tokyo	11840 21610
0900-1000	Voice of Nigeria, Lagos	7255
0900-1000	WHRI, Noblesville, Indiana	7315 7355
0910-0940	M,W,H,A,S Radio Ulan Bator, Mongolia	11850 12015
0920-1000	ABC, Perth, Australia	6140
0930-1000	Radio Afghanistan, Kabul	4940 9635 17655 21600
0930-0955	RRI Surabaya, Jawa Timur, Indonesia	2377
0930-1000	Radio Australia, Melbourne	5995 9580 9655 9760
		17715 21775 21825
0930-1000	British Forces Broadcasting Svc, UK	15205 17695 21735
0930-1000	CBN, St. John's, New Foundland	6160
0930-1000	KTWR, Agana, Guam	11805

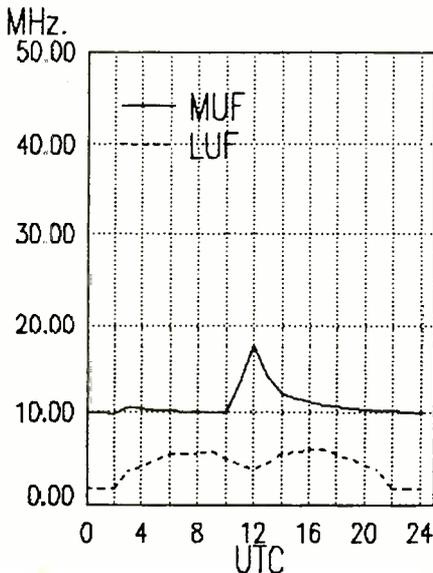
0900 UTC [4:00 AM EST/1:00 AM PST]

0900-0920	ABC, Perth, Australia	15425
0900-0925	BRT Brussels, Belgium	9925
0900-0925	Radio Netherlands Int'l, Hilversum	9630 17575 21485
0900-0930	Radio Australia (Southwest Pacific)	6020 6035 6080 9710
0900-0930	Radio Australia, Melbourne	5995 9580 9760 17715
0900-0930	KTWR Agana Guam	15200
0900-0945	S Italian Radio Relay Svc, Milan	9815
0900-0950	Deutsche Welle, Koln, West Germany	6160 9565 11740 15410
		17780 17820 21600 21650
		21680
0900-1000	ABC, Alice Springs, Australia	2310 (ML)
0900-1000	Radio Beijing, China	11755 15440 17710
0900-1000	ABC Brisbane, Australia	9660
0900-1000	Solomon Islands Broadcasting Co.	5020
0900-1000	Radio Moscow World Service	15280 17690 21690 21790
0900-1000	ABC, Katherine, Australia	2485
0900-1000	ABC, Tennant Creek, Australia	2325 (ML)
0900-1000	S Adventist World Radio, Portugal	9670
0900-1000	A Radio for Peace Int., Costa Rica	7375 USB
0900-1000	KTWR, Agana, Guam	11805
0900-1000	Radio New Zealand, Wellington	9855
0900-1000	S Radio Bhutan, Thimpu	5023v
0900-1000	Voice of Hope, Lebanon	6280
0900-1000	BBC World Service, London, England	5975 9740 11750 12095
		15070 15190 15360 15400
		17640 17705 17790 17885
		21470 21660 21715
0900-1000	CFCF, Montreal, Quebec, Canada	6005
0900-1000	CFCN, Calgary, Alberta, Canada	6030
0900-1000	CHNS, Halifax, Nova Scotia, Canada	6130
0900-1000	Christian Science World Svc, Boston	9455 9530 9840 11980
		13720 15610

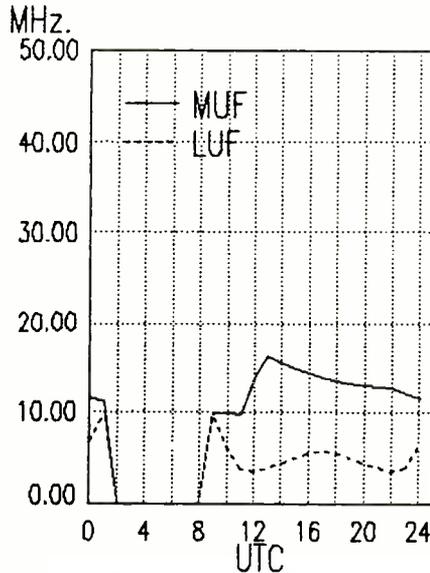
1000 UTC [5:00 AM EST/2:00 AM PST]

1000-1015	Radio Budapest, Hungary	15160 15220 11925 9835
		9585 6110
1000-1025	BRT Brussels, Belgium	21810 26050
1000-1030	Radio Afghanistan, Kabul	4940 9635 17655 21600
1000-1030	A Radio for Peace Int., Costa Rica	7375 USB
1000-1030	Voice of Vietnam, Hanoi	9840 15010
1000-1030	Swiss Radio International, Berne	9560 13685 17670 21695
1000-1030	Radio Australia, Melbourne	5995 9580 9655 17715
		21775
1000-1100	Radio Korea, Seoul	15575
1000-1100	KHBN Guam	9830 ML
1000-1100	WHRI, South Bend, Indiana	7315 7355
1000-1100	Radio Beijing, China	11755 15440 17710
1000-1100	ABC, Alice Springs, Australia	2310 (ML)
1000-1100	ABC, Katherine, Australia	2485
1000-1100	Radio Baghdad, Iraq	11860
1000-1100	Solomon Islands Broadcasting Co.	5020
1000-1100	ABC, Perth, Australia	9610
1000-1100	ABC, Tennant Creek, Australia	2325 (ML)
1000-1100	KSDA, Guam	13720
1000-1100	Radio Moscow World Service	11840 17690 21690 21790
1000-1100	All India Radio, New Delhi	15010 15335 17387 17865
		21735
1000-1100	BBC World Service, London, England	9410 9740 9750 12095
		15070 15190 15360 15420
		17705 17790 17885 21660
1000-1100	CBN, St. John's, Nfld, Canada	6160

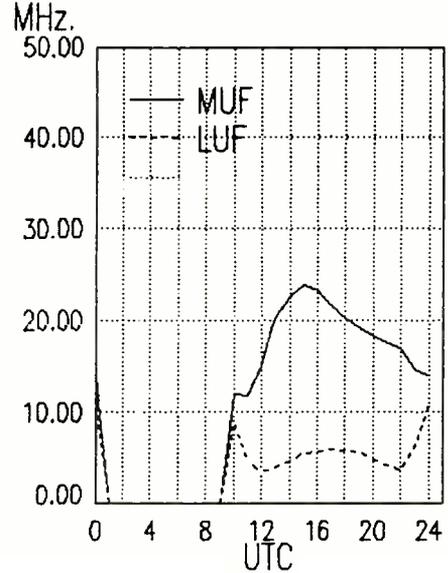
East Coast To
Central Asia



East Coast To
South East Asia



East Coast To
Indonesia



East Coast

frequency

section

1000-1100	CFCF, Montreal, Quebec, Canada	6005		
1000-1100	CFCN, Calgary, Alberta, Canada	6030		
1000-1100	CHNS, Halifax, Nova Scotia, Canada	6130		
1000-1100	Christian Science World Svc, Boston	9455	9495	9530 11980
		13625	13720	(+11705 A.S.)
1000-1100	CKWX, Vancouver, British Columbia	6080		
1000-1100	CFRB, Toronto, Ontario, Canada	6070		
1000-1100	FEBC Radio Int'l, Philippines	11845		
1000-1100	ABC Brisbane, Australia	9660		
1000-1100	WYFR, Okeechobee, Florida	5950		
1000-1100	HCJB, Quito, Ecuador	9745	11925	
1000-1100	KTWR, Agana, Guam	11805		
1000-1100	Voice of America-Caribbean Service	9590	11915	15120
1000-1100	Voice of America-Pacific Service	5985	11720	15425
1015-1030	Radio Korea, Seoul	7275	11740	
1015-1100	S Italian Radio Relay Svc, Milan	9815		
1030-1100	Radio Austria Int'l, Vienna	15450	21490	
1030-1100	M-A Vatican Radio	6248	9645	11740
1030-1100	UAE Radio Dubai	15320	15435	17865 21605
1030-1100	Radio Tanzania	5985	6105	7165
1030-1100	Radio Korea, Seoul	11715		
1030-1100	Radio Netherlands Int'l, Hilversum	6020	11890	
1030-1100	Radio Australia, Melbourne	5995	9580	9655 21775
1030-1100	Adventist World Radio, Forli, Italy	7230		
1030-1045	Radio Budapest, Hungary	15160	15220	11925 9835
		9585	6110	
1040-1050	Voice of Greece, Athens	15625	17535	
1045-1100	Radio Budapest, Hungary	7220	9585	9835 11910
1050-1100	Radio Finland, Helsinki	15400	21550	

1100-1200	ABC, Alice Springs, Australia	2310	(ML)	
1100-1200	BBC World Service, London, England	9410	9515	9740 9750
		11775	12095	15070 15360
1100-1200	Radio Baghdad, Iraq	11860		
1100-1200	WHRI, Noblesville, Indiana	9465	11790	
1100-1200	KHBN Guam	9830	ML	
1100-1200	A.S. Radio Tanzania	5985	6105	7165
1100-1200	All India Radio, Northeast Svc	7190		
1100-1200	WYFR, Okeechobee, Florida	5950	11580	
1100-1200	Adventist World Radio, Costa Rica	9725	11870	
1100-1200	Radio Moscow World Service	11840	17690	21690 21790
1100-1200	SBC Singapore	11940		
1100-1200	ABC, Brisbane, Australia	9660		
1100-1200	ABC, Katherine, Australia	2485		
1100-1200	ABC, Perth, Australia	9610		
1100-1200	ABC, Tennant Creek, Australia	2325	(ML)	
1100-1200	Trans World Radio, Bonaire	11815	15345	
1100-1200	CBN, St. John's, Newfoundland, Can	6160		
1100-1200	CFCF, Montreal, Quebec, Canada	6005		
1100-1200	CFCN, Calgary, Alberta, Canada	6030		
1100-1200	CHNS, Halifax, Nova Scotia, Canada	6130		
1100-1200	Christian Science World Svc, Boston	9455	9495	9530 11980
1100-1200	CKWX, Vancouver, British Columbia	6080		
1100-1200	CFRB, Toronto, Ontario, Canada	6070		
1100-1200	Radio Japan, Tokyo	6120	11815	11840
1100-1200	Radio Jordan, Amman	13655		
1100-1200	Radio RSA, Johannesburg	9555	11805	11900 17835
1100-1200	Voice of America-Caribbean Service	9590	11915	
1100-1200	Voice of America-East Asia Service	5985	6110	9760 11720
		15155	15425	
1110-1120	vM-F Radio Botswana	4830	5995	7255
1115-1145	Radio Nepal, Katmandu(External Svc.)	5005		
1115-1200	Radio Korea, Seoul	9750		
1130-1140	Radio Lesotho	4800		
1130-1145	Radio Budapest, Hungary	15190	6110	9835 15160
		15220		
1130-1200	HCJB, Quito, Ecuador	11740	17890	
1130-1200	Radio Australia, Melbourne	5995	6020	6035 6080
		9580	9710	11720 11910
		15465	21825	
1130-1200	Radio Thailand	11905	9655	4830
1130-1200	Radio Austria International, Vienna	6155	13730	15430 21490
1130-1200	Radio Netherlands Int'l, Hilversum	5995	6020	9715 11660
		17575	21480	21520
1130-1200	Voice of Islamic Republic of Iran	9575	9705	11715 11790
		11825		

1100 UTC [6:00 AM EST/3:00 AM PST]

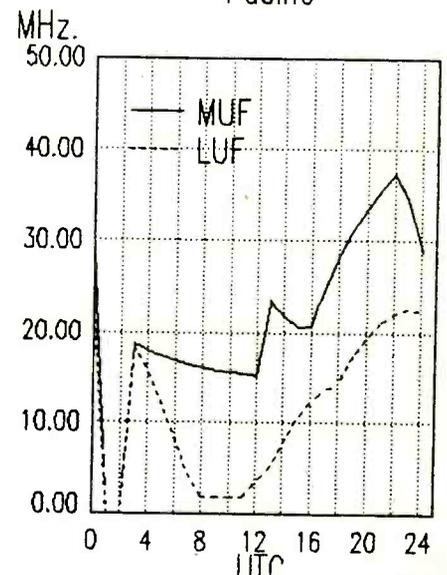
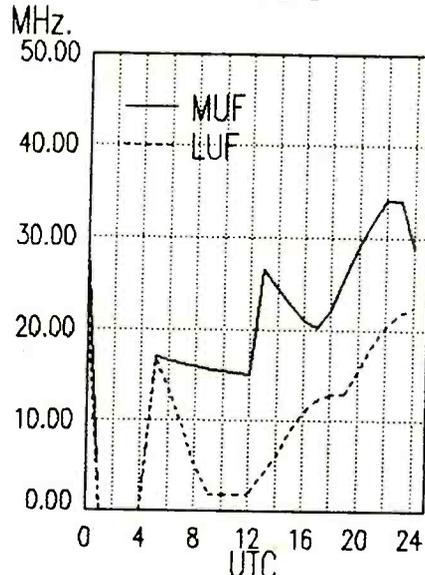
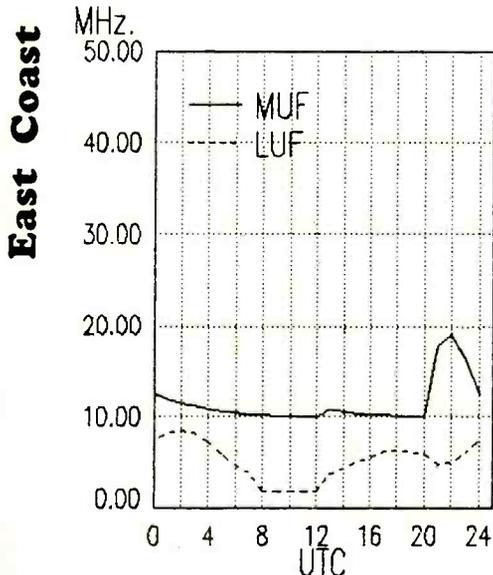
1100-1115	Azad Kashmir Radio, Pakistan	7268	4980	3665
1100-1115	Radio Finland, Helsinki	15400	21550	
1100-1120	Radio Pakistan	17565	21520	
1100-1125	HCJB Quito, Ecuador	9745	11925	
1100-1125	Radio Netherlands Int'l, Hilversum	6020	11890	
1100-1130	Kol Israel, Jerusalem	17590	21660	21790
1100-1130	Solomon Islands Broadcasting Co.	5020		
1100-1130	Radio Mozambique, Maputo	11835	11818	9525
1100-1130	Voice of Vietnam, Hanoi	9840	15010	
1100-1130	Radio Australia, Melbourne	5995	6020	6035 6080
		9580	9655	9710 11910
		15465	21825	
1100-1130	Adventist World Radio, Forli, Italy	7230		
1100-1130	Swiss Radio International, Berne	13635	15570	17830 21770
1100-1150	Radio Pyongyang, North Korea	9977	11735	
1100-1150	Deutsche Welle, Koln, West Germany	15410	17765	17800 21600

1110-1120	vM-F Radio Botswana	4830	5995	7255
1115-1145	Radio Nepal, Katmandu(External Svc.)	5005		
1115-1200	Radio Korea, Seoul	9750		
1130-1140	Radio Lesotho	4800		
1130-1145	Radio Budapest, Hungary	15190	6110	9835 15160
		15220		
1130-1200	HCJB, Quito, Ecuador	11740	17890	
1130-1200	Radio Australia, Melbourne	5995	6020	6035 6080
		9580	9710	11720 11910
		15465	21825	
1130-1200	Radio Thailand	11905	9655	4830
1130-1200	Radio Austria International, Vienna	6155	13730	15430 21490
1130-1200	Radio Netherlands Int'l, Hilversum	5995	6020	9715 11660
		17575	21480	21520
1130-1200	Voice of Islamic Republic of Iran	9575	9705	11715 11790
		11825		

East Coast To
Far East

East Coast To
Australia

East Coast To
Pacific



frequency

section

1200 UTC [7:00 AM EST/4:00 AM PST]

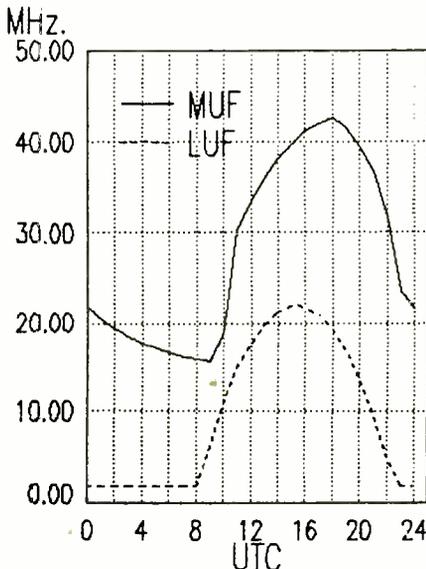
1200-1215	Radio Korea, Seoul	9750			
1200-1225	All India Radio Northeast Svc	7190	ML		
1200-1225	Radio Netherlands Int'l, Hilversum	5955	6020	9715	11660
		17575	21480	21520	
1200-1225	Voice of Islamic Republic of Iran	9575	9705	11715	11790
		11825			
1200-1225	M-F Radio Finland, Helsinki	15400	21550		
1200-1230	Vatican Radio, Vatican City	17865	21515		
1200-1230	Radio Romania Int'l, Bucharest	15380	17720		
1200-1230	Radio Thailand	11905	9655	4830	
1200-1230	M,W,H,A,S Radio Ulan Bator, Mongolia	11850	12025		
1200-1230	A,S Radio Norway International, Oslo	21735	25730		
1200-1230	Radio Tashkent, Uzbekistan	7325	9715	11785	15460
		17740			
1200-1230	Radio Australia, Melbourne	5995	6020	6035	6080
1200-1300	ABC, Alice Springs, Australia	2310	(ML)		
1200-1300	WWCR Nashville, Tennessee	15690			
1200-1300	ABC, Brisbane, Australia	9660			
1200-1300	SBC Singapore	11940			
1200-1300	ABC, Katherine, Australia	2485			
1200-1300	ABC, Perth, Australia	9610			
1200-1300	Trans World Radio, Bonaire	11815	15345		
1200-1300	ABC, Tennant Creek, Australia	2325	(ML)		
1200-1300	Adventist World Radio, Costa Rica	9725	11870		
1200-1300	BBC World Service, London, England	5965	6195	9515	9740
		11775	12095	15070	17640
		17705	17790	17885	21470
		21660	21710		
1200-1300	Radio Bras, Brasilia	11745			
1200-1300	CBU, Vancouver, British Columbia	6160			
1200-1300	CFCF, Montreal, Quebec, Canada	6005			
1200-1300	CFCN, Calgary, Alberta, Canada	6030			
1200-1300	CHNS, Halifax, Nova Scotia, Canada	6130			
1200-1300	A,S Radio Tanzania	5985	6105	7165	
1200-1300	KHBN Guam	9830	ML		
1200-1300	Christian Science World Service	9495	9895	11930	11980
		13625	13720	(+21780 A,S)	
1200-1300	CKWX, Vancouver, British Columbia	6080			
1200-1300	Radio Moscow World Service	11840	17690	21690	21790
1200-1300	CFRB, Toronto, Ontario	6070			
1200-1300	HCJB, Quito, Ecuador	11740	17890	25950	USB
1200-1300	Radio Beijing, China	9530	11600	11660	15450
1200-1300	Radio Jordan, Amman	13655			
1200-1300	Voice of America-East Asia Service	6110	9760	11715	15155
		15425	9530		
1200-1300	WHRI, Noblesville, Indiana	9465	11790		

1200-1300	WYFR, Okeechobee, Florida	5950	6015	11580	17750
1215-1225	Radio Bayrak, Northern Cyprus	6150			
1225-1300	All India Radio Northeast Svc	3255	ML		
1230-1245	Radio Korea, Seoul	7275	11740		
1230-1300	S Italian Radio Relay Svc, Milan	9815	(ML)		
1230-1300	Radio Bangladesh, Dacca	15195	17817		
1230-1300	Radio France International, Paris	9805	11670	15155	15195
		17650	21635	21645	
1230-1300	Radio Australia, Melbourne	5995	6020	6035	6080
		9580	11720	11910	15465
1230-1300	Radio Sweden, Stockholm	15190	21570	17740	
1235-1245	Voice of Greece, Athens	15625	15650	17535	

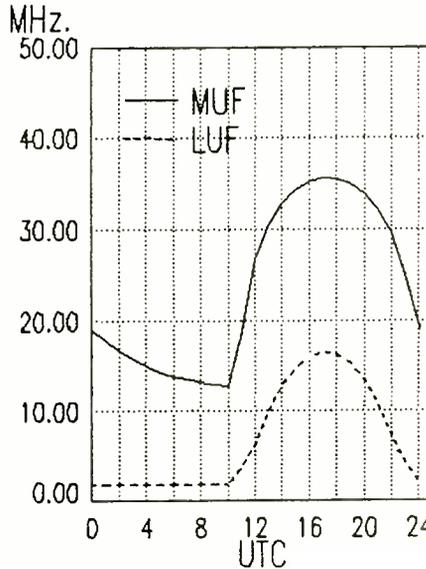
1300 UTC [8:00 AM EST/5:00 AM PST]

1300-1315	Radio Jordan, Amman	13655			
1300-1325	Radio Finland, Helsinki	15400	21550		
1300-1330	Radio Yugoslavia, Belgrade	17740	21555	25795	
1300-1330	Radio Tirana, Albania	11855	9500		
1300-1330	A,S Radio Norway International, Oslo	9585	9590		
1300-1330	Radio Australia, Melbourne	5995	6020	6035	6080
		9580	11720	11910	15465
		21825			
1300-1330	S Trans World Radio, Bonaire	15345	11815		
1300-1330	Radio Canada Int'l (China relay)	11955	15210		
1300-1330	Swiss Radio Int'l European Service	3985	6165	9535	
1300-1350	Radio Pyongyang, North Korea	9325	9345		
1300-1330	S Italian Radio Relay Svc, Milan	9815			
1300-1400	M-F Radio Canada Int'l, Montreal	9635	11855	17820	
1300-1400	BBC World Service, London, England	5965	9410	9515	9740
		11775	12095	15070	17640
		17705	17790	17885	21470
		21660	21710		
1300-1400	ABC, Alice Springs, Australia	2310			
1300-1400	ABC, Brisbane, Australia	9660			
1300-1400	A,S Radio Tanzania	5985	6105	7165	
1300-1400	KHBN Guam	9830	ML		
1300-1400	All India Radio Northeast Svc	3255	ML		
1300-1400	Radio Korea, Seoul	9570			
1300-1400	Radio Australia Middle East Svc	17630	21775		
1300-1400	ABC, Katherine, Australia	2485			
1300-1400	ABC, Perth, Australia	9610			
1300-1400	ABC, Tennant Creek, Australia	2325	(ML)		
1300-1400	Adventist World Radio, Costa Rica	9725	11870		
1300-1400	CBC Northern Quebec Service, Can	9625			
1300-1400	CBN, St. John's, Newfoundland	6160			
1300-1400	CBU, Vancouver, British Columbia	6160			
1300-1400	CFCF, Montreal, Quebec, Canada	6005			

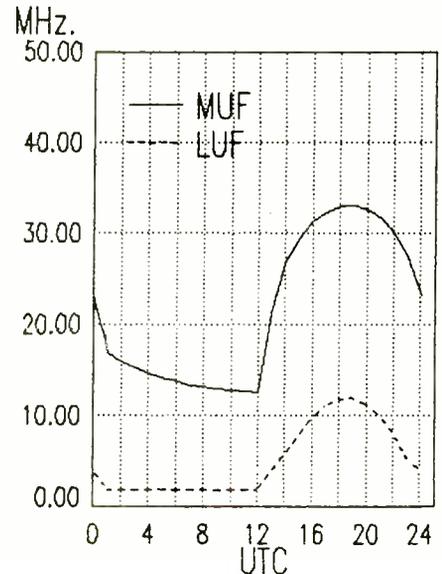
East Coast To South America



East Coast To Central America



East Coast To West Coast



East Coast

frequency

section

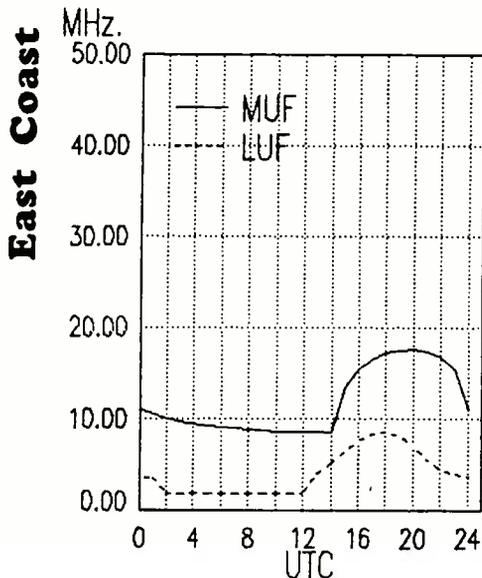
1300-1400	CFCN, Calgary, Alberta, Canada	6030
1300-1400	CHNS, Halifax, Nova Scotia, Canada	6130
1300-1400	Christian Science World Service	9495 9650 9895 11930 11980 13625 (+21780 A,S)
1300-1400	CKWX, Vancouver, British Columbia	6080
1300-1400	CFRB, Toronto, Ontario, Canada	6070
1300-1400	Radio Moscow World Service	11840 17690 21690 21790
1300-1400	FEBC Radio Int'l, Philippines	11850
1300-1400	HCJB, Quito, Ecuador	11740 17890 25950 USB
1300-1400	Radio Beijing, China	9530 11600 11660 11850
1300-1400	Radio Romania Int'l, Bucharest	11940 15365 17850 21665
1300-1400	Voice of America-East Asia Service	6110 9760 11715 15155 15425
1300-1400	WHRI, Noblesville, Indiana	9465 11790
1300-1400	WWCR, Nashville, Tennessee	15690
1300-1400	WYFR, Okeechobee, Florida	5950 6015 11550 11580 13695 17750
1315-1400	Radio Jordan, Amman	9560
1315-1400	Radio Tikhly Okean, Vladivostok	5015
1330-1400	All India Radio, New Delhi	11760 9565
1330-1400	Radio Austria International, Vienna	15430
1330-1345 A,S	Radio Finland, Helsinki	21550 15400
1330-1400	Radio Australia, Melbourne	5995 6020 6035 6080 9580
1330-1400	Laotian National Radio	7116v
1330-1400 A	Trans World Radio, Bonaire	11815 15345
1330-1400	Voice of Turkey, Ankara	17785
1330-1400 M-S	BRT Brussels, Belgium	21820
1330-1400 M-F	BRT Brussels, Belgium	21815
1330-1400	All India Radio, New Delhi	9565 11760 15335
1330-1400	British Forces Broadcasting Svc, UK	15195 17695 21735
1330-1400	Radio Tashkent, Uzbekistan	7325 9715 11785 15460 17740
1330-1400	Swiss Radio International, Berne	9620 11695 15570 17830 21695 25680
1330-1400	UAE Radio, Dubai	15435 17865 21605
1330-1400	Voice of Vietnam, Hanoi	9840 12020 15010
1345-1400	Vatican Radio	7250 9645 11740

1400-1430	Radio France International, Paris	11925 21780
1400-1430	Radio Polonia, Warsaw, Poland	6095 7285
1400-1430	Radio Sweden, Stockholm	11905 17740
1400-1430	Radio Tirana, Albania	9500 11895
1400-1500	ABC, Brisbane, Australia	9660
1400-1500 S	Radio Canada Int'l, Montreal	11955 17820
1400-1500	Radio Sta. Peace & Progress, Moscow	11870 15180 17635 17805 (from 1330 add: 15435 15480 15560 17835)
1400-1500	Voice of the Mediterranean, Malta	11925
1400-1500	Radio Beijing, China	11815 11850 15165
1400-1400	Radio Jordan, Amman	9560
1400-1500	ABC, Katherine, Australia	2485
1400-1500	ABC, Perth, Australia	9610
1400-1500	All India Radio, New Delhi	9565 11760 15335
1400-1500	BBC World Service, London, England	9410 11750 12095 15070 17640 17705 17790 17880
1400-1500	CBC Northern Quebec Service, Can	9625
1400-1500	CBN, St. John's, Newfoundland	6160
1400-1500	KHBN Guam	9830 ML
1400-1500 A,S	Radio Tanzania	5985 6105 7165
1400-1500	All India Radio Northeast Svc	3255 ML
1400-1500	Radio Australia Middle East Svc	17630 21775
1400-1500 M-A	CBU, Vancouver, British Columbia	6160
1400-1500	CFCF, Montreal, Quebec, Canada	6005
1400-1500	CFCN, Calgary, Alberta, Canada	6030
1400-1500	CHNS, Halifax, Nova Scotia, Canada	6130
1400-1500	Christian Science World Service	9530 11980 13625 13720
1400-1500	CKWX, Vancouver, British Columbia	6080
1400-1500	CFRB, Toronto, Ontario	6070
1400-1500	FEBC Radio Int'l, Philippines	11850
1400-1500	HCJB, Quito, Ecuador	11740 17890 25950 USB
1400-1500	Radio Japan General Service, Tokyo	11815 11865
1400-1500	Radio Moscow World Service	11840 17690 21690 21790
1400-1500	Radio RSA, Johannesburg	9555 11925 17835
1400-1500	Voice of America-East Asia Service	6110 9760 15155 15425
1400-1500	Voice of America-South Asia Service	7125 9645 9760 15205
1400-1500	Voice of Nigeria, Lagos	7255
1400-1500	WHRI, Noblesville, Indiana	9465 15105
1400-1500	WWCR, Nashville, Tennessee	15690
1400-1500	WYFR, Okeechobee, Florida	5950 6015 11580 13695 11550
1405-1430	Radio Finland, Helsinki	15185 21550 11820
1415-1500 M-A	Radio Bhutan	5023v
1415-1425	Radio Nepal, Katmandu	5005 7165 (alt. 3230)
1430-1500	Voice of Hope, Lebanon	6280
1430-1500	Voice of Myanmar (Burma)	5990v
1430-1500	Radio Australia, Melbourne	5995 6020 6036 6060 6080 7215 9580 9710
1430-1500 F	ABC, Tennant Creek, Australia	2325 (ML)

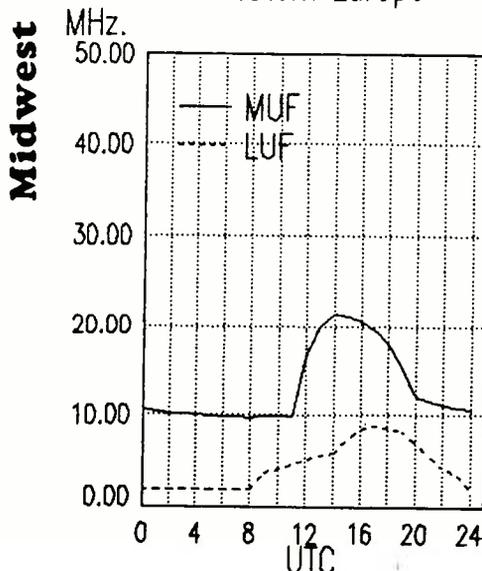
1400 UTC [9:00 AM EST/6:00 AM PST]

1400-1415	Azad Kashmir Radio, Pakistan	7268 4980 3665
1400-1430	ABC, Alice Springs, Australia	2310 (ML)
1400-1430	Radio Australia, Melbourne	5995 6020 6035 6060 6080 7215 9580
1400-1430	ABC, Tennant Creek, Australia	2325 (ML)
1400-1430	Swiss Radio Int'l, Berne	6165 9535 12030
1400-1430	Radio Juba, Sudan	9540/9550

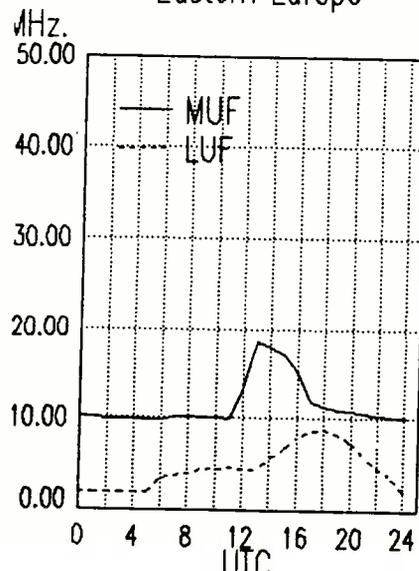
East Coast To
Alaska



Midwest To
Western Europe



Midwest To
Eastern Europe



frequency

section

1430-1500	Radio Austria International, Vienna	6155 11780 13730 21490
1430-1500	Radio Netherlands Int'l, Hilversum	5995 13770 15150 17575
		17605
1445-1500	Radio Korea, Seoul	7275
1445-1500	M,W,H,A,SRadio Ulan Bator, Mongolia	9795 13780

1500 UTC [10:00 AM EST/7:00 AM PST]

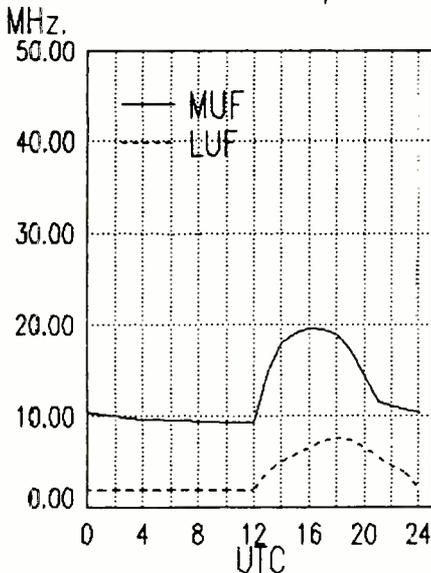
1530-1600	Radio Sofia, Bulgaria	11680 15310 17825
1500-1515	M,W,H,A,SRadio Ulan Bator, Mongolia	9795 13780
1500-1515	WYFR, Taiwan	11550
1500-1525	Radio Netherlands Int'l, Hilversum	5955 13770 15150 17575
		17605
1500-1530	M-A Vatican Radio, Vatican City	6248 7250 9645 11740 ML
1500-1530	A,S Radio Tanzania	5985 6105 7165
1500-1530	Radio Sweden, Stockholm	17740 11905
1500-1530	Radio Romania Inter'l, Bucharest	11775 11940 15250 15335
		17720 17745
1500-1540	FEBA, Seychelles	11865
1500-1550	Radio Pyongyang, North Korea	9325 9640 9977 11760
1500-1550	Deutsche Welle, Koln, W. Germany	9735 11965 17765 21600
1500-1555	Radio Beijing, China	11815 15165
1500-1600	Radio Jordan, Amman	9560
1500-1600	S Radio Canada Int'l, Montreal	11955 17820
1500-1600	FEBA, Seychelles	9590 15330
1500-1600	Voice of the Mediterranean, Malta	11925
1500-1600	Voice of Hope, Lebanon	6280
1500-1600	F ABC, Alice Springs, Australia	2310 (ML)
1500-1600	ABC, Perth, Australia	9610
1500-1600	F ABC, Tennant Creek, Australia	2325 (ML)
1500-1600	BBC World Service, London, England	9410 11750 11775 12095
		15070 15260 17640 17705
		17780 21470 21660 21710
1500-1600	Voice of Myanmar (Burma)	5990v
1500-1600	S Radio Canada Int'l, Montreal	11955 17820
1500-1600	CBC Northern Quebec Service, Can	9625 (ML)
1500-1600	CBN, St. John's, Newfoundland	6160
1500-1600	CBU, Vancouver, British Columbia	6160
1500-1600	CFCF, Montreal, Quebec, Canada	6005
1500-1600	CFCN, Calgary, Alberta, Canada	6030
1500-1600	CHNS, Halifax, Nova Scotia, Canada	6130
1500-1600	Christian Science World Service	9530 11980 13625 13720
1500-1600	CKWX, Vancouver, British Columbia	6080
1500-1600	CFRB, Toronto, Ontario	6070
1500-1600	FEBC Radio Int'l, Philippines	11850
1500-1600	HCJB, Quito, Ecuador	11740 17890 25950 USB
1500-1600	T-S KNLS, Anchor Point, Alaska	11715 (or 9750)
1500-1600	KTWR, Agana, Guam	11650

1500-1600	KUSW, Salt Lake City, Utah	15590
1500-1600	Radio Australia, Melbourne	5995 6020 6035 6060
1500-1600	Radio Moscow World Service	11840 17670 21690 21790
1500-1600	Radio RSA, Johannesburg S. Africa	7230 15270
1500-1600	Voice of America-Middle East Service	9700 15205 15260 21530
1500-1600	Voice of America-South Asia Service	6110 7125 9645 9700
		9760 15205 15260 9350
1500-1600	Voice of Nigeria, Lagos	7255
1500-1600	All India Radio Northeast Svcs	3255 ML
1500-1600	KHBN Guam	9830 ML
1500-1600	Radio Korea, Seoul	5975 9870
1500-1600	WHRI, Noblesville, Indiana	15105 (+ 9465 M-F)
1500-1600	WWCR, Nashville, Tennessee	15690
1500-1600	WYFR, Okeechobee, Florida	5950 11830 13695 11580
		17750
1515-1530	RCI European News Svc, Montreal	9555 11915 11935 15325
		21545 (M-A add: 13650
		15315 17820)
1530-1600	Radio Tirana, Albania	11835 9500
1530-1600	Radio Tanzania	5985 6105 7165 9684
1530-1600	Radio Omdurman, Sudan	11635 9550/9540
1530-1600	Radio Sweden, Stockholm	17880 21500 21655
1530-1600	Swiss Radio International, Berne	13685 15430 17830 21630
1540-1555	M-A FEBA, Seychelles	11865
1545-1600	Radio Pakistan	21740 21480 17895 17580
		15605 13665
1545-1600	Vatican Radio, Vatican City	11715 15090 17870
1555-1600	M,A FEBA, Seychelles	11865

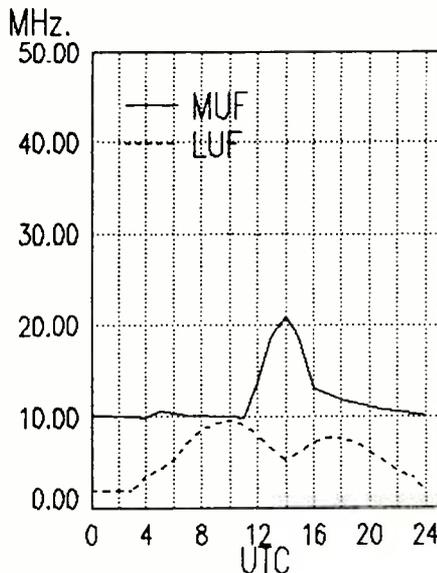
1600 UTC [11:00 AM EST/8:00 AM PST]

1600-1610	Radio Lesotho	4800
1600-1610	M,A FEBA, Mahe, Seychelles	11865
1600-1610	Vatican Radio, Vatican City	6248 7250 9645 11740
1600-1615	Radio Tanzania	5985 6105 7165 9684
1600-1615	Azad Kashmir Radio, Pakistan	7268 4980 3665
1600-1630	Radio Sofia, Bulgaria	11680 15310 17825
1600-1630	All India Radio Northeastern Svcs	3255 ML
1600-1630	Radio Pakistan	7287 13665 15605 17554
		21670
1600-1630	A,S Radio Norway International, Oslo	15220 25730
1600-1630	Radio Polonia, Warsaw, Poland	6135 9540
1600-1630	M-F Radio Portugal, Lisbon	21530
1600-1630	Radio Jordan, Amman	9560
1600-1630	Voice of Vietnam, Hanoi	9840 15010 12020
1600-1640	UAE Radio, Dubai	11795 15320 15435 21605
1600-1650	Deutsche Welle, Koln, W. Germany	6170 7225 15105 15595
		17825 21680

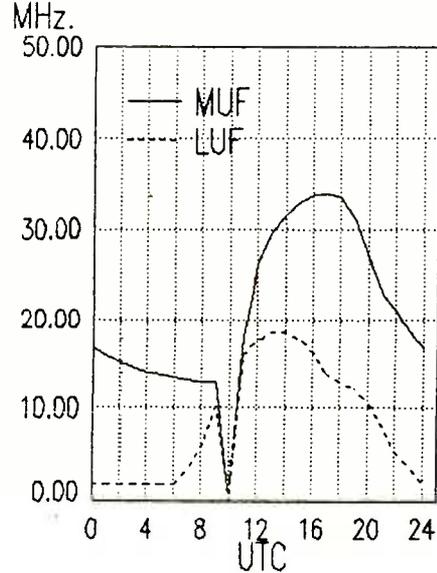
Midwest To Arctic Europe



Midwest To Middle East



Midwest To West Africa



Midwest

frequency

section

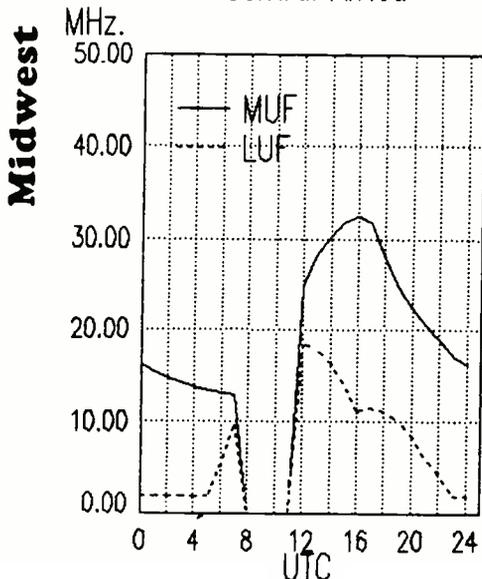
1600-1700	KSDA, Guam	11980
1600-1700	Radio Baghdad, Iraq	11860
1600-1700	F ABC, Alice Springs, Australia	2310 (ML)
1600-1700	BBC World Service, London, England	9410 11775 12095 15070
		15260 17640 17705 21660
1600-1700	Radio Australia, Melbourne	5995 6020 6035 6080
		7215 9580 9710 9770
		11800 13745
		(+ 6060 until 1630)
1600-1700	ABC, Perth, Australia	9610
1600-1700	F ABC, Tennant Creek, Australia	2325 (ML)
1600-1700	CBC Northern Quebec Service, Can	9625 (ML)
1600-1700	CBN, St. John's, Newfoundland	6160
1600-1700	S Radio Canada Int'l, Montreal	11955 17820
1600-1700	Radio Moscow World Service	7110 9655 9840 11630
		11890 12005 12010 12015
		15375 15540 17600 17670
		17710 21585 21630 21740
		(+11840 via Cuba)
1600-1700	CBU, Vancouver, British Columbia	6160
1600-1700	CFCF, Montreal, Quebec, Canada	6005
1600-1700	CFCN, Calgary, Alberta, Canada	6030
1600-1700	CHNS, Halifax, Nova Scotia, Canada	6130
1600-1700	Christian Science World Service	9530 13625 13745 21640
1600-1700	CKWX, Vancouver, British Columbia	6080
1600-1700	CFRB, Toronto, Ontario	6070
1600-1700	KTWR, Agana, Guam	11650 11910 13720
1600-1700	KUSW, Salt Lake City, Utah	15590
1600-1700	Radio Beijing, China	9570 15110 15130
1600-1700	Radio France International, Paris	6175 11705 12015 15360
		17620 17795 17845 17850
1600-1700	Trans World Radio-Swaziland	15135
1600-1700	Voice of America-Africa Service	7195 9575 11920 15410
		15445 15580 15600 17785
		17800 17870
1600-1700	Voice of America-Middle East Service	3980 9700 15205 15260
1600-1700	Voice of America-Asia Service	7125 9645 9700 9760
		15205 15260 15395
1600-1700	Radio RSA, Johannesburg	7230 15270
1600-1700	Voice of Nigeria, Lagos	7255
1600-1700	WHRI, Noblesville, Indiana	9465(M-F) 13760(M-A)
		15105(S) 21840(A,S)
1600-1700	WINB, Red Lion, Pennsylvania	15295
1600-1700	WRNO New Orleans, Louisiana	15420
1600-1700	WCCR, Nashville, Tennessee	15690
1600-1700	WYFR, Okeechobee, Florida	11830 13695 17750 15566
		11580 17612 21525 21615
1610-1620	M-F Radio Botswana	3356 4830 7255
1610-1625	M FEBA, Mahe, Seychelles	11865

1615-1620	Vatican Radio, Vatican City	9645 11740
1615-1630	Radio Korea, Seoul, South Korea	9870
1615-1630	Radio Budapest, Hungary	15160 15220 11910 9835
		9585 7220
1630-1655	M-A BRT Brussels, Belgium	17580 21810
1630-1700	Radio Netherlands, Hilversum	15570 6020
1630-1700	Radio Austria Int'l, Vienna	11780 13730 21490
1645-1700	M-F Radio Botswana	3356 4830 7255
1650-1700	Radio New Zealand, Wellington	15485

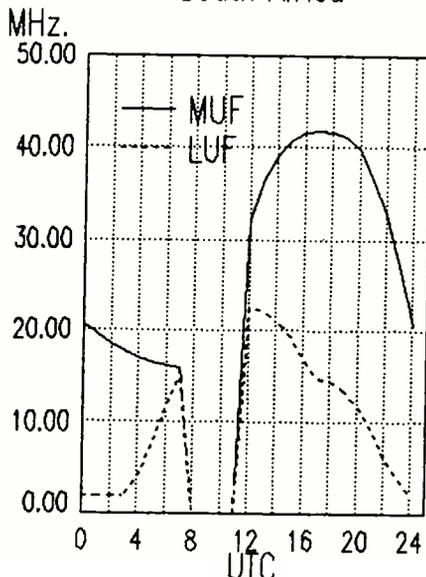
1700 UTC [12:00 PM EST/9:00 AM PST]

1700-1725	Radio Netherlands, Hilversum	15570 6020
1700-1730	Radio Prague Int'l, Czechoslovakia	5930 6055 7345 11990
1700-1730	Radio Sweden, Stockholm	6065 9615
1700-1730	A,S Radio Norway	9655
1700-1750	Radio Pyongyang, North Korea	9325 9640 9977 11760
1700-1750	Radio Bras, Brazil	15265
1700-1800	ELWA, Monrovia, Liberia	11800
1700-1800	Radio Beijing, China	9570 11575 15225
1700-1800	Radio Australia, Melbourne	5995 6020 6035 6080
		7215 7240 9580 9710
		9770 11855
1700-1800	BBC World Service, London	9410 11775 12095 15070
		15260 15310 15400 17640
		17695 21470 21660
1700-1800	Radio Korea, Seoul	15575
1700-1800	Voice of America-Africa Service	7195 9575 11920 15410
		15445 15580 15600 17785
		17800 17870
1700-1800	Radio Moscow World Service	11840 12010 12015 15150
		15265 17585 17600 17670
		17695 21585 25375
		(+11840 via Cuba)
1700-1800	S-F WMLK Bethel, PA	9465
1700-1800	Voice of America-Middle East Service	3980 6040 9700 9760
		11760 15205 15260
1700-1800	Voice of America-South Asia Service	7125 9645 9700 15395
1700-1800	WHRI, Noblesville, Indiana	13760 15105
1700-1800	Radio RSA, Johannesburg	7230 15270 17790
1700-1800	Christian Science World Service	13625 21640
		(+17555 & 15610 A,S)
1700-1800	Radio New Zealand, Wellington	15485
1700-1800	Radio Baghdad, Iraq	11860
1700-1800	Radio Moscow Africa Service	11690 11745 11775 11850
		11960 15230 15330 15415
		15535 15585 17565 17570

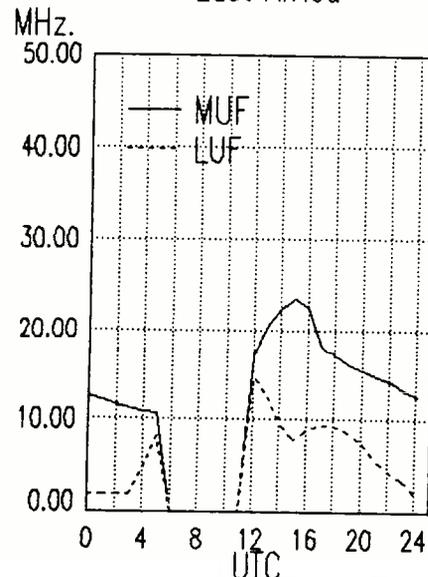
Midwest To
Central Africa



Midwest To
South Africa



Midwest To
East Africa



frequency

section

QSLs from Program Monitor John Carson of Oklahoma

1700-1800	CBC, Montreal	17595	17615	17655	21565
1700-1800	Radio Surinam Int'l (via Brazil)	21630	21715		
1700-1800	Radio Japan, Tokyo	9625	(ML)		
1700-1800	Radio Pyongyang, North Korea	17750	(ML)		
1700-1800	KUSW Salt Lake City, Utah	9695	11815	11865	
1700-1800	WINB, Red Lion, Pennsylvania	9325	9640	9977	11760
1700-1800	WRNO, New Orleans, Louisiana	15590			
1700-1800	WWCR, Nashville, Tennessee	15295			
1700-1800	WYFR, Okeechobee, Florida	15420			
1715-1730	Radio Canada Int'l, Montreal	15690			
1715-1800	Radio Pakistan	11830	13695	15440	17750
1730-1740	Radio Bayrak, Northern Cyprus	17885	21615		
1730-1755	BRT Brussels, Belgium	5995	7235	13650	15325
1730-1800	Radio Sta. Peace & Progress, USSR	17820	21545		
		11570	15605		
		6150			
		11695	5910		
		6110	9705	11695	11745
		11775	11850	11910	11980
		12055	12065	15330	15480
		15585	17565	17615	17635
		17655	21715		
1730-1800	Radio Sofia, Bulgaria	11680	15310	17825	
1730-1800	Swiss Radio Int'l, Berne	9535			
1730-1800	Vatican Radio African Service	17710	17730	21650	
1730-1800	Radio Truth (Clandestine intended for Zimbabwe)	5015			
1730-1800	Radio Tirana, Albania	7155	9480		
1730-1800	Radio Romania Int'l, Bucharest	15340	15365	17805	17860



RADIODIFUSION ARGENTINA AL EXTERIOR
C.C. 555 CORREO CENTRAL - 1000 BUENOS AIRES
REPUBLICA ARGENTINA

Radio Station

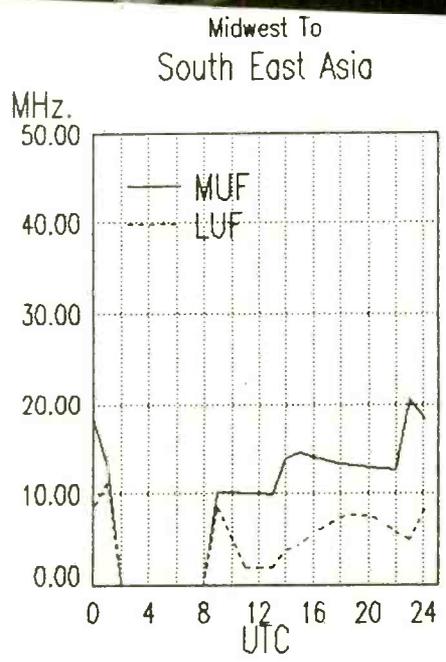
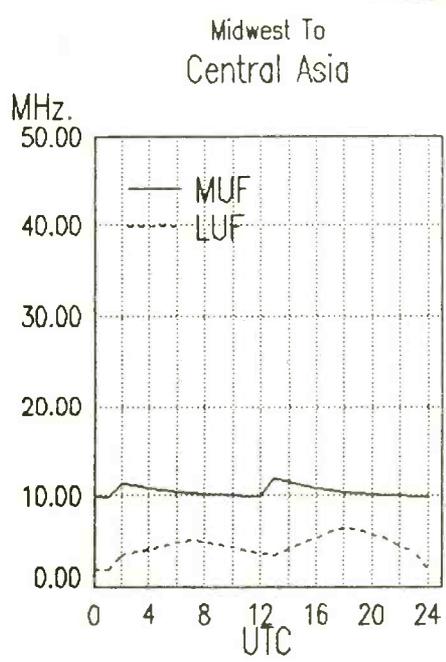
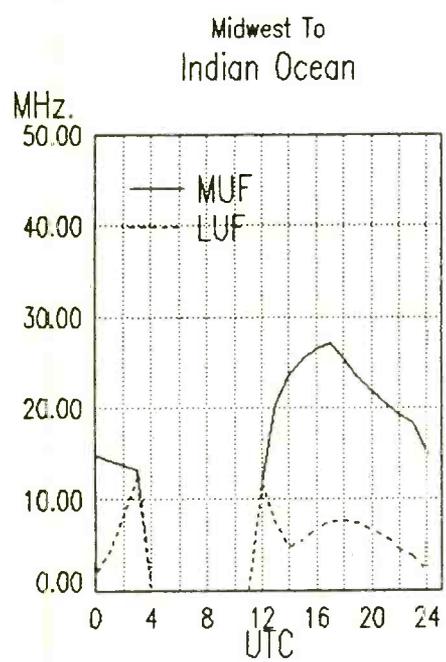
PEACE AND PROGRESS

THE VOICE OF SOVIET PUBLIC OPINION

Our address:
Radio Station Peace and Progress,
Moscow, USSR.

1800 UTC [1:00 PM EST/10:00 AM PST]

1800-1815	Kol Israel	11585	11655		
1800-1830	Radio Canada Int'l, Montreal	13670	15260	17820	
1800-1830	A,S Radio Norway International, Oslo	17755			
1800-1830	Voice of Ethiopia, Addis Ababa	9660			
1800-1830	Radio Sweden, Stockholm	6065	7265		
1800-1830	Voice of Vietnam, Hanoi	15010	12010	9840	
1800-1845	Trans World Radio, Swaziland	15210			
1800-1845	All India Radio, New Delhi	11935	15360		
1800-1855	Radio Mozambique, Maputo	9618	4855	3265	
1800-1900	F ABC, Alice Springs, Australia	2310	(ML)		
1800-1900	F ABC, Tennant Creek, Australia	2325	(ML)		
1800-1900v	Radio Tanzania	5985	6105	7165	9684



Midwest

frequency

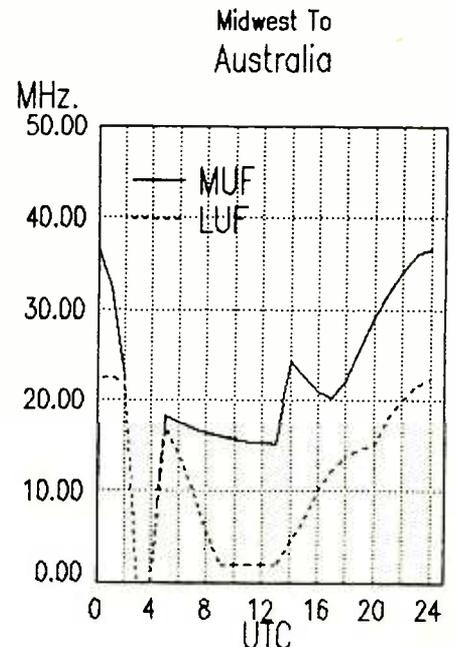
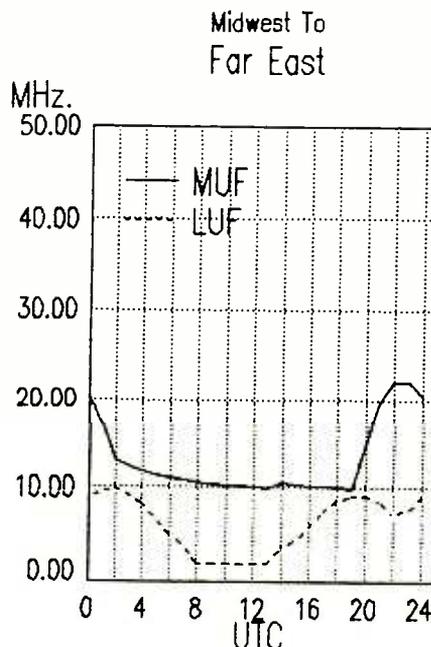
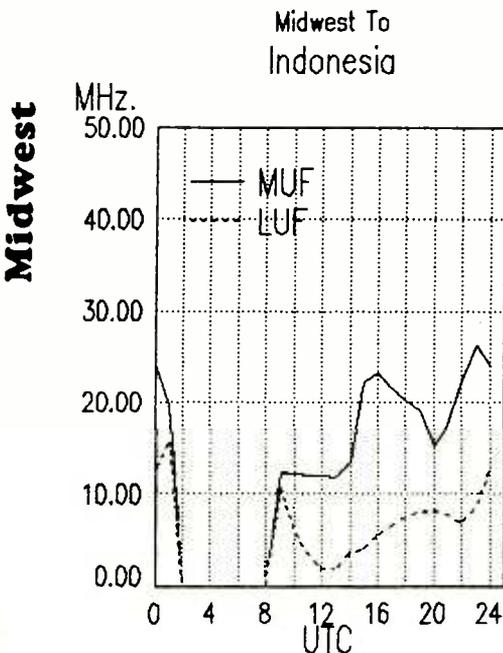
section

1088v-1900	SLBC World Service, Sri Lanka	9720	15120
1800-1900	KVOH, Rancho Simi, California	17775	
1800-1900	BBC World Service, London	9410	12095 15070 17640
1800-1900	Radio Australia, Melbourne	5995	6020 6035 6080
1800-1900	Radio Moscow World Service	11765	11840 11890 13605
1800-1900	Radio New Zealand, Wellington	15485	
1800-1900	CBN, St. John's, Newfoundland	6160	
1800-1900	CBU, Vancouver, British Columbia	6160	
1800-1900	CFCF, Montreal, Quebec, Canada	6005	
1800-1900	CFCN, Calgary, Alberta, Canada	6030	
1800-1900	CHNS, Halifax, Nova Scotia, Canada	6130	
1800-1900	Christian Science World Service	11650	13625 21640
1800-1900	CKWX, Vancouver, British Columbia	6080	
1800-1900	CFRB, Toronto, Ontario	6070	
1800-1900	KUSW, Salt Lake City, Utah	15590	
1800-1900	CBC Montreal	9625	
1800-1900	S-F WMLK Bethel, Pennsylvania	9465	
1800-1900	Radio RSA, Johannesburg, S. Africa	17765	15270 7230
1800-1900	A,S Radio for Peace Int'l, Costa Rica	13630	21566
1800-1900	Voice of America-Africa Service	7195	9575 11920 15410
		15445	15580 15600 17785
		17800	17870 21485
1800-1900	Voice of America-Middle East Service	6040	9700 9760 11760
		15205	
1800-1900	WHRI, Noblesville, Indiana	13760	17830
1800-1900	Radio Havana Cuba	15345	
1800-1900	WINB, Red Lion, Pennsylvania	15295	
1800-1900	WRNO, New Orleans, Louisiana	15420	
1800-1900	WWCR, Nashville, Tennessee	15690	
1800-1900	WYFR, Okeechobee, Florida	11830	13695 15440 17885
		21500	
1815-1900	Radio Bangladesh, Dacca	12032	15255
1830-1845	Radio Prague Int'l, Czechoslovakia	6055	7345
1830-1845	Radio Finland, Helsinki	11755	9550 6120
1830-1855	BRT Brussels, Belgium	5910	11695 13675
1830-1855	Radio Polonia, Warsaw, Poland	5995	6135 7125 7285
		9525	11840
		9705	9720
1830-1900	Radio Riyadh, Saudi Arabia	9705	9720
1830-1900	A,S Radio Canada Int'l, Montreal	13670	15260 17820
1830-1900	Radio Afghanistan, Kabul	9635	15510 17745
1830-1900	Radio Tirana, Albania	7120	9480
1830-1900	Radio Netherlands Int'l, Hilversum	6020	15560 17605 21685
1830-1900	Swiss Radio International, Berne	9885	11955
1830-1900	Swiss Radio Int'l European Service	3985	6165 9535
1840-1850	M-A Voice of Greece, Athens	11645	12105 15625

1845-1900	All India Radio, New Delhi	7412	9665	9910	11620
		11860	11935		
1845-1855v	IRR Africa No. 1, Gabon	15475			

1900 UTC [2:00 PM EST/11:00 AM PST]

1900-1910	Radio Tanzania	5985	6105	7165	9684
1900-1910	M-A Vatican Radio	6190	6248	7250	9645
		17710	17730	21650	
1900-1915	Sierra Leone Brdcstng.Co.,Freetown	3316			
1900-1920	Radio Botswana	3356	4830		
1900-1920v	Radio Omdurman, Sudan	11635			
1900-1925	Radio Netherlands Int'l, Hilversum	6020	15560	17605	21685
1900-1930	M-F Radio Budapest, Hungary	15160	11910	9835	9585
		7220	6110		
1900-1930	Radio Canada Int'l, Montreal	13670	15260	17820	
1900-1930	Radio Sofia, Bulgaria	11680	15310	17825	
1900-1930	Radio Afghanistan, Kabul	9635	15510	17745	
1900-1930	M-F Radio Canada Int'l, Montreal	13670	15260	17820	
1900-1930	Radio Japan General Service, Tokyo	11850	11865	15270	
1900-1930	A,S Radio Norway international, Oslo	15220	15235	21705	25730
1900-1930	M-F Radio Portugal, Lisbon	11740	15250	21530	
1900-1930	Voice of Vietnam, Hanoi	9840	10200	15010	
1900-1945	All India Radio, New Delhi	7412	9665	9910	11620
		11860	11935		
1900-1950	Deutsche Welle, Köln, W. Germany	11785	11810	13790	15390
		17810			
1900-2000	ELWA, Monrovia, Liberia	11800			
1900-2000	CBC, Montreal	9625			
1900-2000	Radio New Zealand, Wellington	15485			
1900-2000	Radio Moscow World Service	11765	11840	12010	12060
		13605	15405	15540	15580
		17570	17670	21630	21740
		21630			
1900-2000	Radio Moscow African Svc	11960	12035	15230	15520
		17655			
		(in English & Zulu)			
1900-2000	M-F RAE, Buenos Aires, Argentina	15345			
1900-2000	Radio Beijing, China	9440	11515		
1900-2000	Solomon Islands Broadcasting Co.	5020			
1900-2000	KVOH, Rancho Simi, California	17775			
1900-2000	BBC World Service, London, England	9410	12095	15070	15400
1900-2000	CBN, St. John's, Newfoundland	6160			
1900-2000	CBU, Vancouver, British Columbia	6160			



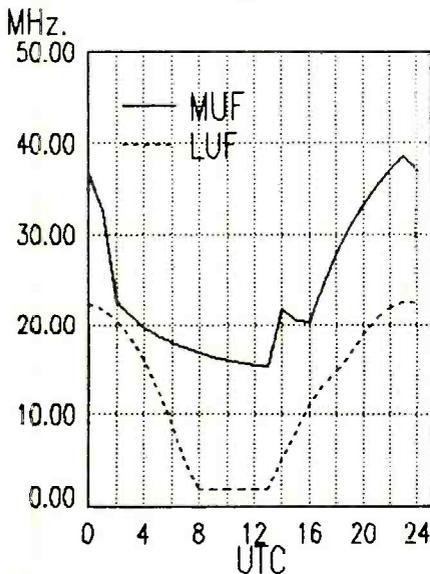
frequency

section

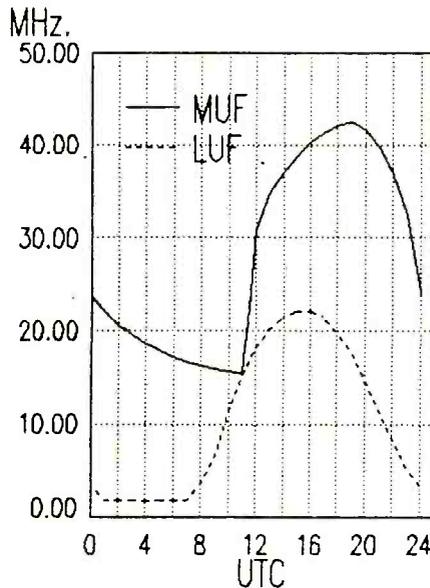
1900-2000	CFCF, Montreal, Quebec, Canada	6005		
1900-2000	CFCN, Calgary, Alberta, Canada	6030		
1900-2000	CHNS, Halifax, Nova Scotia, Canada	6130		
1900-2000	Christian Science World Service	11650	13625	21640
		(+17555 & 15610 A.S.)		
		(21780 M-F)		
1900-2000	CKWX, Vancouver, British Columbia	6080		
1900-2000	CFRB, Toronto, Ontario	6070		
1900-2000	GBC Radio, Accra, Ghana	6130		
1900-2000	HJCB European Service, Ecuador	17790	21480	25950ssb
1900-2000	KUSW, Salt Lake City, Utah	15590		
1900-2000	Radio Algiers, Alger	9510	9685	15215
1900-2000	Radio Australia, Melbourne	5995	6020	6035 6080
		7205	7215	7240 9580
		11855		
1900-2000	A.S. Radio for Peace Int'l, Costa Rica	13630	21566	
1900-2000	Spanish National Radio, Madrid	11790	15280	15375 15395
1900-2000	Voice of America-Africa Service	7195	15410	15445 15580
		15600	17785	17800 17870
		21485		
1900-2000	Voice of America-Middle East Service	6040	9700	9760 11760
		15205		
1900-2000	Voice of America-Pacific Service	9525	11870	15180
1900-2000	WHRI, Noblesville, Indiana	13760	17830	
1900-2000	WINB, Red Lion, Pennsylvania	15295		
1900-2000	S-F WMLK, Bethel, Pennsylvania	9465		
1900-2000	WRNO, New Orleans, Louisiana	15420		
1900-2000	WWCR, Nashville, Tennessee	15690		
1900-2000	WYFR, Okeechobee, Florida	11830	13695	15440 15566
		17612	17885	21615
1920-1930	M-A Voice of Greece, Athens	9395	11645	
1930-2000	M Radio Tallin, Estonia	5925		
1930-2000	Radio Austria International, Vienna	5945	6155	12010 13730
1930-2000	Radio Romania Int'l, Bucharest	5955	9690	9750 11810
1930-2000	A.S. Radio Budapest, Hungary	6110	7220	9585 9835
1930-2000	Radio Sofia, Bulgaria	11660	11765	15330
1930-2000	Radio Yugoslavia, Belgrade	7215	9660	11735
1930-2000	M-F Radio Canada Int'l, Montreal	5995	7235	11945 15325
		17875		
1930-2000	Radio Korea, Seoul	6480	7550	15575
1930-2000	Voice of the Islamic Republic Iran	6080	9022	15084
1935-1955	RAI, Rome, Italy	7275	9710	11800
1940-2000	M,W,H,A,S Radio Ulan Bator, Mongolia	11850	12050	
1945-2000	All India Radio, New Delhi	11935		
1945-2000	Radio Korea, Seoul	5975	9870	

1950-2000	Vatican Radio	6190	7250	9645
2000 UTC [3:00 PM EST/12:00 PM PST]				
2000-2010	Vatican Radio, Vatican City	6190	7250	9645
2000-2010	M,W,H,A,S Radio Ulan Bator, Mongolia	11850	12050	
2000-2010	Sierra Leone Brodcstng.Co.,Freetown	3316		
2000-2030	Kol Israel, Jerusalem	11605	11745	12077 15090
		15485 17575		
2000-2030	M-F Radio Portugal	15250		
2000-2030	Radio Prague Int'l, Czechoslovakia	5930	6055	7345 11990
2000-2030	Radio Romania Int'l, Bucharest	5955	9690	9750 11810
2000-2030	Radio Korea, Seoul	6480	7550	15575
2000-2030	Voice of the Islamic Republic Iran	6080	9022	15084
2000-2050	Radio Pyongyang, North Korea	6576	9345	9640 9977
2000-2100	Radio Moscow British Service	7330	11630	11930 15185
		17695		
2000-2100	M-F Radio for Peace Int'l, Costa Rica	13630	21566	
2000-2100	KHBN Guam	9820	ML	
2000-2100	Voice of Indonesia, Jakarta	11753	11785	
2000-2100	Voice of Hope, Lebanon	6280		
2000-2100	BBC World Service, London, England	5975	9410	12095 15070
		15260	15400	17755 17760
		17880		
2000-2100	Radio Australia, Melbourne	6020	6035	7205 7215
		7240	9580	11855 13745
		(+6080 & 5995 until 2030)		
2000-2100	M-AABC, Alice Springs, Australia	2310	(ML)	
2000-2100	ABC, Katherine, Australia	2485		
2000-2100	M-AABC, Tennant Creek, Australia	2325	(ML)	
2000-2100	CBN, St. John's, Newfoundland	6160		
2000-2100	CBU, Vancouver, British Columbia	6160		
2000-2100	CFCF, Montreal, Quebec, Canada	6005		
2000-2100	Radio Moscow World Service	7315	11630	11670 11805
		11890	12060	13605 15185
		15315	15355	15560 17695
2000-2100	Radio Moscow Africa Service	11715	11775	11960 12035
		15520	15535	21630 21740
2000-2100	CBC, Montreal	9625	(ML)	
2000-2100	CFCN, Calgary, Alberta, Canada	6030		
2000-2100	CHNS, Halifax, Nova Scotia, Canada	6130		
2000-2100	Radio Baghdad, Iraq	13660		
2000-2100	Christian Science World Service	9455	9495	11980 13625
		13770	15610	17555

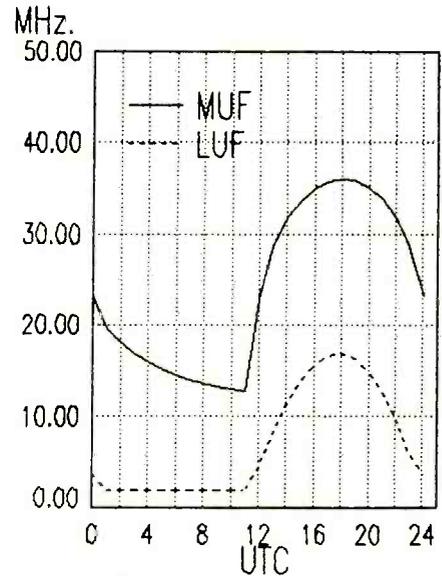
Midwest To Pacific



Midwest To South America



Midwest To Central America



Midwest

frequency

section

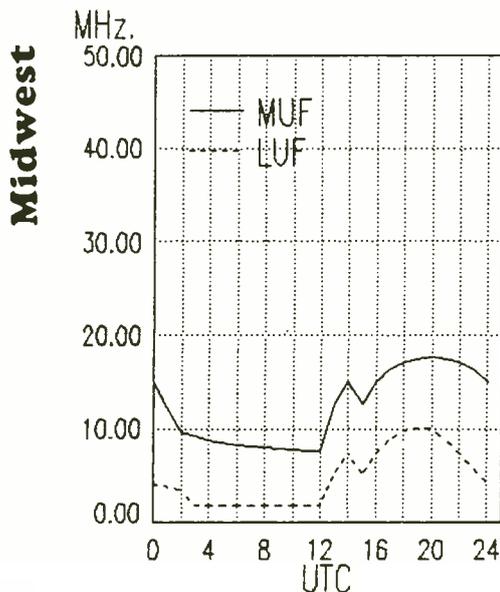
2000-2100	CKWX, Vancouver, British Columbia	6080			
2000-2100	Radio Sta. Peace & Progress, USSR	9470	9820	11830	11880
		11980	15260		
2000-2100	CFRB, Toronto, Ontario	6070			
2000-2100	KUSW, Salt Lake City, Utah	15590			
2000-2100	Radio Beijing, China	9440	9920	11500	11715
		15110			
2000-2100	ELWA, Monrovia, Liberia	11800			
2000-2100	Radio Baghdad, Iraq	11860			
2000-2100	Radio Havana Cuba	11800			
2000-2100	Voice of America-Africa Service	7195	15410	15445	15580
		15600	17785	17800	17870
		15205			
2000-2100	WHRI, Noblesville, Indiana	13760	17830		
2000-2100	WINB, Red Lion, Pennsylvania	15185			
2000-2100	WRNO, New Orleans, Louisiana	15420			
2000-2100	KVOH, Rancho Simi, California	17775			
2000-2100	Solomon Islands Broadcasting Co.	5020			
2000-2100	WWCR, Nashville, Tennessee	15690			
2000-2100	WYFR, Okeechobee, Florida	11830	13695	15440	15566
		17612	17885	21525	21615
		15485			
2000-2100	Radio New Zealand, Wellington	12085	15095		
2005-2100	Radio Damascus, Syria	9860	13700	15560	
2030-2100	Radio Netherlands Int'l, Hilversum	9840	12020	15010	
2030-2100	Voice of Vietnam, Hanoi	7412	9665	9910	11620
2045-2100	All India Radio, New Delhi	11715	15265		

2100-2130	Radio Sweden, Stockholm	9655	11705		
2100-2130	Swiss Radio International, Berne	9885	13635	15525	12035
2100-2130	Radio Finland, Helsinki	6120	11755	15400	
2100-2150	Deutsche Welle, Koln, West Germany	9670	9765	11785	13780
		15435			
2100-2200	ELWA, Monrovia, Liberia	11800			
2100-2200	Radio Angola Int'l Svc, Luanda	3355	9535		
2100-2200v	All India Radio, New Delhi	7412	9665	9910	11620
		11715	15265		
2100-2200	CBC Montreal	9625			
2100-2200	Radio Moscow World Service	7115	7150	7315	9685
		11670	11745	11775	11805
		11840	11890	11985	12040
		9795			
2100-2200	Voice of Turkey, Ankara	9865			
2100-2200	Radio Kiev, Ukraine	6160			
2100-2200	CBN, St. John's, Newfoundland	9820	ML		
2100-2200	KHBN Guam	6160			
2100-2200	CBU, Vancouver, British Columbia	6280			
2100-2200	Voice of Hope, Lebanon	6005			
2100-2200	CFCF, Montreal, Quebec, Canada	6130			
2100-2200	CHNS, Halifax, Nova Scotia, Canada	9455	9495	13625	13770
2100-2200	Christian Science World Service	15310	15610	17555	
		5020	9545		
2100-2200	Solomon Islands Broadcasting Co.	6080			
2100-2200	CKWX, Vancouver, British Columbia	6070			
2100-2200	CFRB, Toronto, Ontario	15590			
2100-2200	T-A KUSW, Salt Lake City, Utah	11880	15465	17795	
2100-2200	Radio Australia, Melbourne	(until 2130: 7215 13745)			
		(from 2130: 15240)			
2100-2200	Radio Cairo, Egypt	9900			
2100-2200	KVOH, Rancho Simi, California	17775			
2100-2200	Radio Baghdad, Iraq (to Europe)	13660			
2100-2200	Radio Baghdad, Iraq	11860			
2100-2200	Radio Beijing, China	9920	11500		
2100-2200	Radio Havana Cuba	11800	17860		
2100-2200	Voice of America-Africa Service	7195	15410	15445	15580
		15600	17785	17800	17870
		21485			
2100-2200	Voice of America-Middle East Service	6040	9700	9760	11760
		15205	11710		
2100-2200	Voice of America-Pacific Service	11870	15185	17735	
2100-2200	WHRI, Noblesville, Indiana	13760	17830		
2100-2200	WINB, Red Lion, Pennsylvania	15185			

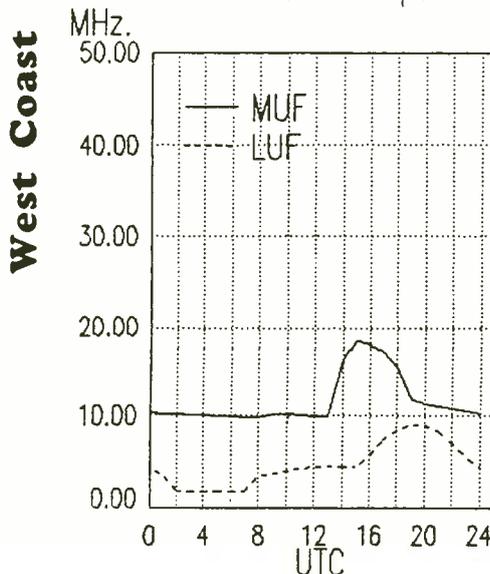
2100 UTC [4:00 PM EST/1:00 PM PST]

2100-2105	Radio New Zealand, Wellington	15485			
2100-2105	Radio Damascus, Syria	12085	15095		
2100-2115	Radio Prague Int'l, Czechoslovakia	5930	6055	7345	11990
2100-2125	Radio Netherlands Int'l, Hilversum	9860	13700	15560	
2100-2130 M	Radio Ljubljana, Yugoslavia	5980	7240	9620	
2100-2130	Vatican Radio	17710	17730	21650	
2100-2130 A,S	Radio Norway, Oslo	15165			
2100-2130	Radio Budapest, Hungary	11910	15160	9835	9585
		7220	6110		
2100-2130	Sierra Leone Brdcstng.Co.,Freetown	3316			
2100-2130	Radio Korea, Seoul	15575	7550	6480	
2100-2130	Radio Romania Int'l, Bucharest	9690	9750	11810	11940
2100-2130	Radio Beijing, China	3985	11715	15110	
2100-2130	Radio Japan General Service, Tokyo	11815	11835	15270	17765

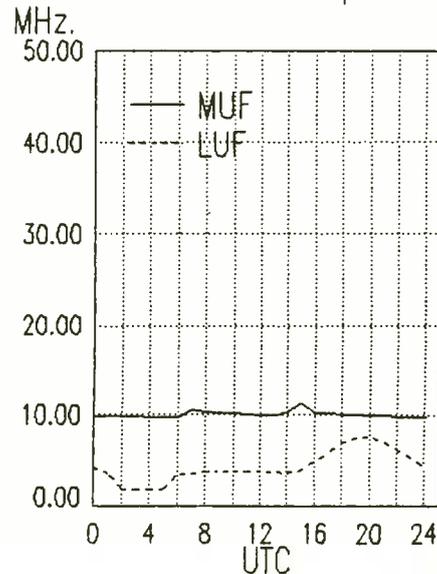
Midwest To
Alaska



West Coast To
Western Europe



West Coast To
Eastern Europe



frequency

section

2100-2200	BBC World Service, London, England	5975 9410 12095 15070 15260 15400 17755 17760 17880
2100-2200	WRNO Worldwide, Louisiana	15420
2100-2200	WWCR, Nashville, Tennessee	15690
2100-2200	WYFR, Okeechobee, Florida	11830 13695 15566 17612 17885 21525 21615
2105-2200	Radio New Zealand, Wellington	17675
2110-2200	Radio Damascus, Syria	12085 15095
2130-2200	Radio Sofia, Bulgaria	11660 11765 15330
2130-2200	Radio Canada Int'l, Montreal	11880 13670 15150 17820
2130-2200	Radio Japan, Tokyo	11815 11835 15270 17765 17810 21610
2130-2200	HCJB, Quito, Ecuador	15270 17790 25950ssb

2200 UTC [5:00 PM EST/2:00 PM PST]

2200-2205	Radio Damascus, Syria	12085 15095
2200-2215	Sierra Leone Brdcstng.Co., Freetown	3316
2200-2215	M-AABC, Alice Springs, Australia	2310 (ML)
2200-2215	ABC, Tennant Creek, Australia	2325 (ML)
2200-2215	M-F Voice of America-Caribbean Service	9640 11880 15225
2200-2225	RAI, Rome, Italy	5990 7235 9710
2200-2230	BRT Brussels, Belgium	5910 9925
2200-2230	Radio Canada Int'l, Japan relay	11705
2200-2230	ABC, Katherine, Australia	2485
2200-2230	S KGEI, San Francisco, California	15280
2200-2230	All India Radio, New Delhi	7412 9665 9910 11620 11715 15265
2200-2230	A,S Radio Norway International, Oslo	15195
2200-2245	WINB Red Lion, PA	15295
2200-2245	Radio Yugoslavia, Belgrade	5955 9620 11735 15165
2200-2300	KHBN Guam	9820 ML
2200-2300	Radio Canada Int'l, Montreal	9760 11945
2200-2300	Radio New Zealand, Wellington	17675
2200-2300v	Radio Cairo, Egypt	9900
2200-2300	BBC World Service, London, England	5975 6005 6175 6195 7325 9410 9590 9915 11750 12095 15070 15260 15400 17750 17830
2200-2300	CBC Northern Quebec Svc, Canada	9625
2200-2300	CBN, St. John's, Newfoundland	6160
2200-2300	Radio Korea, Seoul	15575
2200-2300	Radio Moscow North American Svc	11670 11690 11710 11780

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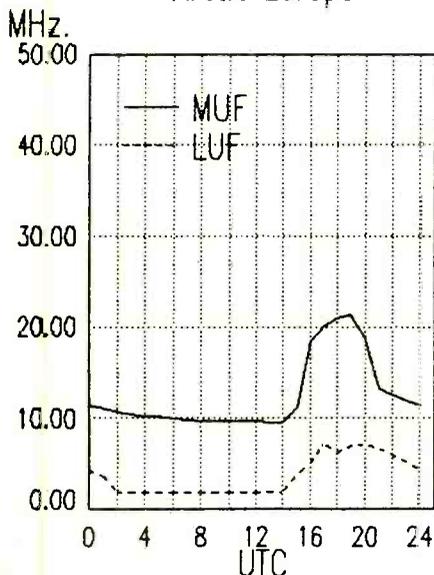
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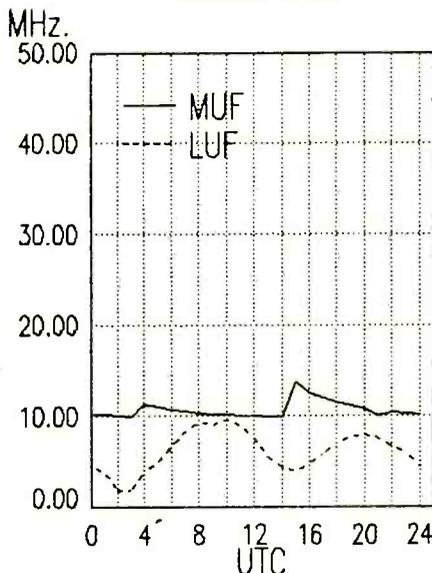
Mastercard Visa Month _____ Year _____

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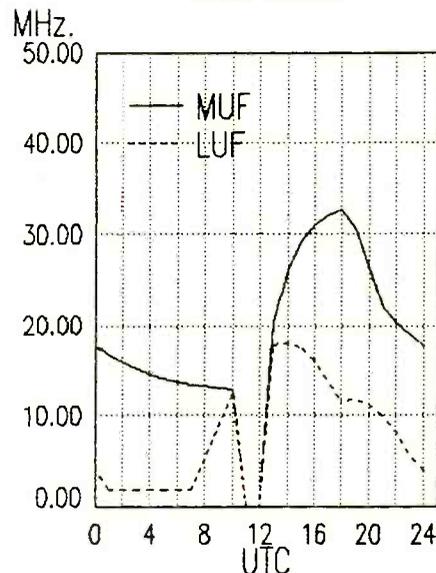
West Coast To Arctic Europe



West Coast To Middle East



West Coast To West Africa



West Coast

frequency

section

		11800	12040	12050	13605
		15315	15355	15425	15580
		15595	17735		
2200-2300	Radio Sta. Peace & Progress, USSR	9470	9820	11830	11880
		11980	15260		
2200-2300	Radio Moscow World Service	11615	11745	11775	11985
		15140	15560	17570	21690
	(from 2230 add: 7315	15480	17655	17850	17890)
2200-2300	CBU, Vancouver, British Columbia	6160			
2200-2300	CFCF, Montreal, Quebec, Canada	6005			
2200-2300	CFCN, Calgary, Alberta, Canada	6030			
2200-2300	CHNS, Halifax, Nova Scotia, Canada	6130			
2200-2300	Christian Science World Service	9465	15225	15275	15300
		15405	15610	17555	
2200-2300	CKWX, Vancouver, British Columbia	6080			
2200-2300	CFRB, Toronto, Ontario	6070			
2200-2300	T-A KUSW, Salt Lake City, Utah	15590			
2200-2300	Voice of Hope, Lebanon	6280			
2200-2300	Radio Australia, Melbourne	11880	13605	15240	15465
		17715	17795	21740	
2200-2300	Radio for Peace Int'l, Costa Rica	13630	21566		
2200-2300	Radio Tonga, Kingdom of Tonga	5030v			
2200-2300	Voice of America-East Asia Service	7120	9770	11760	15185
		15290	15305	17735	17820
2200-2300	Voice of America-Eur/Pac. Service	9852	11805	15345	15370
		17610			
2200-2300	Voice of Free China, Taiwan	17750	21720		

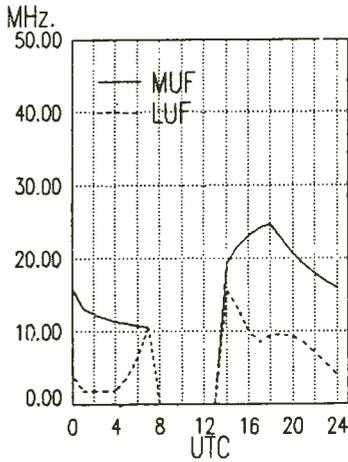
2200-2300	United Arab Emirate R., Abu Dhabi	9600	11985	13605
2200-2300	WHRI, Noblesville, Indiana	13760	17830	
2200-2300	WRNO Worldwide, Louisiana	15420		
2200-2300	WWCR, Nashville, Tennessee	15690		
2200-2300	WYFR, Okeechobee, Florida	11580	11830	13695
		17885	21525	
2205-2230	Vatican Radio, Vatican City	7125	9615	11830
2230-2300	Voice of Vietnam, Hanoi	9840	12020	15010
2230-2300	Radio Polonia, Warsaw, Poland	5995	6135	7125
2230-2300	Radio Tirana, Albania	7215	9480	
2230-2300	Kol Israel, Jerusalem	9435	11605	11655
		12077	17575	
2230-2300	Radio Sofia, Bulgaria	11660	15330	
2230-2300	Radio Vilnius, Lithuania	6100	9675	
2230-2300	Swiss Radio Int'l, European Service	6190		
2245-2300	WINB Red Lion, PA	15145		

2300 UTC [6:00 PM EST/3:00 PM PST]

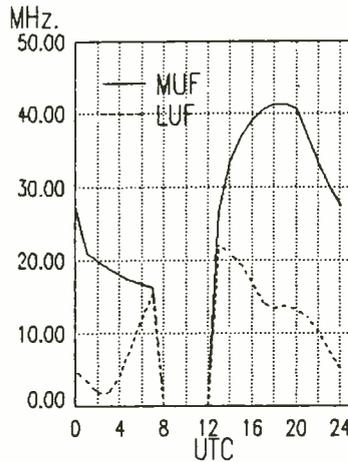
2300-2310	Sierra Leone Brdcstng. Co., Freetown	3316		
2300-2325	Radio Finland, Helsinki	11755	15185	
2300-2330	Radio Vilnius, Lithuania	6100	7400	9865
		13645	15455	
2300-2330	Radio Canada Int'l, Montreal	9755	11730	
2300-2330	Radio Sofia, Bulgaria	11660	11720	
2300-2345	WYFR, Okeechobee, Florida	5985	11580	15170

West Coast

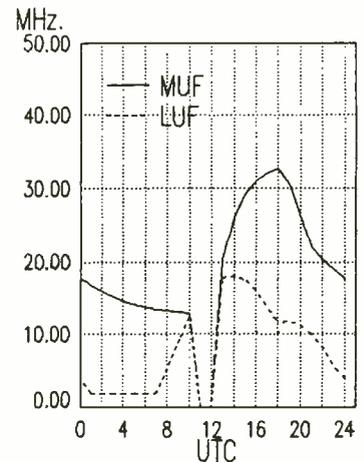
West Coast To Central Africa



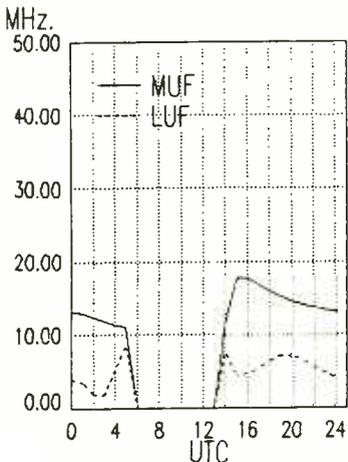
West Coast To South Africa



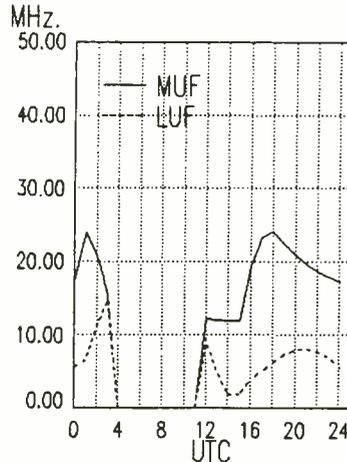
West Coast To West Africa



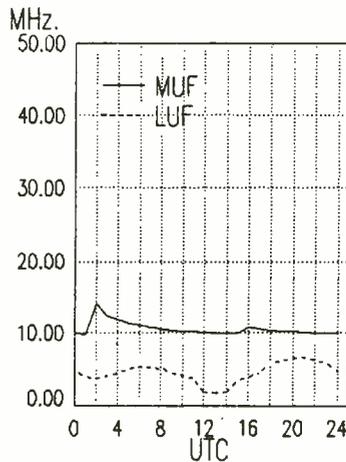
West Coast To East Africa



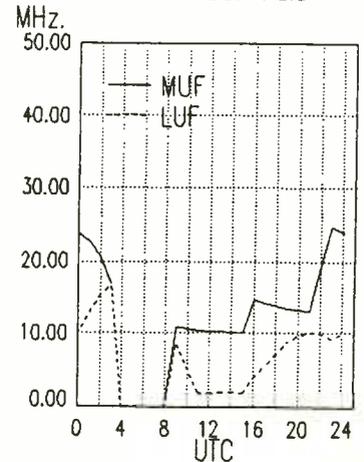
West Coast To Indian Ocean



West Coast To Central Asia



West Coast To South East Asia



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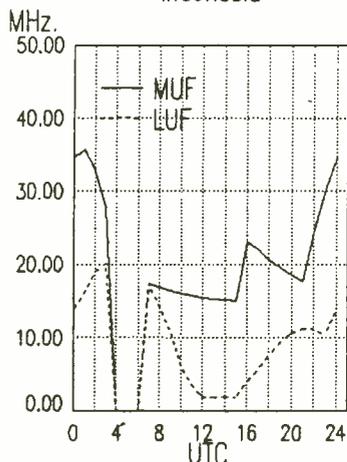
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2300-2350	Radio Pyongyang, North Korea	11735 13650	2300-0000	CBC Montreal	9625
2300-0000	Radio Havana Cuba	11930	2300-0000	CFRB, Toronto, Ontario	6070
2300-0000	Radio Thailand, Bangkok	4830 9655 11905	2300-0000	KSDA, Guam	15125
2300-0000	Radio Korea, Seoul	15575	2300-0000 T-A	KUSW, Salt Lake City, Utah	15590
2300-0000	KHBN Guam	9820 ML	2300-0000	Radio Australia, Melbourne	11880 13605 15240 15465
2300-0000	Adventist World Radio, Costa Rica	9725 11870			17630 17715 17750 17795
2300-0000	Radio Moscow North American Svc.	7150 7315 11710 11780	2300-0000	Radio Japan General Service, Tokyo	21740
		11800 12040 12050 13605			11835 15195 17765 17810
		15315 15355 15425 15580	2300-0000	Radio Luxembourg	21610
		15595 17735			6090
2300-0000	Voice of Turkey, Ankara	9445 9665 9685 17880	2300-0000	Radio Tonga, Kingdom of Tonga	5030v
2300-0000	Radio Moscow World Service	12005 15140 15480 15550	2300-0000	Voice of America-East Asia Service	7120 9770 11760 15185
		15590 17570 17600 17620			15290 15305 17735 17820
		17655 17730 17850 21585	2300-0000	United Arab Emirates R, Abu Dhabi	9600 11985 13605
		21690 21790	2300-0000	WHRI, Noblesville, Indiana	9495 13760
2300-0000	CBN, St. John's, Newfoundland	6160	2300-0000	WINB, Red Lion, Pennsylvania	15145
2300-0000	CBU, Vancouver, British Columbia	6160	2300-0000	WRNO, New Orleans, Louisiana	15420
2300-0000	CFCF, Montreal, Quebec, Canada	6005	2300-0000	WWCR, Nashville, Tennessee	15690
2300-0000	CFCN, Calgary, Alberta, Canada	6030	2305-2355	Radio Polonia, Warsaw, Poland	5995 6135 7125 7145
2300-0000	CHNS, Halifax, Nova Scotia, Canada	6130 15405	2315-0000	All India Radio, New Delhi	9535 9910 11715 11745
2300-0000	BBC World Service, London, England	5975 6175 6195 7325	2330-0000	Voice of Vietnam, Hanoi	9840 12020 15010
		9410 9590 9915 11750	2330-0000	Radio Tirana, Albania	6120 9760 11825
		15260	2345-0000	Radio Korea, Seoul	7275
2300-0000	Christian Science World Service	9465 15225 15275 15300			
		15405 15610 17555			
2300-0000	Radio for Peace Int'l, Costa Rica	13630 21566			
2300-0000	CKWX, Vancouver, British Columbia	6080			

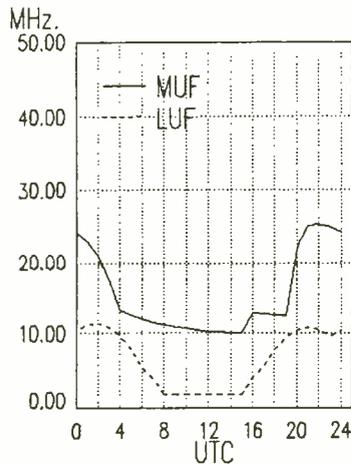
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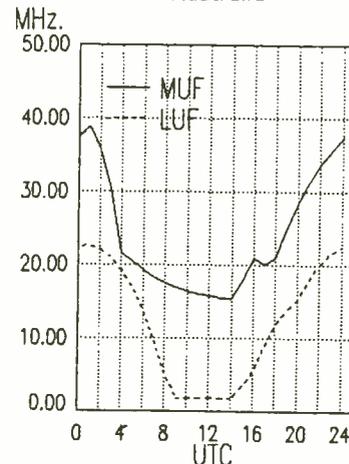
West Coast To
Indonesia



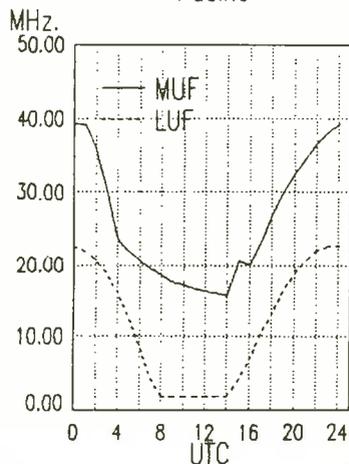
West Coast To
Far East



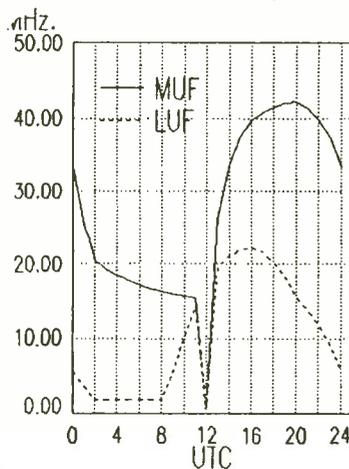
West Coast To
Australia



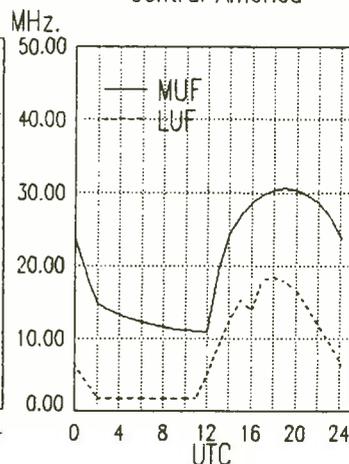
West Coast To
Pacific



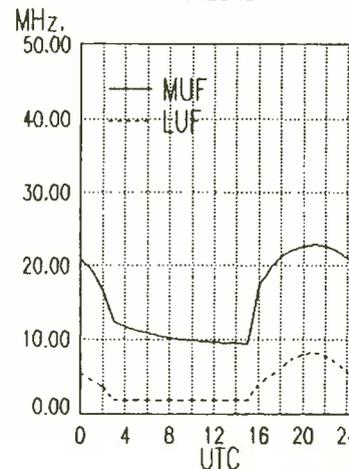
West Coast To
South America



West Coast To
Central America



West Coast To
Alaska



"Musts" for Receiving Tough Signals

More than any other medium, shortwave brings its listeners a wealth of information and entertainment. Signals leave transmitters at locations all over the world, bringing with them news and entertainment from nearly every nation on the planet.

For the connoisseur of electronic communications, it's the *ne plus ultra* of the airwaves, a fish waiting just beyond the hook, daring to be caught.

Shortwave, though, is not your average fish. As with the sport of angling, some of the most desirable "catches" can also be the toughest. How do you pull them in? What I'm going to tell you may surprise you, coming as it is from *Monitoring Times'* resident equipment reviewer: it's not good equipment. It's operator skill, tied to a solid base of knowledge.

Too Good to be True?

Before he began working for *Passport to World Band Radio*, one of our key monitors held a very sensitive position as a government monitor. Because of his position, I can't tell you his name but I can assure you that the story I'm about to tell you is true.

During his work for the government, our monitor was employed preparing off-the-air schedules of various broadcasters, using the state-of-the-art professional monitoring receivers and complex antenna fields. The equipment was very, very costly -- well into the six figures.

On one occasion he was called upon to document the broadcasting activity of a certain country that had suddenly become politically sensitive. Rather than do this from the official monitoring site, he felt he would have better results at a more suitable rural site some miles away. So, off he went with his \$200 portable, and in three exhausting days and nights he documented virtually all the broadcasting activity that was required.

While looking over his monitoring reports over coffee back at the office, his chief stared with disbelief. The resulting information was excellent. Surprisingly, however, when the

material made its way to the agency's central administration, it seemed like the roof had fallen in. First, they wanted to know, how could someone have done this much work in three days? When they found out that it was monitored from outside the agency, a load of bricks dropped through the hole where the roof used to be.

Who was this person? And what kind of receiver did he use? Central Administration was aghast when they heard the answer. Our monitor had done his incredible work using a relatively inexpensive Barlow-Wadley XCR-30 portable.

Things suddenly changed for the agency's young rising star monitor. And in due course, he found himself forced out of the organization. The real reason for his dismissal was never given, of course, but it was obvious. This superior DXer was dismissed for having claimed to have done something which the folks upstairs simply couldn't believe was possible.

They wanted to know, how could someone have done this much work in three days with a \$200 portable?

Of course, the government's loss was *Passport's* gain. If you are able to grasp the moral of the story, it can be your gain, too. The operator, not equipment, is the key to success in DXing tough signals.

Too good to be true? We'll get back to that in a moment, but first let's clear up some nomenclature to ensure we're all talking the same language.

Three Flavors of Shortwave

The shortwave spectrum is sliced into segments for three basic kinds of signals: "ham," "utility" and "world band."

Utility and ham stations provide point-to-point signals not intended for reception by the general public. But shortwave broadcasts -- news, music and the like -- are different. These are intended to be heard by everyone, and so are called "world band" to distinguish them from the other two types of signals heard on shortwave.

To see how we can get the most out of the huge number of offerings secreted within the

shortwave spectrum, we first need to look at ourselves before we pore over the technology.

Fishing for the Rare Catch

Everybody's used to bringing in an AM or FM or TV station by operating a control or two, and -- poof! -- there it is. Try that on the shortwave dials, and the station you want may or may not be there, and if it comes in at all it could sound bloody awful.

There are two ways to view this -- as a problem, or as a challenge. It's a problem if you want your favorite station to pound in clearly every day. But it's a real opportunity if you like to go fishing for stations -- to dial around the bands to see what the gods of the airwaves have chosen to place on the table for us to feast upon.

Either way -- "fishing" or "non-fishing" -- there are three key steps you can take to improve your chances of hearing a station, and also of hearing stations more clearly.

At publications like *Monitoring Times* and *Passport to World Band Radio*, the staff has to flush out even the faintest, toughest signal so we can document it authoritatively, year-in-and-year-out. Here's how it's done.

Step 1: Know the Bands

Just as you drive your familiar local roads with more skill and aplomb than you do strange byways, so you can more easily navigate shortwave by becoming intimate with it.

Shortwave propagation characteristics in the summer differ from those of the winter -- and differ again during the equinoxes (spring and fall). This means that you need to become familiar with what stations are on when, and on what frequencies, for each of these three seasons; that is, for at least nine consecutive months. This will give you a good feel for spectrum usage -- or what old timers call "knowing the bands."

As often as possible during this nine-month gestation, dial through the thirteen portions of the shortwave spectrum referred to collectively as world band. Even try those you think should be "dead" to see if there might be a surprise or two. And do this at various times of the day and night, not just

when it's handy. One now-successful DXer has made it a habit to spend at least 10 minutes monitoring whenever he goes to the bathroom -- day or night.

After getting this sort of experience under your belt, you'll know instinctively which parts of the world come in best at what time and on which portions of the shortwave spectrum. There's no mistaking it. This is going to take time. But as that tiny handful of the world's most elite DXers will tell you, it is surely worth it.

This is how the real pros the first-class DXers - weak-signal chasers -- consistently excel at digging out rare and interesting stations. They haven't succeeded because of their equipment, or because they were born that way. They've become proficient because, through the exceptional mix of the perseverance of the mature and the curiosity of the young, they've acquired a solid "feel" for the bands.

Another of those special qualities also comes with time behind the dials. These senior DXers have usually acquired an ear for languages. This doesn't mean that you should be able to sit around the dinner table, effortlessly switching between Arabic and Urdu as they discuss the day's events. What it means is simply that you should be able to *recognize* the languages of the radio targets you seek.

As a serious DXer, it's going to be a big help in identifying stations when you instinctively know whether something is in, say, Portuguese instead of Spanish -- or Mandarin Chinese instead of Cantonese. It also helps to know common station identification words in various languages. For example, "govorit" means, more or less, "here is" in Russian, with the Arabic equivalent being "huna," the Polish "mowi," and so on.

Knowing how to understand time announcements in other languages helps, too. Once you can make out the time announcements, you can do a little detective work by correlating your findings with *Passport's* handy time zone to at least tell what part of the world a station is coming from. That one clue alone should go a long way toward helping identify a station.

As to the specifics of when and where to tune, if you live in the northeastern United States or southeastern Canada, you'll probably find that the best time to tune in low-

powered Brazilian stations is during the fall, winter or spring from 0800 to 0900 World Time (UTC) in the 60 (4600-5100 kHz), 49 (5850-6250 kHz) and 31 (9300-9995 kHz) meter bands -- sometimes 90 meters (3200-3400 kHz), too. A couple of hours later you'll find Colombian and Venezuelan stations chattering away on those same bands, with the

Brazilian stations by then having faded away.

Around that same time, you can dial 41 (7100-7600 kHz), 31 and 25 (11500-12100 kHz) meters and hear Pacific signals from the likes of Papua New Guinea and Australia. A little later, in roll a bunch of East and Southeast Asian signals -- gobs of nifty little domestic stations in such hard-to-hear places as China, Korea, Vietnam and Indonesia.

You get the point: There's a pattern as to what comes in when, and that pattern varies according to your location. The only way you can get a solid feel for what's what is to tune around day and night -- yourself -- over a period that includes summer, winter, and at least one equinox period.

What about lousy reception conditions? For the DXer, fishing for the rare and unusual, there's really no such thing as "bad" reception conditions. When stations from Europe begin to sound weak and gargling, that's often when prized DX rarities from the southern hemisphere peek through best.

That's not the only thing. Sometimes during the onset of so-called bad reception conditions, there's a brief period -- maybe just a couple of hours -- when Asian stations suddenly become incredibly strong before evolving reception conditions cause them to peter out. Sort of like a light bulb that suddenly climaxes in brilliance just before it burns out.

DXers live for these moments, and when everything falls together just right they can be great events. Talk to any old-time DXer about August 5th and 6th, 1972, and you'll immediately get a knowing smile. Latin

rarities rolled in like a spring tide and some of us even remember hearing Salvador Allende loud and clear over Radio Portales, giving one of the last of his impassioned speeches in Santiago's coliseum. Ironically, after his assassination that same stadium was turned into a mass prison for his supporters.

Step 2: Have Accurate Information

After your own talents, the second requisite is accurate, readily accessible information. There are a number of "must have" references. You're holding one of them in your hands. Another is, of course, the current edition of *Passport to World Band Radio*. You might also want to tune in to Radio Canada International's *SWL Digest*.

Keeping logs of what you've captured is another "must." Mark up the Blue Pages of your *Passport!* We don't mind! Show what you've already heard and when. And use a composition book to detail major catches.

Step 3: Obtain the Right Equipment

Yes, in shortwave DXing it is human talent that's crucial. Still, you can only do so much if your equipment isn't capable of flushing out the signals you want.

One of the interesting things we've found in doing tests for the *Passport Buyer's Guide* is that receiver performance isn't always related to money. Another equally important finding is that shortwave radios and communications receivers differ considerably from model-to-model. They're not like, say, TV sets, which don't differ much in performance from one model to another. With shortwave, princes and dogs sleep in the same hay.

First, though, think in terms of your goals. If all you're trying to hear are the BBC and a dozen or so other powerful stations, what you need bears little resemblance to what somebody else must have to hear La Voz de Galapagos.

Second, think in terms of systems. A receiver and an antenna aren't two separate items -- they work together to form a single receiving system. Same thing for most accessories.

Take the easier first. If you're interested in hearing only the major world band stations

How do you pull in the most desirable catches? A tip: The secret's not in your equipment.

night after night, look in the current *Passport* for a mid-sized or larger portable with a rating of at least 3+ stars. These include the Sony ICF-2010, and the Sangean ATS-803A (alias Realistic DX-440 and others). Even better, make sure that under "Advantages" the receiver is cited as having superior audio and -- if you really want to go the whole route -- synchronous selectable sideband.

If you live on the West Coast, where signals are weaker, you might want to go a step further and get one of the few tabletop models, like the Kenwood R-5000 or Lowe HF-225, with good audio. But for most, a good portable in the \$180-380 street-price range is more than adequate for hearing the biggies.

On the other hand, if you're trying to dig out the nifty little stations that most people never hear from afar, then things get tougher. And more expensive.

So, here's DX equipment tip number one. Now is probably not the time to buy a serious tabletop communications receiver. As we have detailed, at least two potentially excellent tabletop models are in the works from Japan Radio and the R.L. Drake Company of Ohio -- both top-notch manufacturers. These new models could turn out to be worse than what's currently available, but given what we already know about them it's just as likely that one or both will be better.

These should be out sometime between March and May of 1991, so unless you need something soon, hang in there to see what's coming up. The forthcoming Drake R8 is expected to sell for under \$1,000, whereas the new Japan Radio NRD-535 will probably go for something less than \$2,000.

Tip number two: If you are using a tabletop receiver, then get the best antenna you can afford, and preferably more than one. If it's at all possible, use passive outdoor wire antennas, such as those made by Antenna Supermarket and Alpha Delta. Small active antennas are handy, and for most apartment dwellers they're the only practical choice. But outdoor wire antennas

Now is probably not a good time to buy a serious communications receiver. Wait and see what the market has to offer in the next few months.

most always provide a better signal-to-noise ratio.

Antenna Supermarket antennas, such as the Eavesdropper, now come with a lightning arrestor built in -- a great idea. Alpha Delta sells their separately.

As to vertical antennas, these are tough to erect, and how they perform varies from model-to-model and location-to-location. Generally speaking, we've found ordinary horizontal wire antennas to be better performers. They're also cheaper and easier to install.

One other point. Keep in mind that antennas need to be set up properly, or they can do more harm than good.

Other accessories to improve performance? Generally speaking, forget it. However, there is one exception, sort of.

With a tabletop receiver awarded at least four stars in *Passport*, you'll probably find that really faint signals can be made a bit more readable and pleasant if you have a first-rate amplified preselector between your wire antenna and radio. The best of these is made by Palomar in California; switch it on only when a signal is really down in the mud.

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With few exceptions, portables are made to work best off their telescopic antennas. If you want to juice them up a bit, just run a hank of Brand X insulated wire with an alligator clip from the telescopic antenna (not the external antenna jack, which is weaker) out to a nearby tree or such. On some portables, even that may be too much.

Finally, operate your equipment properly. Experience and a willingness to experiment are the keys here.

Bottom Line: Three Keys to Success

The bottom line, then, is this: The three keys to shortwave listening success are experience, first; information, second; and equipment, third. Not the other way around.

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You can hear Larry Magne's equipment reviews the first Saturday of each month, plus *PASSPORT* editors Don Jensen and Tony Jones the third Saturday, over Radio Canada's "SWL Digest." For North America, "SWL Digest" is heard at 7:35 PM ET on 5960 and 9755 kHz, with a repeat Tuesday at 8:30 AM ET on 9635, 11855 and 17820 kHz.

PASSPORT'S "RDI White Paper" equipment reports contain everything found during its exhaustive tests of communications receivers, antennas and advanced portables. These reports are now available from a number of radio retailers in the United States and around the world. Contact your dealer for more information or send a self-addressed stamped envelope to RDI White Papers, Box 300, Penn's Park PA 18943 USA.

New Realistic Receivers



Several new products have emerged from Tandy as announced by the 1991 Radio Shack catalog. Two products in particular are directed to scanner monitors.

PRO2025

A private-labelled and thinly-veiled Uniden BC560XLT, the new PRO2025 is intended for mobile applications; as such it is equipped with a mobile mounting bracket and DC cord, but no attachable whip or AC wall adaptor.

Featuring 16 memory channels, the two-digit LED readout displays channel numbers only. Frequency entry is confirmed on a digit-by-digit basis, just as a review key automatically displays memorized frequencies digit by digit.

A selectable, two-second, all-channel delay and individual channel lockout are pushbutton accessed. Channel one may be selected for priority to avoid missing important transmissions while monitoring another active channel.

With frequency coverage from 29-54, 136-174 and 406-512 MHz (narrowband FM) and pre-programmed weather channels, the 2025 scans at about 12 channels per second; there is no search capability.

Adjacent channel selectivity and signal sensitivity are as good as found on many higher priced scanners, although aircraft images are quite prevalent in the 155 MHz public service band. A simple 133 MHz notch filter would solve that problem.

Measuring a compact 1 3/4"H x 5 1/2"W x 6 7/8"D, the sturdy, metal-encased scanner is especially suited for its intended purpose: under-the-dash mobile mounting. A Motorola antenna jack and 1/8" (3.5 mm) external speaker jack are provided.

At only \$139.95 from Radio Shack stores, the PRO2025 is a good choice for an inexpensive mobile scanner where only 16 memory channels and absence of 800 MHz coverage are acceptable.

PRO36

Fitted between the top-of-the-line PRO34 and entry-level PRO38 hand-held scanners, the new PRO36 offers 20 memory channels to store frequencies in the 30-54, 108-174 and 380-512 MHz range, including the VHF aircraft band. Up/down programmable search capability is included.

A BNC-base rubber duckie antenna and belt clip are supplied; the remaining accessories (6AA cells, AC and DC adaptors) must be purchased separately. No protective case is available.

The scan rate is a rather slow 8 channels per second, but audio is unusually loud and clean for a small radio. Sensitivity and adjacent channel selectivity are on par with other hand-helds. Both the two-second delay and channel lockout are individually selectable for each channel.

Measuring 6 1/2"H x 2 3/4"W x 1 13/16"D and weighing 14 ounces, the PRO36



features a brightly-lighted LCD frequency display which is readable to 4 decimal places.

The keyboard may be locked out to avoid accidental activation of the keys when the scanner is being worn. The batteries are standard AA size and either nicad rechargeables or throw-away alkaline types may be used.

The PRO36 is now available for \$199.95 at Radio Shack stores.

Better Audio for Hand-Held Scanners

Allan Young of Grass Valley, California, found a great way to improve his PRO-34 scanner audio. Using a Radio Shack pillow speaker, either model 33-206 (\$3.39) or 33-207 (\$4.99 with volume control), Allan glued a spring-loaded alligator clip to the back of the speaker for attachment to his collar. If desired, the long cord may be cut short and terminated with another plug or, even simpler, the cord may be wrapped to the desired length near the plug and tightly taped to keep it short.

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- **Press DPA** F7b spec 300 Bd ASCII
- **Wirtschaftsdienst** F7b spec 300 Bd ASCII
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- **ARQ-E** ARQ 1000 ITA2-p Duplex
- **ARQ-N** ITA 2 Duplex
- **ARQ-E3** CCIR 519 ITA 3
- **ARQ-6** 200 baud, CCIR 476 variant
- **POL-ARQ** CCIR 476 special ARQ-variant
- **TDM 242** CCIR 242 2/4 channels
- **TDM 342** CCIR 342 2/4 channels
- **FEC-A** FEC 100(A) ITA2-P FEC Broadcast
- **FEC-S** FEC 100(S) ITA 3

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How to Build a Stable VFO

VFOs (variable frequency oscillators) are used in receivers, transmitters and signal generators, as well as in various other pieces of test equipment. Frequency stability is an objective that all designers pursue. A VFO that exhibits frequency drift can spoil the performance of an otherwise good circuit.

For example, the greater the overall selectivity of a receiver the more pronounced the effects of VFO instability. This is because it becomes a tedious task of keeping the receiver tuned so that the desired signal remains within the narrow IF (intermediate frequency) passband.

Types of Drift

We have what is called short-term drift and long-term drift. The latter is perhaps the most annoying of the two conditions because the equipment stability never seems to settle down to permit the main tuning dial to be left at a given setting.

An ideal VFO could be turned on, set to the selected frequency and never readjusted until you become interested in a new frequency. This is seldom possible without incorporating a PLL (phase-locked loop) or synthesizer. Most LC (inductance/capacitance) tuned oscillators have some drift, but it

can be minimized to lessen the need for frequent retuning of the system.

Drift is caused by heat. Internal heating from RF and DC currents cause changes in component capacitance and resistance, and this results in a change of oscillator frequency. This is true of solid state or tube types of circuits. Variations in ambient temperature around the VFO components also cause drift. The operating frequency is affected also by dampness (humidity).

You can see from this that we must deal with numerous conditions that can affect the circuit performance. Stray, unwanted RF energy from other parts of a transmitter circuit may also enter the VFO circuit and cause abrupt changes in oscillator frequency. Good shielding of the VFO circuit, along with filtering of the DC leads that enter the VFO compartment, normally prevent this type of circuit disruption.

Short-term drift is caused by the initial heating of the transistor junctions, along with internal heating of the VFO capacitors. Generally, this form of drift ceases within five minutes of circuit turn-on. It is, therefore, not a matter for deep concern among amateurs and experimenters. An acceptable VFO may have a short-term drift that amounts to, say, 300 Hz (0.3 kHz).

This form of drift can be reduced by using low operating voltages and relying on small amplifier stages after the oscillator for building up the output power of the overall VFO circuit. The lower the operating voltage, the less the DC and RF current that flows through the components. For example, a transistor that would normally be operated from 12 volts DC will give better service in a VFO if the operating potential is reduced to six volts, regulated. This can be done with a Zener diode.

Also, the greater the internal surface area of the VFO fixed-value capacitors the faster the VFO will settle down. This is because the RF current flows over a larger area and results in less heating. This can be achieved simply by using two capacitors in parallel at each key circuit point. By way of an illustration, if the circuit calls for a 100-pF NPO capacitor, use two 50-pF capacitors in parallel. In a like manner, 1/4 or 1/2 W resistors are better than 1/8 W units for biasing the oscillator. The smaller resistors can exhibit resistance changes from internal heating caused by DC-current flow.

Very light coupling between the VFO tuned circuit and the oscillator transistor helps greatly to minimize short and long term drift. A good rule of thumb is to use the

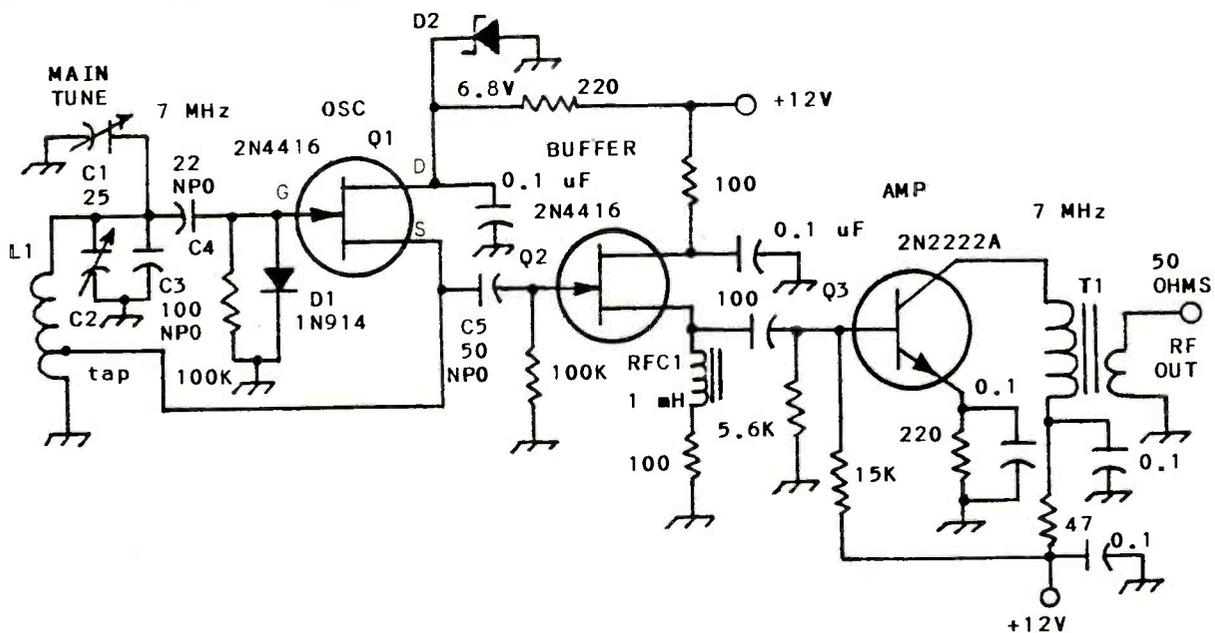


Figure 1 — Schematic diagram of a practical 7-MHz VFO. Fixed-value capacitors are disc ceramic unless otherwise noted. NPO signifies temperature-stable ceramic capacitors. C1 is a double-bearing air variable for use with a vernier drive. C2 is a 25-pF NPO ceramic trimmer or air variable trimmer. D2 is a 400-mW Zener diode. A miniature 1-mH RF choke is used for RFC1. T1 has a primary winding of 15 turns of no. 26 enamel wire on an Amidon Assoc. FT-37-43 ferrite toroid. The secondary winding has four turns (see text) of no. 26 enamel wire. Many of the parts for this and other experimenter's circuits are available from Oak Hills Research (KE8KL), 20879 Madison St., Big Rapids, MI 49307. Send a large SASE with \$.50 postage for a catalog.

smallest value of coupling capacitor that is consistent with reliable oscillator starting. This also helps to preserve the Q of the tuned circuit (reduced loading), which enhances the purity of the VFO output waveform. The higher the Q the lower the wide-band noise from an oscillator.

Choices for Fixed and Variable Capacitors

Some equipment builders like to use silver-mica capacitors in a VFO. These were among the better stable capacitors in the old days of radio, but newer and better types are currently available. My first choice is the NPO (zero temperature coefficient) ceramic capacitor. My second choice for circuits that operate up to 10 MHz is the polystyrene capacitor.

Silver-micas are quite unpredictable with respect to their temperature stability. We might select four 150-pF silver-mica capacitors from a given production run, only to find that one is temperature-stable, while one has a positive drift trait and the remaining two have a negative drift profile. You can, however, hand pick your silver-micas through experimentation (tedious) until you have a stable VFO.

Variable capacitors should have a bearing (preferably the ball type) at each end of the rotor. The capacitor should turn freely to prevent undue stress and lumpy tuning. The vernier drive used with the tuning capacitor must be free of backlash. Variable capacitors with aluminum plates are not good choices for VFOs: the metal expands and contracts with temperature changes, and this causes drift. Plated brass vanes are best for VFO service.

VFO Coils

Whenever possible you should avoid using a coil that has a ferrite or powdered-iron core. This core material is affected by temperature changes, and this can cause severe instability. An air-wound coil (glued to a ceramic form) is my preference when there is ample space for it. My second choice is a slug-tuned ceramic form that has suitable core material for the operating frequency.

The wrong core substance can ruin the Q of the coil and degrade the oscillator performance. If you use a slug-tuned form, try to set up the circuit so that very little core material is inserted into the coil winding. The less core you use the better the stability.

Toroid cores should be avoided whenever possible. This is because the entire coil is wrapped around the powdered-iron core. If you do use a toroid, stick with no. 6 (yellow coding) material for the MF and HF ranges. The no. 6 core (sold by Amidon Assoc.) is the most stable of the HF group. The completed toroid coil should be coated with at least two

layers of Polystyrene Q Dope (General Cement) to keep the turns firmly in place.

A Typical Circuit and Some Tips

Figure 1 shows an example of a practical VFO. I suggest you duplicate this circuit for the purpose of learning how VFOs operate. If you have access to a frequency counter you may test the circuit for stability.

L1 in Figure 1 is a 4.2 μ H inductor. C2 is a trimmer capacitor that is used to adjust the tuning range and calibrate the VFO dial. C1 is the main tuning capacitor. Note that C3, C4 and C5 are temperature-stable NPO capacitors. Trimmer C2 should be an NPO ceramic trimmer.

D1 stabilizes the gate bias of Q1 to aid the frequency stability. Although I have specified a 2N4416 JFET at Q1 and Q2 (best choice), you may use MPF102s for the sake of experimentation. Output from Q1 is buffered (isolated from Q3) by source follower Q2. It has no gain. Its output is roughly 0.9 the signal applied to its gate, which is the rule for source or cathode followers.

Q3 is a broadband amplifier that boosts the output from Q2. The secondary winding of T1 may be changed to increase or decrease the impedance ratio of the transformer. More turns will allow the circuit to match into higher impedances (50-ohms is specified in Figure 1).

The tap on L1 is for feedback, which is necessary for oscillation. Typically, the feedback power is 1/4 the oscillator output power. The L1 tap is made at a point that is 25 percent of the total L1 turns (tap up the grounded end). Use care to prevent shorting adjacent coil turns when making the tap. Shorted turns will ruin the Q of the coil.

Closing Remarks

The circuit in Figure 1 may be changed for various frequencies in the MF or HF range. For example, if you want to use the circuit on 3.5 MHz, merely double the values of L1 and C1 through C5. For 20-meter use, halve the component values. These changes will be approximate for the ranges specified. You will need to experiment with the parts values to cover the exact tuning range you desire.

The hints I have provided in this article may be applied also to factory-made VFOs if you encounter a stability problem. Total drift (an hour or more) should not exceed, say, 600 Hz from a cold start to the time of stabilization. Information about winding coils for a particular inductance is available in *The ARRL Electronics Data Book* and *The ARRL Handbook*.

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Police Tones Unmasked

Cloaking devices are not just restricted to the Klingon Empire. It seems that the Ontario Provincial Police and the metro police are using a system of CTCSS tones to "cloak" FM tactical transmissions from the multitude of scanner listeners in Canada. I assume that this "tone cloaking" is not restricted to Ontario, but probably exists throughout Canada's provinces.

Simple radio security systems have been employed for years in the law enforcement arena in the U.S. Until recently, voice-inversion techniques have been widely employed because they are inexpensive to procure in bulk and easy for the officers to use.

Motorola and other commercial radio manufacturers have come up with much more sophisticated encryption hardware, but they are cost prohibitive for all but the largest departments. Therefore, it is no surprise that "tone cloaking" is an attractive alternative to those departments that wish some form of security from the constant prying ears of the scanner listener.

If the "normal" scanner listener was the only eavesdropper, I am sure that the law enforcement agencies would care little about securing their transmissions. However, with the increase in "high-tech" criminals, the use of scanners in criminal circles has become mundane. Therefore, most law enforcement agencies agree that certain sensitive information is in need of encryption.

Fred Noakes of Georgetown, Ontario, has provided the enclosed circuit which can be added to almost any scanner (Figure 1). It uses

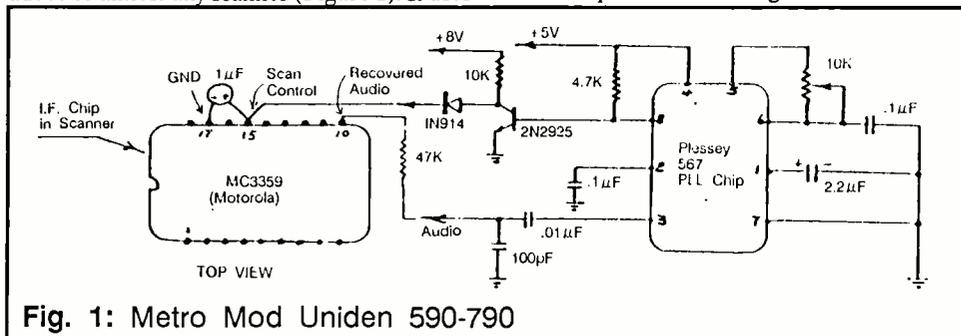


Fig. 1: Metro Mod Uniden 590-790

the Plessey 567 Phase-locked Loop (PLL) chip (ed: I do not have a Motorola or National cross reference for this chip) which is very easily obtainable in Canada.

This particular mod has been done to a Uniden 590 scanner (the Uniden 790 is very similar). Audio is picked off of pin 10 of the MC-3559 IF chip in the scanner. The 10K pot connected between pins 5 and 6 on the PLL chip is adjusted to one of the standard EIA CTCSS tone freqs listed in Figure 2. Tone for the Ontario Provincial Police is 107.2 Hz while the Metro Police is 110.9 Hz. Proper adjustment of the 10K pot should eliminate the annoying "tone cloaking" being transmitted by

Group A Frequency (Hz)	Group B Frequency (Hz)
67.0	71.9
77.0	82.5
88.5	94.8
100.0	103.5
107.2	110.9
114.8	118.8
123.0	127.3
131.8	136.5
141.3	146.2
151.4	157.7
162.2	167.9
173.8	179.9
186.2	192.8
203.5	210.7
218.1	225.7
233.6	241.8
250.3	

Fig. 2: Standard EIA CTCSS Tone

the police.

The entire circuit can be built on a small piece of perf board or on one of the Radio Shack experimenter's boards. The entire unit can then be placed inside the scanner with double sided sticky tape and tuned to the local agency's CTCSS frequency. This will enable the scanner listener to receive the "cloaked" transmission in the "clear."

Thanks, Fred, for an outstanding mod.

Adding an S-Meter

As promised last issue, here is a collection of the S-Meter mods for scanners. You will have to experiment a bit to get these to work in

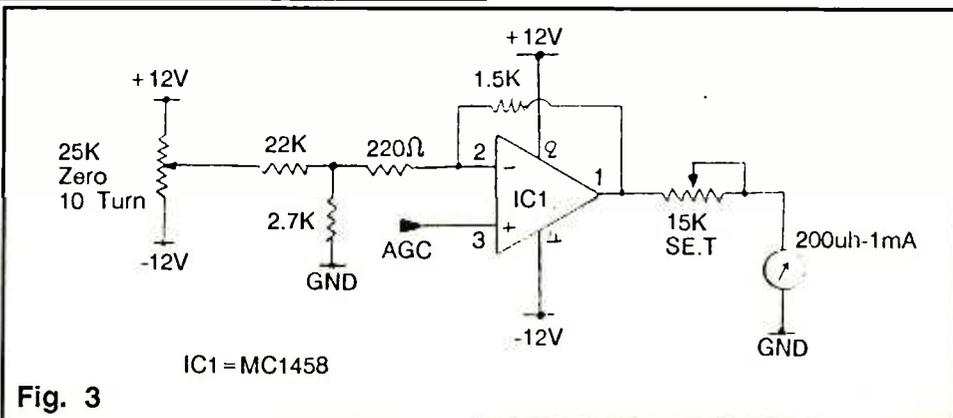


Fig. 3

various models of scanners, but if you need an S-meter, this is the way to go.

NOTE: FOR ANYONE INEXPERIENCED WITH WORKING ON HIGH DENSITY CIRCUIT BOARDS, DO NOT, UNDER ANY CIRCUMSTANCES, ATTEMPT THIS MODIFICATION. NEITHER MYSELF NOR MONITORING TIMES MAGAZINE WILL BE RESPONSIBLE FOR ANY MODIFICATIONS OR REPAIRS ATTEMPTED BY OWNERS OF PRODUCTS DISCUSSED IN THIS COLUMN. REALIZE THAT ANY MODIFICATIONS DONE TO A SCANNER STILL UNDER WARRANTY WILL VOID THE MANUFACTURER'S WARRANTY.

First circuit is from Phil Moreau, G0FWU in Sandbeach, England: Figure 3 shows the schematic of the S-meter circuit built for the RS PRO-2004. This circuit uses an op amp (try an MC-1458) where the AGC signal from the IF chip is fed into pin #3 and the inverting input (pin #2) is connected via a voltage divider to the Zero adjust pot which is a 10 turn linear taper. The output is connected via a 15 K pot to the S-meter (0-1mA movement). This circuit needs both a positive and negative 12 VDC supply in order to function.

The second circuit is a simple -12 VDC supply that can be included on the main scanner circuit board. Figure 5 shows the internal 2004 circuit board and the pick-off points for the -12 VDC supply (shown in fig. 4), AGC, +12 VDC and ground. The entire unit can be housed in an external case and coupled to the scanner via a cable and plug. It is important to remember that the readings obtained on the S-meter are relative readings.

Bob Reedhole, WA6IJD/7 sends in the next S-meter mod for the RS 2004/2005/2006 scanners (Figure 6). Most parts can be procured from Radio Shack except for the LED bar graph display (used in place of the actual meter). This bar graph can be purchased from Tri-Tek Inc., 9014 North 23rd Ave, Phoenix, AZ 602-371-0860 (price unknown). The relay, RL-1, TR-1, R1, D1 and R10 can be built on a small PC board and mounted inside the scanner. The LED bar graph display and associated IC-2 and resistors are built up on a piece of PC board and mounted in an outboard case and connected to the scanner via a short piece of three conductor cable and stereo plug.

Adjustment is done with R3 and R6 respectively. R3 is adjusted on an unoccupied frequency with the squelch open until the first

An Even More Super Looper

The Super-Looper antenna which we covered in this column a few months back is a surprisingly useful little device, considering that it is small enough to fit right on the monitoring station table. But antennas generally increase in gain as they increase in size, and so you might expect a larger loop to give a greater signal output. And you'd be right if you did.

So this month, let's look at a larger loop antenna which has a lot to offer for nondirectional, all-around coverage across the shortwave bands. And, not only does this antenna have a nondirectional reception pattern, it is provided with a simple means for changing its polarization. At times, this can be a valuable feature because the antenna will sometimes give a greater response when the antenna's polarization is changed to more closely match the polarization of the received signal.

This month's antenna, the full-wavelength loop, has been with us for a long time. But it is not as well known as many of the other antennas which we find useful on the shortwave bands. This is a bit surprising, as the loop's construction is actually quite simple: just cut a wire a wavelength long and hang it as high as you can in a spread-out, horizontal fashion (Figure 1).

If you have a lot of trees or supports to hang it from, you may be able to make it almost circular, but an irregular rectangle, or even a triangle, is more practical for the situation most of us face on our "antenna farms." And remember, whatever way you put it up, stay away from power lines for both safety and interference reduction.

So Let's Build One

1. To build the full-wavelength loop you will need a length of wire as determined by the formula in Figure 1. Actually, you should buy a length about eight inches longer than the formula indicates, to allow for the length used in bending the wire through the feedline insulator and attaching to the feedline.
2. Determine the number of suspension points you will be using to support the antenna "up-in-the-air." Take the same number of insulators as you have suspension points, and thread one end of all but one of them onto the wire. Then take the last insulator and attach one end of the wire to each end of this last insulator (Figure 1).
3. Obtain a length of feedline which will reach comfortably from the antenna to your monitoring table. You may use any coaxial cable you have for this. Twinlead is also okay. Make sure that it has a coax plug on one end which fits your receiver. On the other end of the feedline, prepare the wire feedline ends and the antenna ends for connecting (see Figure 1). Scrape the wires bright and then wrap and solder them in place. Be sure to seal the open end of the coaxial cable with some kind of coax sealer to protect it against the weather.
4. Next attach ropes to the free ends of the insulators which you earlier threaded on the loop wire, and also connect a rope to one end of the insulator where the feedline attaches to the antenna. These

ropes will need to be long enough to reach from the insulator to the intended mounting points (such as a tree limb) which you have chosen, and tie on to that point.

Or, rather than tying them to the mounting points, you may wish to make them long enough such that they can reach from the insulator, over their mounting point, and then reach to ground-level so that you can adjust them from the ground.

5. Using these ropes and tie points, mount the antenna as high and in the clear as possible.
6. The antenna is now ready for use, but don't forget the lightning protection of your choice. At minimum, disconnect the antenna when it is not in use and never operate it during weather likely to produce lightning.

Using the Loop

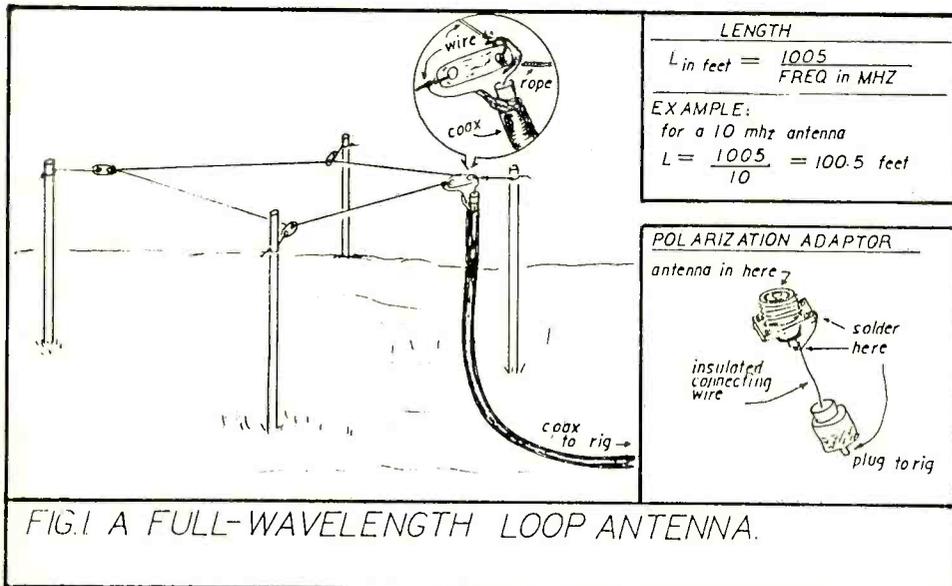
For general, all-around reception, the antenna is attached to the rig by its coax plug in the ordinary way you would attach any antenna lead-in. When you want to vary the antenna's polarization to see if you can improve on a weak signal, short the inner and outer connector of the coax plug and run a wire from these combined conductors to the center connector of your receiver's coax socket.

Figure 1 shows how an adapter for this vertical-polarization condition can be made by connecting both the connections of a coax socket together, and running a single wire from these joined connectors to the center conductor connector of a coaxial plug. Try shifting the polarization back and forth on weak signals to see when this can help your reception.

On occasion it may also help in reducing unwanted interference by switching to a polarization different from the polarization of the interference. Experiment and see what you come up with. Then you might drop me a line and tell me how it worked for your applications.

Antenna-Trivia Call

The sky is part of this antenna. I recently read a report from Pennsylvania State University that a technique has been developed whereby a one megawatt radio beam is aimed into the sky, heating the charged particles of the ionosphere far above



the earth.

This heating is thought to create a reflector for radio waves making it possible to communicate with distant stations via this artificial "antenna reflector."

Nifty New Antenna Manual

I finally got my copy of Joe Carr's *Practical Antenna Handbook* and it is a really useful addition to the literature on practical antenna design and construction. The coverage is broad and you will find a wide selection of antenna types and a generous quantity of information pertinent to antenna making and utilization. There are chapters on antennas for shortwave, UHF/VHF scanner antennas, marine radio antennas, microwave antennas, beams, limited-space antennas, and various other kinds of antennas.

Also covered are such antenna-relevant topics as transmission lines, grounding, wave propagation, and much more. Carr has presented us with a very readable and useful

coverage of practical antennas from MF through microwave.

RADIO RIDDLES

Last Month: I pointed out that when antenna plans call for an element of some specific length, like a quarter wavelength of wire and also a quarter wavelength of coaxial cable, these turn out to be different measured lengths. For instance, a quarter wavelength in regular coax at 10 MHz is 16.2 feet but in wire is 24.6 feet.

Well then, is a quarter wavelength different for coaxial cable than for plain wire? You bet it is. Why? Radio waves travel at different speeds through various substances. For instance, they travel at one speed through air, a slower speed through the dielectric of foam-dielectric type coax, and slower yet through regular polyethylene dielectric coax.

The length in wavelengths for a conductor is the length occupied by one complete wave

while the wave is traveling through that substance. The distance one wavelength can travel into a substance in one wavelength's time is farther in substances where the wave moves faster, and therefore they give longer lengths for a wavelength than those with slower travel times.

Next Month: Some monitoring buffs, including *Monitoring Times'* own Bob Grove (see page 20, Oct 1990 issue) won't allow a digital computer in their shack. In view of the computer's usefulness in many facets of monitoring, why is this? Hint: it has to do with certain signals emanating from the computer.

Well then, is the computer a transmitter of radio signals as well as a computer? What's going on here? We'll try to clarify this issue when next we meet.

Till then, Peace, DX, and 73.



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76 North Broadway, Hicksville, NY 11801**

Q. I see ads for "CTCSS decoders" for the BC760XLT scanner. Just what is this? (Several)

A. CTCSS stands for "continuous tone coded squelch system"; as long as the user has his mike button pressed, a subaudible tone (below 200 Hz and virtually inaudible) will accompany his voice. There are several tones that can be programmed into transmitters and their respective receivers to utilize this feature.

The purpose of CTCSS, sometimes called "PL" (Private Line, a registered trademark of Motorola), is to allow several different departments to utilize the same frequency without having to constantly monitor the chatter of the other users. Their receiver squelch will open only when the appropriate tone is detected from a desired transmitter.

Q. As a beginner in radio monitoring, I am confused by "Q" signals. What do they mean and where did they come from? (Larry Winckles, Holland, MI)

A. In the early days of Morse code message handling, it was far quicker to send abbreviations and symbols for commonly-used words and phrases. "73" ("Best regards") and "88" (Love and kisses) are straight out of the old telegraphers' code.

For more complex radio use, a system of triglyphs (three-letter combinations) was invented: QSL (confirm message), QSY (change frequency) and QRM (interference) are common remaining examples, used even in voice transmissions for brevity.

A complete list of these is found in my *Shortwave Directory* (\$19.95 plus \$3 UPS shipping from Grove Enterprises, PO Box 98, Brasstown, NC 28902, and other MT advertisers).

Bob's Tip of the Month:

STRONGER SIGNAL ON PORTABLE RADIOS

If your portable has no provision for an external antenna, there are several ways to improve reception. For example, an extra 10-20 feet of wire (any kind) may be attached to the whip (anywhere convenient) and run as straight away as possible--out a window, into an attic, across door openings, through the hall.

Q. I understand the Morse code is a dying mode for communications. Where can it still be heard? (Herbert Boose, Philadelphia, PA)

A. Although rapidly disappearing from maritime use, it can be heard on military training nets, below 500 kHz, diplomatic circuits, at the lower end of each amateur radio band (mostly below 30 MHz), and still some coastal public correspondence channels in the 4.3, 6.3, 8.6, 13, 17 and 22.4 MHz ranges.

Q. I hear distorted interference all through the 800 MHz range on my scanner, and even though it is supposed to have cellular telephone coverage deleted at the factory, I hear them loud and clear around 900 MHz. What gives? (Mike Watson, Brooklyn, NY)

Q. The two common types of strong-signal-overload interference are intermodulation or "intermod" (two or more signals mix, producing sum and difference frequencies heard on the receiver), and images (a repeated signal exactly twice the intermediate frequency--"IF"--away from the original frequency).

For example, nearby mobile telephone tones in the 450 MHz range may mix together in your radio and be heard as interference in the 900 MHz range. It will be distorted, a clue that it is intermod.

Since most scanners have an intermediate (conversion) frequency in the 10.7-10.85 MHz range, a second signal frequency 21.4-21.7 MHz away is commonly heard. Thus, even though the 870-890 MHz cellular range was deleted at the factory, you can still hear the signals on the image frequency approximately 21 MHz higher.

Another trick is to wrap two or three turns of insulated wire around the whip and attach a wire antenna to one end, ground to the other. For internal ferrite bar antennas, wrap the whole radio--top to bottom--with several turns of wire, attaching the antenna to one end and ground to the other.

Q. I would like to use a vertical antenna for my short-wave reception. What would you recommend? (Richard Berzinski, Hammond, IN)

A. It is unfortunate that vertical antennas are not presently in favor among shortwave listeners. They are easy to erect, are omnidirectional, inexpensive to assemble and, if located away from electrical interference, excellent performers.

The U.S. Navy some years ago determined that a vertical antenna only 5 feet long, if properly matched, is nearly always as effective for receiving as a full-size antenna. Once you have enough coupling between an antenna and the incoming signal to overcome the internal noise generated by the receiver's own circuitry, a larger antenna increases not only the signal, but the atmospheric noise and general interference coming in with it.

Vertical antennas are, by their nature, more susceptible to nearby electrical noise interference which is mostly vertically polarized. My advice would be to locate the vertical antenna as far from the dwelling as possible, make it 20-30 feet long (up a tree is fine), and provide one or two eight-foot ground rods at its base.

Always use coaxial cable for attaching between an antenna and a receiver. At frequencies below 30 MHz and in runs of under 100 feet, virtually any kind of coax will work fine. Attach the center conductor to the vertical and the shield to the ground rod(s), and enjoy excellent reception.

Q. Is it possible to jam and defeat a 49 MHz RF intrusion detector? (T.J.C., Rockford, IL)

A. Not likely; it is balanced for a steady signal. You are far more likely to set it off!

Q. While vacationing recently, I tuned my scanner to the local police and heard them say, "Go code." After that, all I heard was static. What happened? (George Hickman, Hoffman Estates, IL)

A. They switched to digital scrambling which takes the entire speech spectrum and rearranges it as bits of data. When that is transmitted it sounds like random noise.

Questions or tips sent to "Ask Bob," c/o MT, are printed in this column as space permits. If you desire a reply by return mail, you must enclose a self-addressed, stamped envelope.

Q. Our police department just switched over to the 800 MHz band, but I can't find their frequencies listed in my *Police Call* directory? How come? (Gerald Dehoney, Raytown, MO)

A. There is a considerable paperwork lag at the FCC. I recently obtained an experimental class license--a year after my application was sent in! Even the FCC microfiche frequency records are commonly as much as a year behind license grants. Don't forget; the publisher of *Police Call* has to get the information prepared months before he goes to press with his directory. The information will get there, but it takes time.

Q. How is it that I can hear aircraft transmissions on my FM radio receiver at 103.3 MHz? (Al Shack, Simi Valley, CA)

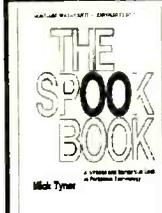
A. You are hearing an image from the actual transmission 21.4 MHz higher (124.7 MHz). Images are produced in all receivers, separated by a number which is double the intermediate frequency (in this case, 10.7 MHz). Careful design minimizes the interference they cause, but low cost receivers often compromise this design specification.

Q. While listening in on cellular (and other) mobile telephone conversations with a scanner is unlawful under the provisions of the Electronic Communications Privacy Act of 1986, would it be legal to tune in on my own conversation?

A. Absolutely. The FCC doesn't specify what receiving equipment you must use for your own communication. You would be no more in violation than peeking through your own window; just don't peek through someone else's window!

Q. What causes the buzzing sound I hear on my DX-440 receiver when signal strengths fluctuate rapidly? (S. Hada, Rosemead, CA)

A. There is a good chance that you are



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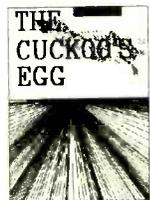
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experiencing common-mode hum if you are using an AC adaptor rather than batteries. If you don't hear it with battery operation, common-mode hum is confirmed.

Common-mode hum is often reported among shortwave listeners using inexpensive AC adaptors with their receiver and accessories. It can be reduced by placing an RF choke of at least 100 microhenries inductance in series with both the negative and positive leads of the adaptor, and connecting a 0.1 microfarad capacitor across the DC terminals of the accessory.

Q. When I purchased my Magnavox D2999 receiver, I

was told that it would go all the way to 29.999 MHz; in fact, it only goes to 26 MHz or so. Can it be modified to cover the total advertised range? (Joseph Clements, Houston, TX)

A. Larry Magne informs us that the European version which you obviously have cannot be modified for complete coverage.

A comprehensive list of questions and answers regarding monitoring may be found in Bob Grove's "Scanner and Shortwave Answerbook," \$12.95 plus \$2 shipping from Grove Enterprises, P.O. Box 98, Brasstown, NC 28902.

LETTERS

continued from page 3

It seems that Jim, whose radio room is shown on page 3, was listening to his Sony '2010 when he heard Saddam's buddies over at Radio Baghdad. "It was coming in very well so I called channel 22, WYOU-TV, and told them about it. They came out that afternoon. When they asked how I found the station, I told them about *MT*. Thanks to you, I got on TV."

No, Jim, our thanks go to you for promoting the hobby!

Robert Gallardo says that he would like to remind people not to rule out owning a crystal-type scanner. "While at the local Radio Shack store, I spotted an "as is" bargain table. They had a Realistic Pro-55 crystal scanner on sale for nine dollars. This originally sold for \$119 in the 1988 catalogue!

"Thinking that I could use it for parts, I took it home, cleaned it up, turned it on, and now I have a good back-up scanner for monitoring my most important agencies. The scanner works just fine."

The radio, admits Bob, did not come with a manual. "If anyone has a copy could they forward a copy to me? I would be happy to pay copy and postage costs."

Contact Robert at 320 Chynoweth Ave., San Jose, California 95136. His phone number is 578-1156.

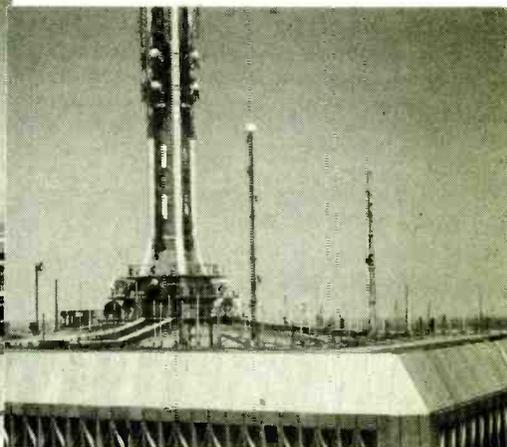
Roy Finney writes from Spring Hill, Florida, where he has been a little happier about getting up in the morning recently. "I bought one of those DAK \$49.00 portable shortwave radios and hung it on the wall to use while shaving. It is," says Roy, "one of the best \$49.00 radios I have ever heard. The speaker is good; the sensitivity is very good."

"Of course, I don't expect you to mention this in *MT* when one of your very good advertisers has the same radio (with a better case, probably) for sale at \$80.00 more. But if any of your staff wants a good cheap travel radio, the DAK is it."

"No need to respond. It's just that I was so impressed with the radio. I thought that you would be interested."

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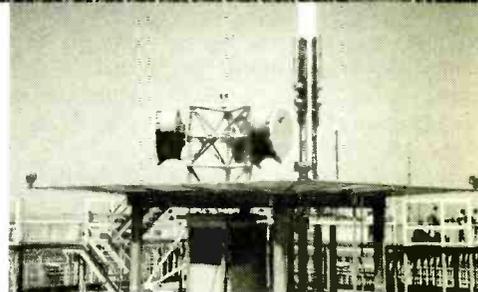


Last summer, one of our readers took his scanner "where few, if any, scanners had gone before." Mark Cavallo is a police detective and deputy fire chief in Haddon township, New Jersey, who has relied on his trusty Bearcat 100 through house fires, motor vehicle accidents, shootings, and a stint on the narcotics task force. He's been kidded about "A boy and his scanner...", but he's "showed the brass a time or two how easy it was to monitor their 'protected' transmissions."

Now, however, he thinks the BC-100 has "seen it all" after monitoring from the top of the World Trade Center in New York City. Mark includes some photos of the startling variety of antennas bristling from roof. He was especially interested in the largest antenna, especially since none of the brochures would show its base and no one seemed to know its function.

Thanks for the photos, Mark. Now if you really want to break a record, how about doing a repeat performance with your new BC-200XLT in January?!

Phyllis Werlin of Newton, Massachusetts, was one of a number of people who wrote to us to point out a credit at the end of Karl Zuk's American BandScan column. "It



was interesting to see the name Mary Chapin Carpenter listed as a contributor," says Phyllis. "I've enclosed a clipping, although not shortwave related, to show who reads your magazine."

A very talented folksinger, Ms. Chapin Carpenter, is indeed an *MT* contributor.

Did we ever tell you that U.S. President George Bush is a regular *Monitoring Times* contributor? (He isn't. We were just asking if we ever told you that he was.)

We can't give you much information on this -- we had to promise to keep "mum." Take our word for it and listen to 1620 kilohertz -- just above the top of the AM dial -- on Christmas eve, 8:00 p.m. eastern time. Someone is going to celebrate the holiday with a new 5,000 watt transmitter.

CONVENTION CALENDAR

Date	Location	Club/Contact Person
Dec 1-2	Ft. Lauderdale, FL	Broward ARC/ William Levisay 109 Thomas Rd, Hollywood, FL 33023
Jan 12	Cameron, MO	Green Hills, Missouri Valley & Ray Clay ARCs Gordon Miller WA0ZOG 15816 Oakmont Pl, Kearney, MO 64060
Jan 19	Monterey, CA	Naval Postgraduate School ARC Winterfest 91 - ham demonstrations & flea mkt Location: Monterey Fairgrounds Salinas Room, 8a.m.-3p.m. Contact: Pat (days) 408-649-4444 Doug (evenings) 408-663-6117. NPS Amateur Radio Club, Code 62, Naval Postgraduate School, Monterey 93943

Monitoring Times is happy to run brief announcements of radio events open to our readers. Send your announcements at least 60 days before the event to: Monitoring Times Convention Calendar, P.O. Box 98, Brasstown NC 28902.

Stan Mayo reports that he has received a QSL for his amazingly detailed reception report of Radio Beijing. This is not your average reception report, folks. Stanley reports the signal strength of the station in *microvolts*.

"The Drake R-7 receiver is supposed to indicate S-9 on a 50 microvolt signal," figures Stanley, and uses that bit of knowledge to calculate signal strength on weaker transmissions.

Stanley says that despite his meticulous reporting to the People's Republic, he has hasn't "heard a word" on spurious signals that he thinks the station is throwing off on 15037 and 15163 kHz. "I think these may be part of the station's transmission on 15100 kHz."

Stanley lives in Winslow, Maine.

Mike Klassen is a writer who is cooking up a book on things that people have heard on their scanners while listening to cellular phones. Well, you could have heard a pin drop here at the office! After all, we've made it our duty to spread the word that listening to cellular phones is a *violation* of federal law. You *could* go to jail if the federal government ever found out that you, in the privacy of your own home, were using your scanner to monitor public airwaves on which (some allege) private phone calls were being made.

Mike's address is 2316 Tremont, Cedar Falls, Iowa 50614.

Henry Middendorf lives in St. Louis, Missouri, and he says that he would like to start a scanner club in his area. "Could you put a notice in the next issue of *Monitoring Times* asking any interested parties to contact me?" Sure enough, Henry.

Henry's address is 3930 Eiler, St. Louis, MO 63116. Call him at 481-4609.

William Nichols and his wife were touring Europe not long ago when they happened on a communications facility located between Munich, West Germany, and Salzburg, Austria. Here's what Bill says: "My description may have errors. We got only a brief look.

"The installation was set some 500 to 1,000 feet off the highway. There were many vertical structures arranged in a circle of 1,000 to 2,500 feet in diameter." Each structure was 30 to 40 feet high with what Bill says was "a substantial amount of space between them."

"I have wondered if this could be a space

communication antenna system or some type of commercial facility. Any thoughts that you or your readers might be able to share on this would be appreciated."

Regretfully, Bill has no photo and no further details. Any-one care to take a stab at this?

"I just finished the October issue of *Monitoring Times* and I must say that it was fantastic," says Peter Durant. "I'm an English teacher here in Gotemba, Japan, which is about two hours south of Tokyo at the base of Mt. Fuji.

Peter says that he bought a Sony ICF-SW7600 portable in Tokyo and now enjoys listening to stations around the world. "I came here in June of this year and was without the help of your magazine for a few months -- until I wrote an urgent letter to my family asking them to send me the issues of *MT* that I missed."

"One other thing," says Peter. "I've been noticing the puns that Bob Grove has been sprinkling throughout the pages of *MT* during the last year and I wanted to warn him that

this kind of thing can only geisha into trouble!"

Sayonara, Peter!

That's it for this issue. Thanks to all who wrote.

We look forward to hearing from you. We welcome your letters containing considered comments, questions and observations on the world of radio.

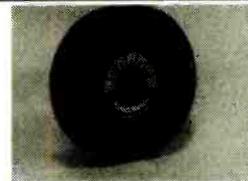
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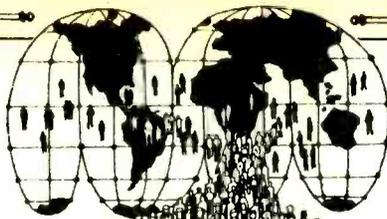
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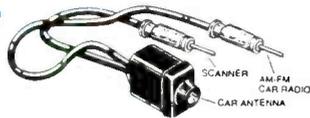
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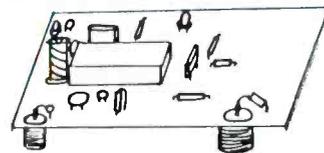
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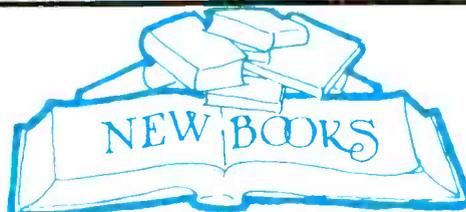
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