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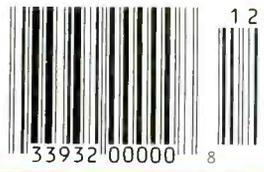
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# TIMES

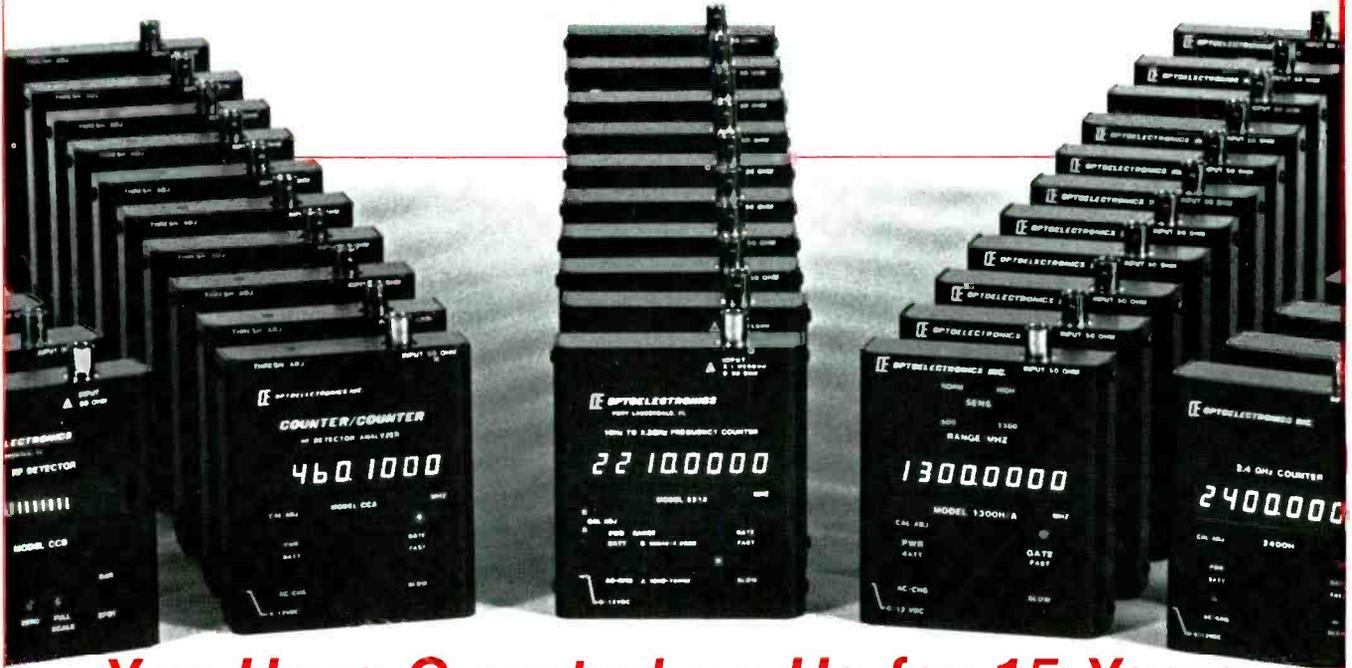
## Medical Emergency! Tuning in the EMT's



- DXing Mexico
- Probing the Secrets of  
Nellis Air Force Base
- Scanning for Poachers



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# MONITORING TIMES

## **Monitoring Emergency Medical Services** by John Norton

6



Police and fire are only part of the story your scanner can tell. By punching in a few additional frequencies, you can tune in the rest of the story, the exciting world of Emergency Medical Services.

John Norton profiles one such system and in the process tells you what you can expect to hear and how to tune it in. From ambulance to emergency ward, it's genuinely gripping human drama.

MS monitoring is exciting, says John, so much so that many who have started out by monitoring EMS actually end up joining their local First Aid or Rescue Squad.

Motorola

## **Shortwave from Meh-hee-ko** by Charles Sorrell

10

A Mexican DX Standoff: Shortwave radio in Mexico is a "smoke 'em if ya got 'em" kind of affair. Officials there impose few demands on the stations, requiring their owners only to light up the transmitters from time to time in order to keep their license.

As a result, DXing Mexicans on shortwave is a lot like shooting ducks at a carnival sideshow. The ducks pop up unpredictably then disappear again. If you're alert enough, though, you may be able to knock a couple down and win the kewpie doll.

## **Exploring Nellis Air Force Base** by Steve Douglass

14

The first time most folks heard of Tonopah, Nevada, was when the Air Force first revealed the existence of the Stealth bomber. Up until that time, the town was known for little more than the heat, rattlesnakes and Nellis Air Force Base.

Now, it turns out, Nellis is home to all kinds of strange creatures. There's the F-117A Nighthawk, a stealth fighter that with its swept back wings and twin tail resembles some evil black swallow. There's even a secret wing of captured Soviet fighters.

Join Steve Douglass as he uses his radio to explore the strange, futuristic world of the Nellis military operations area.



## **Scanning for Poachers** by Bob Kay

18

Even game poaching becomes hi-tech when the potential reward can be in the thousands of dollars! Game wardens accordingly have had to scramble for new protection techniques. Bob Kay tells you where to tune your scanner as the action heats up this season.

COVER PHOTO courtesy of Motorola



**Bob Kay on the Loose**

If you're too shy to ask old Aunt Tillie for a PRO-2005 this Christmas, don't worry. Bob Kay will do the asking for you. As a matter of fact, Kay -- a person who has never been accused of being shy -- has taken the liberty of preparing your Christmas list for you.

We realize that this is quite a change for Bob. Regular readers will no doubt remember last year's Christmas piece, a sad little story about a dog that some described as one of the most pathetic tear-jerkers ever written in a radio magazine.

Still, if you're the kind of person who believes that it is far better to receive than to give, then you'll find Kay's Christmas gift list a true holiday blessing. So c'mon. Read the Scanner Report and get in the spirit of a Bob Kay Christmas.

**And Much More ...**

This month, aero columnist Jean Baker introduces the 118.000 through 135.975 MHz aero band. There's plenty to monitor, from routine Air Route Traffic Control to international distress frequencies, and a lot of radios can pick up these frequencies.

Federal File starts out: "If you live close to a major river, lake, or along the U.S. coastline, you are probably within scanner range of the exciting communications of the United States Coast Guard." Check it out.

Do a lot of traveling? Larry Magne takes a look at the globetrotter's friend -- the Grundig Yacht Boy 230. This compact little portable will keep track of local and universal time and will cover almost any band you care to listen to.

Bob Grove does a hands-on review of the Realistic PRO-2024 no-frills desktop scanner. He also introduces a nifty accessory module for the PRO-2004/5 that automatically searches and stores active frequencies.

If you really want to beam that signal in, take a gander at Antenna Topics. And for more projects and tips, "Read on, Brother!"

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## : A BROADCASTER PROFILE

by William Pell

A "broad spectrum" of services information, Radio Austria International is the primary goal of promoting a complete and accurate presentation of Austria as a service industry recognized by visitors from throughout the world. The station's main objective is to serve as a source for Austrians abroad to keep in touch with home.

Actually, information in Austria goes back to the 17th century when the first radio broadcast was made in 1894. It was not until the founding of a radio station in Vienna in 1924 that the history of radio in Austria began to take shape. The first radio station in Austria was established in 1924 and the first radio broadcast was made in 1925.

Over the years, the station has grown from a small radio station to a full-time radio station. The station is now a full-time radio station and is recognized by the Austrian government as a public service. The station is now a full-time radio station and is recognized by the Austrian government as a public service.

These 1994 broadcast schedules are in a constant state of flux. The station is now a full-time radio station and is recognized by the Austrian government as a public service. The station is now a full-time radio station and is recognized by the Austrian government as a public service.



Radio Austria's English-language section from left: Patricia Macal, Murray Hill, David Ward, Eugenie Harrel, Ann O'Leary, David Hartman, and Elizabeth Sorel.

Could the spirit of Radio Austria International and the "broad spectrum" of services information be the key to the success of the station? The station is now a full-time radio station and is recognized by the Austrian government as a public service.

Radio Austria International is the primary goal of promoting a complete and accurate presentation of Austria as a service industry recognized by visitors from throughout the world. The station's main objective is to serve as a source for Austrians abroad to keep in touch with home.

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station. Maybe it's only a coincidence that they have ignored my pleas for help in promoting their station in the pages of this magazine for the past seven years. Maybe they never got all those letters. Or the international telexes. Maybe they were just...

No, that's no coincidence. These people really are ignorant. And yes, Joe, I should have hit Radio Austria International between the eyes with the truth. I was going to change the offending line to read, "On a snobbishness scale of 0 to 10, Radio Austria rings the bell at 10." I should have.

Bill Edwards and other sharp-eyed readers caught an error in our explanation in last month's column of how Fred Doyle was hearing 46 MHz cordless telephone base units in the 15.5 MHz region of his shortwave receiver.

All cordless telephones operate on the same principle: A crystal oscillator is modulated by the voice; a multiplier then raises that original signal -- the fundamental -- to some desired whole-number multiple (in this case the third harmonic) which is amplified and fed to an antenna.

Fred was not hearing the intentional 46 MHz harmonic; most likely he was tuned to the fundamental oscillator frequency of the nearby cordless phone.

"If any of you get the chance to travel through Asia," writes Hugh Waters of Orchard Point in Singapore, "consider a stop-over in Sri Lanka to visit Victor Goonetilleke." Goonetilleke is one of Asia's leading clandestine and tropical bands DXers.

"Victor has just completed his [new] house in Piliyandala (Colombo) and even has a guest room, available for transmitting hams and DXers. Leave him ten dollars per night and you can tap into one of his longwires, strung high between the coconut tree, amidst spice gardens.

"A visit to Victor's shack will give you a chance to see

how great DXing results are made using mediocre, often antique, receivers. Anyone wishing to visit Victor should write or phone a few weeks in advance to find out what radio components are in short supply there. And don't worry. Although Sri Lanka is enmeshed in a bloody civil war, none of the violence has ever been directed against tourists!"

Hugh says that you can ring Victor up -- although we haven't heard directly from Victor on this -- at 504 098. And don't worry a second about that bloody civil war.

Brian Jones of San Antonio, Texas, writes to say that sometimes, *Monitoring Times* treats non-ham readers like they "have to have mental baby food." Specifically, Brian is commenting on the introductory ham bands article in the September issue.

"And what about the article on short-wave antennas? The sum total is to take a wire and hook it onto your receiver. Come on! I'm not a moron!" I'm certain you're not a moron, Brian.

However, keep in mind that there are other readers out there that are beginners. And no, that doesn't make them morons, either. But they do need basic information, the kind which was found in Mr. Small's article.

[How to find a helping ham, MT makes *Consumer Reports*, and much more on page 100]

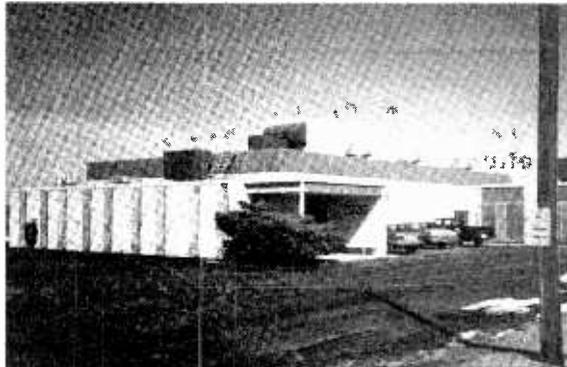
Joe MacKenzie writes to tell us that we're "way off base" in the article that profiled Austrian Radio in the October *Monitoring Times*. In that issue the author wrote, "On a friendliness scale of 0 to 10, Radio Austria must rank as at least a 9." That, says Mr. MacKenzie, is "hogwash."

"There are few stations on the shortwave dial that are so consistently ignorant as Radio Austria," continues Mr. MacKenzie. "Sure, ask them for a schedule and you'll have the same 50-50 chance of getting one from them as you do from any other station. But go beyond that -- ask a question about the station, a program, even their country, and their average drops to an unwavering zero.

"I realize that you've got to put a happy face on the shortwave industry. But don't get carried away. Stretching of the truth like that can strain your credibility."

The truth is that I also choked on that line when I saw it. "He's got to be kidding," I thought. Radio Tirana Albania is more outgoing than the English department of Radio Austria.

The line was about to get zapped out of the text and replaced with a bit of sharp edged truth when the thought hit me. If author Bill Pell says that they're friendly, they must be. Pell has got some 30 years of DXing under his belt. Maybe they really are a friendly



A long, long time ago, Mike Hotchkiss was kind enough to drop us a line. Mark is a new shortwave listener -- or was, back when he wrote the letter. In any case, Mike lives in the Fort Collins, Colorado, area and took the time to snap a shot of WWV, which we here-with reproduce for your enjoyment.

## Stodgy and Boring Programs

Changes in the Soviet Union are making life tough for the Voice of America. According to the New York Times, when VOA director Bruce Gelb met with Soviet officials in Moscow last month, he heard "not one...complaint about the VOA."

He did, however, get an earful from Soviet dissidents, who told him that VOA programs were "stodgy and boring." Some Baltic-Americans are claiming the the radio voice of the U.S. government is going too far in its efforts to avoid being seen as provocateurs. Ojars E. Kalnins, a spokesman for the American Latvian Association who just returned from a trip to the republic, says that listeners there complained that the programs carried "too many extraneous fluff-type stories" about life in America.

Some 29 percent of the "adult, urban, educated population of the Baltic republics" tunes into the Voice of America in an average week.

## Habla Usted el Espanol del Ham?

*Radioscan* is a new monthly Spanish language ham magazine published in Miami, Florida. Recent issues

have carried ads from AEA, the ARRL, Grove, Heath, Kenwood, and ICOM. A one year subscription is \$19.95. For more information, write 175 Fountainebleau Blvd., #2K-5, Miami, Florida 33172.

## FCC Puts Pirate to the Mat

Radio equipment used by the Brooklyn, New York, pirate radio station WHOT has been seized by the U.S. government. The seizure was the first case to make use of Federal civil forfeiture provisions to shut down an unlicensed radio station. According to an FCC press release, the station operated on weekends between midnight and 7:00 am.

Investigators located the station using mobile direction finding equipment. The operators could face a fine of up to \$100,000 and/or one year in prison. (via W5YI)

## Having a Gay Old Time

Lambda Amateur Radio could be one of the fastest-growing organizations in ham radio. According to president Jim Kelly, the organization, which is comprised of gay and lesbian amateurs, has experienced a 60 percent increase in membership.

Lambda Amateur Radio was first formed in 1975 when a gay U.S. ham advertised in a national publication seeking to meet other gays and lesbians with an interest in ham radio. One of the organization's purposes is to recruit more gays and lesbians into the amateur radio service. (W5YI)

## Shaking Up Complacency

It seemed like it was only hours after the Loma Prieta Earthquake struck California that we began hearing from our west coast readers. Several days more passed and the letters began to come in.

Some readers, like Art Blair of San Francisco, threatened to leave the area. "One more [like this one] and back to Boston we go!" Others, like Ken Melrose of Oakland, seemed amazed to be alive. But virtually all expressed disappointment over the performance of their radio gear during an actual emergency.

On such an occasion, radio equipment could literally mean the difference between life and death -- at least provide comforting information on what is going on. At that point, radio ceases to be a hobby and becomes something entirely different. Are you *really* prepared?

We reprint, in its entirety, a letter from one reader. The points are well taken. We hope to explore them in more depth in a future issue.

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# COMMUNICATIONS

Gentlemen:

I have some suggestions and information that might be useful. It's the day after the big San Francisco/Bay Area earthquake. I just can't believe it. We are used to earthquakes out here but nobody could believe the strength of this one.

My power has been between 55 and 65 volts for the first seven or eight hours. Then it went up to 100 volts for another ten hours until finally, the power company took us down, then brought it back up to normal at 120 volts.

All of my battery operated equipment, scanners, AM/FM portables, and flashlights, worked fine until the batteries wore out. But then what? I had a large Gel-Cell 12v battery but how was I going to recharge the ni-cad battery pack in my scanner? My portable radios were AC or battery operated and didn't have 12v DC inputs. I was offered the use of a TV set, battery operated or AC, but it took 9 D cells. Just great. I counted 4 Ds in one flashlight and two in each of the others but I was still one short! And did I really want to disable my lights?

What did I learn from this?

- 1) The one thing I could have used most was a light (under 20 lbs) battery supply that connected to a car battery (via clamp or cigarette lighter plug) that offered taps at 3v, 4.5v, 6v and 9v. I have a new truck (six weeks old) without a cigarette lighter outlet. It won't be that way for long.
- 2) All radio/communications gear purchased from now on will have to be capable of 120v and battery operation and also have a jack for external power input.
- 3) Scanners using rechargeable nicads also need to have battery cases that hold disposable cells. Those with slide-on packs need an adapter plate with cord that slides on the bottom to feed it external power. (Many 2 meter walkie-talkies have this option.)
- 4) Any gear -- radio, flashlight, etc. -- using more than 4 cells is not advisable in an emergency since supplies of batteries disappear fast.

You know, the two things that were the most useful during those hours were a small Sony AM radio and my mini-mag penlight. Both use two AA cells and both were small enough to go in my pocket, leaving my hands free.

It has been very therapeutic writing this. We continue to experience aftershocks. The stress has been very nerve wracking.

Pass the word that 95% of us and our property are OK. I just hope that some of this information is of help, although I have a feeling the hurricane Hugo might already have driven these same points home to others.

Sincerely,

Greg Reid



*Sometimes the real excitement in an emergency may not be on police channels, but on the EMS frequencies like this Paramedic Dispatch Center in Hackensack, New Jersey*

enjoyment, particularly for those with an interest in medicine. But even if you do not have a medical background, much of the communication is of a nontechnical nature that can be easily understood by the monitoring enthusiast.

Additionally, monitoring your local EMS can also fill in the missing link in a communication chain. For example, when listening to the police tend to a major motor vehicle accident, the interesting communication may not be found on the police frequencies but on the EMS frequencies. While the police are deciding on traffic control assignments, you could be monitoring the treatment and condition of patients in the back of the ambulance!

Here is how the system typically works in the state of New Jersey:

While the large urban areas of the Garden State are served by paid ambulance services, most of the suburban and rural areas of the state are served by Volunteer First Aid or Rescue Squads.

## *Monitoring the World of*

# EMERGENCY MEDICAL SERVICES

*by John Norton, MICP*

**M**any monitoring enthusiasts enjoy listening to police and fire services. However, few individuals take the time to listen to Emergency Medical Services (EMS).

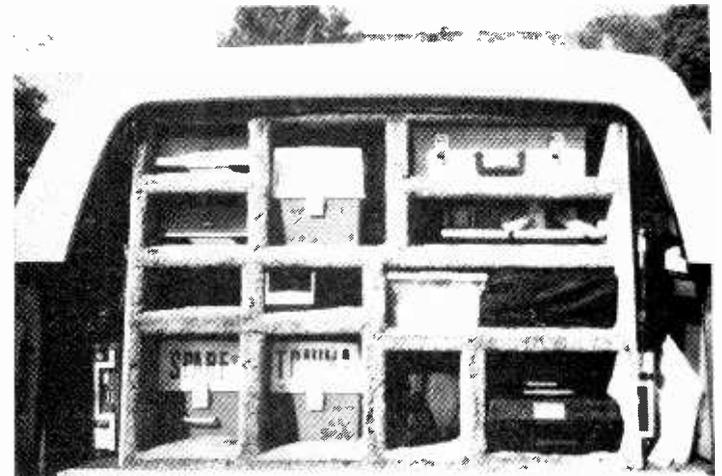
This aspect of the hobby can provide many hours of listening



*This Advanced Life Support Unit from Hackensack Medical Center permits rapid response regardless of weather conditions.*

These squads are typically composed of individuals trained as EMTs or Emergency Medical Technicians.

EMTs are graduates of a training program which is state sponsored and runs for approximately 120 hours. EMTs are trained to respond to the scene of an accident or illness and provide immediate first aid until more definitive care can be reached.



*Paramedics are equipped to administer medication and perform treatments generally performed only in the emergency room.*

This care includes bandaging of wounds, splinting and immobilization of fractures and suspected fractures as well as routine care and treatment of medical emergencies such as poisoning, fainting, and so forth. They are also prepared to administer oxygen to the victim of a heart attack or shortness of breath and in the case of cardiac arrest, to perform CPR (cardiopulmonary resuscitation). EMTs can also apply MAST (Military Anti-shock Trousers) in certain cases involving severe blood loss or low blood pressure.

In the town of Maplewood, when a person in need of an ambulance calls the local police department, the on-duty crew of the Maplewood First Aid Squad is paged. The on-duty crew typically wear small Motorola "plectron" pagers which look like oversized personal pagers. When activated, these "plectrons" emit a series of alert tones followed by a voice message from the Maplewood Police Department dispatcher asking the crew members to report to their building for a call and describing the nature of the emergency.

When the squad members reach their building, they enter the ambulance and immediately notify police headquarters on 154.815 MHz (Maplewood Police dispatch frequency) that they are on route to the scene of the emergency. At this point, the police dispatcher provides the squad with a repeat of the address and any update on the condition of the patient if the police have already arrived.

If the patient's condition is not "critical" and paramedics are not required, listen to 155.340 (known as the "HEAR" frequency) and you will be able to hear the First Aid Squad call the hospital to alert them that they are approaching the hospital with a patient. You will normally hear the squad member give a report over this frequency to the hospital on the condition of the patient.

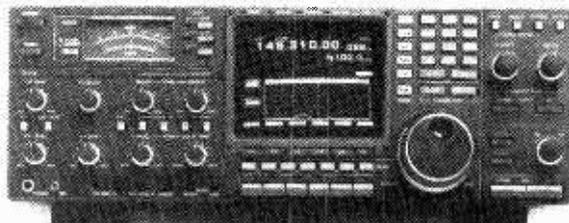
If the nature of the emergency is such that the life of the patient may be in danger, the police will simultaneously request the dispatch of a Mobile Intensive Care Unit or MICU. MICUs, in New Jersey, are based in hospitals and consist of two Mobile Intensive Care Unit paramedics who respond directly from the hospital to the scene of the emergency in a specially adapted vehicle such as a Chevrolet Suburban or Ford Bronco.

These vehicles permit rapid response in a variety of weather



Paramedic equipment, including "Apcor" (a radio which transmits electrocardiogram telemetry), Lifepack 5, and medical kit

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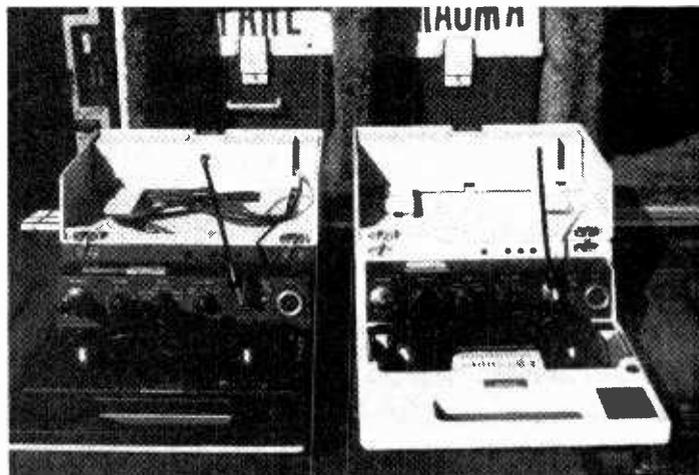
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conditions which might require four wheel drive capability. Paramedics on these units are trained to administer what is called ALS or Advanced Life Support. This includes the administration of life saving medication.

Paramedics are also equipped to monitor cardiac rhythms and provide other life saving treatments that are typically performed only in the emergency room, such as defibrillation and endotracheal intubation. In essence, paramedics bring the "emer-



Motorola "Apcors," high power (12 watts) left, low power (1 watt) right

gency room" to the patient. In many cases, the savings in time can spell the difference between life and death.

Paramedic units are dispatched from a centrally located hospital dispatch center on 155.175 MHz. By monitoring this frequency, you will be able to hear the plectron tones, as the paramedics are being dispatched, the address to which the paramedics are being dispatched, as well as the nature of the emergency.

If you listen carefully to this channel, you might also be able to hear the paramedic dispatcher update the medics on the condition of the patient or discuss with the medics the need for a "Medevac" type helicopter to quickly evacuate the patient from the scene. The medics also use this channel to advise the dispatch center when they reach the scene of the emergency as well as the destination hospital when they depart the scene with the ambulance.

When the paramedics reach the scene of the emergency, they notify the local police department of their arrival on the appropriate police frequency and then request that the paramedic dispatcher provide them with an appropriate "Med" channel.

This "Med" channel is one of eight paired UHF frequencies which permit the paramedic to be in direct contact with the emergency room physician from wherever the paramedic may be. The paramedic carries with him a Motorola "APCOR" radio for communications with the physician in the hospital on the assigned "Med" channel.

As we mentioned before, each "Med" channel consists of two separate but paired frequencies. One frequency is for transmission between the paramedic unit and the hospital emergency room and the other is for transmission between the hospital and the paramedic unit.

If you take the time to listen to these frequencies, you will hear the paramedic provide a detailed report to the physician on the medical condition of the patient. If it is a traumatic injury, the paramedic will describe to the physician the "mechanism of injury" or how the patient was injured.

After "report" by the paramedic, you will hear the paramedic say that he or she is sending an EKG. The EKG is then sent over



*Patient being treated by paramedic. Paramedic is using "Apcor" to contact base physician.*

the same UHF channel. The special "Apcor" used by the paramedics splits the channel so that both voice and EKG can be transmitted to the physician at the receiving hospital.

Unless you own special decoding equipment, you will not be able to see the EKG but you will be able to hear the voice transmission as well as a high-pitched tone which is the EKG transmission. The "Apcor" looks like a small white box with a telephone handset.

The paramedics bring the "Apcor" directly to where the patient is located, typically transmitting with a power output of approximately one watt (although higher power 12 watt units are available. The power need not be high because it only has to reach the paramedic truck.)

The paramedic truck contains a traditional "repeater" of one hundred watts or more. This repeater, with higher power, "retransmits" the signal directly to the central paramedic dispatch center which in turn routes the signal over traditional telephone lines to the base physician in the hospital emergency room.

In some areas this UHF system of telemetry is being replaced by specially designed cellular telephone technology capable of transmitting both voice and EKG. However, cellular technology is presently being utilized only in the more urban areas of the state where there are enough "cells" to provide consistently reliable coverage. Also, any cellular system must be capable of assigning a priority to the emergency call so that paramedics are always assured of getting an open cell.

After the physician has received the voice report and seen the EKG, the physician will tell the paramedics what treatment he wants administered to the patient. This could be the starting of an "IV" of "D5/W" or the administration of powerful cardiac or pain-killing medication.

But don't give up listening after you have heard the physician give his "orders"! There is more to be heard as the patient is transported to the hospital. The paramedics will typically "update" the physician enroute to the hospital on any changes in the status of the patient. You may even hear the physician order additional treatment.

The "MED" channels described for paramedic to hospital communication are:

MED channel	From Hospital	From Medics
1	463.000	468.000
2	463.025	468.025
3	463.050	468.050
4	463.075	468.075
5	463.100	468.100
6	463.125	468.125
7	463.150	468.150
8	463.175	468.175

Many who have started out by monitoring EMS frequencies have later gone on to join their local First Aid or Rescue Squad and become part of the action.

Pleasant listening!





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**S**urveys taken in American high schools and colleges reveal that a frightening percentage of students can't locate Mexico on a map. They think it's in Africa or is an island somewhere, or maybe it's just a type of spicy food.

There's no excuse for this kind of geographic ignorance. But from a shortwave radio angle, Mexico can still fool you. Finding Mexican broadcasters on shortwave can be more difficult than you might first imagine. It may be right next door but it's no snap to hear the "meh-he-kan" stations on shortwave.

DXing the Mexican shortwavers is a game played with some footnotes to the rules. Take any recent edition of the *World Radio TV Handbook* and you'll find a dozen or so shortwave stations listed under Mexico. The listings don't change much from year to year. Sit down at your receiver tonight and try and tune them all in, however, and failure is guaranteed -- simply because a lot of them won't be there.

Communications law in Mexico doesn't lay heavy burdens on broadcasters who have shortwave licenses and wish to retain the privilege. It is only required to have the thing on the air a few days out of the year in order to retain the license. So many of the licensees do just that, the minimum. The rest of the time they are unenthusiastic about shortwave. One wonders why they bother at all.

There's an element of chance in the Mexican DX game. This is no radio shooting gallery where you simply knock over the targets as they roll past. This is more like a game of hide and seek. And that, of course, makes it more fun.

If you are ready, we'll see if we can help you flush out some of these stations and get your Mexican log filled as far as it's possible to fill it. Keep in mind that all of the stations, even those which operate fairly consistently, tend to go through periods of inactivity. So it's important not only to check regularly those you need but to keep an eye open for news about reactivations of those you need and respond quickly to that information. All the broadcasts are in Spanish.



## Shortwave from Meh-he-ko

*by Charles Sorrell*

### Radio Mexico International

Unlike most Central American countries, Mexico has a government "Radio Nacional" on the air. Typically, it is the one with the most power and frequencies, particularly on the higher bands. The current schedule for XERMX (that call is used on all the frequencies) is: 5985 and 11770 from 1300-1700 UTC, 15430 from 2000-0500, 9705 from 0200-0500 and 17765 from 0300-0500.

These may not all be in use however. 15430 uses 50 kilowatts, the rest are 10 kW. QSL fans will find XERMX is pretty reliable. Reports go to Apartado 24306, 06700 Mexico DF.

### XEUJ

While XERMX is one of the easiest Mexicans to hear, XEUJ on 5982 is one of the hardest, even when it is active. The station is in Linares in Nuevo Leon state, perhaps 100 miles slightly southeast of Monterrey in citrus country.

XEUJ, Canal Libre Internacional, is scheduled from 1100-0300 but (familiar refrain) isn't always active. When it is,

the listener is often confronted with overlapping layers of interference, making it very difficult to trap a signal from this 500 watter.

The best first step would be to determine when, during the station's scheduled activity periods, the QRM from 5980 and 5985 kHz is at its low point. A communications receiver with plenty of filtering flexibility will be a big help here as well. XEUJ is a friendly station which appreciates reports. They go to Apartado 62, 6700 Linares, Nuevo Leon.

### Radio Mil

6010 and Mexico City are home to this one which, like a number of the Mexican shortwave stations, has been around since the 1940s or earlier. It is listed for 250 watts, operating from 1200 to 0800 and seems to be active on a reasonably regular basis, perhaps 40 to 50 percent of the time.

This is another QRM-filled area so your best chance at reception may be at sign-off when frequency usage by other stations is likely to be low. Reception reports should be sent to Insurgentes Sur 1870, 01030 Mexico DF.

### El Eco de Sotavento

... on 6020 has, more recently, been using the name La Voz de Veracruz. That makes sense since Veracruz is where it's located. Residents there insist "solo Veracruz is bello" (only Veracruz is beautiful). XEUW is active a good part of the time and is scheduled at 1100-0600. The 250 watt transmitter relays XEU on 930 kHz mediumwave. This one is heard fairly often in our local evenings. You can send your reception report to Ocampo 119, 91700 Veracruz, Veracruz.

### Radio Tus Panteras

This panther is usually asleep on shortwave. Listed for 6105 with a 1200 to 0600 schedule, XEQM operates from Merida, known as the white city and city of windmills. It's the capital of Yucatan state. XEQM's 250 watt transmitter relays XEMQ-1240 mediumwave (note the reversed call letters). It's not a very good QSLer. Reports often languish at Apartado 217, 97000 Merida, Yucatan.

## Radio Universidad de Sonora

on 6115 has been fairly active during the past couple of years. XEUDS (Universidad de Sonora) is scheduled from 1500-0230 but is sometimes on beyond that hour. Broadcasts are a relay of XEUS on 850 kHz. The stations are owned by the University of Sonora at Hermosillo which has strong ties to the University of Arizona and Arizona State University. Programs are noncommercial, so you will hear classical music and other cultural programs on this station.

Beware of Radio Union in Peru, listed for 6115 (but often as high as 6117). Reception reports go to Apartado 106, Universidad de Sonora, Hermosillo, Sonora.

## La Voz de la America Latina

is another longtime Mexican broadcaster as well as one of Mexico's major stations. The shortwave, XEWW, relays XEW-900 in Mexico City. XEW operates around the clock but, again, the shortwave may not match that. XEWW uses three frequencies: 6165, 9515, and 15160, though not necessarily at the same time. You'll hear IDs for XEW, rather than XEWW. Address is Ayuntamiento 52, 06070 Mexico DF.

## Radio Educacion

XERPM on 6185 has also been fairly active in recent months, though, of course, one can't count on that continuing. This is another cultural station, relaying XEEP on 1060 kHz. The station began as a

service of Mexico's Ministry of Education, but some reports indicate that it is at least a semi-autonomous operation now.

It is listed with five kilowatts and a 1200-0800 schedule. Late evening checks would seem to offer the best opportunity to hear this one. In the winter months, when 49 meters is open that late, you can also check for it at sign-on. Reports go to: Angel Urraza 622, 03100 Mexico DF.



SECRETARIA  
DE  
GOBERNACION Abr.05.83

RADIO MEXICO INTERNACIONAL  
Apartado 24306  
06700 México DF  
MEXICO

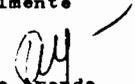
Estimado amigo.

Acusamos recibo de su atenta mar.09 de cuyo contenido tomamos nota.

Agradecemos en todo lo que vale su interés en nuestra estación. Al respecto podemos informarle que RADIO MEXICO INTERNACIONAL es la estación oficial de onda corta de este país. Estamos en el aire desde Sep.01.69 transmitiendo en las cinco bandas y - frecuencias anotadas en el boletín adjunto. Adjuntos también, un ejemplar de nuestra QSL y otro del adhesivo de la estación.

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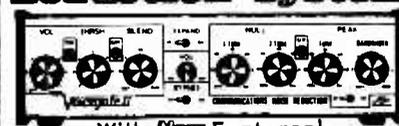


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## LOS TRAVIESOS DE LINARES

Artistas Exclusivos



XEUJ in Linares often includes cards advertising Mexican musical artists

### La Hora Exacta

is a sort of all talk WWV with beeps marking each fresh minute, day and night. A steady stream of news, messages and commercials doesn't even make way for the

time pulse when it comes. XEQK runs 500 watts and relays 1350 mediumwave, which uses the same call letters. It's operated by the Mexican Radio Institute. Reception reports go to Margaritas 18 Col. Florida, 01030 Mexico DF.

1938 CINCUENTA AÑOS 1988



# XEXQ

XEXQ produced this sticker on the occasion of the station's 50th birthday. Unfortunately it is seldom found on shortwave.

### Radio Unam

XEYU on 9600 is another cultural station. It's run by the National Autonomous University of Mexico in Mexico City and relays XEUN-860 there. The power of the shortwave outlet of one kilowatt is puny compared to the 50 kW listed for the mediumwave station. Even so, that one kilowatt is often well heard (when it's active!). The mediumwave schedule is 24 hours a day.

Like the other university station, you can expect to hear a lot of classical music on this station. When the transmitter is lit up, the best chances to hear it will probably be in the evenings (particularly late) and early mornings when fewer of the international blockbusters are in evidence.

Reception reports usually get answers. Reports go to Adolfo Prieto 133, Col. del Valle, Mexico DF.

### La "Q" Mexicana

Here's another one that's off shortwave as much or more than it's on. The "Q" comes from the call letters, XEQ on 940 kHz and XEQQ-9680 shortwave, the latter relaying the former using 500 watts. Scheduled for 1200-0600, the station is heard fairly well throughout North America when it is active.

It is a commercial station and often shortens its ID to just "La Q" or simply "Q." Reports go to the same address as that used by XEWW.

### Radio Huayacocotla

This one is about as tough to catch as XEUJ. It runs 500 watts on 2390 from Huayacocotla in Veracruz state. The problem is as much the schedule as it is the low power and frequency. You can largely forget the 1200-1500 morning schedule and concentrate on the tail end of the 2100-0100 schedule. Most North American based listeners will have a shot at this one only in the last hour or so of the schedule.

If the Guatemalan, La Voz de Atitlan, is still active on this same frequency, chances are just as good you'll hear that one. (The Guatemalan plays lots of marimba music.) Reception reports can be sent to the station at Apartado 13, 92600 Huayacocotla, Veracruz.

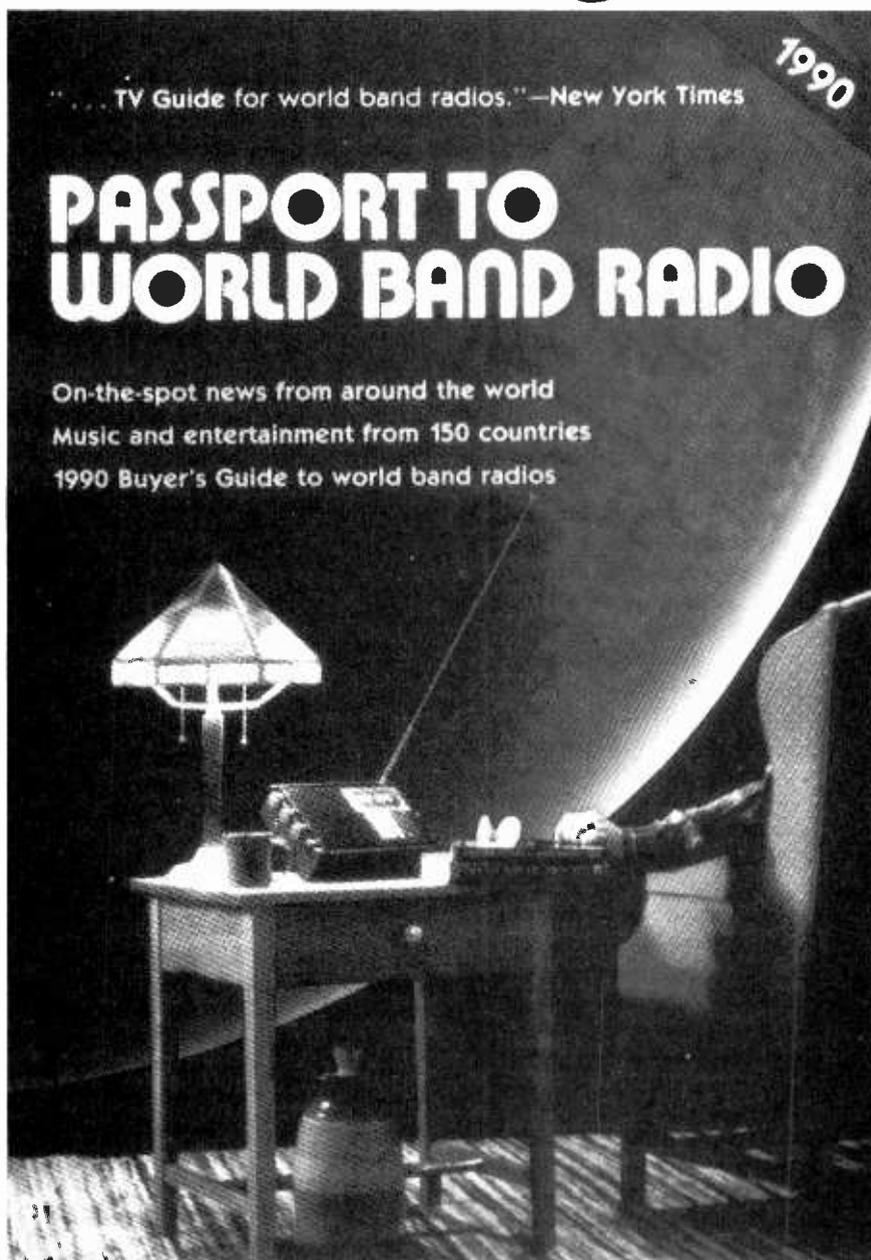
The *WRTH* lists three other Mexican shortwave stations, although nothing has been heard from or about them in quite some time. Still, it may pay to check occasionally for the following: Radio Universidad de Potosina, San Luis de Potosi on 6045 using call letters XEXQ; Musica Romantica, XECMT in Ciudad Mante on 6090, and Radio La Jorocho, XEFT, in Veracruz on 9545.

These targets, the Mexicans, belie the belief that good DX has to have plenty of distance involved. More often than not, nearby Mexico offers some very challenging SWBC DXing.

Good luck, and hasta luego!



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# Probing the Secrets of Nellis Air Force Base

by Steve Douglass

If you are ever on Highway 6, just outside of the little town of Tonopah, Nevada, and you can brave the heat, the rattlesnakes, and the isolation of the desert, get out of your car and wait. If you are patient enough you just might be amazed by what you'll see.

At first you'll only hear it, a high-pitched whining sound in the distance. Risking eye damage, you squint into the desert glare trying to locate the source of the sound. Suddenly you'll see it. It's an

security forces at the base take a dim view of prying eyes. However, once in a while the Nighthawk must leave its protective nest.

It is on these rare occasions, when the Nighthawk is not surrounded by razor wire, patrolling dogs or security teams, that is when you might catch the F-117A strutting its stuff.

The secret Tonopah base is part of the Nellis Air Force Base military operations area. This secret range, which covers a large portion of south central Nevada, is the home of the Air Force's top secret proving grounds. Edwards Air Force Base was once the premier testing center but now is considered too public to test top secret stealth aircraft. The F-117 base on the northwest corner of Nellis is remote and removed from all but the most determined.

The F-117A Nighthawk is the official name of the stealth fighter but those who fly it have nicknamed it "The Wobbly Goblin." At slow speeds, the

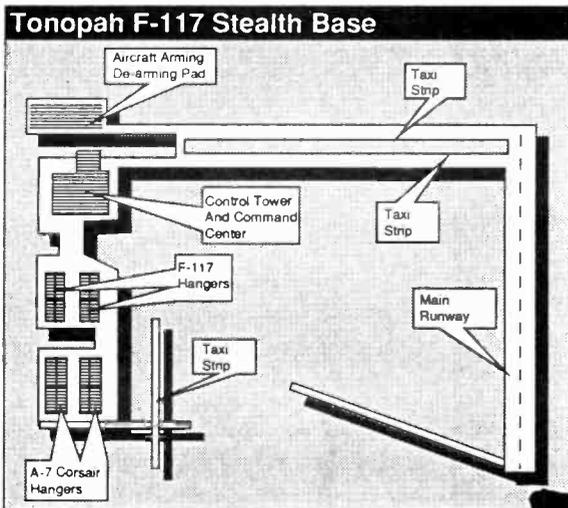
fighter is apparently hard to handle, hence, the odd title. Another term for the aircraft is "the sacred airplane" because when people see it for the first time they usually remark "Oh my God!"

A total of 49 are thought to be based on the Tonopah range, also known as Mellon Strip. The secret base, located in Area 30 on the Nellis range, consists of 72 nuclear hardened, specially built hangers for these secret aircraft.

The pilots who fly the F-117 are members of a new elite unit, the 445th Tactical Group. Most of the pilots first flew F-111 Aardvarks or have Wild Weasel experience. The special unit, known as "Team One-Furtime Vigilans" (vigilant by stealth) became operational in 1983.

Because of the secret nature of their missions, the pilots are not allowed to acknowledge to civilian air traffic controllers what type of craft they are flying. If asked, they are to say they are an A-7 Corsair.

Team One squadron is not the only squadron flying strange-looking aircraft on the Tonopah range. The 447th test and

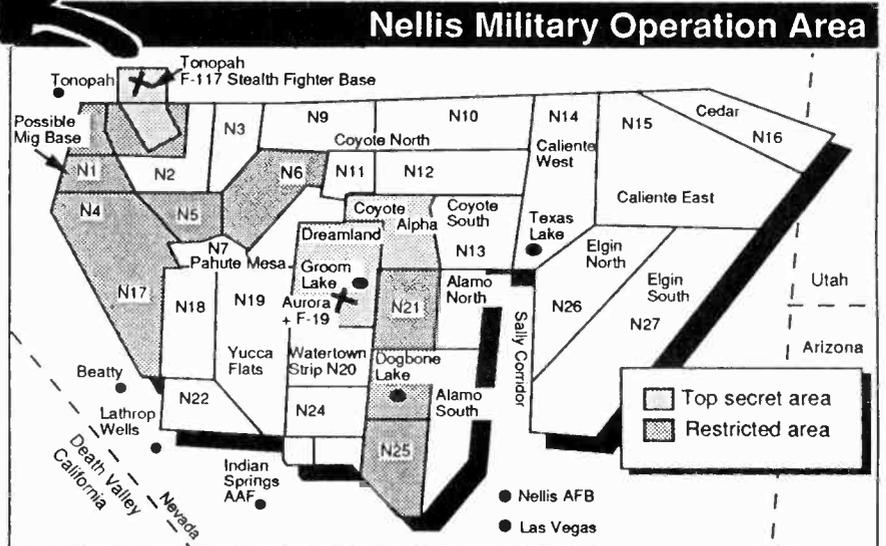


Graphic By Teresa Ligon

ominous-looking aircraft, perfectly flat on the bottom, pyramidal on the top.

Roaring across the high desert with its twin tail and swept back wings, it looks like a large black swallow. As it gets closer, you'll feel the urge to duck down among the lizards and the cacti. Such action is meaningless, though, for if you can see it, it can see you. So just stand and watch the Nighthawk go through its paces.

Since the beginning of the year, the F-117A Nighthawk stealth fighter has been engaged in daylight training missions from its secret base in Nevada. Still considered off limits to the press and public, the



Graphic By Teresa Ligon



Above: Specially modified A-7 Corsairs are used as trainers for F-117a pilots. The aircraft are outfitted with the same electronic systems as the Stealth fighter and also are modified to fly like one. These Corsairs were seen flying near Roswell, New Mexico. Right: F-117a pilots must also fly over a thousand hours in the General Dynamics F-111-D like these in formation over New Mexico.

Steve Douglass

evaluation squadron, the Red Eagles, is based there as well. The Red Eagles fly authentic Soviet fighters. Captured in Afghanistan and turned over to the U.S., Mig 17s, 19s, 21s, 23s, 25s, 27s and Sukhoi Su20 Fighters are flown regularly in Nellis' Red Flag war games.

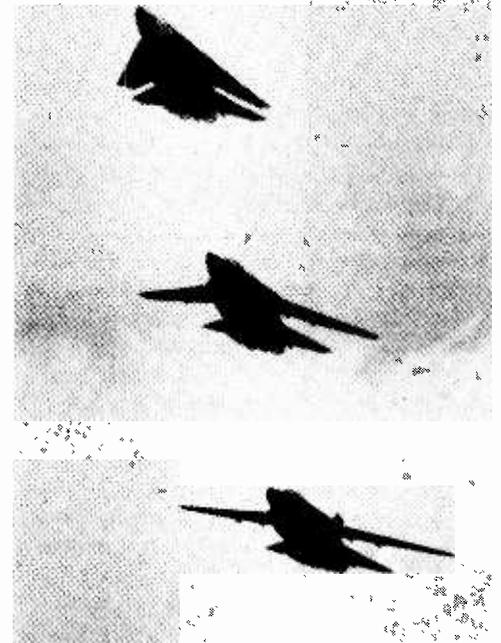
Occurring almost every eight weeks, the Red Flag exercises are conducted in much the same way as the Navy's Top Gun school is used to train USAF pilots in dissimilar air combat tactics. What better way to train than against real Soviet fighters? To add to the realism, the Nellis range even is dotted with real Soviet air defense radars and SAMS (surface to air missiles) to give training pilots the feel of the real thing.

There is yet another secret base located in the middle of Nellis. Groom Lake, in an area called Dreamland, is known to be the test base of the mysterious Aurora and the F-19 stealth fighter. The Aurora, the stealth replacement for the SR-71 Blackbird and the F-19, the stealth replacement for the F-15 Eagle, is said to be flying from the Watertown Strip.

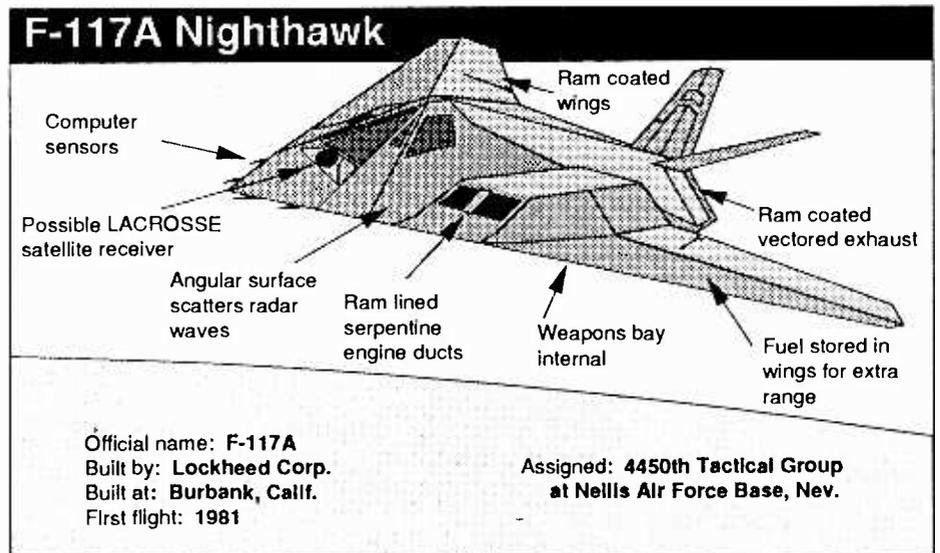
The Air Force has reportedly been testing the two top secret aircraft in Dreamland, Area 51, since 1980. (The SR-71 Blackbird was test flown at Groom Lake in the early sixties in complete secrecy.) Other aircraft likely to be test flown from Dreamland in the near future are prototypes for the ATF (Advanced Tactical

Fighter), the Phalanx Dragon, a stealth helicopter killer, and the A-12 (Navy Advanced Tactical Aircraft), a replacement for the A-6 intruder.

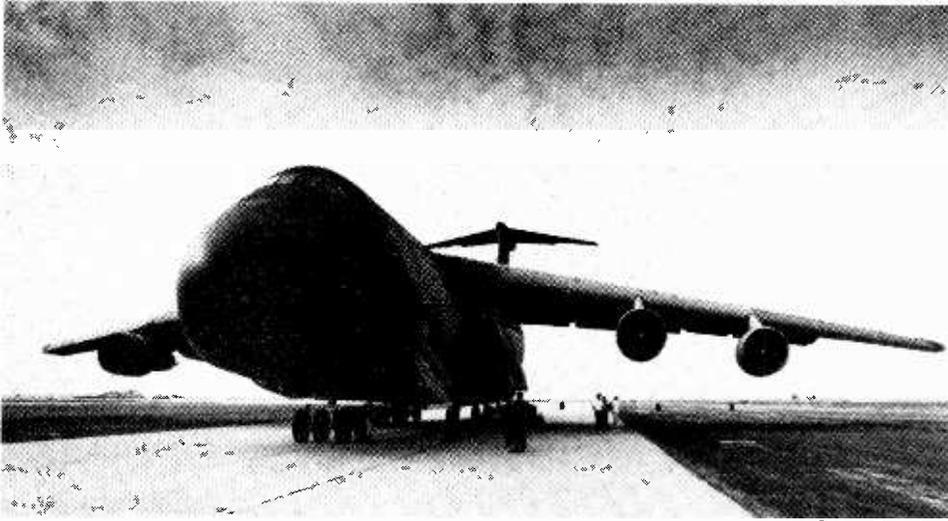
Although the bulk of stealth aircraft operations seem to be centered around Nevada, it is said that stealth aircraft have been seen at other bases as well. Last April the USAF said the F-117A would be used at bases nationwide to help integrate the stealth technology within the rest of the Air Force inventory. The F-117A has been seen flying near Yuma, Arizona; Edwards AFB in California, and Kadena AFB in Okinawa.



Steve Douglass



Graphic By Teresa Ligon



Steve Douglass

C5-NB Galaxy's were used to ferry to top secret Aurora aircraft to its secret base at Groom Lake, Nevada.

Recently it was rumored that F-117s are being stationed at the recently reopened Roswell Air Force Base in New Mexico. The Roswell strip was constructed originally for heavy bombers during WWII and Vietnam but closed in the late sixties. Residents of the area report that strange aircraft are once again flying out of the base. The White Sands missile range is not far from Roswell and the F-117A may be using the range to test the stealth cruise missile, General Dynamics AGM-129.

Another black aircraft program by General Dynamics known only as Project 100 is even more secret than all other stealth programs. Little is known about the project except that it is thought to be test flying out of Holloman AFB near Alamogordo, New Mexico, and only at night. A military radio net has been heard

on various frequencies in the Holloman area (see frequency list) and it may be the testing of the Project 100 aircraft.

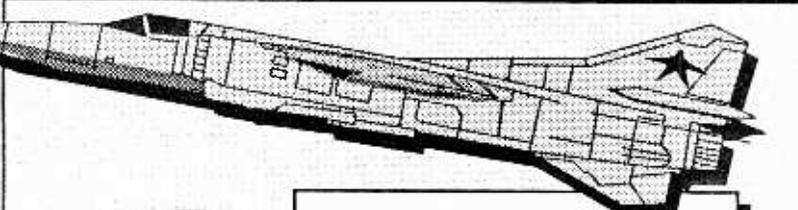
### Monitoring

Trying to monitor the secret air force is nearly as hard as catching a glimpse of them. Best bets are the HF and UHF frequencies of the flight test bases and aircraft manufacturers. Also, a good place to monitor would be SAC and TAC frequencies. Another good place to listen is air traffic control centers near test areas.

So get cracking, heat up your set, and maybe you'll be the first to monitor the top secret Aurora or F-19!



## Mig 23 Flogger





Origin: Mikoyan / Guryevich  
Soviet Union

Crew: 1

Type: Multi-role fighter

Range: 1,500 Miles

Max. speed: Mach 1.2

Base: Soviet Union and Red  
Eagle Squadron  
Tonopah, Nevada

Graphic By Teresa Ligon

## FREQUENCIES

Holloman AFB,  
Alamogordo, New Mexico

Approach 324.3 MHz UHF  
Departure 255.9 MHz UHF

Holloman flight test net/White Sands  
Primary 260.8 MHz UHF  
Secondary 264.9 MHz UHF

Other UHF frequencies monitored  
397.9, 353.6, 364.2, 376.1, 189.4, and 251.1  
HF link 9.023 MHz USB  
SATCOM links mentioned 262.925 MHz  
uplink  
297.525 downlink

Call signs heard: Sierra Papa, Sierra Pete,  
Ringmaster, Battlestaff, Guardian Papa,  
Dark Star, Dark Star Oscar

Roswell Air Field,  
New Mexico

Approach 239.6 MHz UHF  
Tower 272.7 MHz UHF

Military net  
Primary 305.6 MHz UHF  
Secondary 397.9 MHz UHF

Other frequencies monitored  
259.2, 305.6, 348.7

Nellis AFB, Nevada

Approach 279.7 MHz UHF  
Tower 324.3 MHz UHF  
Ground control 275.8 MHz UHF  
Clearance Delivery 289.4 MHz UHF  
ATIS 270.1 MHz UHF

Nellis Military Operations Area

Dreamland base 255.8 MHz UHF  
Sally corridor 343.0 MHz UHF  
Groom Lake  
approach 361.3 MHz UHF  
Watertown Strip  
approach 297.650 MHz UHF

Edwards AFB, California

Tower 269.9 MHz UHF  
Edwards command  
post(Conoform) 304.00 MHz UHF  
Edwards VHF  
ground control 121.8 MHz  
Edwards approach 318.1 MHz UHF

# uniden®

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Uniden Corporation of America has purchased the consumer products line of Regency Electronics Inc. for \$12,000,000. To celebrate this purchase, we're having our largest scanner sale in history! Use the coupon in this ad for big savings. Hurry...offer ends March 31, 1990.

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Get special savings on the scanners listed in this coupon. This coupon must be included with your prepaid order. Credit cards, personal checks and quantity discounts are excluded from this offer. Offer valid only on prepaid orders mailed directly to Communications Electronics Inc., P.O. Box 1045 - Dept. UN13, Ann Arbor, Michigan 48106-1045 U.S.A. Coupon expires March 31, 1990. Coupon may not be used in conjunction with any other offer from CEI. Coupon may be photocopied. Add \$12.00 for shipping in the continental U.S.A.

- Regency TS2-T** ..... \$259.95  
**Regency R1800-T** ..... \$239.95  
**Regency R1099-T** ..... \$99.95  
**Regency RH806B-T** ..... \$419.95  
**Regency RH256B-T** ..... \$294.95  
**Bearcat 200XLT-T2** ..... \$229.95  
**Bearcat 100XLT-T** ..... \$184.95  
**Bearcat 800XLT-T2** ..... \$229.95  
**Uniden HR2510-T** ..... \$229.95  
**Uniden HR2800-T** ..... \$274.95  
**Uniden PRO500D-T2** ..... \$29.95

### ★ ★ ★ VALUABLE COUPON ★ ★ ★

## Bearcat® 760XLT-T

List price \$499.95/CE price \$244.95/SPECIAL 12-Band, 100 Channel • Crystalline • AC/DC Frequency range: 29-54, 118-174, 406-512, 806-956 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz. The Bearcat 760XLT has 100 programmable channels organized as five channel banks for easy use, and 12 bands of coverage including the 800 MHz band. The Bearcat 760XLT mounts neatly under the dash and connects directly to fuse block or battery. The unit also has an AC adaptor, flip down stand and telescopic antenna for desk top use. 6-5/16" W x 1 1/4" H x 7 3/4" D. Model **BC 590XLT-T** is a similar version without the 800 MHz band for only \$194.95. Order your scanner from CEI today.

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**R4020-T** Regency 100 ch. handheld scanner ..... \$189.95  
**R4010-T** Regency 10 channel handheld scanner ..... \$114.95  
**R1800-T** Regency 100 channel mobile scanner ..... \$244.95  
**P200-T** Regency 40 channel CB Mobile ..... \$38.95  
**P210-T** Regency 40 channel CB Mobile ..... \$56.95  
**P220-T** Regency 40 channel CB Mobile ..... \$79.95  
**P300-T** Regency 40 channel SSB CB Mobile ..... \$137.95  
**P400-T** Regency 40 channel SSB CB Base ..... \$174.95  
**PR110-T** Regency "Passport" size radar detector ..... \$114.95  
**PR120-T** Regency "micro" size radar detector ..... \$144.95  
**MP5100XLT-T** Regency 40 Ch. marine transceiver ..... \$139.95  
**MP5101XLT-T** Regency 60 Ch. marine transceiver ..... \$159.95  
**MP8000XLT-T** Regency 60 Ch. marine transceiver ..... \$209.95  
**MP2000XLT-T** Regency handheld marine trans. .... \$189.95

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List price \$799.95/CE price \$299.95/SPECIAL 16 Channel • 25 Watt Transceiver • Priority The Regency RH256B is a sixteen-channel VHF land mobile transceiver designed to cover any frequency between 150 to 162 MHz. Since this radio is synthesized, no expensive crystals are needed to store up to 16 frequencies without battery backup. All radios come with CTCSS tone and scanning capabilities. A monitor and night/day switch is also standard. This transceiver even has a priority function. The RH256 makes an ideal radio for any police or fire department volunteer because of its low cost and high performance. A 60 Watt VHF 150-162 MHz. version called the **RH806B-T** is available for \$429.95. A UHF 15 watt, 16 channel version of this radio called the **RU156B-T** is also available and covers 450-482 MHz. but the cost is \$454.95.

### ★ ★ ★ Uniden CB Radios ★ ★ ★

The Uniden line of Citizens Band Radio transceivers is styled to compliment other mobile audio equipment. Uniden CB radios are so reliable that they have a two year limited warranty. From the feature packed PRO 810E to the 310E handheld, there is no better Citizens Band radio on the market today.

- PRO310E-T** Uniden 40 Ch. Portable/Mobile CB ..... \$83.95  
**PRO330E-T** Uniden 40 Ch. Remote mount CB ..... \$104.95  
**PRO500D-T** Uniden 40 Channel CB Mobile ..... \$38.95  
**KARATE-T** Uniden 40 channel rescue radio ..... \$53.95  
**GRANT-T** Uniden 40 channel SSB CB mobile ..... \$166.95  
**MADISON-T** Uniden 40 channel SSB CB base ..... \$244.95  
**PC122-T** Uniden 40 channel SSB CB mobile ..... \$119.95  
**PRO510XL-T** Uniden 40 channel CB Mobile ..... \$38.95  
**PRO520XL-T** Uniden 40 channel CB Mobile ..... \$56.95  
**PRO530XL-T** Uniden 40 channel CB Mobile ..... \$79.95  
**PRO540E-T** Uniden 40 channel CB Mobile ..... \$97.95  
**PRO640E-T** Uniden 40 channel SSB CB Mobile ..... \$137.95  
**PRO710E-T** Uniden 40 channel CB Base ..... \$119.95  
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**RD9XL-T** Uniden "micro" size radar detector ..... \$144.95  
**RD25-T** Uniden visor mount radar detector ..... \$54.95  
**RD500-T** Uniden visor mount radar detector ..... \$74.95

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List price \$509.95/CE price \$239.95/SPECIAL 12-Band, 200 Channel • 800 MHz. Handheld Search • Limit • Hold • Priority • Lockout Frequency range: 29-54, 118-174, 406-512, 806-956 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz. The Bearcat 200XLT sets a new standard for handheld scanners in performance and dependability. This full featured unit has 200 programmable channels with 10 scanning banks and 12 band coverage. If you want a very similar model without the 800 MHz. band and 100 channels, order the **BC 100XLT-T** for only \$189.95. Includes antenna, carrying case with belt loop, ni-cad battery pack, AC adaptor and earphone. Order your scanner now.

## Bearcat® 800XLT-T2

List price \$549.95/CE price \$239.95/SPECIAL 12-Band, 40 Channel • No-crystal scanner Priority control • Search/Scan • AC/DC Bands: 29-54, 118-174, 406-512, 806-912 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz. The Uniden 800XLT receives 40 channels in two banks. Scans 15 channels per second. Size 9 1/4" x 4 1/2" x 12 1/4". If you do not need the 800 MHz. band, a similar model called the **BC 210XLT-T** is available for \$178.95.

## Bearcat® 145XL-T

List price \$189.95/CE price \$94.95/SPECIAL 10-Band, 16 Channel • No-crystal scanner Priority control • Weather search • AC/DC Bands: 29-54, 136-174, 406-512 MHz. The Bearcat 145XL is a 16 channel, programmable scanner covering ten frequency bands. The unit features a built-in delay function that adds a three second delay on all channels to prevent missed transmissions. A mobile version called the **BC560XLT-T** featuring priority, weather search, channel lockout and more is available for \$94.95. CEI's package price includes mobile mounting bracket and mobile power cord.

## President® HR2510-T

List price \$499.95/CE price \$239.95/SPECIAL 10 Meter Mobile Transceiver • Digital VFO Full Band Coverage • All-Mode Operation Backlit liquid crystal display • Auto Squelch RIT • Preprogrammed 10 KHz. Channels Frequency Coverage: 28.0000 MHz. to 29.6999 MHz. The President HR2510 Mobile 10 Meter Transceiver made by Uniden, has everything you need for amateur radio communications. Up to 25 Watt PEP USB/LSB and 25 Watt CW mode. Noise Blanking. PA mode. Digital VFO. Built-in S/R/F/Mod/SWR meter. Channel switch on the microphone, and much more! The HR2510 lets you operate AM, FM, USB, LSB or CW. The digitally synthesized frequency control gives you maximum stability and you may choose either pre-programmed 10 KHz. channel steps, or use the built-in VFO for steps down to 100 Hz. There's also RIT (Receiver Incremental Tuning) to give you perfectly tuned signals. With receive scanning, you can scan 50 channels in any one of four band segments to find out where the action is. Order your HR2510 from CEI today.

## NEW! President® HR2600-T

List price \$599.95/CE price \$299.95/SPECIAL 10 Meter Mobile Transceiver • New Features The new President HR2600 Mobile 10 Meter Transceiver is similar to the Uniden HR2510 but now has repeater offsets (100 KHz.) and CTCSS encode.



**BC760XLT**  
800 MHz.  
mobile scanner  
SPECIAL!

### ★ ★ ★ Uniden Cordless Telephones ★ ★ ★

- XE750-T** Uniden Cordless Phone with speaker ..... \$99.95  
**XE550-T** Uniden Cordless Phone ..... \$79.95  
**XE300-T** Uniden Cordless Phone ..... \$69.95

### ★ ★ ★ Extended Service Contract ★ ★ ★

If you purchase a scanner, CB, radar detector or cordless phone from any store in the U.S. or Canada within the last 30 days, you can get up to three years of extended service contract from Warrantech. This service extension plan begins after the manufacturer's warranty expires. Warrantech will perform all necessary labor and will not charge for return shipping. Extended service contracts are not refundable and apply only to the original purchaser. A two year extended contract on a mobile or base scanner is \$29.99 and three years is \$39.99. For handheld scanners, 2 years is \$59.99 and 3 years is \$79.99. For radar detectors, two years is \$29.99. For CB radios, 2 years is \$39.99. For cordless phones, 3 years is \$34.99. Order your extended service contract today.

### OTHER RADIOS AND ACCESSORIES

- BC55XLT-T** Bearcat 10 channel scanner ..... \$114.95  
**BC70XLT-T** Bearcat 20 channel scanner ..... \$159.95  
**BC175XLT-T** Bearcat 16 channel scanner ..... \$156.95  
**R2086-T** Regency 60 channel scanner ..... \$149.95  
**R1099-T** Regency 45 channel scanner ..... \$109.95  
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**RFD4-T** Southeast Frequency Directory ..... \$14.95  
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**SRF-T** Survival Radio Frequency Directory ..... \$14.95  
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**CIE-T** Covert Intelligence, Elect. Eavesdropping ..... \$14.95  
**MFF-T** Midwest Federal Frequency directory ..... \$14.95  
**A60-T** Magnet mount mobile scanner antenna ..... \$35.95  
**A70-T** Base station scanner antenna ..... \$35.95  
**A1300-T** 25 MHz.-1.3 GHz Discone antenna ..... \$109.95  
**USAMM-T** Mag mount VHF ant. w/ 12' cable ..... \$39.95  
**USAKT-3/4"** hole mount VHF ant. w/ 17' cable ..... \$35.95  
 Add \$4.00 shipping for all accessories ordered at the same time. Add \$12.00 shipping per radio and \$4.00 per antenna.

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# Scanning for Poachers

by Bob Kay

Christmas was less than two weeks away. Inside their small split level house, Jack's wife, Susan, was reading by the fireplace. On the table beside her, a scanner was monitoring the state game warden frequencies. The lack of activity was reassuring. If it remained quiet, Jack would be home soon.

Outside, far from the warmth of the fire, tall barren trees were swaying in the numbing wind. High above, the nightly performance of glittering stars had been cancelled by a curtain of clouds.

Surrounded by the sleeping winter forest, Jack was sitting alone, briskly rubbing his hands together and wondering if he should call it a night. Normally, during rifle season, he would have written at least ten citations by now. But this two hour stake-out had been unusually quiet.

"Owl one, Owl one." The radio suddenly crackled.

Reaching under his jacket, Jack pressed the mike button on his hand-held and whispered, "Owl one, standing by."

"We got company comin' your way." came the reply.

On the nearby road, Jack saw the lights of the approaching pickup truck. From the passenger side of the cab, the narrow beam from a spotlight was piercing through the darkness and illuminating the edge of the woods.

As the truck passed his position, Jack watched as the spotlight located the fake, six point buck that he had positioned in the nearby field. Upon spotting the deer, the truck stopped and the cab door opened. Standing up, Jack adjusted his holster and unsnapped the leather keeper that held the 357 magnum in place.

Suddenly, a rifle shot shattered the night silence. As soon as the shot was fired, state police cars pulled across both ends of the narrow gravel covered road.

Then another shot was fired, followed by another! Radio silence was quickly abandoned. "Owl one, are you ok?"

"I'm ok. Multiple decoy shots, multiple decoy shots." Jack replied.

From ahead and behind the truck, red flashing lights were quickly approaching. Standing to the rear of the truck, Jack positioned himself near the safety of a large tree and identified himself. "State wildlife officer! Everyone out!"

As the two men stepped from the truck, they were quickly surrounded by both state police and state wildlife agents.

Wooden decoys or "plywood venison" is rapidly becoming a very effective method of capturing poachers. At this writing, over 20 states are currently using some sort of decoy program. Many of the remaining states are studying the program and are considering its implementation.

Scanning your state's decoy program or regulated hunting season can provide for some very exciting listening. Radio operations are usually carried out on the wildlife enforcement and state police frequencies. Generally, when the state police are involved, troopers will utilize handheld units that operate on wildlife enforcement frequencies.

But what about scanning for the actual poachers? Are poachers taking advantage of today's high tech equipment? Do poachers use two way communications? Can the profits from poaching provide sufficient income to warrant the purchase of radio equipment? And can the scanner enthusiast help to curtail poaching?

The answer to all these questions is a resounding "yes." From the east coast, across the Appalachians to Alaska, poaching in America is big business. A professional poacher can make upwards of \$50,000 per week. Sound unbelievable? It's not. In the far east, one gall bladder from a black bear can sell for several thousand dollars. Closer to home, the poacher can easily sell the hide, meat, and skull of the bear to eager buyers.

Sadly, the black bear is not the only



Real or fake? Only your local Wildlife Officer knows for sure.

**Table 1**

Look for poachers between the following frequency ranges:

- 27 MHz (CB band)
- 88 to 108 MHz (FM music band)
- 174 to 216 MHz
- 72 to 76 MHz
- 455 to 456 MHz
- 28.0 to 29.7 MHz

(This is the ten meter HAM band. Some manufacturers have sold hand-held units to the general public that operate within this frequency range.)

FM headsets and walkie talkies sometimes operate in the cordless phone frequencies:

- 46.6 to 47.0 MHz
- 49.6 to 50.0 MHz

Finally, don't overlook the itinerant and business frequencies. Professional poachers have been known to utilize programmable transceivers that are capable of operating on any of the following:

<u>Itinerant:</u>	<u>Business</u>
151.625	33.0 to 46.0
154.570	150.8 to 162.0
154.600	461.0 to 465.0
464.500	502.0 to 512.0
464.550	

# SEEKER-PC®

The Professional Solution for Communications Monitoring.

SEEKER-PC File Knobs Mode Utility Setup HELP FREQUENCY RANGE SCAN

TIME/DATE UTC: 02:18:59 Friday LOCAL: 17:18:59 Thursday 10-26-1989

UFD A: 15.315.000 AM UFD B: 9.535.000 AM  
MEM # 98: 9.580.000 AM STEPSIZE: 0.001.000

FREQ UP FREQ DOWN  
AM LSB RTTY CU USB FM

SIGNAL LEVEL: 128456789 CUTOFF LEVEL:  
DATABASE: INT-BRDC

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

Evaluator: AUTOSEEK 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): 2  
TIMES - START: 01:58 END: 04:00 MAX # OF LOOPS (0=Continuous): 5  
LOGGING - TAPE? (Y/N): Y PRINTER? (Y/N): Y DATABASE? (Y/N): Y

One of SEEKER-PC's four interactive control screens.

- Unattended Receiver, Tape Recorder, and Printer control.
- Supports multiple receiver models.
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animal pursued by poachers. In Oakland, California, fifty-two people were recently arrested and at least \$85,000 worth of illegally killed animals and organs were

seized.

An accurate profile of a typical poacher cannot be made. Poachers come from all walks of life. They can be doctors, lawyers, bankers, or the guy next door. Some poachers illegally take game for profit. Others do it on a smaller scale to keep their meat freezers well stocked.

Regardless of the reasons, poaching is a serious crime that is depleting our nation's wildlife. According to the Pennsylvania Game Commission, legal hunting seasons and regulated bag limits are controlled by a large number of variables. Some of these are the weather, the food supply, the number of previously reported kills, and even "road kills."

Last year, over 32,000 deer were killed on Pennsylvania's roadways. This figure does not include the legal kills made during the regular hunting season, nor does it include the thousands of deer that were taken illegally by poachers. But that's just the tip of the iceberg. Combine these figures with the shrinking natural habitat and it's a wonder that Pennsylvania even has a regulated deer season!



In the Far East, one gall bladder from a black bear can sell for several thousand dollars.

## Researchers Hope to Foil Bear Poachers

Poachers in the North Carolina mountains attempting to tune in black bears on their radio receivers might be in for a surprise.

Unless they have friends at NASA or access to James Bond's gadget cache, about all the poachers will get for their trouble is static.

In 1981, researchers from North Carolina State University began studying black bears in the Pisgah Bear Sanctuary, an 80-square-mile preserve in the Pisgah National Forest near Asheville. Dr. Roger A. Powell, an associate professor of zoology and forestry, has led the project from the start.

For the research, bears were captured in a trap designed to cause no injury. After tagging them and attaching a collar containing a radio transmitter, the researchers released the bears.

But the researchers learned from an informant in 1987 that the radio transmitters were helping black bear poachers. So the researcher team stopped installing the transmitters and removed them from bears previously caught.

Now, however, radio collars again are an essential accessory for the fashion-conscious bear.

Powell said the new transmitters are designed to make unauthorized reception all but impossible. Instead of transmitting continuously, Powell said the new collars will remain silent until they receive a preprogrammed digital code transmitted by the research team. When the team has ascertained the bear's location, another command is given to turn off the bear's transmitter.

"The collars are in a way foolproof for us," Powell said. "If a bear walks far enough away that his collar can't receive the signal to turn off, it will turn off by itself within a half hour."

What is more, each collar has its own code, only one collar is turned on at a time and all of the transmitters operate on different frequencies.

"There's no way the poachers will be able to break through the security," Powell said.

He said the goal of the long-term research project is to find out more about the behavior of bears and to determine whether the Pisgah Bear Sanctuary is helping to maintain a stable bear population, the purpose for which it was created.

*Clay County Progress*

So what can we do? Well, as scanner enthusiasts we can help to stop the illegal slaughter of our wildlife by doing what we do best -- listening.

Poachers have been known to use the following equipment: CB radios, FM walkie talkies, 10 meter Ham gear, and FM headsets. (See the accompanying chart for frequency ranges.)

Scanning for poachers is serious business. To do it right, a spectrum analyzer would definitely be an asset. Since most of us can't afford the luxury of such expensive equipment, dedicating several radios to the search mode is the next logical choice.

When you search for poachers, remember that there is no special season for poaching. It occurs year round. But the largest percentage of poaching occurs right before and during the regularly scheduled legal hunting season.

Poaching is a twenty-four hour, round the clock activity. While the favorite time seems to be after dark, poachers have been arrested in broad daylight, no more than a few hundred yards from the main road.

The sound of gun fire during odd times or in closed seasons is another good indicator of poaching operations. While it may not be poachers, don't let it slip by -- turn on your scanner and listen! You should also jot down the time of day, the direction of the shots and the number of shots that were fired. This information should then be passed on to your local wildlife officer.

Some poachers prefer to hunt alone, without the assistance of modern radio equipment. Readers living in rural areas should be on the lookout for vehicles that are parked along the roadside during odd times and during the closed hunting season. If a suspicious vehicle is spotted, take no action on your own. Simply write

down the license plate number and pass it on to your local wildlife agent.

If calling or writing to your state conservation officer with such seemingly insignificant information seems rather foolish, you couldn't be more wrong.

A wildlife officer will often compile information from many different sources in order to profile an area that may be under siege by poachers. Your letter or phone call may be all that's needed to confirm his suspicions.

Scanner enthusiasts who may be thinking of taking a more active role in helping to curtail illegal poaching activities are cautioned from doing so. Poaching in some areas of the country is an accepted family tradition. In these families, poaching may very well be the only income. And in many instances, the taking of a human life to protect a family poaching operation is not as uncommon as one might think.

As Jack pulled into his driveway, it was nearly 2 a.m. Entering the house, he expected his wife to be anxiously awaiting his return. She always worried about night stake outs and she had never fallen asleep until after he had returned safely. With snow falling heavily since midnight, he expected that she would be even more concerned.

There was also another problem. His brother had given her an early Christmas gift - a scanner radio. Jack wasn't quite sure how she would react to hearing the action as it actually happened.

Closing the front door behind him, the house was strangely dark. Only a few embers could be seen in the fireplace. On the kitchen table, there was a short note:

"Jack, heard everything on the scanner. Glad you're ok. Very tired, went to bed. Love, Susan."

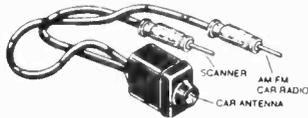


*If you have a story of how radio has played a part in your life or the life of your community, send it to Monitoring Times. If accepted for publication, we'll send you \$50.00. All stories should be true, real life events. Manuscripts should be approximately 1,000 words and must include at least one clear photograph.*

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ANT-4B

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(Magnetic mount with BNC Connector)

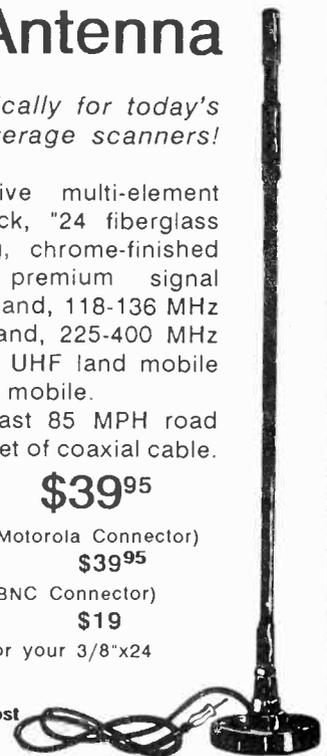
ANT-4W

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TPI threaded mount)

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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 1684 - MT

Enid, OK 73702

**THANK YOU** Some good advice from DXer and QSL-collector Kirk Allen of Ponca City, OK: "I recently received a very nice letter from a veri-signer at one of the more difficult stations to QSL. He was responding to a thank-you letter I had written him. He informed me that after answering many letters during the past several months, I was so far the only one who had written to thank him.

"I don't blame him for a bit of frustration. Granted, rising postage costs and time constraints make it difficult to send out thank-you notes to stations doing us the favor of answering our reports. But it seems the vast majority of QSLers don't bother to send thank-yous at all, even to rare verifiers.

"...Let's not depend on the other guy to make up for our failing to realize these are humans we're dealing with, not QSLing machines. I admit I don't send thank-yous to every station that verifies my reports, but I do try to hit the ones that are more difficult to verify---just one way I can silently help my fellow DXers, at least the ones attempting to verify the same station. We might find ourselves in a no-QSL situation eventually, and only because more of us didn't bother."

**ALBANIA** A West German who won a trip to Albania managed to visit Radio Tirana. Title of the identification signal is "With pickax in one hand, and rifle in the other," referring to the expulsion of the Soviets in the 1960s.

People at the station were quite open, accepted comments that their programming is too political. A new director wants to modernize the station, liven things up. The isolated German-language staff had never listened to foreign radio stations.

Very old Chinese and Soviet transmitters are 100 kilowatts maximum. Giant tape recorders and switching panels make the station look more like an electrical power control center, but everything seemed to work. (Wolf Harranth, Radio Netherlands *Media Network*)

**ANDAMAN ISLANDS** The test phase of All India Radio's 10-kilowatt transmitter at Port Blair is over. Now operates 0700-0850 UTC on 7180, 1030-1630 on 4760; plans to extend to mornings, 0010-0215 on 4760, 0230-0345 on 7180 (Manosij Guha, India, *RNMN*) Also on 4760 is Leh in north India, but in south India, Port Blair is heard well. 7180 is unreadable on the mainland, co-channel to Bhopal, thanks to the share-frequency policy. QSLs are coming from The Station Engineer, AIR, Port Blair 744101, Andaman Islands, India (Jose Jacob, *ibid.*)

**ANGOLA** An outlet of Radio Nacional de Angola was heard drifting around 5324.5, audible from 2115 or so; RNA vibraphone IS and news on the hour. Probably Luanda, formerly on 4953, 4926-27, and near here about five years ago (Bob Hill, MA)

**ANTARCTICA** The Armed Forces Antarctic Network, 6012 kHz, is operated by volunteers during the winter March-September, when mail arrives only once and never goes out. During the summer, October-February, AFAN is manned by its full complement of military broadcasters, when the McMurdo population soars to a thousand (Lt. M.R. Reed, USN, Operation Deep Freeze, with a QSL to Rowland Archer, NC)

**AUSTRALIA** December is Radio Australia's jubilee month; "Australia Calling" began on Dec. 20, 1939. That's now the title for a five-part documentary series tracing the development of Radio Australia. Dec. 17 will be an Open Day, public tours of the facility available, and displays of First Day Covers commemorating other stations' anniversaries. Australia and Norfolk Island were to issue

stamps for RA's jubilee in November. Be sure to listen Dec. 20 when RA hopes to welcome many important officials to the station, including the Prime Minister (Roger Broadbent, RA, *WRTH Downlink*)

An entirely introspective review of RA makes 30 recommendations, including: set up overseas relay; new site in northern Queensland; take over ownership of its transmitters from Telecom; drop the Japanese service on shortwave but retain the staff while studying more effective means to serve Japan. A major change in programming from December, to reflect priorities in the southwest Pacific.

ABC Managing Director David Hill says the state of RA transmitters is appalling and disgraceful. RA will get a new General Manager in early 1990, Richard Bronowski (M.B.A. Harvard, now ambassador to Korea), who feels RA's current affairs programming is excellent, but it spends far too much time playing pop music, much of it not even Australian. (*RA Communicator*)

**AUSTRIA** Radio Austria International has a new broadcast in Arabic, Sundays at 0505 to the Mideast, but also heard on the Canadian relay, 6015 (Ernie Behr, Ont.) Another mixup: at 0300 when 11925 was supposed to relay RCI, Austria's own news in German was heard, parallel to 13730.

**BRAZIL** Some Radio Nacional stations have been privatized with new names: on 4845, with much lower power, Radio Cabocla, Manaus; on 4875, Super Radio Roraima, Boa Vista; on 4915, Radio Difusora, Macapa (Antonio Ribeiro de Motta, Brazil, *RCI SWL Digest*)

Radio Timbira heard with sports at 0132 on 9952.2, second harmonic of 4976.1 (M. Molano, Spain, *Play-DX*, *RCI SWLD*)

**BYELORUSSIA** Radio Minsk has had a minor external service in White Russian and German, not easily heard in North America, but now we've found them in White Russian via Soviet transmitters also carrying Radio Vilnius, at 2330-2400 on 17690, 17665, 15180, 11675, 9610. Next step: English? Some lower frequencies may be used during winter.

**CANADA** Correction to last month: time for German from RCI, if it still exists, is 1730-1800 UTC. The winter schedule also shows 13650 as the only frequency on this band, for Europe, 1430-1700 (except Sunday), daily 1700-1800, 2000-2100, 2200-2230.

**CAPE VERDE** Onda Verde is the private relay station planned to start in mid-1991, with three 500 kW transmitters on Santiago at Cidade Celha near Praia. Letters of intent have been received from RFI, VOA and NHK; any major international broadcaster may apply. Revenues of \$8 million a year are expected, 5% of which plus taxes will go to the Cape Verde government, which inherits the entire facility after 25 years. The \$25 million project is being undertaken by Media Connexions International, Paris (Radio Nederland's *Radio Enlace* and *Media Network*)

**CAYMAN ISLANDS** Radio Caymans has a shortwave transmitter and has considered using it, but is not convinced this would benefit tourism (Kent Willis, NU/FT via *Radio Nuevo Mundo*) A number of other non-SWBC countries have been approached.

**CHINA** Radio Beijing carries outright commercials during its alternate-Friday business show, for Finnair and the Olympic Hotel. Li Dan, not heard since June, returned to Radio Beijing in October. A recent brochure gives these phone numbers at the station's English department: director, 868581-2274; audience relations, 868581-2760;

current affairs, 8013134; newsroom, 862691 (Bruce MacGibbon, *DX Spread*)

**COLOMBIA** Radio Patria Libre, clandestine, has been active lately between 6755 and 6760 kHz at 0030-0110 UTC (Ernie Behr, Hans Johnson; Brian Alexander, Robert Ross, *Fine Tuning*)

**COSTA RICA** Listen for our *World of Radio* show on Radio for Peace International at these times: Friday 2000; Saturday, 0030, 0430, 1930; Sunday 0130, 2230; Tuesday 2230; Wednesday 0300, 0700; plus additional late-night repeats, especially on weekends; on one, two or three of : 7375, 13660, 21566, 25945.

Newsfeeds from UN Radio have shifted to weekdays 2225, 0255--both followed by other UN programs, except on Tuesday, *Second Opinion*, a program from *The Progressive* magazine, is new on the schedule; Thursdays at 2300, UTC Fridays 0330. French appears at the same times on Monday-Tuesday, German on Friday-Saturday.

**CYPRUS** The other CBC airs an external service in Greek to the UK via BBC transmitters here, Friday, Saturday, and Sunday at 2215-2245 on 6180, 7180, 9535 (Bob Padula, *Australian DX News*)

**CZECHOSLOVAKIA** ITU regulations show three transmitter sites now for Radio Prague: Litomysl, near Brno; Rimavska with new 250 kW facilities near the Hungarian and Ukraine borders; and Velkekostolany in the center of the country. No out-of-band info is shown, but inband usage is: 6055, 9600, 9605, 15110, 21505 from L; 17840, 21705 from R; 9505, 9540, 15155 from V (Bob Padula, *ADXN*)

**DOMINICAN REPUBLIC** Radio Clarin planned to move from 11700 to 9950 and carry programs of the Cuban American Association, one hour daily, expanding to three. This would put it between two other Cuban clandestines, Radio Caiman on 9965 and La Voz del CID on 9942 (Marcel Rommerts, Holland, *DSWCI SW News*) But so far not reported on 9950.

**ECUADOR** Radio Rio Amazonas operates only on 4870 kHz, daily at 1100-1230 and 2100-2330 in Shuar: 1230-1800 and 2330-0400 in Spanish. Principal studio is in Macuma, inhabited exclusively by the Shuar. Spanish programs are fed through a repeater on Cutucu cordillera from Macas and Puyo, with offices at the latter. (Prof. Marco G. Diaz G., Gerente, in a letter to Rowland Archer, NC)



Radio Rio Amazonas

Although announcing 15155, 11775 and 9745, HCJB in the evenings is heard only on the first, and 9745 is blocked by Moscow, perhaps via Cuba (Mickey Delmage, Alta., *CIDX Messenger*) A live program admitted that two transmitters were down, waiting for replacement parts to clear customs.

Radio Iris has stations in Quito and Esmeraldas, but the shortwave outlet on 3380 seems now to be in Quito rather than Esmeraldas. Nothing could be learned from a visit to the station in Quito since I was given a bad welcome. (Hirotugu Nabeshima, Ecuador, *Radio Nuevo Mundo*)

**EL SALVADOR** Radio Venceremos, clandestine, has new high-power transmitter around 6295-6310, varying to escape jammer, at 0000-0130 and 0200-0330. Later it was around 6335, 6319, 6306 during one transmission; as strong as La Voz del CID but often missing for several days. The weaker Radio Farabundo Marti was on 6710.4 at 0130-0224, not daily (Ernie Behr, Kenora, Ont, *World of Radio*) Radio Venceremos hopes to add English newscasts in late 1989 or early 1990 (Anita Ocampo, US correspondent, via Wes Milczyn, *DX Ontario*)

**FINLAND** YLE Radio has started a "specialty on shortwave," weekly news review in Classical Latin, Sundays around 1455-1500 on 21550, 15400. Pronunciation differs from Church Latin, but it's odd to hear this with a Finnish accent (*World of Radio*)

**FRANCE** RFI's morning program in English to North America has shifted to 1230-1255, on 17650, 21635, 21645. Just before the top of most hours, listen for jazzy variations on *La Marseillaise* as a tuning signal.

**GUAM** High Adventure is still begging for money to complete its station here; but KHBN is registered for the current season at 1000-1600 on 9830, 2000-2400 on 9840, both 310 degrees to China. The location is Piti. (via George Jacobs & Associates) But King of Hope, or Voice of Hope--Asia, has bought time on Guam's existing station, KSDA, Monday-Friday at 0400-0500 on 15225 in Chinese, with English IDs (Yamada and Hayashi, Radio Japan *DX Comer*) It's 0400-0700, address Box 22228, Guam (Arthur Cushen, NZ, *OzDX*)

**HAWAII** LeSea Broadcasting, owner of WHRI in Indiana, has applied for a shortwave station here to cover the Orient (*DX-Kuuntelija* via Radio Australia)

**INDONESIA** Radio Republik Indonesia plans a massive upgrade in its regional shortwave services, probably taking several years starting in 1990. Registrations with the ITU show high-powered facilities at a great many regional cities and towns, up to 100 kW. Channels in the 49 meter band will be used during local mornings and evenings, 31 or 41 in the daytime. The external service plans to add another site, Biak, Irian Jaya with 300 kW to serve North America, Australia, New Zealand (Bob Padula, Radio Australia *DX Time*)

**ISRAEL** Voice of Peace is a popular offshore pirate operated by peace activist Abie Nathan near Tel Aviv. An Israeli judge has sentenced Nathan to six months in prison for meeting with Yasser Arafat and other leaders of the Palestine Liberation movement. He is the first Israeli to be jailed under a much-flouted anti-terrorism law banning unauthorized contacts with the PLO (Reuter via *Sweden Calling DXers*)

**ITALY** A communications bill before parliament has no provision for private shortwave broadcasting, so what will become of stations like AWR-Europe and IRRS? (*RNMN*) Due to political changes, Italian Radio Relay Service now accepts programs in eastern Europe languages, if they are purely religious or cultural/social, without political elements (Alfredo E. Cotroneo, IRRS) Pan American Broadcasting, religious program broker for WRNO, KUSW, Equatorial Guinea, is also considering using IRRS, and asking for reports direct to California on IRRS reception Sunday mornings on 9865 in Europe (via *Play-DX*)

**JAPAN** For the winter, Radio Japan replaces 11865 with 9505 in English to North America at 1400, 1500, 1700, 1900. The Gabon relay at 2100 and 2300 on 11835 ex-11765.

**KIRIBATI** An Austrian-based chain-letter scam, Commerce Control Inc., lists five "participants," all of whom seem to work at Radio Kiribati (Mike Nikolich, NU via *Radio Nuevo Mundo*)

**KOREA, SOUTH** Han, Hee Joo, chief of the Radio Korea English section announced she is expecting a guest from Radio Canada International to discuss relay exchanges. RK would like to use Korean, English and Spanish via RCI. Experiments will determine if this would be satisfactory for both (Toru Yamashita, Radio Japan *DX Comer*) Overheard at ANARCON: she was

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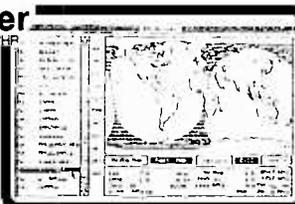
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# Shortwave Broadcasting

approached by another station with the same idea.

**KUWAIT** Radio Kuwait was excellent in English at 1800-2100 on 21675 while it lasted, including the all-important list of all-night pharmacies concluding the 1830 news. (*World of Radio*) Then it moved to 13610, and also missing from 11665 (Ernie Behr, Ont) Kuwait also using 13610 in Arabic around 0400, conflicting with Berlin.

**LITHUANIA** A proposal has been made for Radio Vilnius to start a foreign service in Russian to the Soviet Union, using its only shortwave transmitter, 50 kW. By 1992 a new 250-kW transmitter should be installed in Lithuania (BBC Monitoring)

**MALTA** Voice of the Mediterranean is easy to overlook due to the late hour, English at 0600 on 9765. But maybe it's worth overlooking with programs like *Psychology for Today*, Saturday at 0605.

**MARSHALL ISLANDS** WSZO, 4940 and 6070, confirms their shortwave transmitter is unserviceable. They left the air late in 1988 due to transmitter problems and a faulty antenna tuning unit. Replacements are still awaited (Olle Alm, *SW Bulletin* via *SCDX*)

**MEXICO** XEUI, 5980, Linares, has a DX program Saturdays at 2130 in cooperation with the Club DX Miguel Auza, in Zacatecas (Luis Antero Aguilar, *RNM*)

**Radio Trans Mundial**  
Bonaire, Antillas Holandesas



**NETHERLANDS ANTILLES** Though missing from printed schedules, Radio Transmundial has a weekly broadcast in Baniwa, a Brazilian Indian language, Saturdays at 0715-0730 on 800, 9515, 11885. The show helps maintain the tribe's cultural identity. The timing may seem too early, but in fact the men are getting home then after middle-of-the-night rounds of their rubber trees, armed with shotguns for protection against terrorists (Chuck Roswell, TWR, via Tim Hendel, FL) On the same transmission just after the 0700 news weekdays is *Modulo DX*, in Portuguese (*Bonaire Wavelengths*)

Radio Netherlands replaced 9505 with 11890 at 1030-1125, parallel 6020.

**NEW ZEALAND** Radio New Zealand International has this current schedule: 1730-2005 on 17730, 15485; 2245-0045, 0045-0230 Saturday and Sunday only, 0230-0630 on 17705, 15485; 0800-1105 on 9850, 11780. Still using 7.5 kW transmitters; the new 100 kW should be on by late January, probably on same frequencies.

**PAPUA NEW GUINEA** See last month; Radio Enga, 2410, should now be back with 10 kW. Modulation of news relays from Boroko can be quite low, but good modulation is typical of the new NEC transmitters elsewhere. Enga has lots of educational, agricultural programs, requests, messages like South American stations. It signs on and off with the national anthem, *O Arise All Ye Sons of This Land* (Gordon M. Darling, PNG, RA Communicator)

**PERU** New station on 4860 (nominal 4850) is Radio Comercial Educativa, at Peca, Bagua, Amazonas, at 1300-0300 with tropical music (Hirotugu Nabeshima, Peru, *RNM*)

**SAIPAN** Revised schedule of KHBI: transmitter #1: 0400 on 17780, 0800 on 9530, 1200 on 9465, 1400 on 9530, 1800 on 9455, 2200-2400 on 15405. Transmitter #2: 0600 on 17855, 1000 on 15115, 1200 on 15285, 1400 on 15385, 1800 on 17770, 2200 on 15275, 0000-0200 on 15445 (George Jacobs & Associates)

**SPAIN** Radio Nacional de Espana has been inserting brief talks in Quechua and Guarani, some UTC Sundays around 0355, on

9360, 9630, 15110, 15125 (Tim Hendel, FL *World of Radio*)

**SRI LANKA** SLBC is discontinuing its Japanese broadcasts, since the only announcer is emigrating to the USA (Hiromasa Fujii, Japan, *SCDX*)

**SUDAN** The English program mentioned last month at 1530-1600 on 9540 is also on 11625 (Bruce MacGibbon, OR, *DX Spread*) 11625 is a 10-kilowatt unit at Juba (Andy Sennitt, *RNMN*)

**TAIWAN** Voice of Free China's English hours via WYFR in Florida: 2200 on 11805, 9852.5; 0200 on 11740, 9680, 5950; 0300 on 9680, 5950, 5950 (two transmitters, one beamed north, one west); 0700 on 5950. From March 25, the 2200 broadcast should shift to 15440, 17845.

New Star Broadcasting Station, 8300, heard from 1300 to 1350 with Chinese music and numbers; also on 11429.6 until 1337, but not parallel (Ernie Behr, Kenora, Ont.)

**USSR** Mayak still carries program from different Soviet republics each weekday at 1430 on 12000, 12010 and others; heard with local IS and ID one Thursday from Kishinev; other days from Frunze, Dushanbe, Ashkhabad, etc. A good change to hear every local IS and ID (Ernie Behr, *World of Radio*)

**UNITED ARAB EMIRATES** English at 0330 from UAE Radio, Dubai, on new 15400, parallel 15435 and 17890 (Ernie Behr, RCI *SWLD*) After the news, we heard a feature on camel caravans called *Welcome to Islamic Traditions Through the Ages*.

**UNITED KINGDOM** The last few weeks of each year, starting Nov. 26 this time, BBC presents African Theatre, six new plays from a BBC competition: Sundays at 1500 on 21490, 17740, 15420, 11860; 1615 1715 and 1830 on 17880, 15400.

The AFRTS SSB relay was heard on 10537.80 at 2130 past 2400 with new programs (Chuck Bolland, FL, *World of Radio*)

**USA** You'd hardly know there was an earthquake by listening to Oakland's WYFR. But KGEI in Belmont/Redwood City was knocked off the air, when their Latin American antenna was damaged. Exactly one hour later they were back on 15280, still in Spanish but using their Asian antenna, with an account of equipment knocked around their studios, tapes on the floor, and some news taken from local radio and TV monitoring. But unlike the TV networks which cancelled all regular programming and commercials, KGEI soon went back to pre-recorded preaching. Too bad they didn't have a contingency plan to relay KCBS, KGO or KNBR! Maybe next time!

Radio Earth suspended its hour on WHRI, UTC Tuesday 0300 on 7315, 9495, so that production time could be spent instead on furthering its goal of acquiring its own transmitter. "Back shortly," says Mike Poulos, possible at 0200 instead.

The Israel Press Review on WWCR soon vanished; presumably it was a filler until time was sold.

Winter scheduling of *World of Radio* on WRNO: UTC Thursday 0200, 1630; Friday 0000, 0130; Saturday 0400; Sunday 0030, 2130. Before 2400 on 15420, after 0000 on 7355; and after 0400 on 6185. Ball games may cause delays until immediately after the game.

*World of Radio* can also be heard on domestic stations: WPKN, 89.5, Bridgeport CT, Sat at 3:30 pm EST; WHUS, 91.7, Storrs CT, Fri at 10 am EST; and WOI, 640, Ames IA, Sat at 6:30 am CST.

**VIETNAM** The clandestine, Vietnamese Resistance Radio broadcasts for one hour at 0200, 0600, 1000, 1400 and 2200, on 7300 kHz (BBC Monitoring via RCI *SWL Digest*)

Keep up to date with much more news about shortwave broadcasting in REVIEW OF INTERNATIONAL BROADCASTING and/or DX LISTENING DIGEST. Samples are \$2 each in North America, 7 IRCs or US\$3 each overseas airmail, US funds on a US bank. 10-issue subscriptions in North America costs US\$21, or both for US\$40, from Glenn Hauser, Box 1684-MT, Enid, OK 73702.

Also monitor Glenn Hauser's broadcasts: see Costa Rica and USA for *World of Radio*; and on RCI *SWL Digest*; see program guide and frequency section.

# Broadcast Loggings

Let other readers know what you're enjoying.

Send your loggings to **Gayle Van Horn**

P.O. Box 98, Brasstown, NC 28902

English broadcast unless otherwise noted.

## 0000 UTC on 15130

CHINA: Radio Beijing. Newscast coverage on Korea and celebrations of the founding of the People's Republic. Comments on plans for a game preserve to protect the panda's habitat. (Robert Hurley, Baltimore, MD) Monitored on 11755 kHz at 0842 UTC. (Frank Duggan, Phoenix, AZ)

## 0030 UTC on 15110

SPAIN: Spanish Foreign Radio. "Sports" report on soccer, golf, and Spain's annual Grand Prix auto race. "Education Report" on the school system in Madrid, and a discussion on the national anti-drug laws. --ed. (Robert Hurley, Baltimore, MD)

## 0040 UTC on 11820

CUBA: Radio Havana. Feature on Cuba's special schools for students with learning disabilities, and special Cuban music dedicated to Nelson Mandela. (Sam Wright, Biloxi, MS) Program "African Desk" also logged on 11820. (Bob Fraser, Cohasset, MA)

## 0100 UTC on 9575

ITALY: RAI. World news with national story on arms traffic in Italy being under investigation. (Bob Fraser, Cohasset, MA)

## 0110 UTC on 4970

VENEZUELA: Radio Rumbos. Spanish. Pop vocals and canned "Rumbos" ID. Time check for Caracas and romantic ballad from Julio Iglesias. (Sam Wright, Biloxi, MS) (Frank Duggan, Phoenix, AZ)

## 0125 UTC on 13730

AUSTRIA: Radio Austria International. German/English. Closing five minutes of German service to ID/frequency quote at 0130. English headlines introduce world news. (H.M. Thomas, Birmingham, AL) Heard on 9875 kHz at 0130 UTC. (John Carson, Norman, OK)

## 0235 UTC on 11840

PORTUGAL: Radio Portugal. Feature on Portugal travelogue, suffering from interference. (Frank Duggan, Phoenix, AZ) Heard on 9680 kHz at 2348 UTC. (John Carson, Norman, OK)

## 0308 UTC on 4934

KENYA: Voice of Kenya. Wrap up of national news and time check. Native African music and ID quote as "This Is the Voice of Kenya in Nairobi." --ed. (Frank Duggan, Phoenix, AZ)

## 0315 UTC on 5660

PERU: La Voz da Cutervo. Spanish. Musical variety of easy-listening pop tunes and instrumentals. ID/announcement break at 0330 UTC. --ed.

## 0327 UTC on 11550

TUNISIA: Radiodiffusion-TV Tunisienne. Arabic. Recitations past 0330. Audible with fair quality on parallel 17610 kHz. (Harold Frodge, Midland, MI)

## 0335 UTC on 4840

VENEZUELA: Radio Valera. Spanish. News briefs and "Radio Valera" ID, suffering from interference. (Frank Mierzwinski, Mt. Penn, PA)

## 0445 UTC on 7255

NIGERIA: Voice of Nigeria. Nigerian anthem and chime interval signal. Station ID, today's program lineup, and great African music program. (John Carson, Norman, OK)

## 0500 UTC on 15345

KUWAIT: Radio Kuwait. Sign-on at 0500 UTC with ID and frequency schedule. Poor signal quality for music program to include selection "Where Is the Love." (Mark Seiden, Coral Gables, FL) Arabic music program on 15505 kHz from 2015-2100 UTC. --ed.

## 0515 UTC on 4865

COLOMBIA: La Voz del Cinaruco. Spanish. Latin music program to ID/announcement break. (Frank Duggan, Phoenix, AZ) Monitored from 0210-0220 UTC. (Frank Mierzwinski, Mt. Penn, PA)

## 0518 UTC on 5030

COSTA RICA: Radio Impacto. Spanish. Latin music program with breaks for canned "Impacto" ID. Sign-off with ID and national anthem at 0600 UTC. (Brian Johnson, San Diego, CA)

## 0522 UTC on 15465

PHILIPPINES: Far East Broadcasting Co. Religious programming to include children's acapella hymn. (Frank Duggan, Phoenix, AZ)

## 0545 UTC on 6060

ARGENTINA: Radio Nacional. Spanish. Time pips signal and station ID. Easy-listening and Latin tunes. (Frank Duggan, Phoenix, AZ)

## 0545 UTC on 11160

UNITED KINGDOM: BBC. Alistair Cook's commentary on Sec. Baker's worldwide travels to address world problems, with emphasis on the impoverished citizens of Mexico City. (Robert Hurley, Baltimore, MD)

## 0556 UTC on 4915

GHANA: Ghana Broadcasting Corporation. English/Vernaculars. Native African music and station ID. International news in English at 0600 UTC. (Mark Seiden, Coral Gables, FL) (John Carson, Norman, OK)

## 0600 UTC on 11775

ECUADOR: H.CJB. "DX Party Line" with discussion on Radio Greenland, review of mapping software for Atari computers, and the effect of electricity rationing in Chile. (Robert Hurley, Baltimore, MD)

## 0600 UTC on 7189.5

NAMIBIA: Radio Southwest Africa. Afrikaans. Fair signal for choral music and ID at the hour. National newscast and ID repeat. Easy-listening music suffering deep fades. (Sam Wright, Biloxi, MS)

## 0935 UTC on 3310.3

BOLIVIA: Radio San Miguel (tentative). Spanish. Flute solos for ten minutes. Fair-poor audio level for music breaks, which might have included an ID. (Larry Van Horn, Gretna, LA)

## 1005 UTC on 4775

PERU: Radio Tarma. Spanish. Haunting Peruvian flute solos at tune-in. Selections continue to ID break at 1020 UTC. --ed.

## 1040 UTC on 3385

PAPUA NEW GUINEA-New Britain: Radio East New Britain. Pidgin. Male/female announcers with talk and intros for music. Station ID with additional chat. Improved audio at 1112 UTC. Subsequent daily checks found much improved signal. (Frank Mierzwinski, Mt. Penn, PA)

## 1330 UTC on 20690

FINLAND: Radio Finland. "Good Morning North America" show with host Eddie Hawkins. "Soldier Boy" music tune by the Helsinki Regimental Band. (Robert Hurley, Baltimore, MD) Audible on 15185 kHz at 0235 UTC. (Harold Frodge, Midland, MI)

## 1506 UTC on 15245

AUSTRALIA: Radio Australia. "International Report" features the state of Hawaii and its history. Audible on 15415/9580 kHz at 1058 UTC. (Hank Lukas, Plainville, NY) Monitored at 0100 UTC on 21740 kHz. (Bob Doyle, Shelton, CT)

## 1745 UTC on 13715

CZECHOSLOVAKIA: Radio Prague. Commentary on denouncement of U.S. intervention in Central America. Very poor signal. (Robert Hurley, Baltimore, MD)

## 1800 UTC on 15140

CHILE: Radio Sistema Nacional. Spanish. Announcer yak and ID as "Radio Sistema Nacional" at 1818 UTC. Station commentary and Latin music at 1830 UTC. (Frank Mierzwinski, Mt. Penn, PA)

## 1831 UTC on 5960

BRAZIL: Radio Guarujá. Portuguese. Sports coverage from usual hysterical announcers. Numerous local ads and station promos for "Guarujá." This station was no more than a few miles away, but surprisingly weak. (Harold Frodge, logged from Santos, Brazil)

## 1857 UTC on 15345

ARGENTINA: RAE. Spanish. Fair signal for Argentine tango music program to ID past 1900 UTC. (Harold Frodge, logged from Santos, Brazil)

## 1905 UTC on 15475

GABON: Africa Numero Un. English/French. Lively African pop vocals with canned promo, "more music from Africa No. 1." French DJ with up-coming program line-up, and intros for African highlife music. (Sam Wright, Biloxi, MS)

## 1936 UTC on 6005

CANADA: CFCX-CFCF. News items, auto commercials, and phone in calls for station contest. Bank promos, and IDs. (Frank Mierzwinski, Mt. Penn, PA)

## 2040 UTC on 13660

IRAQ: Radio Baghdad. Arabic. Middle Eastern music program to 2054 UTC. International news headlines, music bridge and topics from the "Iraqi Press Report." (John Bougerois, Thibodaux, LA)

## 2100 UTC on 11960

USSR: Radio Peace and Progress. World news and editorial on USSR/Afghanistan relations. Program on ecology with ID on the half hour. (Leonard Price, Annandale, VA)

## 2210 UTC on 6030

BRAZIL: Radio Inconfidencia. Portuguese. National news and IDs. Audible on parallel 6000 kHz. (Harold Frodge, logged from Santos, Brazil)

## 2212 UTC on 9900

EGYPT: Radio Cairo. Closing editorial comments and ID at 2214. Arabic music and additional editorial on Israel. (Mark Seiden, Coral Gables, FL) (Robert Hurley, Baltimore, MD)

## 2229 UTC on 9480

ALBANIA: Radio Tirana. Trumpet signal and ID. Tonight's program line-up, followed by text on the Albanian Party of Labor. News on relations of Albania and Germany with emphasis on the cultural arts. (Larry Van Horn, Gretna, LA)

## 2230 UTC on 13605

UNITED ARAB EMIRATES: Voice of UAE. Excellent signal for pop music program. Friendly DJ conducts phone interview with listener. (Leonard Price, Annandale, VA) (John Carson, Norman, OK)

## 2230 UTC on 9445

TURKEY: Voice of Turkey. Feature on "Masterpieces in Turkish Museums," featuring Roman mosaics exhibited in Istanbul. (Bob Fraser, Cohasset, MA)

## 2240 UTC on 4000

CAMEROON: CRTV-Bafoussam. French/English. Fair signal for male/female announcers. Highlife and pop vocals to 2300. Sign-off routine with IDs and national anthem to 2304 UTC sign-off. Rechecked at 0440 UTC: found French programming audible to 0515 fade out. Hope they'll QSL my report! (Mark Fisher, Memphis, TN) If they do, don't forget the "QSL Report!" --ed.

## 2305 UTC on 3316

SIERRA LEONE: Sierra Leone Broadcasting Service. Fair signal quality for newscast. Station ID/frequency schedule at 2315 UTC. National anthem to 2316 sign-off. Fair-poor reception on subsequent daily checks. --ed.

## 2315 UTC on 6025

DOMINICAN REPUBLIC: Radio Amanecer. Spanish. Musical variety of lite pops, easy-listening and Spanish instrumentals. Station ID and local interest announcement. (Larry Van Horn, Gretna, LA)

Larry Van Horn

P.O. Box 98  
Brasstown, NC 28902

## Croughton Keeps its Secrets

As most shortwave enthusiasts know, AFRTS shortwave broadcasts were removed from the air last year. In addition, the satellite feeds of AFRTS TV and Radio programming are now scrambled. About the only way to hear AFRTS programming now is to listen to the RAF Croughton, England, MUX Single Sideband feeder scattered throughout the band.

Now comes some interesting information from Donald Tomkinson that these broadcasts might not be coming from Croughton as frequently listed in loggings. Donald comments:

"I have been reading with interest for the past several months about RAF Croughton transmitting AFN/AFRTS. I do not think this is so. Several years ago I lived about five air miles from RAF Croughton and did not pick these transmissions up. Of course, that was before the demise of the AFRTS HF system. (Editor's note: These feeder broadcasts have been on the air for several years.)

"Also, all the antennas on the "farm" are directional except for one or two discons. So if these transmissions are coming from Croughton, where are they being sent to?

"Now I live 100 miles from Croughton. The only frequencies I have been able to receive concerning AFN/AFRTS are on 10537.6, 13651.2, and 16041.2 kHz, all in LSB. The problem is that the signal level is very low; in fact, they won't budge the S-meters off the peg here. Also, if they were coming from RAF Croughton. I would expect a time delay as compared with the AFN outlets in Germany on 873, 1107, and 1143 kHz, but there are none.

"Even with a satellite feed (there is an 80 foot dish at RAF Croughton) you would still have the delay as the transmissions are coming from different places.

"The other odd thing is that the signals are not affected by propagation, at least from my location. This seems to contradict that they don't come from Croughton. They could be coming from Germany, but I would expect some propagation effects on the frequencies involved.

"The programming on these frequencies matches the AFN outlets in Germany only during news and sports. It appears these transmissions are used as a "network feed" (they are in fact a network feed --ed.) and possibly rebroadcast for time shifting. It would be interesting if some amateurs who have beams could take a bearing and compare them. I would also like to know what kind of signal level you folks in the States are receiving these transmissions. They are listenable here but are at very low level signal strength.

"I have not been able to pick up any FDM (all readers note this --ed.) on these frequencies either. Only RTTY and FAX from CFH Halifax about 3 kHz down in frequency.

And Donald is not the only one noting RAF Croughton this month. Check this out from Chris in the UK:

"I live about two miles from the transmitters at RAF Croughton. All the USAF and U.S. Embassy (emphasis added) transmissions are pretty loud here. In fact KRH50 -- U.S. State Department Radio, London -- puts up key clicks all across the spectrum. Can I complain to Congress?"

Well, Chris, I don't think Congress would have a sympathetic ear but I and the rest of our readers would like to know more of what you are hearing, especially concerning Don's report, and if KRH50 is definitely coming from Croughton.

How about it Mr. UK; any comment on these two reports?

## The New Air Force One

Bill Such now reports that a new Air Force One is expected to be delivered this month from Boeing to the 89th MAG at Andrews AFB. According to Bill, once delivered, the aircraft will carry the designation VC-25A. The civilian equivalent of a VC-25A is the Boeing 747. Listeners are invited to report any usage of the VC-25A designation to this column.

## Hurricane Season Wrapup

The 1989 hurricane season just ended last month and Utility World regular, Jim Boehm, in San Antonio has some interesting closing thoughts on monitoring the big tropical monsters.

A major change that all readers should know is that the Central Gulf Hurricane net that used to meet on 7268 kHz is now using 7235 kHz. During a Gulf of Mexico hurricane, this is a very important information source to monitor.

Jim also uses the CW weather broadcast from NAVCAMSLANT and the USB broadcast from the USCG COMSTA NMN-Portsmouth, Virginia, to track the hurricanes. He says that as they approach land, the ham radio networks provide more timely information than other sources.

Another interesting tip from Jim is that he also tunes in to AM broadcast stations along the Gulf coast for local affected area information. 50 kW KTRH-740 kHz in Houston and WOAI-1200 in San Antonio, Texas, are designated disaster stations for those areas and are easily heard.

Jim, you can also add WWL-870 in New Orleans to your list if the hurricane strikes the central Gulf coast as they carry extensive coverage when areas around my location in Louisiana are threatened.

John Combs noted that, during Hurricane Hugo, WAPE-690 in Jacksonville received authorization from the FCC to extend their daylight power and antenna arrays after sunset to help the affected areas in the Carolinas receive hurricane information. He also said that amateur radio operators from the Orange Park and Jacksonville areas were in the studios providing information to the station to assist in that effort.

Speaking of extending hours, Jim also mentioned that after sunset, stations in the storm's path are permitted by the FCC to continue broadcasting with their daytime power and thereby be heard when they otherwise wouldn't be heard, thus providing useful information (and DX too!).

Utility monitors that regularly tune in these big storms might want to file away these helpful tips for next season's round of hurricane monitoring. Many thanks to John Combs and Jim Boehm for these interesting tips.

## HMC ID'ed

Long time Ute World reporter Rick Matthew in Vancouver, British Columbia, Canada, passed along an answer to a recent unid in the logging section of this column. Rick says that the call sign HMC belongs to Chongjin Radio in Chongjin, North Korea. Rick also mentions some other calls that were recently heard including: HMZ-Pyongyang Radio and HMU-Wonsan Radio, North Korea. These are all coastal stations in the maritime bands.

## SELCAL List -- Yes!!!

I have learned from our readers over the last few years that all you have to do is ask. Someone out there usually has an answer to just about anything. Grahern Wietevr (I hope that is spelled right, the handwriting was hard to read) says that "yes, a SELCAL list for aircraft is available." The booklet is titled *High in the Sky* and it is published by the Manchester Aviation Society in England.

It is available in most aviation shoppes in England and stateside aviation monitors might wish to try the following address to receive a copy of this book: The Aviation Society (TAS), 15 Mountbatten Close, Unsworth, Bury BL9 8PW England.

Grahern is also interested in hearing from anyone in the U.S. that can supply him with channel listings for the U.S. military. He has accumulated a lot from the UK and would be happy to trade material. He also has a stud list (as they are called in the UK), airfield frequencies, discrete frequencies, air-to-air refueling channels, call signs, and squelch codes to trade. You can write to him at Rock Cottage, Lanslau Road, Brimsconibe, St Roud GL5 2QF England.

## Rescue Monitored by MT Reader

As always, *MT* readers are usually the first to hear the action and a recently published incident involving a private pilot was no exception.



Most of you remember seeing on the evening news about the private pilot flying down the east coast who passed out in the cockpit of his small plane. Well, one of our listeners in Miami, Mr. CFE, caught the whole action on his shortwave radio within the utility bands. Here are some excerpts from his loggings:

"5696.0 USCG Rescue 1503, AF Rescue 824, USCG COMSTA Miami, USCG Miami Operations and USCG Rescue 1494. Rescue 1503 and 824 abreast of the aircraft with the unconscious pilot.

"Aircraft originally enroute Rocky Mount, North Carolina, from Washington, DC. Aircraft on autopilot skirting eastern U.S. Aircraft ran out of fuel and spiraled into the waters off Eluethera Island in the Bahamas at 1630 UTC. Air Force jumpers were deployed from AF C-130. Pilot pulled from water by CG 1494, an H-3 helo, and flown to Nassau for subsequent USCG Med Evac flight to Miami, Florida. Monitored during the time period 1545-1930 UTC.

"8984.0 USCG Rescue 1503, AF Rescue 824, USCG COMSTA Miami working rescue of unconscious pilot. See 5696.0 preceding this, and also AF Rescue 824 working through the CG with a phone patch to CBS radio in regards to the recovery of the pilot from the downed aircraft at 1830 UTC."

It just goes to show that you never know what you are going to hear in the utility bands. Being at the right place at the right time can be very rewarding. Thanks, Mr. CFE.

## Coronet Article Arrives Just in Time

Mr. DRT in Pepperell, Massachusetts, writes:

"Thanks for a most interesting and informative article regarding USAF 'Coronet' deployments in the Utility World column. Your article seems to have been written at a very appropriate time for me considering the fact that I am listening

to a 'Coronet' mission as I write this, not more than three days after getting my August issue of *MT*. Your article is most useful right now as I sit here recording the 'JJ' reports from 'Head Dancer' and decipher them using the information presented in your column.

"It was quite accidental that I even intercepted the 'Coronet' mission I am now monitoring since they are operating on 18003 kHz LSB which I assume is a discrete frequency for the mission."

Well, thanks, Mr. DRT; we aim to please here at *Monitoring Times*. Speaking of "JJ" reports, reader Robert H. Langley of Atlanta, Georgia, says that his August issue was his first copy of *MT* and the "Coronet" segment also "caught his eye." His question, however, relates to the Strategic Air Command on HF. He has noticed that they often give messages to relay in a similar format to the ones I described as "JJ" reports.

"I was wondering if you could tell me if SAC messages are formatted the same as the ones you described?"

Yes, Robert, some of the SAC messages that are passed from aircraft are in fact the same as the "JJ" format used by the "Coronet" missions. Take a piece of paper when you hear some of these aircraft reports on SAC and try plugging them into the "JJ" format; you might be pleasantly surprised at the results.

## Soviets Revisited!

Todd K. Shideler would like to pass along a correction to one of our recent logs in the September issue of this column. A listing was sent for the frequency 12521.4 stating that the Soviet reefer ship SHKVAL (UYGV) was providing position reports off the coast of Liberia.

He further says that in actuality, the SHKVAL is a Soviet naval guided missile corvette. It belongs to the Nanuchka I class, and has a maximum speed of 30 knots. These ships, which are reported to be sea-going vessels, carry a number of weapons including sea-launched nuclear cruise missiles.

Besides other sources, this information is contained in the *Guide to the Soviet Navy*, 4th edition, by Polmar, and in the 2nd volume of the *Neptune Papers*, put out by the Institute for Policy Studies in Washington, DC.

I would like to thank you, Todd, for passing that along and I am flattered by your letter and hope that your group continues to enjoy Utility World. How about some HF information from you all sometime?

## General Mailbag

Bob Perkins in Artesia, New Mexico, wrote to say he enjoyed the segment on the USAF Regional Broadcast we did recently. He did have a question about decoding the RTTY meteo information he is hearing on 11120 kHz from Elk Horn. "Can you recommend a book that covers the abbreviations and formats used in these broadcasts?"

Certainly, Bob. You need to get a copy of the *Air and Meteo Code Manual* published by Joerg Klingenfuss. It is available from several of our advertisers in *MT* that carry utility books. It should cover about any question you would have on Meteo codes and abbreviations.

Finally, Paul DeWitt would like to know if any of our readers have any frequency information on Little Rock/Jacksonville AFB, Arkansas. If so, he would like for you to drop him a line with that information. You can write to Paul at 2402 Eloise Circle, Pine Bluff, Arkansas 71601.

Well, that's it for this month; time to see what you are hearing in the Utility World and a very Happy Holiday season from the Van Horn Family.

## 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		

- 2230.0 Malta maritime radio service heard at 0805 in USB. (T Chircop, Malta) *Welcome to the loggings column, hope you report often.-ed.*
- 2514.0 Halifax Coast Guard Radio working UTMQ with phone patch traffic at 0115 in USB. (Bob Doyle, Shelton, CT)
- 2625.0 Malta maritime radio service in USB at 0825. (T. Chircop, Malta)
- 2670.0 NMF2-USCG Woodshole, Massachusetts, working F/V Alpha Omega regarding an injured crewman at 0030 in USB. Also heard NMB-USCG Charleston working the USS Mt. Baker-NZHN with a SAR at 0251 in USB. (John Henault, Abington, MA)
- 2694.0 USCGC Cape Horn working CG Group Moriches, New York, with SAR traffic in USB at 0353. (Battles, New Hampshire)
- 4640.0 Zulu 39 working Lima 15 with communications in USB at 0440-0447. US Army convoy with traffic about K-rations for 780 men, etc. Somewhere in South Dakota. Other units heard included L8T56, K2W56, X6E. (Battles, NH)
- 4651.0 Marion Lake working Switcher Ops in USB at 1348. Anyone got any ideas on this one? (Battles, NH) *Not me, Bill. --ed.*
- 5054.0 Female 3/2 digit numbers station heard at 2315. Also monitored simultaneous transmission on 4600, but weak. continued until 2335. (Robert Hurley, Baltimore, MD)
- 5320.0 USCGC Point Arena (WPB-82346) working USCG group Hampton Roads, Virginia, in USB at 2350 to test HF "Green" scrambled communications. (Battles, NH)
- 5696.0 USCG RADSTA Kodiak, Alaska, with a cutter or aircraft working base saying "We haven't found him yet" in USB. (Frank Duggan, Phoenix, AZ) *Time, Frank.-ed.*
- 6535.0 Airliner Aeroflot 8353 bound for Rio de Janeiro heard in USB at 0628 working Dakar, Senegal, with a position report over RAKUD and an estimate for POLDA. (Halstead, WV)
- 6683.3 Fishing vessels working each other, no call signs, in USB at 0140. USMC frequency is 6686 -- kind of close, these guys should buy a Grove Frequency directory. (Battles, NH) *Yeh, buddy, where is the FCC when you need them. --ed.*
- 6750.0 Head Dancer Metro working Trenton Military with phone patch to Raymond Metro in USB at 0423. Trenton advised to change freq to 6705 for AWACS frequency. The aircraft gave weather for stations 1-16 in succession over several minutes. (Battles, NH)
- 6757.0 5 Alpha November calling PITKIN? in USB 0341. Sounded like RAF comms. (Battles, NH)
- 6761.0 Several tactical call signs heard on this SAC's channel Quebec at 0518 in USB. (Thomas Michols, Indianapolis, IN) *Welcome to the column, Tom, hope you check in often.-ed.*
- 6766.0 Hotel 70 working Hotel 72 in USB at 0327. Listed as US Army by Grove Directory. (Battles, NH) *Probably.-ed.*
- 6978.0 Female 3/2 digit numbers broadcast heard at 0248. (Hurley, MD)
- 7831.0 Thrasher working Wash Tub in USB at 0415. Said testing Pacific Radio net on Whiskey 105. (Battles, NH)
- 7904.0 Single letter CW beacon "K" heard at 1710. (Chircop, Malta)
- 8404.0 UYEH-Soviet trawler Dmitriy Povramovich heard in CW at 0510 working OBY2 with a ship message south/82.2 west. (Halstead, WV)
- 8418.0 UTDX-Soviet spaceflight tracking ship Kosmonaut Pavel Belyayev sending a service message for UKFI-Kosmanaut Yuri Gagarin indicating docking at Las Palmas, Canary Islands, in CW at 0308. (Sam Ricks, Philadelphia, PA)
- 8420.0 A7EH-Qatar registered M/V Trident Emerald monitored sending a position report for OBC-3 Callao Naval Radio, Peru, in CW at 0047. (Ricks, PA)
- 8500.0 ROT-Moscow Naval Radio, USSR, with CQ CW marker at 0227. (Dix, NY)
- 8588.8 XVS-Ho Chi Minh City Radio, Vietnam, with a CW V marker to CQ at 1423. (Ken McKenzie, N. Delta, BC)
- 8616.0 HAR-Budapest Naval Radio, Hungary, heard at 0358 calling CQ in CW. (McKenzie, BC)
- 8719.1 USS Apache in USB at 1300 with an urgent message to an unid station in USB. (Larry Williams, Greenville, SC)
- 8879.0 Air Mauritius 842 working Beira, Mozambique at 1407 in USB. Beira very faint. At 1409 working Mauritius Radio with a position report and SELCAL (EGFP) check. (McKenzie, BC)
- 8889.0 The Steven S calling the Atlantic Vigor at 0342 in USB -- no reply. (Williams, SC)
- 8965.4 NMN-USCG Portsmouth, Virginia, talking to Geronimo at 1145 about the condition of a woman picked up on a raft. Asked about type of raft and their ETA to Bermuda. (Dean Kraft, Hiawatha, IA)
- 8975.0 Australian Air Force (number not heard) in USB at 1159. Said the aircraft was on ground in Sydney. (Williams, SC)
- 9017.0 Agreeable working Day Coach in USB at 1245. Requested he move to frequency Bravo 1111. Looks like we have another new freq ident, Larry. (Battles, NH) *Yes, I think so, Bill. --ed.*
- 9023.0 Bandsaw Gulf working Backburner at 1355 in USB with scrambled traffic, was able to listen in to frequency setup on UHF 364.2 and modem traffic on UHF 318.4. (Doyle, CT) *Bob, what mode did it sound like on 318.4?-ed.* SAM 86972 working Trenton Military with phone patch traffic in USB at 1544. (Battles, NH)
- 9032.0 Architect (RAF Strike Command) with NATO colors weather broadcast at 0330 in USB. (Battles, NH)
- 9042.5 Female English four figure number station under the CW "K" beacon, both gone at 1559. At times this "K" beacon puts an extremely strong signal here. (McKenzie, BC)
- 9320.0 SAM 31683 working Andrews in USB at 1340. (Battles, NH)
- 9996.0 RWM-Moscow Standard Time and Frequency station, USSR calling CQ (*weird-ed.*) at 0239 in CW then into time pips. (Doyle, CT)
- 10018.0 Delhi Aeradio working Bombay Aeradio with the ETA of an Air India flight at 1401 in USB. (McKenzie, BC)
- 10066.0 Colombo Aeradio, Sri Lanka, calling, then working, Madras Aeradio, India with positions and ETAs of unid aircraft. (McKenzie, BC)
- 10078.0 Frankfurt Aeradio working Condor Papa Oscar at 0100 in USB with phone patch in GG. (McKenzie, BC)
- 10390.0 Oscar 4 Whiskey calling Foxtrot 3 Whiskey and Foxtrot 3 Alpha for a radio check. Foxtrot 3 Alpha acknowledged at 0540 in USB. (Hurley, MD)
- 10478.0 Charlie Papa calling Delta Oscar at 0050 in USB. Also heard CP calling HS, NM, OT, and JQ for radio checks. (Doyle, CT)
- 11180.0 Unid Chinese stations in two-way contact in USB at 0019. (Normally a SAC/Andrews frequency here.) (Battles, NH)
- 11201.0 Delta 3 Juliett working CG COMSTA Miami in regards to Bravo 36 lost communications in USB at 2355. (Battles, NH)
- 11226.0 Ben Hogan working Hedge Row and also called Mama Bear in USB at 1806. (Battles, NH)
- 11255.0 Mike 3 Alpha working Overwork with authentications in USB at 0206. (Battles, NH)
- 11273.0 German female numbers station heard at 1910. (Chircop, Malta)
- 11281.0 Golf 5 November working unid station in USB at 1521, bad transmitter, terrible modulation. (Battles, NH)
- 11300.0 Sana Aeradio, Yemen Arab Republic calling Jeddah Radio, called three times with no reply at 1456 in USB. Also heard Addis Ababa Radio, Ethiopia, working Yemen Air 5228 and tells 5228 to go to 7595. Nothing heard on 7595. (McKenzie, BC)
- Tripoli Aeradio, Libya, working Sabena 495 at 0053 in USB with a position report and SELCAL check. (Doyle, CT)
- 11427.0 SIK4 from MRY8 and J3WW from MRY8 in CW at 0204-0212. (Dix, NY)
- 11494.0 Air Force One working Andrews AFB in LSB at 1455 with traffic. Also heard Shad Rack working Pork Fry on Sierra 311 at 0500. At 0506 heard Ambush working Slingshot. Must be a multi-use frequency by Mystic Star/SAC/DEA/Customs agencies. (Battles, NH)
- 11555.0 Unid station working Lobo 145 with license plate traffic, also noted data burst in USB at 0334. (Battles, NH)
- 12522.5 UMWZ-Soviet icebreaker Nil Otto Schmidt with TESAC weather

observations for the North Sea, Murmansk, and Moscow Hydromet weather centers at 0311. Ship located off Cape Farewell, Greenland, in the Labrador Sea. (Ricks, PA)

12605.0 Soviet T/H Ladoga 8 (no call sign heard) in CW at 0547 with a service message for Leningrad. Message advised a QTO (left port) of Antwerp on May 31 at 0900 bound for Rostock (GDR). (Halstead, WV)

12621.0 UOTV-Soviet M/T Lenino heard in CW at 0539 working NMN with an OBS message for Washington, DC. Located 23.6 north/69.7 west. (Halstead, WV)

12627.0 UGSW-Soviet TK Lyublino heard in CW at 0624 working ULKA with three messages for Nororossiysk. Santiago (Sanlago de Cuba?) mentioned in text. All messages signed Qablenko. (Halstead, WV)

12678.0 9MG-Penang Radio, Malaysia, heard at 1049 with a CQ CW marker. (Dix, NY)

12698.0 Uniform 7 Quebec calling Sierra 5 Bravo at 1412, no reply. Still calling at 1518 in USB. (McKenzie, BC)

12707.0 9VG34-Singapore Radio, Singapore, with V CW marker at 0955. (Dix, NY)

12714.0 Male English operator with calls like Beer-Gravy-Bookshelf and Pitcher calling out distances like 20 miles out, 20 miles to shore, etc. Some of the units had that high-pitched whine you hear from aircraft. (McKenzie, BC)

12750.0 CWA-Cerrito Radio, Uruguay, at 1102 in CW with a CQ marker. (Dix, NY)

12781.5 9MB-Penang Naval Radio, Malaysia, heard at 1105 with a CW V marker. (Dix-NY)

12782.0 9MB-Penang Radio, Malaysia, heard using a V CW marker at 1348. (McKenzie, BC)

12811.3 HZY-Ras Tannurah Radio, Saudi Arabia, sending a CW CQ marker at 1426. Heavy QRN and QRM. (McKenzie, BC)

12836.5 XDA-Mexico Radio, Mexico City, with CW CQ marker at 1433. (Dix, NY)

12967.0 UJE-Moscow Naval Radio, USSR heard in CW at 0443 working the Soviet vessel UFCU. (Halstead, WV)

12970.0 URL-Sevastopol Radio, Ukraine SSR heard in CW at 0427 working the Soviet vessel UFCU. (Halstead, WV)

12973.0 UWY-Kaliningrad Radio, USSR, heard at 0509 in CW with a pre-taped message for the Soviet vessel UUXI. Krymskie Gory mentioned in the address line of message and the port of Klajeda (Latvia) mentioned in text. Krymskie Gory (Crimean Mountain?) Possible name for the vessel UUXI. Tanker Plankton also mentioned. (Halstead, WV)

12998.0 SXA36-Spata Atlikis Naval Radio, Greece, heard with a CW CQ marker at 0205. (Dix, NY)

13042.5 FUV-Djibouli French Naval Radio at 0208 in CW with a V marker. (Dix, NY)

13068.5 TFA-Reykjavik Radio, Iceland, sending a CQ CW marker at 1357. Very "chirpy" tone noted. (McKenzie, BC)

13205.0 Berne Aeradio, Switzerland, working KLM 561 at 2300 in USB with phone patch traffic. In English and Dutch. (Doyle, CT)

13247.0 WAR46 with Sanctify at 1901 in USB. Traffic with various aircraft/stations entering and exiting the net, many call signs all working Sanctify and Railbird. Examples: Sled Dog, Owlhoot, and Tabletop. (Mr. Anonymous, Oklahoma City, OK) *Xray 905 is 11226-ed.*

Phinney (Finney?) working Croughton RAF in USB at 1831 on Whiskey 109. (Battles, NH)

13312.0 Freemason working Slingshot at 2308 in USB with vectors to an airborne target. (Doyle, CT) *US Customs channel-ed.*

13542.0 Unid station sending coded meteo and weather in English for various locations in southern Africa. RTTY 425/75N at 1338. I suspect this is Pretoria, South Africa, on a new frequency. (Blair, CA) *Probably so, Art-ed.*

13563.0 3MA22-Taipei, Taiwan, heard at 1010 with CNA news in English. RTTY 850/50N. (Blair, CA)

13651.3 Armed Forces Radio broadcast feeder with sports broadcast at 0159 in LSB. (Battles, NH)

14510.0 RIC75-Moscow, USSR, heard at 1403 with TASS news in English. Off at 1415, back on at 1420 with RYs. RTTY 425/50R. (Blair, CA)

15015.0 MAC 17020 calling Incirlik GCCS AFB, Turkey, for an HF radio check in USB at 1718. (Battles, NH)

16041.4 Armed Forces Radio broadcast feeder in LSB at 0159 via Croughton.



*Neal Perdue of Alabama says don't scoff at "armchair DXing." Next to his chair he keeps a modified Sony ICF-6500, an AEA MBA-RC RTTY/Morse decoder, tuner, audio filter, speaker, clock and tape recorder -- "a lot of performance in a limited area."*

Thanks, Mr. UK. (Battles, NH)

16050.0 RCE54-Moscow, USSR, heard at 1446 with TASS news in English. RTTY 425/50R. (Blair, CA)

16140.0 RGW28-Moscow, USSR, heard at 1453 with TASS news in English. (Blair, CA)

16224.0 3MA35-Taipei, Taiwan, heard at 1512 with CNA financial news in English. RTTY 850/50N. (Blair, CA)

16701.5 UJKE-Soviet refrigerated cargo ship Pribol heard 0103-0111 with traffic to unid in RTTY 170/50N. (Blair, CA)

16703.0 UJPL-Soviet research ship Akademik Golitsyn heard at 0205 with traffic to UVA-Batumi? Also heard at 0256 with traffic. RTTY 170/50. (Blair, CA)

16820.0 The ocean liner Steelhead working WCC in USB at 1759 with a message for a Tokyo firm. (Brian Jones, San Antonio, TX) *Welcome to the column, Brian. Please report often-ed.*

16948.0 RCV-Moscow Naval Radio, USSR, calling OGDJ in CW at 1656. (Dix, NY)

16957.7 FUJ-Noumea French Naval Radio, New Caledonia, with V CW marker at 1415. (Dix, NY)

16970.0 URD-Leningrad MORFLOT Radio, USSR, with TASS world news, sports and weather in Russian at 1415 in RTTY 170/50. (Ricks, PA)

17018.0 EBA-Aranjuez Radio, Spain, with a CQ CW marker at 1618. (Dix, NY)

17215.5 WLO-Mobile Radio, Alabama, transmitting an off-shore weather forecast in CW at 0047. (Lance Micklus, Essex Junction, VT)

17519.0 Unid FEMA station testing a data circuit in USB at 1900. (Williams, SC)

17521.0 HSW61-Bangkok, Thailand, with coded meteo and weather in English. RTTY 900/50N at 1608. (Blair, CA)

20085.0 ISX20-Rome, Italy, heard at 1522 with ANSA news in English. RTTY 350/50N. (Blair, CA)

20124.0 Missionary working Protocol in USB at 1815. Said using the wrong RTTY modem. (Williams, SC)

20192.0 NASA mission control with space shuttle countdown, launch, and liftoff in LSB at 1236. (John Gilbert, Shawnee Mission, KS)

20381.0 CAK-Santiago Chilean Air Force Radio, Chile, heard with RYRY, DE CAK and coded meteo. RTTY 850/50N at 1609. (Blair, CA)

21791.5 NBA-U.S. Naval Radio Balboa, Panama, heard with R YRY and DE NBA to CXR. RTTY 850/75R at 1648. (Blair, CA)

22431.0 PKX-Jakarta Radio, Indonesia, heard at 1638 with a CW CQ marker. (Dix, NY)

23972.0 JMG-Tokyo, Japan, with warnings about a typhoon in English. RTTY 850/50R at 1722. Could call sign be JMG7? (Blair, CA) *Art, it very well could be registered with the ITU as JMG7 and they only send out a generic tape on messages. I've seen this work many different ways. Depends on the station-ed.*

# The Scanning Report

Bob Kay

P.O. Box 98

Brasstown, NC 28902

## Holiday Gift Buying

During this Christmas season, be honest with yourself. There won't be an ICOM R-7000 under your tree. And you can forget about receiving a PRO 2004 or 2005. Think back to last year. How many scanning items did you unwrap on Christmas morning? This year it won't be any different.

Your mother-in-law will give you a slobbering kiss on the cheek and your "Aunt Emily" will gift wrap another pair of socks. Other members of the family will follow their usual tradition of worthless gift giving, and when it's all over, your end of the tree will look like a rummage sale.

As scanner buffs, very few people understand us. Even fewer of our friends and family understand our equipment. If you told Aunt Emily that you wanted a PRO 2005, she'd probably get you a toothbrush.

What you need this holiday season is a list that explains exactly what you want, where to get it, and how much it costs. Does that sound "tacky"? If so, think about it for a moment. Which of the following would you prefer? A five dollar pair of socks or a five hundred dollar scanner? And wouldn't you be making their holiday shopping much easier by giving everyone a list?

Of course, making up the list can be a difficult and time consuming task. During this busy time of year, most folks can barely find time to address Christmas cards, much less compile a personalized shopping list.

That's why I made the list for you. All you have to do make a couple of dozen copies of this page, circle what you want and then pass it out. One copy should be posted on the refrigerator door.

All of the manufacturers are reputable firms and most of them have provided prizes for our popular Treasure Hunt. If the item



If you found these two scanners under your tree, it would really be an action packed Christmas. So if you're tired of getting tee shirts and socks, make a copy of Kay's Shopping List and pass it out to friends and family!



was featured in my column, the month and year of the issue is listed for your review.

### CHRISTMAS WISH LIST!!!

1. Ace Communications -- Indianapolis, Indiana, 800-445-7717  
Scanner Radio-AR-950 mobile rig, \$299.00
2. Benjamin Michael Industries -- Schaumburg, Illinois, 312-884-7077  
Nitelogger automatic tape saver, \$49.95
3. CAE Incorporated -- Hamburg, Michigan, 313-231-9373  
Littlite dimmer controlled lamp, \$49.95 (October 89)
4. Capri Electronics -- Bayfield, Colorado, 303-884-9084  
TD-17 Bug Detector, \$98.00 (April 89)  
ScanRecord automatic tape saver, \$47.00
5. Electron Processing -- Medford, New York, 516-764-9798  
TS-1 Tape Saver automatic reading device, \$49.95 (May 89)
6. Grove Enterprises -- Publisher of Monitoring Times magazine.  
800-438-8155. Orders from Grove are usually delivered within three working days.  
Scanner Radio-Pro 2005, \$389.00 (June 89)  
Scanner Radio-ICOM R-7000, \$1020.00  
Antenna-Scanner Beam, \$49.00  
Wideband Preamp III, \$45.00
7. Naval Electronics -- Tampa, Florida, 813-885-6091  
HT Audio Booster, \$29.95 (January 89)
8. Opto Electronics -- Fort Lauderdale, Florida, 800-327-5912  
Frequency counter-1300H/A, \$170.00 (Feb and Oct 89)
9. Procomm/Digitrex -- Thousand Oaks, California, 805-497-2397  
Discone Antenna-Professional grade, \$100.00 (August 89)
10. Radio Shack  
BNC Solderless Connectors, \$2.59 #278-104  
BNC right Angle Adapter, 4.59 #278-116  
BNC to SO 239 adapter, 2.49 #278-120  
BNC male to female "F," 2.99 #278-251  
BNC male to PL 259, 2.59 #278-121
11. Universal Electronics -- Columbus, Ohio, 614-866-4605  
Coax-Seal moldable plastic, 60" x 1/2", \$2.50 (August 89)

Okay, that's it. Hopefully, the list will inspire your nonscanning friends and family members to forget about socks and tee shirts. If the list helped to reduce your cotton wardrobe, I'd like to hear about it. Send your Christmas gift pictures and comments to the "Scanning Report," P.O. Box 98, Brasstown, NC 28902.

### The Ideal Scanning Book

On today's market, scanning books are nearly nonexistent. Sure, there are plenty of frequency guides out there. But try to find a scanning book that captures and explains the thrill, excitement and intrigue of scanning. Better yet, try to find a book that places the reader behind a scanner radio and then *explains* how to monitor all of the action.

Since I couldn't find such a book, I wrote my own -- *The Citizen's Guide to Scanning*. The book is unique because it is written by a scanner buff. All the information you need to know about scanning is captured in one single, authoritative source.

Readers looking for specific, nationwide frequencies, will discover a numerically arranged list running from 29 to 1000 MHz (It's also a great way to help identify some of those unknown transmissions you're picking up.) A second frequency guide is arranged alphabetically and offers a quick and convenient way to locate a specific agency.

*The Citizen's Guide to Scanning* retails for \$12.95 plus .90 books rate or 2.00 UPS. It's available from DX Radio Supply, P.O. Box 360, Wagontown, PA 19376 and from other fine radio stores.

### MT Treasure Hunt

Don't be alarmed. The Treasure Hunt will resume with the January 1990 issue! I simply needed a little time to sort through the mounds of mail, notify the winners, and to line up the prizes for next year.

Here are the individuals that won the HTS-1 Audio Boosters: In June, the winner was Joe Nooney of Valatie, New York. In July, another HTS-1 Audio Booster went out to *Monitoring Times* reader Rich Kramer of Reading, Pennsylvania.

The Supercone Antenna for the August/September Treasure Hunt was won by Karl Ayer of Mequin, Wisconsin. Congratulations to our three winners. And best of luck to everyone for the all new, 1990 series of Scanner Report Treasure Hunts!

### Frequency Exchange

Going to Florida this winter? If so, don't forget to warm up your scanner radio with the following frequencies:

460.050	Fort Lauderdale Police F-1
460.100	Fort Lauderdale Police F-2
460.125	Fort Lauderdale Police F-3
471.1125	Broward County EMS F-1
471.1375	Broward County EMS Car to Car

These are Scott Glicker's favorite frequencies. Scott lives in Tamarac, Florida, and he has asked if anyone can supply him with the freshwater Fish and Game Commission frequencies for his area.

Since the weather is warm, let's stick around and visit with another Florida resident. Jody Gresham lives in Lakeland, Florida, and has provided the following:

#### MacDill Air Force Base

269.100, 279.600	Departure
275.800	Ground Control
294.700	Tower
173.5875	Crash Crew Narrow Band FM
349.000, 377.100, 307.300	Miami Center
377.200	Jacksonville Center
286.400	Avon Flight Bombing Range

#### Eglin AFB F-15s North Gulf Flight

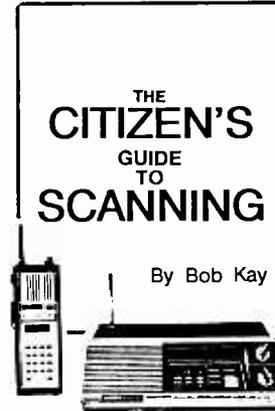
261.000, 271.200, 287.500, 301.700, 311.200, 351.300

Ready for colder climates? Okay, I'll give you one more warm weather visit. But be warned; after we visit San Antonio, Texas, grab your jacket!

John Carr has provided over 400 frequencies for the San Antonio area. Here is a sample of what I have:

139.850, 140.425	Brooks AFB Laser Range
155.055	San Antonio College Security
155.235	Gold Cross Ambulance
154.5150	City Armored Car
159.800	Loomis Armored Car

# Everything You Ever Wanted To Know About Scanning...



It's the first complete, comprehensive soup-to-nuts scanner book written for the serious scanner enthusiast. For the person who wants more out of his scanner than police and fire. From a "how to get started" section for newcomers to Bob Kay's "masters" tips on how to get the most out of your radio," *Citizen's Guide to Scanning* has

it. Includes an exhaustive frequency allocation section that tells you who is on the radio and where you can hear them.

*Citizen's Guide to Scanning* is available from DX Radio Supply for \$12.95 plus 2.00 UPS or .90 book rate, P.O. Box 360, Wagontown, PA 19376.

By Monitoring Times' own  
**Bob Kay**

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**DATArx**

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Fort Collins, CO 80525

160.410	Missouri Pacific Railroad
173.375	San Antonio Power and Light
407.8250, 407.8750	Secret Service
408.800	Kelly AFB
412.00, 412.5750	FBI
450.250	Lone Star Radio
450.550	KENS TV Channel 5

The complete listing is yours for an SASE and \$2.00. Send your request to the Scanning Report, P.O. Box 98, Brasstown, NC 28533.

In Boston, Massachusetts, (I told you to bring a jacket), Joe Hewes has provided a list of over 100 frequencies. The list includes news media, disaster, and police frequencies. Let's take a peek at Joe's list:

143.600	FEMA
151.205	Emergency Management, statewide
155.160, 155.295	Boston Life Flight
453.00	Boston Globe
455.5125	WCVB interruptible Fold Back
455.6125	WCVB
455.650	WBZ Radio
460.075	Boston Detectives
471.1125	Suffolk County District Attorney

If you want Joe's list, there's no charge. Since it is nearly Christmas, I'll play Santa and pick up the tab for copying the material. All you need to send is an SASE.

To end this month's Frequency Exchange, we follow the cold winds to Fort McCoy, Wisconsin. Daryll Symington of Holland, Ohio, hopes that his list will help warm our ears:

#### Fort McCoy, Wisconsin, Army facility

38.5000	AAF Tower primary
41.7000	AAF Tower secondary
41.9000	Range Control F2
46.8000	Range Control F1
163.5625	Range Control
165.0875	MPs
165.1875	Fire Department
229.4000	AAF Tower secondary
241.0000	AAF Tower primary
241.1000	Airfield spare
247.4000	Range Control F3
363.8000	App/Dep

#### Volk Field, Wisconsin, ANG facility

34.2000	Hardwood Range
---------	----------------

163.4875	Security
165.1375	Aircraft Maintenance
173.5875	Fire/Crash
236.6000	Tower
260.4000	Sheboygan Range
269.4000	Hardwood Range
275.8000	Ground Control
297.1000	Hardwood Range
307.1000	App/Dep
314.2000	Hardwood Range
342.5000	Hardwood Range
358.2000	Hardwood Range
358.2000	Range Control
379.4000	Hardwood Range
389.9000	Hardwood Range
413.3750	Hardwood Range

### Oldies but Goodies

Anyone out there know how to program a Regency Model Z-60 tabletop scanner radio? Ron Stanley of Herndon, Virginia, can't seem to figure out how to do it. If you send the instructions to me, I'll pass them along to Ron.

### Cordless Invaders

In Dixon, Iowa, Richard Berodt picked up his cordless phone and was surprised to hear his neighbor, Scott Tyler, merrily chatting away. Naturally, Rich was both surprised and somewhat curious. After a few days of "monitoring" Scott's conversations, Rich learned that his neighbor was a "con" man who had bilked two food distributors out of \$35,000.

Rich then called the Sheriff's Department and invited several deputies over to listen in. To make a long story short, Scott Tyler was eventually convicted of theft.

Well, Scott appealed. He charged that his privacy had been invaded when Rich monitored his cordless conversations. The 8th U.S. Circuit Court in St. Louis ruled that Scott Tyler did not have a "justifiable expectation of privacy when using a cordless phone."

Can you imagine the trouble that Rich could get into if he had a scanner radio and a copy of *Monitoring Times*? (News clipping provided by William W. Stegall, Granite City, Illinois.)

### Traffic Radar Hazards

A Wisconsin State Trooper was forced into early retirement due to the loss of his right eye. The eye was removed because of cancer, and the trooper claims that the cancer was caused by the radar unit that was mounted inside his squad car.

The trooper's findings are supported by numerous agencies and individuals that have just begun to study the hazards of low level microwave radiation.

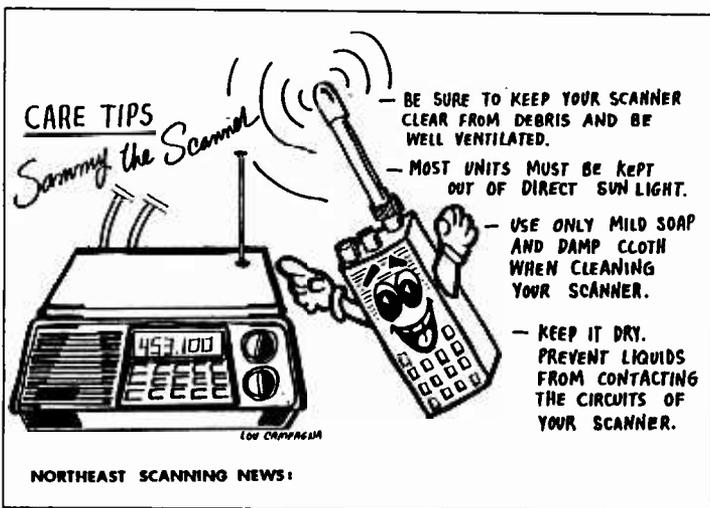
Boy, first it was power lines, CRT terminals, computers, and now radar guns. I wonder how long it will be before someone determines that scanner listening is bad for our health?

### Cordless Phone Antenna

In the March 89 issue of *MT*, I explained how to construct a cordless phone antenna. A lot of you sent in your SASE and requested additional information. Still others wrote in and asked if I could personally recommend a commercially available antenna that worked well on the cordless bands.

My two favorite antennas for monitoring both cordless phones and baby monitors are the Grove "Scanner Beam" and "Sky Wire." Now, I'm not just saying that because I write for Grove. If either of these two antennas didn't perform well, I wouldn't recommend them.

With the aid of an inexpensive television rotor, I can easily



"aim" my Scanner Beam at cordless signals that are within three blocks of my home. The best reception of cordless phones occurs on rainy evenings -- I've logged cordless phones several miles from my home.

Although the Sky Wire is primarily used for shortwave listening, I discovered that a horizontally mounted Sky Wire does a fine job of capturing cordless signals. The Sky Wire will also produce a very clean cordless signal that was otherwise quite noisy when monitored on the Scanner Beam.

For the ultimate in cordless monitoring, I combine both antennas into a high isolation A/B switch that allows me to quickly access the antenna providing the best signal.

### News from Down Under

Remember the old days when CB was alive and kicking? It was the mid-nineteen seventies and nearly everyone had a CB at home or in the car.

If you would like to relive the CB era, take a trip to Australia. CB is alive and well in the land down under. *CB Action* is Australia's only scanner/CB radio hobby magazine. Russell Bryant, who is editor of *CB Action*'s "Scanning Column," recently sent me several copies of the magazine. After looking through the pages, I was surprised to learn that, in addition to the regular CB channels, Australia also allows CB activity on 477 megahertz -- they call it UHF CB. And better yet, the range of UHF CB is extended using repeaters.

When I got to the scanning section of *CB Action*, I was in for a few more surprises. When Russ prints frequency listings, he uses commas instead of decimals. For example, the ambulance and rescue squad in Sydney, Australia, operate on 76,640 and 84,480 MHz. Here in the U.S., we are accustomed to seeing these frequencies as 76.640 and 84.480 MHz.

The band plan in Australia also differs from ours:

- 30 - 50 MHz Low band VHF
- 60 - 88 MHz Mid band VHF
- 108 - 118 MHz Air Navigation band
- 118 - 136 MHz Air Communications band
- 148 - 174 MHz High Band VHF
- 250 - 400 MHz Military UHF
- 400 - 470 MHz Low band UHF
- 470 - 520 MHz Mid band UHF
- 800 - 950 MHz High band UHF

Scanning in Australia is just beginning to become popular. As Russ pointed out in his column, many dealers have never seen a scanner radio, and they become further confused when the scanner radio is described as a programmable VHF/UHF receiver.

Russ, I'm sort of jealous. What fun it must be to live in a place where the CB action is hot and the scanning action is just beginning -- have you got a spare room?

### Christmas in the Soviet Union

Although I came on a little strong in my opening of this month's column, I do realize the true meaning of Christmas. However, I often forget the little things that make life enjoyable.

# Feeling Left Out?



## Super Converter™ 8001

*Have your favorite communications (Police, Fire, etc) moved to the 800 MHz band? Are the scanners available which access this band too expensive? If you are like many scanning enthusiasts, this can be a real dilemma.*

*Introducing the **Super Converter™ 8001** from **GRE America, Inc.** The **Super Converter™ 8001** once attached allows any UHF scanning or monitoring receiver to receive the 810 to 912 MHz band.*

*For more information or a dealer near you please contact:*

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Telex: GRE BLMT 17-2069  
Fax: (415) 591-2001

Take soap, for instance. Did you know that "more soap per man" was one of the main demands of the striking Soviet coal miners?

Did you know that coffee, fresh fruit and vegetables, along with disposable diapers and meat, are nearly nonexistent in Soviet shops?

And here's a good one: Would you stand in line for thirty minutes to buy a chocolate candy bar? The folks in Russia not only stand in line, they often get into brawls while waiting to buy cabbages, carrots, and green beans.

So, if your Aunt Emily continues to give you gifts of tee shirts and socks, don't be too upset. In a land that is only four hours away by plane, men are risking their lives for a bar of soap -- Merry Christmas, Gorbachev.

# what's new?

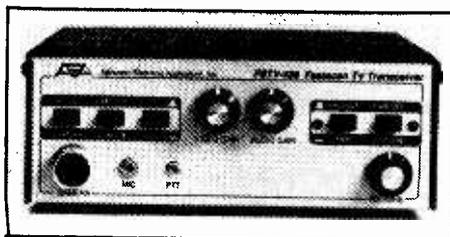
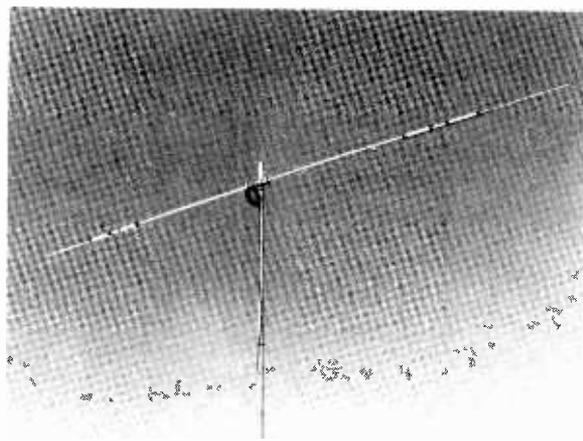
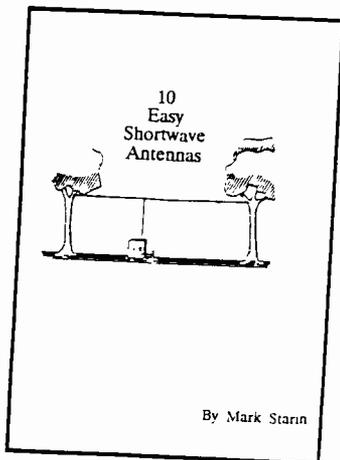
## The Secret to Hearing More

Some of the really "big" DXers -- people's whose names you see next to those really exotic loggings -- don't have rooms filled with radio gear. Many have rather modest equipment.

How they do it is no secret. It's the antenna. Even inexpensive radios can be coaxed into producing big-dollar results -- if you use the *right antenna*. *Ten Easy Shortwave Antennas* is written for the person who wants those big dollar results.

There's no theory to wade through in *Ten Easy Shortwave Antennas*. In fact there's very little technical about the book. All you do is decide which antenna is best for you (each has a description of size and purpose), pick up the parts listed in the shopping list (each part has a Radio Shack part number so you can buy it at your local store) and then follow the step-by-step directions.

*Ten Easy Shortwave Antennas* is perfect for anyone who wants to get more out of his receiver -- without spending a lot of money. It's available for just \$5.99 plus 2.00 UPS or .90 book rate from DX Radio Supply, P.O. Box 360, Wagontown, PA 19376.



## New Twist to Hamming

Tired of jawboning with another faceless voice? Put a new spin on the revered old hobby of hamming with AEA's new FSTV-430 Fast-Scan TV Transceiver.

With the FSTV-430, you can send a live color transmission of yourself, your shack, your family, whatever -- at a level that reportedly rivals broadcast quality.

All you do is connect the FSTV-430 to the video output of a video camera and presto, you're able to transmit and receive live or taped videos. The only license required is technician or higher. For more information, contact your local AEA dealer.

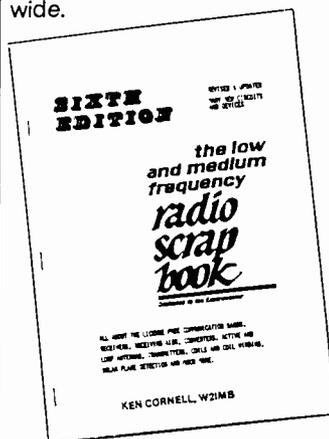
## The D3W WARC Dipole

Cushcraft is now offering the D3W World Ranger dipole for hams working the new 30, 17 and 12 meter WARC bands. The D3W is a sturdy, rotatable dipole that is easily mounted on the mast along with your existing tri-band or other antennas.

It features high performance, high Q traps, heavy wall tubing and rugged stain-

less steel hardware. According to Cushcraft, the D3W will exhibit "superior performance compared to stationary wire dipoles and is rated for 2000 watts P.E.P."

You can get your D3W from Cushcraft dealers worldwide.



## Low Band Listening

For most short wave listeners the spectrum below 540 kHz remains a mystery. Why do receivers bother to tune down to 100 kHz? Is there anything below that? It may come as a surprise, but there's plenty to hear--if you know where and how to look!

Besides beacons, there are military and commercial ship-to-shore stations, time standard beacons, European broadcasters and even power-

line control telemetry.

There is also a dedicated group of stalwart souls who communicate by radio in the 160-190 kHz range; you can do it, too--no license is required! Ken Cornell's *Low and Medium Frequency Scrap Book* tells you all about it.

Cornell's book is not limited to describing low frequency, however; it is a how-to book, loaded with illustrations and schematic diagrams of antennas, transmitters, test equipment, receivers and other useful instruments for LF applications.

If you have any interest in becoming involved in LF experimentation, start by reading Cornell's standard reference for lowfers -- *The Low and Medium Frequency Radio Scrap Book*, Sixth edition, available for \$16.95 postpaid in the U.S. from the author at 225 Baltimore Ave., Point Pleasant Beach, NJ 08742.



## Directory Of DX Awards

Intended primarily for hams, many of the contests listed in the new *K1BV DX Awards Directory* will be of interest to SWLs as well. Compiler Ted Melinosky notes which awards are also available to SWLs.

For example, the International Short Wave League Program (England) sponsors an array of awards, many of which are solely for SWLs. Or, work (or hear) stations in the Hochsauerland (Germany) area and get a diploma! Form the word "SHOGUN" from six letters from the suffixes of stations from six different countries and get a

colorful award from Japan!

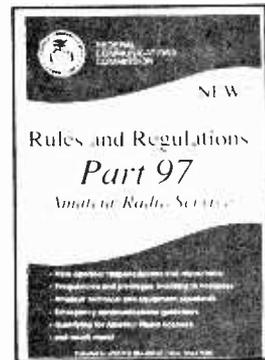
Over 1000 separate awards and certificates: If you like shortwave contesting, this compendium is indispensable. To order, send \$15.50 to Ted Melinosky at 525 Foster St., South Windsor, CT 06074-2936)

## Ham Regulations

**F**red Maia, W5YI, is one of the most prodigious amateur radio proponents of our generation. His publishing firm puts out two excellent newsletters a month (*The W5YI Report*), license study materials and other publications, as well.

Amateur radio in the United States faces an uncertain future; hams have been losing frequencies to business radio services and their ranks are not growing.

Maia's reprint of the new FCC *Rules and Regulations: Part 97* governing ham radio is prefaced by an explanation of how times and technology have changed over the years, forcing the Commission to streamline the



obsolete Part 97 references concerning logs, swap nets, interference, equipment specifications, time periods, testing and more.

For only \$2.95 every amateur and every ham hopeful should latch on to a copy and read it thoroughly. And, while you're at it, Maia has a 16 page pamphlet on "How to Administer Novice Examinations in the Amateur Radio Service" and it's only \$1. Get both and give amateur radio a boost by supporting Maia's dedicated--and very effective--efforts toward revitalizing ham radio in America!

*FCC Part 97 (Amateur Radio) Rules and Regulations* is a 56 page booklet available for \$2.95 postpaid from W5YI, PO Box 565101, Dallas, TX 75356.

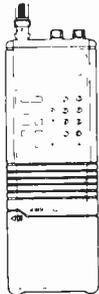
## Two new Guides

**W**hile "official" may be a little pretentious, the latest *Official New Hampshire Scanner Guide* and *Official Massachusetts Scanner Guide* are certainly informative. The new fourth edition of the New Hampshire directory includes over 7,000 listings, up more than 1000 from the previous edition, while the new third edition Massachu-

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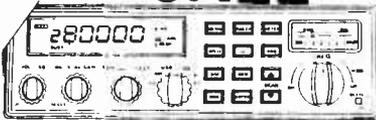
24 WATT 10 Meter Transceiver all mode operation backlit multi function LCD meter frequency lock auto squelch NB RF gain PA external speaker jack 7 1/4 Wx9 1/4 Dx2 3/8 H

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BC-760XL	100ch.29-54.118-174.406-512.806-952	\$269.00
BC-600XL	100ch.29-54.118-174.406-512. Service Search	\$215.00
BC-100XL	100ch.29-54.118-174.406-512. Handheld	\$209.00
BC-800XL	400ch.29-54.118-174.406-512.806-912	\$249.00
BC-1000XL	Call For Specs and Availability	CALL
BC-210XL	40ch.29-54.118-174.406-512mhz	\$209.00
REGENCY		
TS-2	75ch.29-54.118-174.406-512.806-950	\$265.00
TS-1	35ch.29-54.118-174.406-512 Turbo Scan	\$199.00
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INF-5	Pre-Programmed.AC Only.Digital	\$99.00
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sets book boasts over 13,000 listings, up 1300 from its predecessor.

Editors Robert A. Coburn, Steven C. Donnell, and John Mahoney have added new low band State Police and special operations listings, 800 MHz marine repeaters, GMRS and even Disney World (Orlando)!

Listed alphabetically by city and cross-referenced in frequency order, the broad-based guide includes public and private safety agencies, aircraft and marine, utility companies, business, transportation, amateur radio and conservation heard throughout the state.

Supplementary lists include cordless telephone allocations, National Weather Service broadcasts, TV allocations, public safety unit identifiers and ten codes.

The *Official New Hampshire Scanner Guide* is \$17.95 plus \$2.05 shipping; the *Official Massachusetts Scanner Guide* is \$21.95 plus \$2.05 shipping from Official Scanner Guide, P.O. Box 712, Londonderry, New Hampshire 03053.

To have your new product or book considered for review in *Monitoring Times*, send it to Editor, 140 Dog Branch Road, Brasstown, NC 28902.

## Tape Tribulations

As I look back, I discover that I have been writing semiprofessionally for about five years now. In that time I have taken my task seriously enough to read several prominent books on the subject of writing, especially writing for money!

Most of these texts cover essentially the same ground. They represent lists of things that writers should never do if they ever hope to see their verbiage published. Most noted in these lists is one very famous sentence that has gone down in history as the one sentence that should never never never be used to begin a story.

*Please don't do it, Uncle Skip!!!*

I can't help myself. I have no choice. Brace yourself, Larry Miller, here it comes.

**IT WAS A DARK AND STORMY NIGHT!** 17 January, 1982, to be exact. I was very deep into AM Broadcast Band DXing in that period of my life. On this particular dark and stormy night (didn't think I'd have the nerve to say it twice, did you?) I was camping my receiver on 970 kHz. I was using a four foot box loop antenna to null out WWSW, Pittsburgh, Pennsylvania, in order to catch the new ID of station WAVG, Louisville, Kentucky (they had recently changed call letters from WAVE).

At 23:00 EST I had nailed the ID and was about to move the dial to fresh fields when all of a sudden, booming through unexpectedly on that dark and stormy night (arrgh!!!) came the signal, with a full station identification, of WYNZ, Portland, Maine, and with that I was able to log my thirtieth state on AM BCB.

When I initially reported the events of that dark and stormy night to some fellow listeners, they were quick to pooh pooh my tale. That is, until I played the tape of this event for them. Once again Old Uncle Skip's DX reputation was saved by the tape recorder. And in spite of my gross overuse of that dreaded IWADASN sentence, what could be a better lead in for . . . (Let the trumpets sound!)

### UNCLE SKIP'S GUIDE TO DX TAPE RECORDING

Tape recording your listening sessions can serve dozens of purposes far more important than proving your DX prowess to

other hobbyists. Settle back, Bunkey, while we examine a few.

#### Improved hearing

Using a tape recorder is like having an infinite number of listeners helping you dig out your DX. By playing a tape over several times you will pick up details that will allow you to generate a more accurate QSL report. The human voice seems to move along far too quickly when you are trying to take notes. If you are trying to get the exact wording of a station ID or pick up details from a program like Glenn Hauser's "SWL Digest" on Radio Canada International, a tape recorder in line is the only way to go.

Many DXers invest in audio filters in order to clean up signals that would otherwise be hard to discern. A common mistake that many beginners make is to just listen to their receiver through their filter. The problem with this plan of attack is that the filter might just be adjusted in such a way as to accidentally filter out the very signal you are so desperately seeking.

The easy fix is to make sure you have Mr. Tape Recorder chugging along in line before the filter. This way, if you miss something due to fumbling filter fingers (a common malady among even the most experienced monitors) you can review the unfiltered tape and even run the tape through your filter as many times as your little old heart desires. You can experiment with various settings until you hear what you are looking for. As long as it's down on tape, you've never missed it.

Even if you can't spring for a filter at this point in your pocketbook, playing a tape over a few times will sometimes surface things you simply didn't hear the first time around. I know of dozens of monitors who found something more exciting "underneath" what they were originally listening for. This is especially common in BCB DXing on local (Graveyard) frequencies or monitoring any network operation on the utility and ham bands.

VHF Scanner listeners don't need to feel left out because you will be able to use the tape recorder to capture those bizarre openings that are caused by atmospheric ducting and meteor showers. These openings are often quick and brief. A recorder will catch that once in a lifetime opening and save it for years to come.

Not everyone is a language scholar.

You can tape that exotic station and then track down somebody who speaks the language to help you figure out what you have caught. A trip to a nearby college language department should bail you out and maybe even give you a QSL letter to send as well.

And who among you out there in monitorland cannot recall a time when you fell asleep at the controls? Murphy's Law indicates that the moment you rest your head on your operating desk, Radio Nibi Nibi, not heard in North America in twenty years, will boom through with armchair copy. If you had the tape recorder going, you just might have caught it even though you are well on your way to dream land. The same rule can be applied for all those times you had to run to answer the telephone, too.

Tape recorders can also archive important events in history. Somewhere around my shack I have a tape of "Argentine Annie," the propaganda broadcaster from the Falkland Island conflict. This kind of thing doesn't happen every day.

#### Lest we forget the collectors

Some people are drawn to radio monitoring because of interests in other related areas. To these folks, the tape machine is as essential as the receiver.

Language students are known to collect examples of dialects off the radio to further their study and prowess.

Music students can find all manner of programming worth committing to tape. I am certain more than one paper has been written or influenced by examples of music of some culture or another gleaned from shortwave listening. Playing back examples of music from around the world would make an excellent class project for a young DXer. It would also be a great way to introduce folks to the hobby.

Some listeners have made a hobby of collecting the various interval signals played over the air by shortwave broadcasters. These distinctive tone patterns are collected, traded and shared among many listeners.

And last but not least, it is fun to tape and collect "Spy Numbers" stations. It is also useful as a verification because these cloak and dagger types just don't QSL, Compadre!

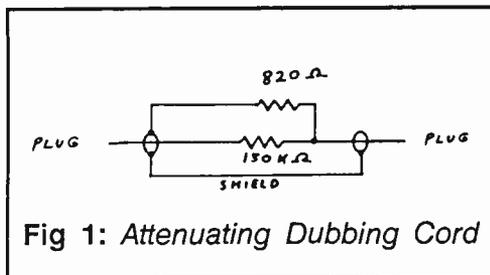


Fig 1: Attenuating Dubbing Cord

## A different kind of QSL

If you are trying to get a QSL out of a particularly contrary broadcaster, you might consider sending along a tape of what you have heard. This novel approach is often appreciated by station engineers and program directors as well. Many broadcasters would be grateful for a tape that indicated any interference on their signal. In the old days, stations only accepted recordings made on reel tapes. The invention of the low cost cassette recorder means that your standard cassette tape will be just as welcome in most cases.

## Let's talk hardware

First of all, most modern gear has at least a headphone jack or perhaps even a special tape output jack. Either way, you are in business. The only significant difference between the two outputs is that the specialty tape output signal has a constant level so you won't have to worry about where your receiver audio gain (volume) control is set during your listening session.

If you just have the headphone jack, you will want to hit the local electronic store and pick up a "Y" adapter to allow for continued use of phones or external audio filters while your tape recorder gobbles up the signal.

If your rig has no headphone jack, you will have to tap your speaker leads to get a signal. If you find yourself in this boat, it might be a good idea to write Old Uncle Skip for more details concerning this type of surgery.

As tape recorders go, any low cost standard mono cassette recorder with a jack for an external mike will do the trick. A helpful option is a tape counter which will allow you to note particular places on the tape for picking up pertinent data. Remember, my friend, you are not looking for superduper audio quality here.

Low cost cassette recorders tend to have problems with high frequency response. This might send your neighborhood audiophile into convulsions but for the radio monitor it ain't no big thing, because the signals we are listening for tend to emphasize the lower frequencies anyway.

We can also get by with lower cost cassettes as well. However, I would shy

away from any bargain basement tape that might not hold up under regular use. You just don't have to buy those high end Type IV tapes that come wrapped in gold and silver to nail down your DX.

## Hey, Buddy, got a patch?

Now all we have to do is get the signal from the rig to the recorder. This is done by means of a patch cord. This is usually just a piece of shielded cable with appropriate jacks installed on either end. Patch cords are available commercially in many combinations of plugs, so finding one to meet your needs should not be too great a task.

Now when some folks out there in radio land try this hookup, they may find that the audio recorded plays back very distorted. To misquote an old TV show, "There is nothing wrong with your tape recorder!" It simply means that the audio level coming into the recorder is too high for the machine to handle.

If you find you cannot eliminate the distortion by reducing the receiver gain, you will need to purchase or build an Attenuating Dubbing Cord. Radio Shack sells such a cord for \$3.39 under part number 42-2152. You can also roll your own out of a piece of shielded audio cable and a couple of resistors (see Figure 1).

You may have to experiment a bit with the resistor values but that's half the fun. You really can't hurt anything, so warm up the soldering iron and see what you can come up with.

## Variations on a theme

As I have stated in past columns, some people utilize a stereo recorder using one channel to record the programming and the second channel to record a time signal station from a second receiver. This set up allows for dead accurate log/time information for your QSL reports. I suppose you could also use the second channel to dictate notes to yourself that would aid you in reconstructing your listening system (control settings, for example).

And, of course, if you happen to have access to two tape recorders, you might try to edit your catches down onto tapes that will serve as a permanent collection. It's also fun to swap tapes with other DXers.

The variations are indeed endless. Use your imagination. Push the envelope. Who knows what you might tape on some DARK AND STORMY NIGHT!!!



# GILFER SHORTWAVE

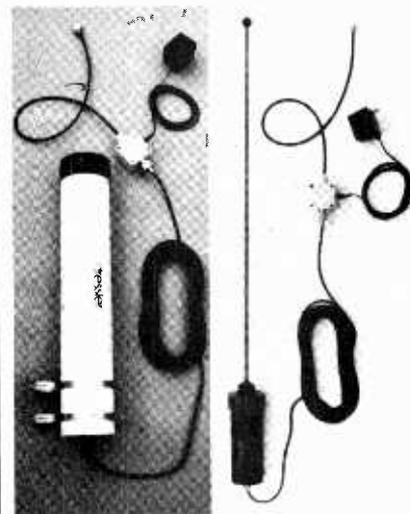
*"First in Shortwave, first in service to the world's SWLers"*



## Datong Multi-Mode Filter

It separates the signals you want from those you don't - with multi functions. Fully automatic notch filter removes heterodynes and other steady tone interference. Independent low and high pass filters stop "monkey chatter" and other off-tune interference, tuning 200-3500 Hz. Second notch filter manually tunes 200-3500 Hz. For speech, all filters work independently for flexibility. A special mode for CW and RTTY combines the filters into a 12-pole filter with super skirt selectivity and non-interacting controls. Works with any receiver, easy to install. Features 29 ICs with latest switched capacitor filter technology.

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## Dressler Active Antennas

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For VHF-UHF and Scanners. Range 50-900MHz and more. Has low noise high gain 2-stage amp. With 1 GHz bandwidth. Gain is 15-16dB. Mounts indoors or out. Includes 26' cable, interface, and AC adaptor.

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## Catch the Coast Guard

It's a simple motto. "Semper Paratus" means "always ready."

If you live close to a major river, lake, or along the US coastline, you are probably within scanner range of the exciting communications of the United States Coast Guard.

The United States Coast Guard can trace its history back to the 1700s and the beginning of the nation. But the organization is today a far cry from the schooners of yesteryear. Sleek cutters and modern aircraft pile up on the assets side of the Coast Guard's balance sheets. Table 2 provides information on some of the cutters and aircraft that are commonly referred to on Coast Guard frequencies. A modern communication system has also developed over the years.

A lot of the Coast Guard's activity can be found on VHF marine frequencies. Monitors should keep a close ear out on 156.800 MHz for emergency traffic and announcements of Coast Guard broadcasts. 156.800 is marine channel 16, the VHF marine distress and calling frequency.

Another channel to monitor is VHF marine channel 22, 157.100 MHz. The Coast Guard uses this channel to communicate with civilian vessels, for emergency operations, and for broadcasts of marine interest.

VHF marine channel 83, 157.175 MHz, is the home of the coast auxiliary. Made up of reservists (weekend warriors), the primary mission of the Coast Guard auxiliary is to educate the public in general marine safety.

While the Coast Guard can operate on almost any marine VHF channel in the range from 156.275 to 157.425 MHz, the following frequencies bear close watching for activity: 157.050, channel 21; 157.075, channel 81; 157.125, channel 82; and 157.150, channel 23.

The VHF marine bands aren't the only place to hear Coast Guard activity, however. Like other federal and military agencies, the Coast Guard has discrete frequencies in the VHF-High Band and military aircraft bands.

Owners of programmable scanners that include the military aircraft band from 225-400 MHz will also want to check the following frequencies for CG activity:

282.8 (Search and Rescue) and the following air-to-ground channels: 237.9, 240.6, 275.1, 277.8, 285.0, 342.2, 381.7, 381.7, 381.8, and 383.9 MHz. The mode used on these channels is AM.

Within the VHF-High Band, Coast Guard intelligence activity can be found on 165.0125, 165.3125, and 165.3375. An air-to-ground frequency commonly heard in this range is 164.300 MHz. The mode used on these frequencies is narrow-band FM.

One monitor in the New Orleans area reports the following frequencies in use: 165.2625, 165.3375, 171.2375, and 171.3375. In fact, the frequency 171.2375 turns out to be a cross band repeater output channel. It repeats channel 16 in the VHF marine band.

Once you have located the active channels in your area, the next step is to figure out what the myriad of acronyms mean. *Monitoring Times* reader Sidney Goldberg in Brookline, Massachusetts, has sent along a few of these acronyms to help you decipher their meanings when listening to Coast Guard frequencies. These can be found in Table 3.

One way to check out if you are close to a major coast guard station is to check out Table 1 sent in by Mr. Goldberg. While this is not a complete list, this and the map of Coast Guard regions should give you a reasonable idea of where in the country to hear Coast Guard activity.

I would like to thank Sidney for some of the material used to prepare this piece on the US Coast Guard and Larry Van Horn, *MT's* super utility editor, for forwarding that material to me.

### Reader Reports

Dennis Brown in Washington, DC, while recently checking the FCC files noted the Northrop Radio Services, Inc. at Mojave, California, has been granted an experimental license. This license is authorized the use of 314.6 and 382.6 for "US government contract work."

While Dennis has no way of knowing the specific use planned for these frequencies by Northrop, monitors in the California area might find those frequencies interesting, now that the B-2 is flying. Thanks, Dennis.

A listener in Florida has passed along the following low band frequencies in use in Central America. Since we are now in the middle of the VHF low band skip season, monitors might want to take note of these channels in case they pop up while scanning:

Palmarola AB, Honduras: 30.05 (APs), 30.35  
Honduran Military: 30.145, 30.285  
US Army in Honduras: 34.3, 33.1, 41.0, 30.2, 31.7, 32.0, 32.6, 32.1, 36.9, 45.4, 31.8, 35.2, 30.0, 30.25, 30.4, 30.9, 31.9, and 31.1  
Nicaragua Military: 31.42, 31.43, 31.44, 31.45, 41.46, 31.47, and 31.48  
Unknown military repeaters: 30.19, 30.335, 32.585, and 30.25 (30.39 input)

And with that I will close the door on this month's federal file. I would like to remind our readers that we want to hear from you. Your system profiles, call signs, codes and frequency lists are always welcome. Also,

US Coast Guard Districts and Activities  
Table 1

1st CG District:  
HQ-Boston, MA  
COMSTA-Boston, MA  
RCC-Boston, MA  
AIRSTA-Cape Cos, MA  
AIRSTA-Brooklyn, NY  
RCC COMLANTAREA-Brooklyn, NY

2nd CG District:  
HQ-St. Louis, MO  
RCC-St. Louis, MO

5th CG District:  
HQ-Portsmouth, VA  
COMSTA-Portsmouth, VA  
RCC-Portsmouth, VA  
AIRSTA-Elizabeth City, NC  
AIRSTA-Cape May, NJ

7th CG District:  
HQ-Miami, FL  
COMSTA-Miami, FL  
RCC-Miami, FL  
AIRSTA-Clearwater, FL  
AIRSTA-Miami, FL  
AIRSTA-Savannah, Ga  
AIRSTA-Borinquen, PR

8th CG District:  
HQ-New Orleans, LA  
COMSTA-New Orleans, LA  
RCC-New Orleans, LA  
AIRSTA-New Orleans, LA  
AIRSTA-Houston, TX  
AIRSTA-Corpus Christi, TX  
AIRSTA-Mobile, AL

9th CG District:  
HQ-Cleveland, OH  
RCC-Cleveland, OH  
AIRSTA-Detroit, MI  
AIRSTA-Traverse City, MI  
AIRSTA-Chicago, IL

11th CG District:  
HQ-Long Beach, CA  
COMSTA-San Francisco, CA  
RCC-San Francisco, CA  
RCC-Long Beach, CA  
AIRSTA-San Francisco, CA  
AIRSTA-San Diego, CA  
AIRSTA-Humboldt Bay, CA  
AIRSTA-Los Angeles, CA

13th CG District:  
HQ-Seattle, WA  
COMSTA-Seattle, WA  
RCC-Seattle, WA  
AIRSTA-Port Angeles, WA  
AIRSTA-North Bend, OR  
AIRSTA-Astoria, OR

14th CG District:  
HQ-Honolulu, HI  
COMSTA-Honolulu, HI  
RCC-Honolulu, HI  
AIRSTA-Barbers Point, HI

17th CG District:  
HQ-Juneau, AK  
COMSTA-Kodiak, AK  
RCC-Juneau, AK  
AIRSTA-Sitka, AK  
AIRSTA-Kodiak, AK

Headquarters US Coast Guard  
Washington, DC

pictures, maps, and graphic material covering the subject area of this column are appreciated.

**Snapshot of US Coast Guard Aircraft and Ships  
Table 2**

**COAST GUARD SHIP DESIGNATORS:**

WHEC	High Endurance Cutter	WLIC	Construction Tender, Inland
WMEC	Medium Endurance Cutter	WLW	Lightship
WPB	Patrol Boat	WAGB	Icebreaker
WSES	Surface Effect Ship	WTGB	Icebreaking Tug
WLB	Buoy Tender, Seagoing	WYTM	Harbor Tug, Medium
WLM	Buoy Tender, Coastal	WYTL	Harbor Tug, Small
WLI	Buoy Tender, Inland	WIX	Training Cutter
WLR	Buoy Tender, River		

**COAST GUARD AIRCRAFT:**

AIRCRAFT DESIG	USE/TYPE	MAX:SPEED/ENDURANCE/RANGE
VC-4A Gulfstream 1 Exec	Transport	Turboprop 2 engines
VC-11A Gulfstream 2dlto		Turboprop 2 engines
HC-130B/H Hercules Long Range	Search (1)	325 knots 12 hours 3500 nm Turboprop 4 engines
HU-25A Guardian	Medium Range	
	Search (2)	470 knots 4.25 hours 2000 nm Jet 2 engines
HH-65A Dolphin	Medium Range	
	Recovery (3)	140 knots 4 hours 400 nm Helicopter turbine 2 engines
HH-3F Pelican	Medium Range	
	Recovery (4)	142 knots 6 hours 700 nm Helicopter turbine 2 engines

- Notes:  
 (1) Aircraft sidenumbers 1501-1504/1600-1604/1700-1721  
 (2) Aircraft sidenumbers 2101-2142  
 (3) Aircraft sidenumbers 6501-  
 (4) Aircraft sidenumbers 1430-1438/1467-1497

**Frequently Heard US Coast Guard Acronyms  
Table 2**

AIRSTA	Air Station
COMSTA	Communications Station
ELT	Emergency Locator Transmitter
EPIRB	Emergency Position Indicating Radio Beacon
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
ETI	Estimated Time of Intercept
F/V	Fishing Vessel
HQ	Headquarters
M/V	Motor Vessel
OSC	On Scene Commander
OSE	On Scene Endurance
POB	Person On Board
POD	Probability of Detection
RCC	Rescue Coordination Center
SAR	Search and Rescue
SITREP	Situation Report
SRR	Search and Rescue Region
SRS	Search and Rescue Sector
SRU	Search and Rescue Unit
<b>SEARCH PATTERNS:</b>	
TSR	Tracking single-Unit return-Search of a trackline
TSN	Tracking single-Unit nonreturn
PS	Parallel track single-Unit search of large area, position of distress unknown
CS	Creeping line single Unit-Distress between two points
VS	Sector single Unit-Distress position known within close limits



The main frequency coverage for this column are the federal freqs in the VHF lo-band, 138-144 MHz, 148-150.1 MHz, 162-174 MHz, and 225-420 MHz. I will entertain other frequency areas that you have found government and military activity on, however. Until next month...it's time for a cubo and 73.



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- Sony ICF-2003 .....\$245
- Sony Pro-80 .....\$350
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- 3TF7 Ballast Tube - Brand New! .....\$40
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## Monitoring aero comms

Because of its availability on radios like the Sony ICF-2010, the 118.000 through 135.975 MHz VHF (AM) aero band receives lots of attention. People who otherwise would be unable to sample the thrill of aeronautical monitoring are able to check it out without having to make an investment in equipment.

If you are fortunate enough to own one of the popular radios that covers this range and live near an airport, try to monitor the approach, departure, and tower frequencies from 6 am to 9 am in the morning, and/or 4 pm until 6 or 7 pm in the evening. These are the busiest, and consequently most congested, time slots for commercial airline arrivals and departures.

Overnights (late nights through early morning) do not mean that Air Route Traffic Control Center frequencies are quiet. It's just the opposite, as a matter of fact. Many commercial airlines have late night special (also spelled "cheaper") flights.

In addition, the air freight carriers do most of their flying at night to and from their bases, and you can hear quite a few due to some air traffic being less heavy during the wee hours, and the controllers tend to be somewhat more informal. Just a few nights ago, this writer heard a controller at an Air Route Traffic Control Center and an air freight pilot carrying on a very serious conversation about their respective ham gear!

Even if you live many miles from an airport, you can still hear transmissions from aircraft to and/or from Air Route Traffic Control Centers (ARTCC). Since ARTCCs

(Enroute Control) use remote communications air/ground sites, there are very few places in the country where you won't be able to at least monitor pilots talking to air traffic controllers at these centers.

Even if you can't hear the controllers' end of the conversation, you will still be able to listen to the pilots talking. Keep in mind that the higher an aircraft is flying, the further the distance it can be heard on the ground. This is because VHF transmissions rely upon line-of-sight.

"But," you say, "how do I know what frequencies the centers use?" Not to worry -- if you aren't sure which ARTCC flights are using in your neck of the woods, drop me a line and I'll be happy to forward this info to you.

Generally speaking, you can monitor Air Route Traffic Control Centers' transmissions, as well as those of airport ATC Tower/TRACONS on the following VHF frequency allocations.

118.000-121.4	Utilized by both enroute centers and Tower/ TRACONS for air traffic control purposes.
121.600-121.950	Mainly used by ground control at airports.
123.675-128.800	Also utilized by Enroute Centers and Tower/ TRACONS for ATC.
132.025-135.975	Same usage as above.

Other noteworthy frequencies include 121.500 and its UHF counterpart (243.0). These are the international VHF/UHF distress frequencies.

ELTs, which stands for Emergency

Locator Transmitter (which most aircraft carry as standard equipment) are usually set off by an impact. However, they have been known to activate for no reason at all and the pilot who has an ELT which has malfunctioned in this way is usually one very chagrined pilot. They have a very distinctive downswept tone and are programmed to broadcast in emergency situations.

Incidentally, the UHF frequency of 243.0 is the multiple times two of the VHF emergency frequency 121.500. Most ATC facilities -- Air Route Traffic Control Centers, Airport Control Towers/TRACONS (TRACON is an FAA acronym for Terminal Radar Approach Control facilities, however, they also handle radar departures) and FSS Stations monitor the emergency frequencies on a continual basis.

122.000 through 122.975 are usually allocated to Flight Service Stations in most parts of the country. FSS facilities are also part of the FAA.

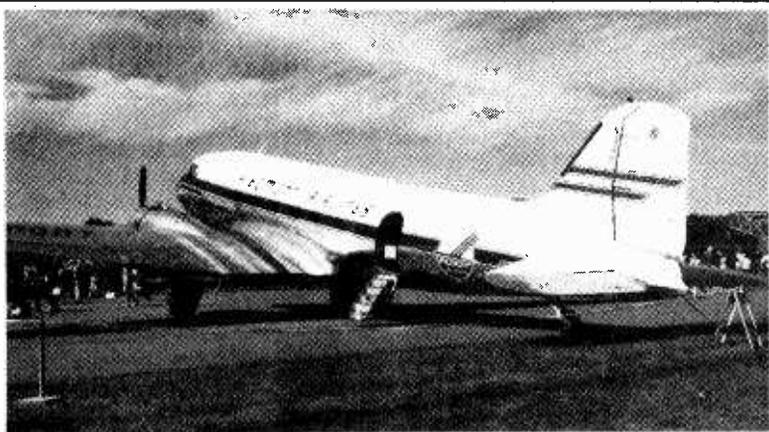
On these frequencies, you can hear pilots asking for weather conditions at their destinations, airport conditions, communications and navaid frequencies, giving PIREPS (Pilot Reports) to FSS Specialists which involve flying conditions related to weather and other matters, flight plans being filed and/or changed, FSS Specialists giving DF (Direction Finding information) to pilots who are lost or disoriented, and other interesting transmissions.

While Flight Service Stations are mainly utilized by General Aviation (private pilots), commercial airliners use them also.

123.025	Helicopters use this frequency for air-to-air communications.
123.100	This is a search and rescue freq utilized by the Civil Air Patrol, Coast Guard, and others involved in this type of operation
123.125-123.425	Flight test -- used by manufacturers of major aircraft components, this freq is also in use for airshows.
123.450	An unofficial "chit-chat" frequency utilized by pilots, many of them with commercial airlines. Some extremely interesting and candid communications have been monitored by this writer here.
123.500-123.575	Flight Test and miscellaneous uses in different parts of the country.

The frequencies between 128.250 and 132.000 are allocated to the airline companies and enroute stations (ARINC, ATLANTA FLIGHT SUPPORT, etc.). The transmissions monitored on these frequencies can range from the truly frightening (pilot reports that they have a passenger who has gone looney tunes) to the hilarious (We'll be at the gate at 2200; please have four giant pizzas waiting for the crew. They forgot to include meals for us

So Long,  
Piedmont



DC-3: Bert Huneault, Windsor, Ontario

Piedmont Airlines has completed a gradual two-year absorption into USAIR. Throughout its history, Piedmont flew many different types of aircraft: DC-3s (they used the logo "Route of the Pacemakers"), Martin 404s, YS-11s, F-27s, 727s, and 737s. From early 1988 until late August of 1989, the airline even had flights to London utilizing 767s.

This was quite an accomplishment for a company that bore the unfortunate nickname of "Treetop Airlines" in the 1960s and early '70s. No longer. As a part of USAIR, Piedmont now ranks with the likes of Delta, American, TWA, Northwest and United.

on this flight".) This transmission came from an obviously hungry airline pilot on behalf of his crew and himself!

Since many airline companies use call signs that are not familiar to newcomers as well as to some of the experienced folks on the monitoring scene, here's a list of names you might hear and the companies to whom they belong:

#### DOMESTIC AIRLINES:

ABEX	Airborne Express
AMTRAM	American Trans Air
AMFLIGHT	Ameriflight
Blg A	Arrow Air
BLUE STREAK	Jetstream International
CARIB-X	Caribbean Express
CACTUS	American West
CLIPPER	Pan AM
EXPRESS	Federal Express
GRAND AIR	MGM Grand
LATE NIGHT	CCAir Cargo
SKY BUS	Skyfreighters
TEE AIR	Tower Air
SKY TRUCK	Trans-Air-Link
TAGGE	Orion Air
SUNLINE	Sun Country
TIGER	Flying Tigers
TITAN AIR	Viking Express
TRANSCON	Transcontinental
UPSCO	UPS (Until mid-1988 they used the name "BROWN TAIL" for a call sign)
WASHINGTON EAGLE	Presidential

#### FOREIGN-BASED AIRLINES:

ANZA	Ansett New Zealand
ARPA	Air Panama
ASIA	Japan Asla Airways
ASPRO	Inter European
BLUEBIRD	Finnavigation
EL AL	Israel Airlines
HOTEL INDIA	Hispania
IBERIA	Spain
JETSET	Air 2000
LOT	Polish Airlines
MALEV	Hungarian National Airline
MAROCAIR	Royal Air Maroc
SPEEDBIRD	British Airways
SPRINGBOK	South African Airways
TAP	Portugal Airlines
TOADOMES	Japan Air System
UKAY	Air UK

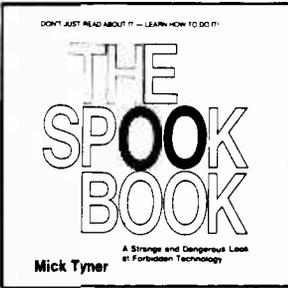
### Air Force One Delayed

According to *Monitoring Times* scanner equipment columnist Bob Grove, President Bush won't be flying in the new Air Force One, a modified Boeing 747 -- at least not until sometime in the mid-1990s. An Air Force spokesman confirms the delay.

According to officials, the problem is due to continued engineering and technical difficulties at Boeing, particularly the wiring

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needed to support the craft's highly sophisticated electronic equipment. In all, the 747 will have some 1,260,000 feet of wiring as compared to a normal 747 which contains 585,000 feet of wiring.

Also, more stringent FAA rules mean that Boeing may have to put in additional fire warning and suppression equipment in the plane's cargo compartment.

### Rain-Related Danger

According to NASA researchers, preliminary results from a series of high-speed ground tests indicate that heavy rain may reduce aircraft wing performance when it is most needed, during landing approach or take-off in the presence of a microburst storm, an important factor for pilots to consider while flying through severe storms.

A survey of commercial aircraft accidents and incidents related to severe storms prompted NASA to study the possibility of a heavy rain effect on aircraft safety and performance. Heavy rain is generally defined as a high-intensity, short duration rainfall.

Modern wings on commercial aircraft, optimized for economy, rely on a smooth, uninterrupted flow of air across the wing surfaces for maximum performance. Tests suggest that very heavy rain disrupts the airflow, reducing wing lift and performance.

The heavy rain research is part of a broad NASA-FAA airborne wind shear detection avoidance program begun in 1986.

### More Air Traffic Controllers

As of June 1989, there were 16,436 Air Traffic Controllers working for the FAA. 9,905 of these are FPL (Full Performance Level) rated, which means that the remainder are Developmentals (controllers who are still

in training) and Air Traffic Assistants. The goal for FY1989 (FY means fiscal year) was a total workforce of 16,800 controllers, including 10,300 at FPL rating.

There are at present 22 Air Route Traffic Control Centers, 454 Air Traffic Towers, and 214 Flight Service Station Facilities. That's one heck of a lot of places to be staffed 24 hours a day, 365 days a year on all three shifts by the number of Air Traffic Control Specialists mentioned above.

The controllers who are presently at full performance level are, for the most part, between the ages of 25 and 50. That's quite an age range. When asked about retirement, a lot of them will say that when they get their 20 years in, they'll quit. Most of them don't. They either go up the ladder into supervision, or stay on as a working controller for as long as they feel comfortable with it. As one Air Traffic Manager of an ARTCC told me, "I still consider myself a controller and always will!"

Happy Holidays to everyone and here's a verse for the season. Imagine what would happen if Santa Claus was given an inspection and checkride by the FAA:

Jolly Old St. Nicholas,  
I'm from the FAA  
I've been told that you have  
no transponder on your sleigh  
Christmas Eve is coming soon  
Now listen close to me  
Get your sleigh transponder-rigged  
Make sure it has Mode C!

In the next column, we will answer some of the most frequently-asked questions from readers. Until then, 73 and out.



## Squeeze Play

When N3IK moved to a new apartment, his biggest problem was deciding where to put the ham shack. In a place so small that you could stand at the front door, reach out and touch the back wall, this was going to be a problem.

And there were other criterion to consider. No matter where the shack ended up, our award-winning operator wanted it to be easily accessible, fun to use, and yes, pleasing to the eye.

That's not to say that anyone in the N3IK household objected to the appearance of radios. Virtually everyone who lived at #7 Coax Street either was a ham or had a strong admiration of hams. In fact, so natural was the concept of ham radio that sometimes, when the family sat down to dinner, one person or another would inadvertently slip into Morse code, hammering out his version of the day's events with a salad fork.

N3IK was fortunate in another respect as well. All of his radios were of recent vintage. Only a few years ago, he had gotten rid of all his old boat anchors.

Unable to find a fellow ham who would pay for them, N3IK had wired a pair of headlights to the big radios and passed them off on an unsuspecting teenager by telling him that they were Volkswagens. (And while he didn't miss the orange glow they cast on the cinderblock wall of the basement where the old listening post was situated, he thought that he noticed the distinct jump in the heat bill once they were gone.)



The new N3IK rig is capable of 100 watts on 80 through 10, and 25 watts on two meters. The "Tandy 1000" to the left of the rig is used to copy packet, RTTY and WEFAX via the "Kantronics" KAM. The airplane on top of the Tandy is for flights of -- fancy!



*Ain't nobody here but us chickens!*



*Fooled 'ya; inside the microwave/TV cart is a complete HF rig, 150 watts on 80 through 10. Sure does keep peace in the family when there is not enough room for a ham shack.*

So, packing the entire family into a rented SAAB, off the family went in search of a discount store. It was here that N3IK discovered the cheap pressed wood wall unit. Nice to look at so long as the plastic wood veneer didn't peel back, the total cost was only around \$80.00. It took about an hour to put the shelves together, including the spot where large holes were drilled to allow the different units to be interconnected.

### Sneaky Stuff

"A lot of families do not like to see radio gear sitting out in the open like mine is," says

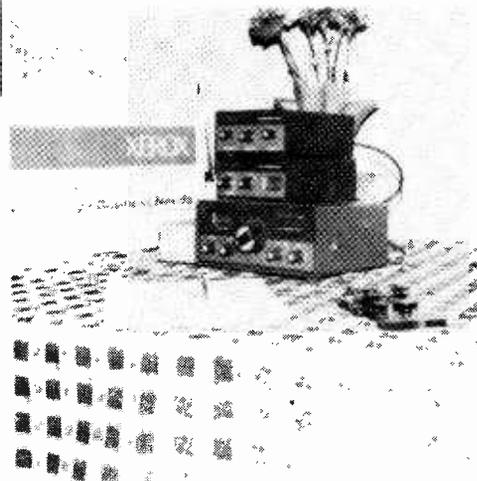
N3IK. An answer to this problem is illustrated by photo two and three. Photo two shows the unit in disguise, and photo three reveals the ham station. "The key and mike are concealed alongside the Heath Kit HW-101," confides Ike, "and then they can be moved to the table top when the rig goes into action."

Those of you who haven't been damaged too badly by RF will recognize the unit in photos two and three as a microwave/TV cart. This particular model was purchased at an unclaimed freight outlet for just \$19.00! There were no modifications required as it is open at both ends and rolls easily from room to room.

"The only problem I find with this unit," says N3IK, "is the fact that the transceiver is too low for easy operating. However if it means having a station or not, it is a small price to pay!"

### Nitty Gritty

Photo four represents about the ultimate in inexpensive rig hiding. (Tip: The HW-9 is located on the left hand side of photo A.) Can you guess where it is? That's right! It's in the Xerox paper box along with its friends, power supply, key and antenna tuner. To put the rig in operation, says N3IK, "just take the equipment out of the box, lay it out on the kitchen table, plug it into the AC line and away we go!"



*Well, not exactly a shoe box rig, but a paper box rig is pretty close. Four watts on 80 through 10 plus WARC bands with the HW-9 provides plenty of CW fun. When the rig is not in use it resides under the bed or in the closet.*

## Old Time Gear

If your station consists of a transmitter and receiver of 1960's or earlier vintage, then a different approach must be taken. Those with sufficient capital might consider building a small 24' x 48' addition onto the house. Other may find it easier to simply locate the shack in a closet. "One of my stations was located in a clothes closet with a Viking Ranger sitting atop an NC-300," laughs N3IK. "An extension cord provided power and a high intensity lamp illuminated the writing/operating position."

If you must go this way, it will most likely be necessary to build a special table to fit into the closet space available. One of N3IK's friends, a fellow who lived over on RF Boulevard, went a step further and mounted a table to the inside wall of the closet with hinges. When he felt the urge to "ham," all he needed to do was to swing the rig out into the room to operate and push it back into the closet when he was done.

Another local ham who collects and uses older gear has recently acquired an entertainment center (a wall unit that was designed to house a TV, stereo system). His beautiful Hallicrafters SX-101 receiver, HT32 SSB transmitter and HT-33 amplifier fit conveniently into this unit and look great in his recreation room. A slide-away keyboard drawer (designed to allow a computer keyboard to be slipped under a standard table) provides a convenient operating desk top.

## Antennas?

"Now I'm sure," admits N3IK a bit sheepishly, "that many of you are sitting around saying 'yeh, yeh, what about the antenna?' Well, there are some fairly easy answers to that question too!" Unfortunately, N3IK has run out of space. "We'll cover that in a future issue," he promises.

## Radio Shack

Jim Grubbs, K9EI has just produced an excellent book for newcomers to the field of Digital Amateur Radio communications. As you might expect, the name of the publication is *Digital Communications with Amateur Radio*.

Unlike every other beginners publication on digital communications, this one does not dump the rank novice into a world of protocol's, bits, parity, networks and jargon. Author Grubbs lays the groundwork one step at a time and thoroughly explains everything leading up to digital communications.

While the dyed-in-the-wool packeteer may feel the book is too simple, the fact is that this book is exactly what has been needed. It is a true guide into the world of digital communications, and will ease the way for those interested in packet.

Radio Shack and K9EI get an A+ for this one. Price is \$7.95 at your local Radio Shack store.

## Space Shuttle

The Goddard Amateur Radio Club station WA3NAN in Greenbelt, Maryland transmits live air to ground communications for space shuttle missions on the following frequencies.

3.860 MHz (2200 - 1400 UTC), 7.185 MHz (1200 - 2200 UTC), 14.295 MHz (primary freq) 21.395 and 38.650 MHz (as needed) and 147.450 MHz on FM simplex. If you are in the Greenbelt, MD area and have ATV capability they also transmit on 439.250 MHz television.

Spread the word about this operation to your amateur and short-wave listening friends.

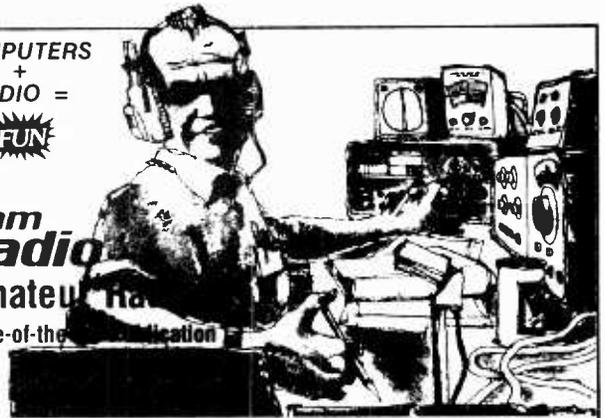
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ham radio magazine, Dept. MT, Greenville, NH 03048

## More on MIR

The logs of U2MIR show contacts with 1,143 amateurs in 42 countries.

Let's hope the crew on MIR soon finds time to continue their amateur operations.

## Propagation

The fall saw somewhat lower sunspot numbers than previous months; however, by mid October conditions on ten and fifteen meters were absolutely *super*. Expect more of the same in December and January.

## FEES for Amateur Radio Licenses

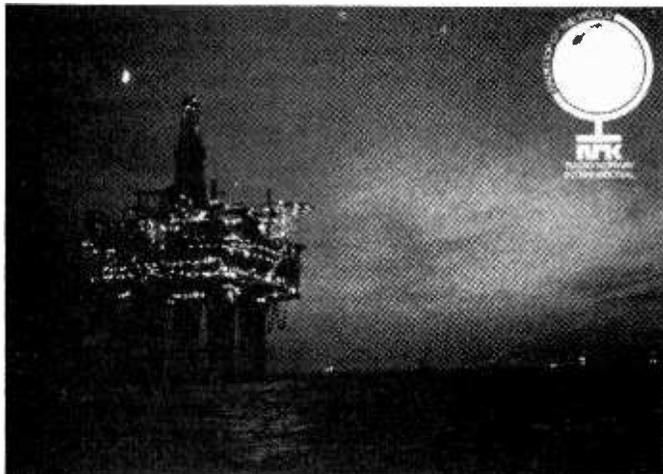
A bill HR 3299 recently introduced into Congress wants to impose fees for amateur radio licenses.

Many amateurs see no problem with paying for a license. Normally I would agree that a modest fee would be appropriate. However, the fees would not go towards improving the state of amateur radio in this country but would instead go into the general fund to be spent by your "wise old congress-people" as they see fit!

For that reason I say --NO!!! If we must pay for a license then we should get a lot more for our money than has been the case to date. Write your representatives in Congress and voice your opposition to HR 3299!

That about blows my space allotment for this month gang, see ya all next year. My best wishes to everyone for the Holidays, 73 - Ike, N3IK





Left: Radio Norway International QSL from Paul Garland of El Paso, Texas. Right: Radio Berlin International QSL from John Carson of Norman, Oklahoma



## ALASKA

KNLS, 11700 kHz. Full data color studio card, and personal letter from Beverly Jones, Follow-up Office. Received in 20 days for an English report and U.S. mint stamps. Station address: The New Life Station, Box 473, Anchor Point, Alaska 99556. (Robert Landau, Secaucus, NJ)

## AZORES

Lajes Global Radio/U.S. Air Force GCCS-CUW, 8967 kHz. Full data blue map QSL card with slogan, "Voice of the Mid-Atlantic." Received in 19 days for a utility report, and return postage. Station address: c/o 1939 Communications Squadron, APO New York 09406. (Richard Allbright, Merced, CA)

## BRAZIL

Radio Aparecida, 5035 kHz. Full data color station card, without verification signer. Received in 45 days for a Portuguese report and two IRCs. Station address: Fundacao N. Sra. Aparecida, Avenida Getulio Vargas 185, CEP 12 570, Aparecida, Sao Paulo, Brazil. (Robert Landau, Secaucus, NJ)

## CANADA

CBW-AM 990 kHz, Winnipeg. Partial data CBC-Winnipeg card. Verification signer, H. Dyson. Received in 18 days for an English report, Canadian mint stamps, and a self-addressed stamped envelope. Station address: P.O. Box 160, Winnipeg, MB, Canada, R3C-2H1. (Harold Frodge, Midland, MI)

## COLOMBIA

Caracol Bogota, 4755 kHz. Partial data QSL card. Verification signer, E. Bejamno. Received in 136 days for a Spanish report. Station address: Apto Aero 9291, Bogota, Colombia. (Nick Grace, Harvard, MA)

## FRANCE

Radio France International, 17720 kHz. Full data scenery card of Paris, without verification signer. Received in 30 days for an English report. Station address: Boite Postal 9516, Paris, 75762 Cedex 16, France. (Robert Landau, Secaucus, NJ) (John Carson, Norman, OK)

## GERMAN DEMOCRATIC REPUBLIC

Radio Berlin International, 11785 kHz. Full data picture card from the GDR Post Museum, without verification signer. Received in 24 days for an English report and one IRC. Station address: DDR-1160, Berlin, German Democratic Republic. (John Carson, Norman, OK)

Norman, OK) (Tom Maslanka, Cleveland, OH)

## GERMAN FEDERAL REPUBLIC

Deutsche Welle, 9700 kHz. Partial data card "Satellite Transmission," with "Tune In" magazine, without verification signer. Received in 94 days for an English report and one IRC. Station address: Postfach 100444, 5000 Koln 1, Bundesrepublik, Deutschland. (Tom Maslanka, Cleveland, OH)

## GREENLAND

XPH, Thule Radio/U.S. Air Force GCCS, 13, 201 kHz USB. Full data prepared form card. Verification signer, V.K. Received in 40 days for an English utility report, a souvenir postcard, and return postage. Station address: c/o Thule AB, APO New York 09023-6346. (Richard Allbright, Merced, CA)

## NORWAY

Radio Norway International, 21705 kHz. Full data card view of "Statford C" offshore oil drilling platform, with illegible signature. Received in 21 days for an English report. Station address: 0340 Oslo 3, Norway. (Tom Maslanka, Cleveland, OH)

## NIGERIA

Voice of Nigeria, 7255 kHz. Full data picture card of International Airport. Illegible signature for verification. Received in 73 days for English report and four IRCs. Station address: P.M.B. 12504, Ikoyi, Lagos, Federal Republic of Nigeria. (John Carson, Norman, OK)

## PIRATE

RCCI Radio Comedy Club International, 7415 kHz. Full data cartoon sheet, without verification signer. Received in 13 days for an English report, mint stamp with a self-addressed envelope, and personal note. Station address: 3007R 4th Avenue, Beaver Falls, Pennsylvania 15010 (postmarked from Illinois). (Harold Frodge, Midland, MI)

Radio U.S.A., 7415 kHz. No data scrubbing bubbles card. Verification signer, Mr. Blue Sky. Received in 91 days for an English report, mint stamps, and a self-addressed envelope. Station address: P.O. Box 5074, Hilo, Hawaii 96720 (postmarked from South Bend, Indiana). (Harold Frodge, Midland, MI)

## SCOTLAND

Weekend Music Radio, 15043 kHz. Full data form letter, with additional friendly letter, station info sheet, and stickers. Verification signer Jack Russel. Received in 40 days for an English report and two U.S. dollars. Station address: WMR, 42 Arran Close, Cambridge, England CB1 4JH. (Sam Wright, Biloxi, MS)

## SHIP TRAFFIC

SEVILLA WAVE-CYPRUS FLAG-P30D2, 500 kHz. (Bulk carrier.) Full data prepared card. Received for a utility report, and return postage. Ship address: Oteo Shipping Corp., 15 Sachtouri Street, 18536 Piraeus, Greece. (Hank Holbrook, Dunkirk, MD)

REGINA MAERSK-OXGR2, 156.65 kHz. (Container vessel.) Full data letter and photo of ship. Received for a utility report, and return postage. Ship address: Rederitz A.P. Moller, Esplanaden 50, 1098 Copenhagen, Denmark. (Hank Holbrook, Dunkirk, MD)

ENERGY INDEPENDENCE-WBJF, 156.8 kHz. (Coal-fired Coal Collier.) Full data prepared QSL card, and pamphlet with picture of vessel. Received for a utility report and return postage. Ship address: Keystone Shipping, 313 Chestnut Street, Philadelphia, Pennsylvania 19106. (Hank Holbrook, Dunkirk, MD)

SEA LION-KJLV, 156.8 kHz. (650 foot long Container RO/RO ship.) Fine letter from staff member. Received for a utility report and return postage. Station address: American Transport Lines, Inc., Atlantic Division, P.O. Box 2110, Jacksonville, Florida 32203-2110. (Hank Holbrook, Dunkirk, MD)

## SOUTH AFRICA

ZSC, Cape Town Radio-Time Signal, 17018 kHz. Full data QSL card with station stamp. Received in 94 days for an English utility report. Station address: c/o Chief Technician, Private Bag, Milreton 7435, Cape Town, South Africa. (Nick Grace, Harvard, MA)

## SWITZERLAND

Red Cross Broadcasting Service, 17830 kHz. Full data QSL with station emblem, without verification signer. Received in 47 days for an English report. Station address: International Committee of the Red Cross, 19 Avenue de la Paix, CH-1202 Geneva, Switzerland. (Robert Landau, Secaucus, NJ)

## UNITED STATES

WESH-TV Channel 2, Daytona Beach, Florida. Partial data personal letter and station info sheet. Verification signer, Nick Pfeifauf-Director. Received in 14 days for a mint stamp and a self-addressed envelope. Station address: 211 N. Ridgewood Avenue, Daytona Beach, Florida 32114. (Harold Frodge, Midland, MI)

## ZAIRE

Radio Bakauu, 4839 kHz. Full data French personal letter. Verification signers were Kisonga Sitoni and Baruti Lusongela. Received in 89 days for an English report. Station address: Boite Postal 475, Bakuu, Zaire. (Nick Grace, Harvard, MA)

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# VLF Comms

Since the 1960s, the Strategic Air Command (SAC) has used VLF frequencies to transmit RTTY messages to missile sites and other SAC installations in the U.S. The Navy currently uses RTTY and Morse code aboard the TACAMO (Take Charge and Move Out) aircraft.

One thing that is unusual with the Navy system is that instead of OOK (on off keying), they use FSK to send Morse code from the aircraft. By the way, they also use a one mile long "trailing wire" VLF antenna. FSK Morse code is used because current surges created by the OOK causes an overload on the aircraft's electrical system.

For many years hobbyists believed that an encrypted five-word-per-minute FSK Morse code was used by SAC on 48.5 kHz until a bright gentleman (a shortwave listener) found out that it was really five baud RTTY. The transmissions were coming from the SLFCS (Survivable Low Frequency Communications System) located in Silver Creek, Nebraska, which is a part of the Strategic Air Command's PACCS (Post Attack Command and Control System).

The location of the SLFCS isn't a mystery because they give it in the clear using 50 Hz shift at 50 baud on 48.5 kHz. The emissions designator that was listed in the ITU files for Silver Creek was .15 F9, but that information may be outdated. The Silver Creek transmitter used other frequencies in the past such as 34.5, followed by 29.5 in the seventies, but who knows where they'll move to next?

Maybe they'll blow up the site when it's no longer needed, like they did in Hawes, California. (The Hawes VLF sight transmitted on 37.2 and was also a part of PACCS.)

Silver Creek was a part of the SAC "Bravo" HF net and used the code name "Foot Sore" for many years but the HF frequencies changed and calls were rotated so many times over the past several years that most SWL's

lost track of the system.

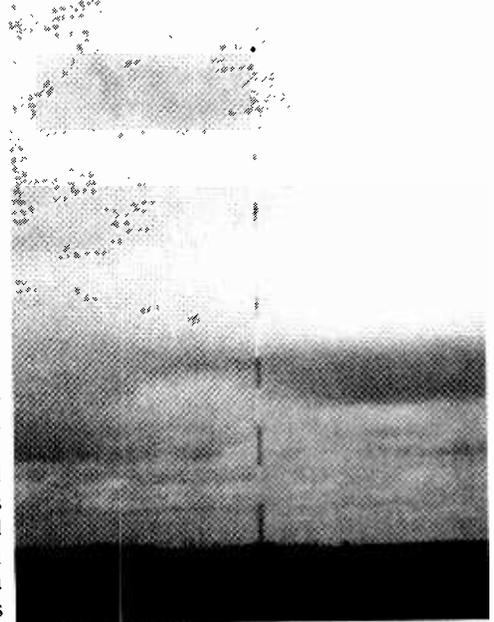
In a recent book, *The Nuclear Battle Fields*<sup>1</sup>, the Silver Creek site is described as being the "SAC Airborne Command Post GEP (UHF and HF Ground Entry Point) supporting SAC PACCS and a GWEN receive-only site."

They primarily transmit a new RTTY mode called MSK (Minimum Shift Keying) which SAC, for some reason, claims is compatible with the Navy's system. MSK uses a method that hides a third data bit which is extracted by the receive modem and reinserted in the bit stream. This system is used as a privacy mode but can be copied with the proper equipment. How the system works, even though it can be figured out by a knowledgeable engineer, is still regarded as "Top Secret" information.

The Silver Creek site changes the mode to standard RTTY several times during a 24 hour period. Then, they send a series of RYs (sometimes for several hours) followed by an EAM (Emergency Action Message). The same EAMs can also be heard on HF using USB voice and on the UHF wideband FM system from 225 to 400 MHz.

The transmit site is very easy to spot while traveling west on Route 30. As you approach the small town of Silver Creek, the 1300 foot tower is the tallest structure around. The site is located one mile north of Route 30 and one mile west of Route 39.

When the *Monitoring Times* photographer was sent out to photograph the facility, he



The Silver Creek, Nebraska, SLFCS transmitting site

couldn't get close enough to get a shot of HF antennas that are rumored to be at the site. He did notice a microwave dish that was pointing in the direction of Omaha.

The photo, looking west from Route 39, shows the massive antenna that literally penetrates the clouds. A dot was purposely placed near the top of the photo to show the actual height. Not shown, because of the poor clarity and because it was a cloudy day, are the guy wires that make up the antenna's "top hat."

A top hat resembles an umbrella and it's used to fine tune the tower to the VLF frequencies. It's also used to guy the top section of tower. Large insulators are used to electrically isolate the guy portion from the top hat. They were visible in the original photo but the resolution was lost in the printing process.

Well, here we are! Another year gone. The holidays are upon us and we can't forget to buy gifts for Aunt Martha and Uncle Fred. I'm sure they didn't forget you. Let's see. I think I know what they got you. They probably bought stocking stuffers like the Grove Power Antenna III or a 200 XL scanner. And because they spent so much money on you, you'll have to reciprocate. Maybe you can get Martha a new silverware set. Or how about a new set of golf clubs for Uncle Fred? Or you can get . . . Naaaaa.

NNN

<sup>1</sup>*The Nuclear Battle Fields*; authors, Arkin & Fieldhouse; publisher, Ballinger (subsidiary of Harper and Rowe)

```
BT
THE SILVER CREEK SLFCS
TRANSMITTER WILL CEASE
TRANSMITTING FROM 221230Z
TO 230030Z.
R/O SITES WILL
RETUNE OR TURN OFF
TELEPRINTERS AS REQUIRED.
BT
NNN
NNN
NNNNRYRYRYRYRYRYRYRYRYRYRYR
```

Fig 1 - This intercept shows the location of the SLFCS

```
ZULU WHISKEY LIMA FOUR
INDIA PAPA LIMA SEVEN
PAPA DELTA PAPA FOUR
OSCAR
BT
NNN
NNN
NNNNRYRYRYRYRYRYRYRYRYRYRYR
ZZ
BT
ROMEO SIERRA SIX
KILO HOTEL XRAY GOLF
XRAY TANGO TWO LIMA
ZULU WHISC IMA FOUR
IND BAPA LIMA SEVEN
PAPA DELTA PAPA FOUR
OSCAR
BT
NNN
NNN
NNNNRYRYRYRYRYRYRYRYRYRYRYR
```

Fig 2 - Here is a typical EAM

# Notes to Santa Claus

Living in fear of getting another set of ugly sox and matching ties? Try dropping some hints to your friends and loved ones for any of the following gimcracks you'd like to see under the tree this Christmas.

**1. A universal remote control.** Combines the various hand held remote controls now cluttering your coffee table into one. Use it to combine your CD player, TV remote, VCR, satellite receiver, FM receiver, or even your SW receiver. Cost for the universal remote is about \$90.00.

**2. Surround sound amplifier.** This neat little gadget decodes the separate audio channels in the audio of many movies for super realistic "theater-like" sound. You'll need extra speakers to get the full effect. Cost for the surround sound amp is about \$140.00.

**3. Remote control extender.** This unit allows you to control any infra red (IR) device from wherever in your house you may choose. You no longer have to lug your TV's or VCR's around the house. Simply place the extender over the TV set on which you want to watch and put the "sender" on the device you wish to control. Uses existing coax to send the IR commands. Cost for the extender is about \$50.00.

**4. IR to UHF converter.** Converts any existing IR remote control unit to UHF frequencies. Allows you to control your TV, VCR, or Satellite receiver anywhere inside or outside the house without any cables. Cost for the converter is about \$80.00.

**5. Two essential books.** Not exactly the books you'll curl up with in front of the fireplace but two you'll greatly appreciate: *The Home Satellite TV Installation and Troubleshooting Manual* (about \$30.00) and the *1990 World Satellite Almanac* (about \$35.00).

All of the above are available from one or more of the following:

DBS Satellite TV	800-327-0046 (National)
	800-327-2345 (California)
NBO Distributors	800-346-6466 (National)
The Sky Store	800-328-7733 (National)
	800-542-5011 (Minnesota)
Skyvision	800-543-3025 (National)
West, Inc.	800-222-9064 (National)
	800-952-5520 (Washington)

## More Mail Order TVRO

Two satellite TV mail order companies have recently come to my attention. The first is DBS Satellite Television of Ventura, California, which offers a ten page catalog featuring big-name top-grade merchandise. DBS offers complete packages or individual components -- whichever one might need. In addition, there is a useful receiver comparison chart which compares the features of 22 receiver models.

Call for the catalog at the above phone number or write them at 2316 Channel Drive, Ventura, CA 93003-4525.

The other is Skyvision, Inc. of Fergus Falls, Minnesota, which offers a 29 page catalog of complete systems and components as well as other video and audio accessories. Skyvision, too, offers top name gear and gives away the "Skyvision Do-It-Yourself Installation Video" free with the purchase of a new system. Dozens of extras such as splitters, switches, line amps, tools, cable, peaking meters, and roof mounts are also offered. Call them at the above number or write Skyvision, Inc., 2066 College Way, Fergus Falls, MN 56537.

## Mailbag

"Is it possible, with a reasonable size dish inside an apartment, to pick up usable signals from the NPR (National Public Radio) satellite?" Wayne Haggarty, Thornton, CO.

Strange as it may seem, Wayne, the answer is yes! It happens that the center of the foot print for W4 (where the signal is strongest, and where NPR resides) covers all but the western edge and northern fringe of the U.S. This means that fairly good signals should be had with a small very accurate reflecting surface. A one piece four foot fiberglass dish should do nicely.

You might be interested to know that Bob Heil offers an audio-only satellite system featuring a five foot ring mount dish (which you should be able to set on the floor of your apartment), a feedhorn with polorotor, a power supply for the LNB and 100 feet of wire with appropriate connectors all for \$450 plus shipping.

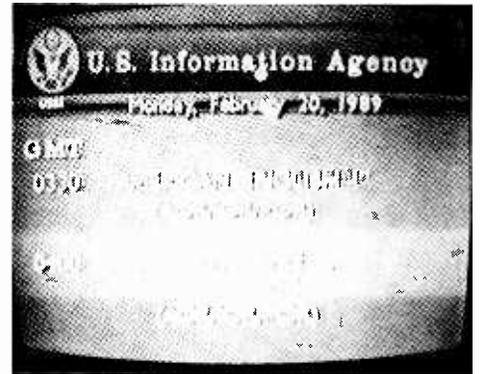
What this means is that if you already own an Icom 7000 (which covers the 950-1450 MHz frequencies we're interested in) you may simply hook up the Icom and start tuning SCPC. If you don't have the Icom, use the Heil SC-1 (about \$450).

Now, in your particular situation, you may have difficulty switching your antenna between W4 (home of NPR) and G2 (site of all the baseball and other sports backhauls). Still, it is possible. Write Bob Heil for information at Heil Sound Ltd., Marissa, IL 62257, or call 618-295-3000.

## Transponder Notes

### NASA Info

Late breaking news from NASA including shuttle launch schedules and other space related activities are available via telephone on the NASA Headline News Service. The service, available Monday through Friday is a toll call at 202-755-1788. Broadcast schedules for NASA Select, the video feed for the world's press on



Spacenet 2 Transponder 21 is the location for the U.S. Information Agency (see billboard). Here programming from American TV networks and C-SPAN are rebroadcast for reception by Americans in Europe. In addition, Voice of America audio and video broadcasts can be found here as well. World Net programming is also seen on this channel.

F2-13 is detailed on the headline service as well.

My thanks to Todd Shideler of Jean, Nevada, for passing on a copy of a letter from the office of Public Affairs at NASA. The letter, in part, reads:

"...NASA is not in the broadcast business; however, we have no objection to you receiving our transmissions from Satcom F2R, transponder 13, which are used to move video and audio from one center to another. NASA Select comprises mission press conferences, flight director change-of-shift briefings, and other briefings as appropriate. At all other times, it carries air-to-ground and PAO mission commentary with video of Mission Control.

"We also utilize transponder 9 on Satcom F2R to distribute audio only and it carries uninterrupted air-to-ground and PAO commentary. The satellite's receiver should be tuned to 6113.3 MHz for proper reception of this channel..."

Don't look for this frequency on your satellite receiver. It's SCPC/FM and must be tuned with an SCPC receiver. Set your satellite receiver to channel 9. Split the 70 MHz loop on the back of your receiver. Feed the coax from the loop to the antenna of a TV-audio radio. Tune through channels 1-6 and it will be right there.

This season NFL fans have been enjoying the network backhaul feeds from CBS on the Telstar satellites including the little used but still powerful T303. ABC's Monday Night backhaul remains on T301. NBC's activity is mostly on Ku band but a surprising number of backhauls have been found on F2. Look to these same channels for the upcoming play-offs.



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## An Inspiration to Broadcast

"Live! From the McAlpin Hotel in New York City, you're listening to WMCA!" In the thirties, big band music was the sound of 570 radio, broadcast from studios filled with ball gowns and tuxedos. By 1960, rock 'n' roll had taken over. The station became "Good Guy Radio," with the WMCA Good Guys: Jack Spector, Harry Harrison, Gary Stevens, and B. Mitchell Reed. Thousands of teenagers wore bright orange Good Guy sweatshirts with a happy face smiling at you on the front.

The music eventually faded and the Good Guys were replaced by talkshow hosts. Barry Gray, Barry Farber, and Sonny Bloch became WMCA institutions during the eighties. Their controversial topics and heartfelt advice was the talk of the town.

1989 has brought the station another rite of passage -- and a dream come true for Stuart Epperson. Epperson's company, Salem Communications, recently purchased WMCA for 15 million dollars. Many years ago, Epperson operated a country and western station. Listening to the music he was broadcasting, he found himself offended by the language and double entendre. Epperson decided to stop broadcasting "down home music" and replace it with Christian programming.

Since then, Salem has had amazing success with the idea and now owns 14 stations from coast to coast. Their newest acquisition, WMCA, has become the first major station in New York City to air an inspirational Christian format. With a potential audience of 19 million people, WMCA penetrates the large population centers of New York, New Jersey, Connecticut, and Rhode Island with its 5,000 watt signal.

Salem Communications has a proven formula for commercial Christian radio stations. General Manager, Joe D. Davis

explains: "The purpose of WMCA is to establish and preserve inspirational broadcasting. We provide good Bible teaching and inspirational music that is interesting, convenient, and easily accessible."

Although WMCA is on the air 24 hours a day, only a handful of the programs are produced in their studios. Some popular WMCA shows were continued. Sonny Bloch's real estate talk show is still heard and is syndicated to almost 200 stations nationwide. "Our format does not conflict with real estate," says Davis. "Christian listeners need this information, and it's a very successful show."

Too, WMCA's coverage of Rutgers University football and the Football Game of the Week also continue to be heard. Other survivors include Sonny Bloch's "Today's Business Journal," Gary Null's "Natural Living," "Ask the Doctor," and "The Auto Show," with questions and answers about car repair.

Programming a Christian radio station is actually quite a challenge. WMCA sells most of its broadcast day in 30 or 60 minute blocks, along with short spot advertisements. When your shows are produced by many different syndicators, maintaining a consistent sound is not easy. The content of one show must never alienate or offend the audience of another.

WMCA relies on a nationwide clearing house of Christian programming to establish criteria for a homogenous sound all day long. National Religious Broadcasters, based in New Jersey, continually monitors WMCA's Christian programmers. Everything that is heard on the station meets their standards of content and philosophy.

Even the commercials intone a holy message. You'll hear ads for Christian health foods and a computer database program of seven different versions of the Bible to aid sermon writing and Bible study. One often-

heard public service announcement offers suggestions to children whose parents do not understand the merits of Christian rock 'n' roll.

"Successful" is the best word to describe WMCA's new Christian sound. The station is solidly sold out on weekdays, and weekend schedules are filling in rapidly. WMCA also receives payments from four radio networks. The Mutual Radio Network, Satellite Music Network, Unistar, and National Black Networks all sell brief "spot" announcements to clients who want nationwide coverage. WMCA is the New York City affiliate for all four networks and airs the commercials they feed to the station hourly. WMCA's management has cleverly juggled their broadcast schedule and maximized the profitability of the station.

Davis, however, is not satisfied with these early achievements. A Christian personality talk show is being developed which will air from 3 to 5 p.m. weekdays. "All we need now is the right person to be the host. We'll discuss today's issues with a Christian point of view."

Davis describes the station's long-term goals: "We want big numbers (ratings) with a select group of people -- Christian listeners in the metropolitan area. Being an AM station is not a handicap. People listening for something special will tune for it. We hope to be the premier Christian station not only in New York, but of the entire country."

Davis also plans to apply to the FCC for a significant increase of power and coverage of WMCA's signal. If the first few months are any indication of the future, WMCA is destined to continue its legacy of trend-setting broadcasting that started back in 1922.

### Bits and Pieces

In "American Bandscan" last month you read all about Los Angeles jazz station KKGQ. The jazz has now been blended with classical music. KFAC, a classical station, was sold for 55 million dollars and has changed its format to rock. They donated their enormous classical



The WMCA master control room



Joe D. Davis, General  
Manager of WMCA



Sonny Bloch, WMCA real estate  
talk show host

music library to KUSC, owned by the University of Southern California. KFAC will donate its call letters to one of KUSC's repeater stations and give KUSC a large cash donation to continue classical music broadcasting in the City of Angels. KKG0 has added several hours of classical music to its daily jazz schedule to absorb part of KFAC's audience.

Other classical radio stations are altering their sound to attract a younger audience. WNCN in New York City has hired pop music disk jockeys to create a new contemporary sound. Opera, organ, and avant-garde music has been banished from their format. Classical stations in San Francisco, Salt Lake City, Houston, and Milwaukee have changed their formats recently. Roll over, Beethoven, and tell Tchaikovsky the news!

AM radio now serves only 26 percent of all listeners in the United States, and station owners are banding together to create a new public image of the band. Here are some of their current strategies: The National Association of Broadcasters has started a "Super AM" campaign. They will work with receiver manufacturers to market new high-fidelity all-band radios that continuously tune AM and FM as if they were one band. These new radios will carry a distinctive eye-catching "Super AM" logo sticker.

New antennas are being developed to maximize ground wave and to eliminate troublesome "skip" into distant areas. Several groups are pressuring the FCC to adopt strict rules limiting electronic interference from devices like computers and light dimmers. AM stereo car radios are becoming available again. Radio Shack and J.C. Whitney, the auto parts mail order house, are offering models for Christmas.

Many plans have been proposed to the FCC to allow AM stations to broadcast with FM in new or existing bands. AM radio is determined to remain competitive and create a new renaissance of prosperity and listenership.

Speaking of AM, "The Big 89," WLS, in Chicago has finally pulled the plug on rock 'n' roll and switched to all talk. The home of Dick Biondi and Larry Lujack is now another rock radio legend.

## Mailbag

Michael Feldman's "What'ya Know?" comedy quiz show, heard on WHA, 970 AM, in Madison, Wisconsin, is being taped as a pilot for a possible TV series by the Disney Channel. The show is heard on 88 stations nationwide on American Public Radio. Feldman is a former cab driver and taught English at Madison's Shabazz City High School. Also in Madison,

WHIT-AM has switched to country music, and new WMJB, FM 106, in nearby Janesville, has signed on with an adult contemporary format, satellite delivered by Drake-Chenault in Albuquerque, New Mexico. Our thanks to Thomas Miller for this news.

Selden Richardson, of Richmond, Virginia, tells us that WLEE, on its new frequency of 1320 AM, has left the air. The station was locked up after only three months on the air. The station is heavily in debt with unpaid rent and many disgruntled employees.

## New Station Grants

Look for new stations on these frequencies:

Trinity, Alabama	92.5
Manhattan, Kansas	104.7
Monticello, Kentucky	93.1
Howland, Maine	103.9
Oscoda, Michigan	95.7
Jackson, New Hampshire	99.5
State College, Pennsylvania	94.5
Greenville, South Carolina	91.7
Chase City, Virginia	99.9
Harrisonburg, Washington	88.7
Beverly Hills, Florida	97.1
Millerstown, Kentucky	90.1
Shepherdsville, Kentucky	104.9
DeWitt, Michigan	96.5
Warrenton, Missouri	99.9
New Bern, North Carolina	94.1
Lajas, Puerto Rico	103.7
Midland, Texas	90.1
Claremont, Virginia	670

Courtesy of *The M Street Journal*

## For Sale

A construction permit for a large AM station in the west, located in a major market area, is for sale. It boasts a great nighttime coverage pattern. Contact: C. Hall at KRDA, 2207 South Nevada, Provo, Utah 84606, or call 801-374-6809.

Veteran broadcaster George Dacre says that 75

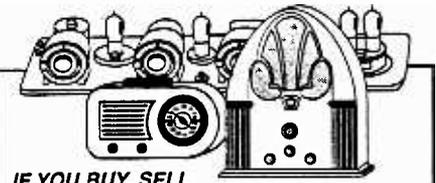
percent of a hot AM daytimer is for sale to the right person who can serve as Sales Manager and Operator of the station. Call George at 914-651-4446 or write him at WTBO, 62 Main Street, Florida, New York 10921.

\$200,000 will bring you a one kilowatt AM station on 1580 kHz. Located one hour south of Nashville, it has only one other station to compete with. Drop a line to A. Wilkerson at WLIL, P.O. Box 340, Lenoir City, Tennessee 37771, or call 615-986-7536.

A Class A FM and a 10 kilowatt AM daytimer are for sale as a package deal. It is priced for quick sale. Call J. Dart in Price, Utah, at 801-637-0863 or 1752 for all the details.

## International Bandscan

"EM" is the name of a new station that is catering to the youth of Czechoslovakia. You



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can find it on FM and on 1071 kHz AM daily, in and around Prague.

All India Radio has added a transmitter on 1251 kHz to serve Delhi with its national service programs. A one million watt transmitter has gone on the air in Nagpur on 1566 kHz broadcasting AIR extended service programs.

Atlantic 252, from Ireland, is broadcasting on longwave on 252 kHz with 500 kilowatts and Optimod-AM processing. It is on the air from 0500 to 1800 UTC daily. Send your QSL requests and letters to P.O. Box 252, London, W1E 2RA, England. Their rock music format is being heard widely throughout Ireland, Great Britain, Europe, and North America.

Radio Monte Carlo in Monaco now has Arabic programming during the day until 1830 UTC on 1467 kHz. The French service is now carried only on longwave at 216 kHz, and on local FM transmitters. The longwave transmitter signs off at 0005 UTC.

## Credits:

First, we would like to wish all our readers a very Merry Christmas and a Happy New Year! Make your New Year's resolutions include reporting to American Bandscan! We'd love to hear from you.

This month we would like to thank Joe Davis and Sonny Bloch at WMCA, Marianne Bellinger at SMN, readers Joseph Johnson, Selden Richardson, Thomas Miller, Ruth Hesch, W.E. Doan, Brian Robinson, Jack Montgomery, Mark Pierce, Carleton Burt, and Robert Gortner. Some of our information comes from *The M Street Journal*, *Broadcasting* and *Radio World* magazines, and the *FM Media!* newsletter. Until next year, have a wonderful holiday season!



## Reflections on 1989

I lost some good friends in 1989, and I expect you did too. As this is written, Caroline is silent. She was not just another station or even just a pirate with a long life. She can claim to have changed the direction of European radio, and, through her shaping of the British music industry, she had a tremendous impact on American culture as well. It is extremely difficult to find and long out of print, but if you can locate a copy of *When Pirates Ruled the Waves* by Paul Harris, you will discover what Caroline was all about. I hope I am wrong, but I do not think she will be back.

We lost the Irish pirates, and John "The Man" Frawley of Ireland's Radio Luimni passed away. We lost more than a host on an Irish pirate program when John died. We lost a legend. He cannot be replaced, and somehow the world is a little less kind because of it. Those of you fortunate enough to have heard him live or by tape will know what I mean.

At least for now, we have lost La Voz de Alpha 66 as the result of the FCC's action. It matter's not whether you agree with Dr. Diego Medina's anti-Castro politics or not. To hear him was to know that this was a person of unusual sincerity and great dedication.

So, 1989 was a year of loss. And those we lost were some of the concrete evidence that unlicensed broadcasting is far more than just "kids playing radio." Here's hoping that 1990 is a "kinder and more gentle" year.



**Ireland:** From the Netherlands, Ary Boender reports a few Irish pirates manage to hang on, but no one knows for how long. Still operating in Monaghan are Radio Star Country and FM 100. In County Donegal, WABC, Radio North, and Riverside Radio are broadcasting. Radio Dublin has now stopped both its shortwave and midiumwave transmissions. At present, FM broadcasts are continuing.

**Radio Caroline:** More details have been coming in on the Caroline closing. If nothing else, Caroline seems to have encouraged almost as much European cooperation as the ECC. The Dutch took the lead but with the backing of the British, French, Belgians, Spanish, and possibly the West Germans.

Although the Dutch deny it, the claim continues that engineer Peter Chicago was hit with the butt of a revolver. Disc jockey Rob Harrison was wounded so badly that a doctor had to be rushed to the *Ross Revenge*, Caroline's ship. Two women on board were allegedly sexually harrassed. Most of the equipment on the ship was said to have been smashed with sledgehammers.

Why was such drastic action taken? It appears the Dutch did not like Caroline's radio 819, a Dutch language service, or World Mission Radio, which is run by a Dutch evangelist. Apparently all the countries involved thought it was time to discourage new offshore stations. Some also feel Caroline's shortwave service on 6215 was causing interference to

marine communications.

So far, American media have been almost totally silent about the Caroline raid. It was conducted and supported by some of the most advanced and civilized countries in the world. I cannot help wonder what the reaction would have been if this had been the work of the Iranians or Chinese. Is there, perhaps, a double standard at work here? My thanks to Ary Boender, Jack Russel of Scotland's Weekend Music Radio, Pat Murphy, Gregg Allinson, and Bill Tomkiw for their help on the Caroline story. The editorial comments are strictly those of this writer.

Want more information on Caroline? Ary says you can try (at your expense) the "Caroline infoline." The number in England is 836-404315.

**Computers:** We would like to hear from "Outer Limits" readers who have used computer boards and information services as a source of shortwave information. Let us know what ones you have used, what material was obtained, how useful it was, and what costs were involved. We will share the results of this survey in a future column.

**Have Your Numbers and Clandestine too:** This writer heard an unusual transmission on El Salvador clandestine Radio Venceremos. At 0052 (sign-off was 0102) the station announced it was broadcasting a "special dispatch." This consisted of six-digit Spanish numbers groups. I have been told of

Left: the KPF-941 transmitter.  
Below, the "shy" participants in the RNI Free Radio Convention.



six-digit numbers broadcasts, but this is the first one I ever heard. Unlike many Vencermos transmissions, there was no change of frequency during this one. The frequency of 6460 was used throughout the entire broadcast.

And while on the subject of El Salvador, let me highly recommend Joan Didion's book *Salvador*. It will make the terror of the place very real to the reader.

While discussing numbers stations, Philis Werlin brought to our attention the fact they are now getting some attention outside short-wave circles. She sent along an excellent article on the subject by Cecil Adams in the Boston *Phoenix*, an "alternative" arts and entertainment weekly.

**Hurricane Hugo** brought much tragedy, and shortwave listeners in particular were made aware of how devastating the storm was. In Connecticut Bob Thomas monitored the national Hurricane Watch Network, which coordinates with the Nation Hurricane Center in Coral Gables, Florida, on 14325 USB. This writer heard the South Carolina Emergency Hurricane net on 3915 kHz. Help and welfare traffic to and from Puerto Rico, the Virgin Islands, and other Caribbean islands could be heard on 14275, 14283, and other frequencies. Bob says Cuban hams may also be on 14325.

**"The Captain of Pirate Station Y-12"** tells us a most interesting convention was held recently. Hosted by Radio Newyork International, its honored guests are all involved in New York City area pirate broadcasting. They met at the transmitter site of the forerunner of RNI, the famous KPF-941 (1622 kHz). KPF-941 claimed it was a licensed station, which it was. However, the FCC declared it was engaged in pirate activity, since it was functioning as a community station for Yonkers, New York, rather than as an auxiliary station. The FCC shut it down.

The convention featured an examination of the KPF-941 transmitter, a discussion of the closings of area pirate WHOT and Radio Caroline, a viewing of RNI videos, and other pursuits including the consumption of large quantities of pizza. Apparently a great time was had by all.

We could not resist showing *Monitoring Times* readers the photos of the transmitter and of those in attendance sent by the Captain. Thanks very much, Captain!

● **Here and There:** Patrick Hennessey, from the state of Washington, logged west coast pirate Zodiac Radio on 7415 at 0350. In Ontario, Michael Cook heard political and religious pirate Free Radio One on 7415 at 1915. He says the station also uses 4005. Virginia's Steve Rogovich, North Carolina's Gregg Allinson, New Hampshire's Ray Labrie, and this writer are all proud possessors of

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QSLs from Scottish pirate Weekend Music Radio. Let us hope WMR does not meet a fate similar to that of Caroline.

● In Pennsylvania Barry Rowan got QSL No. 11 from Radio Free Massachusetts for a logging on 7415. In a future column we will try to include a copy of this one.

● Meanwhile, back in Massachusetts, Nick Grace continues to hear nearly every pirate around. Among his recent catches are KNBS on 7412 (2001 UTC), Radio Jam (or Jan?) on 7415, WBRI on 7491 (0332), Radio USA on 7417 (2211), Radio Flatulence on 7417 (2237), and United World Radio on 7415 (0255).

● Mike Fern is catching some clandestine activity out in California. On 6315 between 1100 and 1300 UTC he has heard the Nicaraguan Contra station with both Radio Liberacion and Radio Quince de Septiembre identifications. He has logged anti-Castro La Voz del CID on both 6305 and 9940. If you have never tried to monitor a clandestine, give this one a chance. It usually puts in a solid signal.

● From WXZR Monteological Research Radio comes the claim they will have worldwide coverage through a series of relays. They promise to send copies of reception reports to prove it. Bruce Deerlake got a QSL from WKZP for a 7415 transmission monitored in Ohio. Minnesota's Alan Masyga received a Free Radio One QSL certificate. This writer says thanks for a recent QSL received for a 7415 broadcast by United World Radio and relayed by the Voice of Free Long Island.

● Pennsylvania's John Demmitt reports strange things are being heard on the aero band, including fake messages, excerpts of KDKA Pittsburgh, and comments on the union strike against the airlines. It appears the Greater Airport at Pittsburgh is the target, and all we can say is that this type of piracy could get somebody accidentally killed.

**Radio Clandestine Update:** It appears that some of the widely-heard Radio Clandestine broadcasts are live and do include new material. At least some of the broadcasts do feature the original R.F. Burns, but those monitored here also include people apparently not with the original Clandestine crew. As we previously reported, when Clandestine first returned after over a year of silence, the broadcasts seemed to be replays of old Radio Clandestine classics. Regardless of what is being aired, or who is doing it, one thing is certain. The Radio Clandestine name has been entertaining people for a long time!

In addition to this writer, recent Radio Clandestine monitors have included Nick Grace (7415 kHz), Pennsylvania's Bob Montgomery (7414.5 at 0300), and Barry Rowan (7415 at 0206). Barry also heard Radio Garbanzo, and KRUD on the same frequency that evening.

If Radio Clandestine has been easy to hear lately, it may be more difficult to QSL. Our reception report sent to the Pirate Radio Network box in Kingston, New York, used by Clandestine and several other stations, was returned by the post office with the notation that the box had been closed.

**Croatian Independence?** Finally we leave you with an unusual and easily heard clandestine. It is Radio Libertas, which is relayed at approximately 1630 UTC via WHRI on 11790 and 21840 kHz. This Croatian language program is produced by the Croatian Committee for Human Rights in Canada. The Committee is affiliated with the Croatian National Congress which seeks an independent Croatia separate from Yugoslavia. According to the Clandestine Confidential newsletter, the address is 1174 Clarkson Road North, Mississauga, Ontario L5J 2W2, Canada.



## What's New in Beacons

A couple of months ago, a DXer in Quebec reported hearing his first beacon from Texas. It was CBC on 413 kHz. This beacon is located in Anahuac, Texas, and the power is listed at 25 watts. He was quite proud of his achievement and he should be.

A few weeks later, CBC was reported in Delaware. The DXer here reported that she heard it simultaneously with BC/414, so she was certain that it was not BC with an erratic signal of some kind. This was a new record for her in reaching west. (Low frequency beacons are heard greater distances along north/south lines than in east/west directions.) Later, she reported that CBC was heard almost on a daily basis at her location in Dover.

All of this was a little disturbing, because it wasn't being reported from the middle west. If a 25 watt beacon in Texas could stretch to the Atlantic Ocean and even up into eastern Canada, it would likely be heard in an area almost directly north of the location. But it wasn't being reported from the middle west. In fact, the beacon seemed more likely to be in the east than in Texas, based on where it was being heard.

The United States does not assign a three-letter ID to more than one beacon. There had been no indication that the beacon at Anahuac had been shut down and the ID reassigned elsewhere. And it would be impossible that they would reassign the ID on the same frequency for a different location. Thus, if it were eastern, it would have to be outside of the United States.

Finally, CBC was heard in the middle west. By several people, including myself. It seemed to be on 415 rather than 413 and to be more southeastern than Texas. In fact, when my loop was turned toward Texas, HJM/415 from Bonham, Texas, buried the signal of CBC. The general belief now is that this is a new beacon in the Caribbean area. One possibility is Cuba.

Part of the fascination of DXing low frequency beacons is that you never know

when something new will turn up. Existing beacons change their IDs and/or their frequencies; new beacons appear and old beacons are closed down. The very next beacon you hear may be something completely new.

### What's That I Hear...

Donald MacLaughlin writes from Guam that he heard a transmission on 384 kHz that just repeated itself (in code) AJA, AJA, etc. He wondered what it was.

What you heard, Donald, was an NDB, or nondirectional beacon. The term nondirectional applies to the transmitter in that the signal is transmitted in all directions rather than beamed in one or two specified directions.

However, at the receiver end, low frequency signals are very directional. Using a loop antenna can enable you to get a bearing of where the transmitter is located relative to your location. For that reason, these beacons are used for navigational purposes.

The beacon you heard is right there on Guam, operated by the Navy at Agana NAS/Brewer Field. The transmitter frequency is 385 kHz and the beacon is a double sideband type. If you were using the CW setting on your receiver, you were hearing the lower sideband. The upper sideband would be at 386.

If you use the sideband settings, you tune to the carrier frequency (385 for AJA) and pick up the audio from the sideband. Almost all U.S. beacons and many in other countries have sidebands 1020 Hertz from the carrier. Some Canadian beacons use 1020 and some use 400 Hertz for the sideband.

### Or I Didn't Hear

John Barbato of New Jersey asks why he doesn't hear any weather broadcasts from nearby beacons on 375 and 379 kHz. EWR/379 in Newark used to have continuous weather broadcasts. The ID was later changed to GKQ. The voice broadcasts

were discontinued several years ago and GKQ remains today without voice.

ELM/375 kHz in Elmira continued with the voice weather broadcasts somewhat longer. They were heard over a considerable area, even well out into the middle west. About a year ago, the voice weather broadcasts were no longer heard. It may be several years before the beacon is officially listed without voice capability, but it is most likely that the voice transmissions are now history.

Only a few beacons remain with voice transmissions on a continuous basis. Probably the best known, and most widely heard, are TUK/194 Nantucket, Massachusetts; GLS/206 Galveston, Texas; and GNI/236 Grand Isle, Louisiana.

### I'm Glad You Asked

Donald MacLaughlin also asked about a book to tell him what the low frequency beacon band is all about. His timing is perfect. The new edition of *The Aero/Marine Beacon Guide* is just off the press.

This guide contains a listing of over 6000 beacons in the western hemisphere, the Pacific areas, and Asia. This includes all of the low frequency beacons in these areas plus those beacons still remaining in the 1600-1800 kHz range.

Divided between North American and foreign, and arranged in frequency order, each listing shows the frequency, ID, modulation shift, location by name and coordinates, elevation of transmitter site, power, and miscellaneous additional information (where pertinent). There is a cross index by ID to make locating that "new catch" much easier. There are also articles by well-known DXers on propagation, listening techniques, and sending for QSLs.

The *Guide* is edited by Ken Stryker, Unidentified Beacons Editor of the Longwave Club of America, and compiled by myself. To order the *Guide*, send \$15.00 to: Ken Stryker, 2856-G W. Touhy Avenue, Chicago, IL 60645.





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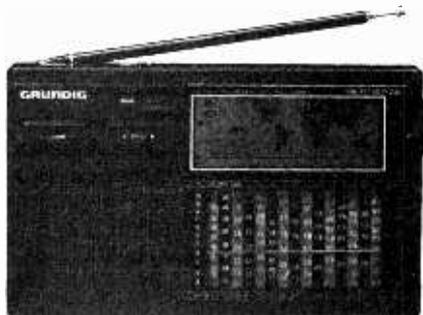
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# program

guide

## MT Program Team

**Kannon Shanmugam,**  
Program Manager

4412 Turnberry Circle  
Lawrence, KS 66047

**Jim Frimmel**

Willow Park, Texas

**Dale Vanderpoel**

Ft. Lauderdale, Florida

### Sunday

#### Dec 3rd, 10th, 17th, 24th, 31st

- 0006 Christian Science Monitor: Herald of Christian Science. Religious programming explaining the doctrine of Christian Science.
- 0008 Radio Canada Int'l: Innovation Canada. Bob Cadman looks at Canada's new ideas and technological developments.
- 0030 BBC: Composer of the Month. Profiles of great composers and selections from their works.
- 0038 Radio Canada Int'l: Coast to Coast. Aldo Marchini looks at opinions of Canadians on issues affecting them.
- 0101 BBC: Play of the Week. Hour-long drama selections (including the conclusion of the Globe Theatre season).
- 0106 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0108 Radio Canada Int'l (Latin America): Innovation Canada. See S 0008.
- 0108 Radio Canada Int'l (United States): Shortwave Listeners' Digest. Ian MacFarland presents DX news and features.
- 0109 Deutsche Welle: Commentary. Opinion on current issues.
- 0113 Deutsche Welle: Sports Report. The latest news from the world of sports.
- 0117 Deutsche Welle: Mailbag/To the Top/Checkpoint. Listener letters, music, and features on a rotating basis.
- 0130 Radio Canada Int'l: Music Spot. The latest in popular music.
- 0138 Radio Canada Int'l (Latin America): Shortwave Listeners' Digest. See S 0108.
- 0138 Radio Canada Int'l (United States): Spotlight on Science. Bob Cadman examines the latest developments in science and technology.
- 0139 Deutsche Welle: German by Radio. A language course for English speakers.
- 0206 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0209 BBC: British Press Review. Survey of editorial opinion in the British press.
- 0209 Deutsche Welle: Commentary. See S 0109.
- 0213 Deutsche Welle: Sports Report. See S 0113.
- 0215 BBC: The Book People. A look at people in the book trade (through December 17th).
- 0216 Deutsche Welle: Asia in the German Press. A look at what German papers and weeklies have to say about Asia.
- 0223 Deutsche Welle: Mailbag Asia. Answers to listeners' queries, musical requests, and the club corner.
- 0230 BBC: The Ken Bruce Show. A mix of popular music and entertainment news.
- 0300 Radio Canada Int'l: Listeners' Corner. Ian MacFarland presents listener comments, questions, and music requests.
- 0306 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0309 Deutsche Welle: Commentary. See S 0109.
- 0313 Deutsche Welle: Sports Report. See S 0113.
- 0315 BBC: From Our Own Correspondent. In-depth news stories from correspondents worldwide.
- 0317 Deutsche Welle: Mailbag/To the Top/Checkpoint. See S 0117.
- 0330 BBC: Quiz. A quiz show of a topical nature.
- 0339 Deutsche Welle: German by Radio. See S 0139.
- 0352 Radio Canada Int'l: Music. Selections by Radio Canada International announcers.
- 0406 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0409 Deutsche Welle: Religion and Society. A roundup of news and developments concerning the world's major religions.
- 0419 Deutsche Welle: Africa in the German Press. A look at what German papers and weeklies have to say about Africa.
- 0430 BBC: A Taste of Soul. Robbie Vincent presents classic soul tracks and current music from the soul scene.
- 0434 Deutsche Welle: People and Places. A program for Africa with interviews, stories, and music.
- 0445 BBC: Personal View. A personal opinion on topical issues in British life.
- 0506 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0509 BBC: Twenty-Four Hours. Analysis of the main news of the day.
- 0509 Deutsche Welle: Commentary. See S 0109.
- 0513 Deutsche Welle: Sports Report. See S 0113.
- 0517 Deutsche Welle: Mailbag/To the Top/Checkpoint. See S 0117.
- 0530 BBC: Financial Review. A look back at the financial week.
- 0539 Deutsche Welle: German by Radio. See S 0139.
- 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.
- 0606 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0609 Deutsche Welle: Religion and Society. See S 0409.
- 0619 Deutsche Welle: African in the German Press.

- See S 0419.
- 0630 BBC: Jazz for the Asking. A jazz music request show.
- 0634 Deutsche Welle: People and Places. See S 0434.
- 0706 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: From Our Own Correspondent. See S 0315.
- 0745 BBC: Book Choice. Short reviews of current or future best-sellers.
- 0750 BBC: Waveguide. How to hear the BBC better.
- 1106 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 1109 Deutsche Welle: Arts on the Air. Reports and interviews on major cultural events and developments.
- 1115 BBC: From Our Own Correspondent. See S 0315.
- 1130 BBC: Composer of the Month. See S 0030.



Vojtek Gwiazda, Radio Canada International's "North Country" host

## 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 broadcasts are listed in chronological order, starting on Sunday at 0000 UTC and ending on Saturday at 2359 UTC.
- \* 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 7:01 pm [EST] 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. We invite listeners and stations to send program information to the program manager at the address above.

# program

guide

- 1134 Deutsche Welle: German by Radio. See S 0139.
- 1201 BBC: Play of the Week. See S 0101.
- 1206 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 1208 Radio Canada Int'l: Current Affairs. In-depth news programming.
- 1306 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1330 BBC: Sports Roundup. Sports news.
- 1345 BBC: Personal View. See S 0445.
- 1401 BBC: Feature. Programming on various subjects.
- 1404 Radio Canada Int'l: Sunday Morning. A three-hour magazine program, covering virtually everything under the sun.
- 1406 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 1430 BBC: Anything Goes. Sounds from the BBC archives as requested by listeners.
- 1506 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 1509 Deutsche Welle: Commentary. See S 0109.
- 1513 Deutsche Welle: International Talking Point. A round-table discussion on major trends and events.
- 1515 BBC: From Britain's Music Festivals. A program of classical music from the Britain's great concert festivals.
- 1534 Deutsche Welle: Pop from Germany. A look at the German pop music scene.
- 1553 Radio Canada Int'l: Reports/Commentaries. An in-depth look behind the news headlines.
- 1606 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 1609 Deutsche Welle: Arts on the Air. See S 1109.
- 1615 BBC: Aid with a Human Face. A look at service volunteers working in West Africa.
- 1634 Deutsche Welle: German by Radio. See S 0139.
- 1645 BBC: Letter from America. See S 0545.
- 2306 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 2308 Radio Canada Int'l: Shortwave Listeners' Digest. See S 0108.
- 2309 BBC: Book Choice. See S 0745.
- 2315 BBC: Letter from America. See S 0545.
- 2330 BBC: Feature. See S 1401.
- 0008 Science. See S 0006.
- 0008 Radio Canada Int'l: Listeners' Corner. See S 0300.
- 0030 BBC: In Praise of God. A half-hour program of worship.
- 0101 BBC: The Good Book. Modern perspectives on The Bible and the stories told within it.
- 0106 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0108 Radio Canada Int'l: Listeners' Corner. See S 0300.
- 0109 Deutsche Welle: Commentary. See S 0109.
- 0112 Deutsche Welle: Letter from Berlin/Bonn. The tale of two cities as seen by Deutsche Welle correspondents.
- 0116 Deutsche Welle: Religion and Society. See S 0409.
- 0126 Deutsche Welle: International Talking Point. See S 1513.
- 0130 BBC: Readings from the Good Book. Brian Redhead presents dramatic readings from The Bible.
- 0145 BBC: Cole Porter Among Friends. A look at the great American songwriter.
- 0206 Christian Science Monitor (Canada/Central America): Herald of Christian Science. See S 0006.
- 0206 Christian Science Monitor (East Africa): News Focus. In-depth news analyses focusing on major stories in the news.
- 0209 BBC: British Press Review. See S 0209.
- 0209 Deutsche Welle: Morning Magazine. A magazine program with background information on major world events.
- 0215 BBC: Andy Kershaw's World of Music. Exotic and innovative music from the world over.
- 0230 BBC: Science in Action. The latest in scientific developments.
- 0234 Christian Science Monitor (East Africa): Kaleidoscope. News features and special segments on a variety of topics.
- 0234 Deutsche Welle: Science and Technology. New scientific and technological developments.
- 0304 Radio Canada Int'l: L'attitude. No details available at press time.
- 0306 Christian Science Monitor (Canada/Central America): Herald of Christian Science. See S 0006.
- 0306 Christian Science Monitor (East Africa): One Norway Street. Current affairs reports from correspondents worldwide.
- 0309 Deutsche Welle: Commentary. See S 0109.
- 0312 Deutsche Welle: Letter from Berlin/Bonn. See M 0112.
- 0315 BBC: Good Books. A recommendation of a

## Monday

Dec 4th, 11th, 18th, 25th

0006 Christian Science Monitor: Herald of Christian

## NEWS GUIDE

This is your guide to news broadcasts on the air. All broadcasts are daily unless otherwise noted by brackets. These brackets enclose day codes denoting days of broadcast. The codes are as follows:

S = Sunday  
T = Tuesday  
H = Thursday  
A = Saturday

M = Monday  
W = Wednesday  
F = Friday

We invite listeners and stations to send program information to the program manager.

- 0000 BBC: Newdesk
- 0000 Christian Science Monitor: News
- 0000 Kol Israel: News
- 0000 KVOH: UPI Radio News
- 0000 Radio Australia: International Report
- 0000 Radio Beijing: News
- 0000 Radio Canada Int'l: News [S-M]; The World at Six [T-A]
- 0000 Radio Havana Cuba: Int'l News [M-A]
- 0000 Radio Moscow: News
- 0000 Radio New Zealand Int'l: News
- 0000 Spanish National Radio: News
- 0000 Voice of America: News
- 0000 WWCR: News [M-F]
- 0010 Radio Beijing: News About China
- 0030 Christian Science Monitor: News [T-F]
- 0030 KVOH: UPI Headline News
- 0030 Radio Budapest: News
- 0030 Radio Canada Int'l: News [S-M]
- 0030 Radio Havana Cuba: Newsbreak [M-A]
- 0030 Radio Kiev: News
- 0030 Radio Moscow (World Serv): News in Brief [M]
- 0030 Radio Netherlands: News [T-S]
- 0030 Voice of America (Americas, East Asia): News

## SHORTWAVE NAVIGATOR

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- Hard disk drive required

## DX COMPUTING

232 Squaw Creek Rd.  
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(817)  
441-9188

book to read.

- 0316 Deutsche Welle: Religion and Society. See S 0409.
- 0326 Deutsche Welle: International Talking Point. See S 1513.
- 0330 BBC: Anything Goes. See S 1430.
- 0334 Christian Science Monitor (East Africa): Letterbox. Staff members respond to listener letters.
- 0404 Radio Canada Int'l: Coast to Coast. Issues and opinions affecting Canadians.

- (Special English) [T-S]
- 0030 Voice of America (East Asia): News (Special English) [M]
- 0045 Radio Berlin Int'l: News
- 0051 Spanish National Radio: News Summary [S]
- 0100 BBC: News Summary
- 0100 Belize Radio One: Network News
- 0100 Christian Science Monitor: News
- 0100 Deutsche Welle: World News
- 0100 Kol Israel: News
- 0100 KVOH: UPI Radio News [T-A]
- 0100 Radio Australia: World and Australian News
- 0100 Radio Canada Int'l: News [S-M]
- 0100 Radio Havana Cuba: Int'l News [M-A]
- 0100 Radio Japan: News
- 0100 Radio Moscow: News
- 0100 Radio New Zealand Int'l: News
- 0100 Radio Prague: News
- 0100 Radiotelevisione Italiana: News
- 0100 Spanish National Radio: News
- 0100 Voice of America: News
- 0100 Voice of Indonesia: News
- 0115 Radio Havana Cuba: Cuban National News [M-A]

# program guide



*Polly and Ken MacHarg; MacHarg's "Saludos Amigos" will be replacing "DX Party Line" on Sundays.*

- 0406 Christian Science Monitor (Canada/Central America): Herald of Christian Science. See S 0006.
- 0406 Christian Science Monitor (East Africa): News Focus. See M 0206.
- 0409 Deutsche Welle: Morning Magazine. See M 0209.
- 0430 BBC: Off the Shelf. A reading selected from the best of world literature.
- 0434 Christian Science Monitor (East Africa): Kaleidoscope. See M 0234.
- 0434 Deutsche Welle: Africa Report. Reports and background to the news from correspondents.
- 0445 BBC: Nature Now. Information about flora, fauna, and natural resources.
- 0506 Christian Science Monitor (Canada/Central America): Herald of Christian Science. See S 0006.
- 0506 Christian Science Monitor (East Africa): One Norway Street. See M 0306.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0509 Deutsche Welle: Commentary. See S 0109.
- 0512 Deutsche Welle: Letter from Berlin/Bonn. See M 0112.
- 0516 Deutsche Welle: Religion and Society. See S 0409.
- 0526 Deutsche Welle: International Talking Point. See S 1513.

- 0530 BBC: Waveguide. See S 0750.
- 0534 Christian Science Monitor (East Africa): Letterbox. See M 0334.
- 0540 BBC: Words of Faith. See S 0540.
- 0545 BBC: Recording of the Week. A personal choice from the latest classical music releases.
- 0606 Christian Science Monitor: News Focus. See M 0206.
- 0609 Deutsche Welle: Morning Magazine. See M 0209.
- 0630 BBC: Feature. See S 1401.
- 0634 Christian Science Monitor: Kaleidoscope. See M 0234.
- 0634 Deutsche Welle: Africa Report. See M 0434.
- 0706 Christian Science Monitor: One Norway Street. See M 0306.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: Aid with a Human Face. See S 1615.
- 0734 Christian Science Monitor: Letterbox. See M 0334.
- 1106 Christian Science Monitor: One Norway Street. See M 0306.
- 1109 Deutsche Welle: Newsline Cologne. A current affairs program with worldwide reports and a German press review.
- 1115 BBC: Tech Talk. What's new in the world of engineering.
- 1130 BBC: The Ken Bruce Show. See S 0230.
- 1134 Christian Science Monitor: Letterbox. See M 0334.
- 1134 Deutsche Welle: Hallo Africa. Musical requests and greetings to friends.
- 1206 Christian Science Monitor: News Focus. See M 0206.
- 1215 BBC: Quiz. A topical quiz show; details not available at press time.
- 1230 Radio Canada Int'l: North Country. Sports, weather, and the stock market report.
- 1234 Christian Science Monitor: Kaleidoscope. See M 0234.
- 1234 Radio Canada Int'l: Innovation Canada. See S 0108.
- 1245 BBC: Sports Roundup. See S 1330.
- 1306 Christian Science Monitor: One Norway Street. See M 0306.
- 1308 Radio Canada Int'l: Current Affairs. In-depth news programming.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1330 BBC: Aid with a Human Face. See S 1615.
- 1334 Christian Science Monitor: Letterbox. See M 0334.
- 1405 BBC: Outlook. Conversation, controversy, and color from Britain and the rest of the world.
- 1406 Christian Science Monitor: News Focus. See M 0206.

- 1430 BBC: Off the Shelf. See M 0430.
- 1434 Christian Science Monitor: Kaleidoscope. See M 0234.
- 1445 BBC: The Book People. See S 0215.
- 1506 Christian Science Monitor: One Norway Street. See M 0306.
- 1509 Deutsche Welle: Newsline Cologne. See M 1109.
- 1515 BBC: The Good Book. See M 0101.
- 1534 Christian Science Monitor: Letterbox. See M 0334.
- 1534 Deutsche Welle: Weekend Sport. A review of the major sporting events of the weekend.
- 1538 Deutsche Welle: Monday Special. An interview or report on an event or development with special relevance for Africa.
- 1545 BBC: Readings from the Good Book. See M 0130.
- 1606 Christian Science Monitor: News Focus. See M 0206.
- 1609 Deutsche Welle: Newsline Cologne. See M 1109.
- 1615 BBC: Good Books. See M 0315.
- 1630 BBC: Tech Talk. See M 1115.
- 1634 Christian Science Monitor: Kaleidoscope. See M 0234.
- 1634 Deutsche Welle: Asia-Pacific Report. Correspondents' reports, interviews, and background news from the Asia-Pacific region.
- 1645 BBC: The World Today. News analysis on a selected location or event in the news.
- 2305 BBC: Commentary. Background to the news from a wide range of specialists.
- 2306 Christian Science Monitor: One Norway Street. See M 0306.
- 2308 Radio Canada Int'l: Current Affairs. See M 1308.
- 2310 BBC: Financial News. News of commodity prices and significant moves in currency and stock markets.
- 2315 BBC: Poems by Post. Selected poems written by listeners.
- 2330 BBC: Multitrack 1: Top 20. Tim Smith presents what's hot on the British pop music charts.
- 2334 Christian Science Monitor: Letterbox. See M 0334.

## Tuesday

**Dec 5th, 12th, 19th, 26th**

- 0006 Christian Science Monitor: News Focus. See M 0206.

### news guide con't from p.57

- 0130 Christian Science Monitor: News [T-F]
- 0130 KVOH: UPI Headline News [T-A]
- 0130 Radio Budapest: News
- 0130 Radio Havana Cuba: News [M-A]
- 0130 Radio Moscow (World Service): News in Brief
- 0150 HCJB: News [T-A]
- 0151 Radio Veritas Asia: World News [M-F]
- 0151 Spanish National Radio: News Summary [S]
- 0153 Radio Prague: News Wrap-Up
- 0155 HCJB: News [S]
- 0155 Radio Veritas Asia: World News [A]
- 0155 Voice of Indonesia: News in Brief
- 0200 BBC: World News
- 0200 Christian Science Monitor: News
- 0200 Deutsche Welle: World News
- 0200 HCJB: News [M]
- 0200 Kol Israel: News
- 0200 KVOH: UPI Radio News [T-A]
- 0200 Radio Australia: International Report
- 0200 Radio Bertin Int'l: News
- 0200 Radio Bras, Brasilia: News

- 0200 Radio Havana Cuba: Int'l News [M-A]
- 0200 Radio Moscow: News
- 0200 Radio New Zealand Int'l: News [A-S]
- 0200 Radio RSA: News
- 0200 RAE, Buenos Aires: News
- 0200 Swiss Radio Int'l: News
- 0200 Voice of America: News
- 0200 Voice of Free China: News and Commentary
- 0200 WWCR: News [M-F]
- 0215 Radio Cairo: News
- 0230 Christian Science Monitor (East Africa): News [M]
- 0230 Christian Science Monitor: News [T-F]
- 0230 KVOH: UPI Headline News [T-A]
- 0230 Radio Finland: Northern Report [T-A]
- 0230 Radio Havana Cuba: Newsbreak [M-A]
- 0230 Radio Moscow (World Service): News in Brief [S-M]
- 0230 Radio Pakistan: News (Special English)
- 0230 Radio Portugal: News [T-A]
- 0230 Radio Tirana, Albania: News
- 0245 Radio Berlin Int'l: News
- 0300 BBC: World News
- 0300 Belize Radio One: News

- 0300 Christian Science Monitor: News
- 0300 Deutsche Welle: World News
- 0300 HCJB: News [T-A]
- 0300 KVOH: UPI Radio News [T-A]
- 0300 Radio Australia: World and Australian News
- 0300 Radio Beijing: News
- 0300 Radio Canada Int'l: News [M-F]
- 0300 Radio for Peace Int'l: News [T,A]
- 0300 Radio Havana Cuba: Int'l News [M-A]
- 0300 Radio Japan: News
- 0300 Radio Kiev: News
- 0300 Radio Moscow: News
- 0300 Radio New Zealand Int'l: News [A-S]
- 0300 Radio Prague: News
- 0300 Voice of America: News
- 0300 Voice of Free China: News and Commentary
- 0309 BBC: News About Britain
- 0310 Radio Beijing: News About China
- 0315 Radio Cairo: News
- 0315 Radio France International: News
- 0315 Radio Havana Cuba: Cuban National News [M-A]
- 0330 Christian Science Monitor (East Africa): News [M]

# program

guide

## BULLETIN BOARD

**BBC CHRISTMAS PROGRAMS:** The BBC will preempt normal programming at times on December 24-26 to present special Christmas programs. While specific details were not available at press time, listeners should listen for "The Festival of Nine Lessons and Carols," a program heard on December 25th at 0030 UTC. (For listeners in North America, that's on the evening of Christmas Eve.) Simply a must listen!

**HCJB SCHEDULE SHUFFLE:** HCJB, the religious broadcaster in Ecuador, has dropped the Sunday broadcasts of "DX Party Line," their popular program about shortwave radio. The 0200 UTC and 0600 UTC slots will now be filled by Ken MacHarg's international goodwill program, "Saludos Amigos." "DX Party Line" can still be heard at the above times on Tuesdays.

**BBC MUSIC SHAKE-UP:** Paul Burnett, the popular presenter for 13 years of the BBC's top twenty music singles, has left the chart show "Multitrack 1" to take over "The Vintage Chart Show" from Jimmy Savile.

Tim Smith now takes over "Multitrack 1," broadcast on Mondays. Graham Bannerman presents "Multitrack 2," a program of pop news and potential hits, on Wednesdays, and the ever-present Sarah Ward is the DJ for "Multitrack 3," offering alternative rock music, on Fridays.

The "Multitrack" programs can be heard at 2330 UTC, repeated on the following day at 1215 UTC. "The Vintage Chart Show" airs at 0330 UTC on Saturdays.

**RCI ADDS COMEDY PROGRAMS:** Radio Canada International has added two gems to its program lineup this winter. "Royal Canadian Air Farce" is a program of uniquely Canadian humor, heard on Mondays at 0004 UTC. "Double Exposure," which mocks the week's top news stories and newsmakers, can be heard on Mondays at 0034 UTC. Both programs are produced by the Canadian Broadcasting Corporation (CBC), and can also be heard on shortwave radio on the CBC's Northern Québec Service.

- 0030 BBC: Megamix. A compendium of music, sport, fashion, health, travel, news and views for young people.
- 0030 Radio Canada Int'l: As It Happens. A detailed look at the people and events making news, from a Canadian perspective.
- 0034 Christian Science Monitor: Kaleidoscope. See M 0234.
- 0101 BBC: Outlook. See M 1405.
- 0106 Christian Science Monitor: One Norway Street. See M 0306.
- 0109 Deutsche Welle: Newline Cologne. See M 1109.
- 0125 BBC: Financial News. See M 2310.
- 0130 BBC: Short Story. Brief tales written by BBC listeners.
- 0134 Christian Science Monitor: Letterbox. See M 0334.
- 0134 Deutsche Welle: Arts on the Air. See S 1109.

- 0145 BBC: Europe's World. A magazine program reflecting life in Europe and its links with other parts of the world.
- 0200 Radio Canada Int'l: As It Happens. See T 0030.
- 0206 Christian Science Monitor: News Focus. See M 0206.
- 0209 BBC: British Press Review. See S 0209.
- 0209 Deutsche Welle: Morning Magazine. See M 0209.
- 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.
- 0234 Christian Science Monitor: Kaleidoscope. See M 0234.
- 0234 Deutsche Welle: Economic Notebook. A look at the economic scene in Germany and around the world.

- 0306 Christian Science Monitor: One Norway Street. See M 0306.
- 0308 Radio Canada Int'l: Current Affairs. See S 1208.
- 0309 Deutsche Welle: Newline Cologne. See M 1109.
- 0315 BBC: The World Today. See M 1645.
- 0330 BBC: John Peel. Tracks from newly released albums and singles from the contemporary music scene.
- 0334 Christian Science Monitor: Letterbox. See M 0334.
- 0334 Deutsche Welle: Arts on the Air. See S 1109.
- 0404 Radio Canada Int'l: Innovation Canada. See S 0008.
- 0406 Christian Science Monitor: News Focus. See M 0206.
- 0409 Deutsche Welle: Morning Magazine. See M 0209.
- 0430 BBC: Off the Shelf. See M 0430.
- 0434 Christian Science Monitor: Kaleidoscope. See M 0234.
- 0434 Deutsche Welle: Africa Report. See M 0434.
- 0445 BBC: New Ideas. A radio shop window for new products and inventions.
- 0455 BBC: Book Choice. See S 0745.
- 0506 Christian Science Monitor: One Norway Street. See M 0306.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0509 Deutsche Welle: Newline Cologne. See M 1109.
- 0530 BBC: Financial News. See M 2310.
- 0534 Christian Science Monitor: Letterbox. See M 0334.
- 0534 Deutsche Welle: Arts on the Air. See S 1109.
- 0540 BBC: Words of Faith. See S 0540.
- 0545 BBC: The World Today. See M 1645.
- 0606 Christian Science Monitor: News Focus. See M 0206.
- 0609 Deutsche Welle: Morning Magazine. See M 0209.
- 0630 BBC: Rock Salad. Tommy Vance presents another series of heavy metal music. (Motley Crue forever?)
- 0634 Christian Science Monitor: Kaleidoscope. See M 0234.
- 0634 Deutsche Welle: Africa Report. See M 0434.
- 0706 Christian Science Monitor: One Norway Street. See M 0306.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: Europe's World. See T 0145.
- 0734 Christian Science Monitor: Letterbox. See M 0334.
- 0745 BBC: Network UK. See T 0215.
- 1106 Christian Science Monitor: One Norway Street. See M 0306.
- 1109 Deutsche Welle: Newline Cologne. See M 1109.
- 1115 BBC: Waveguide. See S 0750.
- 1125 BBC: Book Choice. See S 0745.

- 0330 Christian Science Monitor: News [T-F]
- 0330 KVOH: UPI Headline News [T-A]
- 0330 Radio Berlin Int'l: News
- 0330 Radio Havana Cuba: News [M-A]
- 0330 Radio Moscow (World Service): News in Brief [S]
- 0330 Radio Netherlands: News [T-S]
- 0330 Radio Tirana, Albania: News
- 0350 Radio Yerevan: News
- 0350 Radiotelevisione Italiana: News
- 0353 Radio Prague: News Wrap-up
- 0400 BBC: Newsdesk
- 0400 Christian Science Monitor: News
- 0400 Deutsche Welle: World News
- 0400 HCJB: News [M-A]
- 0400 Radio Australia: International Report
- 0400 Radio Beijing: News
- 0400 Radio Berlin Int'l: News
- 0400 Radio Canada Int'l: News [M-F]
- 0400 Radio Havana Cuba: Int'l News [M-A]
- 0400 Radio Moscow: News
- 0400 Radio New Zealand Int'l: News
- 0400 Radio RSA: News
- 0400 RAE, Buenos Aires: News

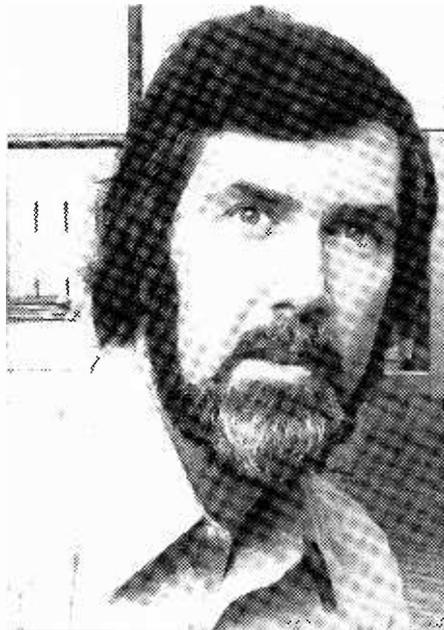
- 0400 Swiss Radio Int'l: News
- 0400 Voice of America: News
- 0410 Radio Beijing: News About China
- 0425 Radiotelevisione Italiana: News
- 0430 Christian Science Monitor (East Africa): News [M]
- 0430 Christian Science Monitor: News [T-F]
- 0430 Radio Havana Cuba: Newsbreak [M-A]
- 0430 Radio Moscow (World Service): News in Brief [S-M]
- 0430 Radio Netherlands: News [M-A]
- 0430 Radio Tirana, Albania: News
- 0445 Radio Berlin Int'l: News
- 0500 BBC: World News
- 0500 Christian Science Monitor: News
- 0500 Deutsche Welle: World News
- 0500 HCJB: News [S-M]; Latin American News [T-A]
- 0500 Kol Israel: News
- 0500 Radio Australia: World and Australian News
- 0500 Radio Havana Cuba: Int'l News [M-A]
- 0500 Radio Japan: News
- 0500 Radio Moscow: News
- 0500 Radio New Zealand Int'l: News

- 0500 Spanish National Radio: News
- 0500 Voice of America: News
- 0515 Radio Havana Cuba: Cuban National News [M-A]
- 0530 Christian Science Monitor (East Africa): News [M]
- 0530 Christian Science Monitor: News [T-F]
- 0530 Radio Havana Cuba: News [M-A]
- 0530 Radio Moscow (World Service): News in Brief
- 0550 HCJB: News [T-A]
- 0551 Spanish National Radio: News Summary [S]
- 0555 HCJB: News [S]
- 0600 BBC: Newsdesk
- 0600 Christian Science Monitor: News
- 0600 Deutsche Welle: World News
- 0600 HCJB: News [M]
- 0600 Radio Australia: International Report
- 0600 Radio Berlin Int'l: News
- 0600 Radio Havana Cuba: Int'l News [M-A]
- 0600 Radio Korea: News
- 0600 Radio Moscow: News
- 0600 Radio New Zealand Int'l: News
- 0600 Voice of America: News
- 0615 Radio Berlin Int'l: News

# program

guide

- 1130 BBC: Megamix. See T 0030.  
 1134 Christian Science Monitor: Letterbox. See M 0334.  
 1134 Deutsche Welle: Hallo Africa. See M 1134.  
 1206 Christian Science Monitor: News Focus. See M 0206.  
 1208 Radio Canada Int'l: Current Affairs. See S 1208.  
 1215 BBC: Multitrack 1: Top 20. See M 2330.  
 1234 Christian Science Monitor: Kaleidoscope. See M 0234.  
 1245 BBC: Sports Roundup. See S 1330.  
 1306 Christian Science Monitor: One Norway Street. See M 0306.  
 1309 BBC: Twenty-Four Hours. See S 0509.  
 1330 BBC: Network UK. See T 0215.  
 1330 Radio Canada Int'l: North Country. See M 1330.  
 1334 Christian Science Monitor: Letterbox. See M 0334.  
 1334 Radio Canada Int'l: Shortwave Listeners' Digest. See S 0108.  
 1345 BBC: A Taste of Soul. See S 0430.  
 1405 BBC: Outlook. See M 1405.  
 1406 Christian Science Monitor: News Focus. See M 0206.  
 1430 BBC: Off the Shelf. See M 0430.  
 1434 Christian Science Monitor: Kaleidoscope. See M 0234.  
 1445 BBC: Cole Porter Among Friends. See M 0145.  
 1506 Christian Science Monitor: One Norway Street. See M 0306.  
 1509 Deutsche Welle: Newslines Cologne. See M 1109.  
 1515 BBC: A Jolly Good Show. Dave Lee Travis presents listener record requests and dedications, and the UK's top ten albums.  
 1534 Christian Science Monitor: Letterbox. See M 0334.  
 1534 Deutsche Welle: Insight. An in-depth feature, giving the background to political events and international developments.  
 1553 Radio Canada Int'l: Reports/Commentaries. See S 1553.  
 1606 Christian Science Monitor: News Focus. See M 0206.  
 1609 Deutsche Welle: Newslines Cologne. See M 1109.  
 1615 BBC: Omnibus. A half-hour program on practically any topic.  
 1634 Christian Science Monitor: Kaleidoscope. See M 0234.  
 1634 Deutsche Welle: Asia-Pacific Report. See M 1634.  
 1645 BBC: The World Today. See M 1645.  
 2305 BBC: Commentary. See M 2305.  
 2306 Christian Science Monitor: One Norway Street. See M 0306.  
 2308 Radio Canada Int'l: Current Affairs. See S 1208.  
 2310 BBC: Financial News. See M 2310.



*Ian McFarland is the producer and host for Radio Canada International's DX program, "SWL Digest."*

- 2315 BBC: From Britain's Music Festivals. See S 1515.  
 2334 Christian Science Monitor: Letterbox. See M 0334.

## Wednesday

### Dec 6th, 13th, 20th, 27th

- 0006 Christian Science Monitor: News Focus. See M 0206.  
 0030 BBC: Omnibus. See T 1615.  
 0030 Radio Canada Int'l: As It Happens. See T 0030.  
 0034 Christian Science Monitor: Kaleidoscope. See M 0234.  
 0101 BBC: Outlook. See M 1405.  
 0106 Christian Science Monitor: One Norway Street. See M 0306.  
 0109 Deutsche Welle: Newslines Cologne. See M 1109.  
 0125 BBC: Financial News. See M 2310.  
 0130 BBC: Feature. Programming on various subjects.  
 0134 Christian Science Monitor: Letterbox. See M 0334.

- 0134 Deutsche Welle: Economic Notebook. See T 0234.  
 0145 BBC: Country Style. David Allan presents British country music.  
 0200 Radio Canada Int'l: As It Happens. See T 0030.  
 0206 Christian Science Monitor: News Focus. See M 0206.  
 0209 BBC: British Press Review. See S 0209.  
 0209 Deutsche Welle: Morning Magazine. See M 0209.  
 0215 BBC: Tech Talk. See M 1115.  
 0230 BBC: The Atlantic Story. The history of Atlantic Records, the popular music label.  
 0234 Christian Science Monitor: Kaleidoscope. See M 0234.  
 0234 Deutsche Welle: Insight. See T 1534.  
 0306 Christian Science Monitor: One Norway Street. See M 0306.  
 0308 Radio Canada Int'l: Current Affairs. See S 1208.  
 0309 Deutsche Welle: Newslines Cologne. See M 1109.  
 0315 BBC: The World Today. See M 1645.  
 0330 BBC: Discovery. An in-depth look at scientific research.  
 0334 Christian Science Monitor: Letterbox. See M 0334.  
 0334 Deutsche Welle: Economic Notebook. See T 0234.  
 0404 Radio Canada Int'l: Shortwave Listeners' Digest. See S 0108.  
 0406 Christian Science Monitor: News Focus. See M 0206.  
 0409 Deutsche Welle: Morning Magazine. See M 0209.  
 0430 BBC: Off the Shelf. See M 0430.  
 0434 Christian Science Monitor: Kaleidoscope. See M 0234.  
 0434 Deutsche Welle: Africa Report. See M 0434.  
 0445 BBC: Country Style. See W 0145.  
 0506 Christian Science Monitor: One Norway Street. See M 0306.  
 0509 BBC: Twenty-Four Hours. See S 0509.  
 0509 Deutsche Welle: Newslines Cologne. See M 1109.  
 0530 BBC: Financial News. See M 2310.  
 0534 Christian Science Monitor: Letterbox. See M 0334.  
 0534 Deutsche Welle: Economic Notebook. See T 0234.  
 0540 BBC: Words of Faith. See S 0540.  
 0545 BBC: The World Today. See M 1645.  
 0606 Christian Science Monitor: News Focus. See M 0206.  
 0609 Deutsche Welle: Morning Magazine. See M 0209.  
 0630 BBC: Meridian. The world of the arts, including music, drama, and books.

## news guide cont'd from p. 59

- 0615 Radio Canada Int'l: News [M-F]  
 0630 Christian Science Monitor: News [M-F]  
 0630 Radio Finland: Northern Report [T-A]  
 0630 Radio Havana Cuba: Newsbreak [M-A]  
 0630 Radio Moscow (World Serv): News in Brief[S]  
 0630 Swiss Radio Int'l: News  
 0645 Radio Canada Int'l: News [M-F]  
 0655 HCJB: News [M-A]  
 0700 BBC: World News  
 0700 BRT, Brussels: News [M-F]  
 0700 Christian Science Monitor: News  
 0700 Radio Australia: World and Australian News  
 0700 Radio Havana Cuba: Int'l News [M-A]  
 0700 Radio Japan: News  
 0700 Radio Moscow: News  
 0700 Radio New Zealand Int'l: News [A-S]  
 0700 Voice of Free China: News and Commentary  
 0715 Radio Havana Cuba: Cuban National News [M-A]  
 0730 Christian Science Monitor: News [M-F]  
 0730 Radio Havana Cuba: News [M-A]

- 0730 Radio Moscow (World Service): News in Brief [S-M]  
 0730 Radio Netherlands: News [M-A]  
 0800 BBC: World News  
 0800 Christian Science Monitor: News  
 0800 Radio Australia: International Report  
 0800 Radio Finland: Northern Report [T-S]  
 0800 Radio Korea: News  
 0800 Radio Moscow (World Service): News  
 0800 Radio Tirana, Albania: News  
 0800 Voice of Indonesia: News  
 0830 Christian Science Monitor: News [M-F]  
 0830 Radio Finland: Northern Report [T-S]  
 0830 Radio Moscow (World Service): News in Brief  
 0830 Radio Netherlands: News [M-A]  
 0830 Swiss Radio Int'l: News  
 0845 Radio Berlin Int'l: News  
 0855 Voice of Indonesia: News in Brief  
 0900 BBC: World News  
 0900 BRT, Brussels: News [M-F]  
 0900 Christian Science Monitor: News  
 0900 Deutsche Welle: World News  
 0900 Radio Australia: World and Australian News  
 0900 Radio Japan: News

- 0900 Radio Moscow (World Service): News  
 0900 Radio New Zealand Int'l: News  
 0930 Christian Science Monitor: News [M-F]  
 0930 Radio Moscow (World Service): News in Brief [S-M]  
 1000 BBC: News Summary  
 1000 Christian Science Monitor: News  
 1000 Radio Australia: International Report  
 1000 Radio Berlin Int'l: News  
 1000 Radio Moscow (World Service): News  
 1000 Radio New Zealand Int'l: News  
 1000 Swiss Radio Int'l: News  
 1000 Voice of America: News  
 1030 Radio Moscow (World Service): News in Brief [S]  
 1030 Radio Netherlands: News [M-A]  
 1045 Radio Berlin Int'l: News  
 1100 BBC: World News  
 1100 Christian Science Monitor: News [M-F]  
 1100 Deutsche Welle: World News  
 1100 Kol Israel: News  
 1100 Radio Australia: World and Australian News  
 1100 Radio Beijing: News  
 1100 Radio Finland: Northern Report [T-F]

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- 0634 Christian Science Monitor: Kaleidoscope. See M 0234.
- 0634 Deutsche Welle: Africa Report. See M 0434.
- 0706 Christian Science Monitor: One Norway Street. See M 0306.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: Development '89. Aid and development issues.
- 0734 Christian Science Monitor: Letterbox. See M 0334.
- 1106 Christian Science Monitor: One Norway Street. See M 0306.
- 1109 Deutsche Welle: Newline Cologne. See M 1109.
- 1115 BBC: Country Style. See W 0145.
- 1130 BBC: Meridian. See W 0630.
- 1134 Christian Science Monitor: Letterbox. See M 0334.
- 1134 Deutsche Welle: Hallo Africa. See M 1134.
- 1206 Christian Science Monitor: News Focus. See M 0206.
- 1208 Radio Canada Int'l: Current Affairs. See S 1208.
- 1215 BBC: Food Plants. A look at the relationship between human beings and the plants that nourish us.
- 1225 BBC: The Farming World. Issues in agriculture.
- 1234 Christian Science Monitor: Kaleidoscope. See M 0234.
- 1245 BBC: Sports Roundup. See S 1330.
- 1306 Christian Science Monitor: One Norway Street. See M 0306.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1330 BBC: Development '89. See W 0730.
- 1330 Radio Canada Int'l: North Country. See M 1330.
- 1334 Christian Science Monitor: Letterbox. See M 0334.
- 1334 Radio Canada Int'l: L'Attitude. See M 0304.
- 1405 BBC: Outlook. See M 1405.
- 1406 Christian Science Monitor: News Focus. See M 0206.
- 1430 BBC: Off the Shelf. See M 0430.
- 1434 Christian Science Monitor: Kaleidoscope. See M 0234.
- 1445 BBC: Business Matters. See W 0430.
- 1506 Christian Science Monitor: One Norway Street. See M 0306.
- 1509 Deutsche Welle: Newline Cologne. See M 1109.
- 1515 BBC: Poems by Post. See M 2315.
- 1530 BBC: Comedy Show. A comedy program or serial.
- 1534 Christian Science Monitor: Letterbox. See M 0334.

- 1534 Deutsche Welle: Living In Germany. The social scene in Germany.
- 1553 Radio Canada Int'l: Reports/Commentaries. See S 1553.
- 1606 Christian Science Monitor: News Focus. See M 0206.
- 1609 Deutsche Welle: Newline Cologne. See M 1109.
- 1615 BBC: Rock Salad. See T 0630.
- 1634 Christian Science Monitor: Kaleidoscope. See M 0234.
- 1634 Deutsche Welle: Asia-Pacific Report. See M 1634.
- 1645 BBC: The World Today. See M 1645.
- 2305 BBC: Commentary. See M 2305.
- 2306 Christian Science Monitor: One Norway Street. See M 0306.
- 2308 Radio Canada Int'l: Current Affairs. See S 1208.
- 2310 BBC: Financial News. See M 2310.
- 2315 BBC: Good Books. See M 0315.
- 2330 BBC: Multitrack 2. Graham Bannerman presents the latest in British pop music and news.
- 2334 Christian Science Monitor: Letterbox. See M 0334.

## Thursday

### Dec 7th, 14th, 21st, 28th

- 0006 Christian Science Monitor: News Focus. See M 0206.
- 0030 BBC: Comedy Show. See W 1530.
- 0030 Radio Canada Int'l: As It Happens. See T 0030.
- 0034 Christian Science Monitor: Kaleidoscope. See M 0234.
- 0101 BBC: Outlook. See M 1405.
- 0106 Christian Science Monitor: One Norway Street. See M 0306.
- 0109 Deutsche Welle: Newline Cologne. See M 1109.
- 0125 BBC: Financial News. See M 2310.
- 0130 BBC: Waveguide. See S 0750.
- 0134 Christian Science Monitor: Letterbox. See M 0334.
- 0134 Deutsche Welle: Living in Germany. See W 1534.
- 0140 BBC: Book Choice. See S 0745.
- 0145 BBC: Society Today. A weekly look at the changes in Britain.
- 0200 Radio Canada Int'l: As It Happens. See T 0030.



*The presenters of the BBC's arts program "Meridian": clockwise, Gillian Reynolds, Michael Billington, Sarah Dunant, Christopher Cook, Frank Delaney, Sheridan Morley, Joy Boatman and Jim Hiley.*

- 0206 Christian Science Monitor: News Focus. See M 0206.
- 0209 BBC: British Press Review. See S 0209.
- 0209 Deutsche Welle: Morning Magazine. See M 0209.
- 0215 BBC: Network UK. See T 0215.
- 0230 BBC: Assignment. Examinations of current topical issues.
- 0234 Christian Science Monitor: Kaleidoscope. See M 0234.
- 0234 Deutsche Welle: Living in Germany. See W 1534.
- 0306 Christian Science Monitor: One Norway Street. See M 0306.
- 0308 Radio Canada Int'l: Current Affairs. See S 1208.
- 0309 Deutsche Welle: Newline Cologne. See M 1109.
- 0315 BBC: The World Today. See M 1645.
- 0330 BBC: Quiz. See M 1215.

- 1100 Radio Japan: News
- 1100 Radio Korea: News
- 1100 Radio Moscow (World Service): News
- 1100 Radio New Zealand Int'l: 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 Pakistan: News (Special English)
- 1109 BBC: News About Britain
- 1110 Belize Radio One: News Summary [T-F]
- 1110 Radio Beijing: News About China
- 1120 Belize Radio One: News Summary [A]
- 1125 Belize Radio One: News Summary [M]
- 1130 Christian Science Monitor: News
- 1130 Radio Moscow (World Service): News in Brief [S-M]
- 1130 Radio Netherlands: News [M-A]
- 1130 Radio Tirana, Albania: News
- 1152 Radio RSA: News in Brief
- 1200 BBC: News Summary [S]; Newsreel [M-A]
- 1200 Christian Science Monitor: News [M-F]
- 1200 Radio Australia: International Report
- 1200 Radio Beijing: News

- 1200 Radio Berlin Int'l: News
- 1200 Radio Canada Int'l: News
- 1200 Radio Finland: Northern Report [T-F]
- 1200 Radio Moscow (World Service): News
- 1200 Radio New Zealand Int'l: News
- 1200 Swiss Radio Int'l: News
- 1200 Voice of America: News
- 1210 Radio Beijing: News About China
- 1230 BRT, Brussels: News [M-S]
- 1230 Christian Science Monitor: News
- 1230 Radio Berlin Int'l: News
- 1230 Radio Moscow (World Service): News in Brief
- 1230 Trans World Radio, Bonaire: News [M-A]
- 1245 Radio France International: News
- 1300 BBC: World News
- 1300 Belize Radio One: News
- 1300 Christian Science Monitor: News
- 1300 Christian Science Monitor: News [M-F]
- 1300 Radio Australia: World and Australian News
- 1300 Radio Canada Int'l: World Report [M-F]
- 1300 Radio Finland: Northern Report [T-A]
- 1300 Radio Moscow (World Service): News
- 1300 Radio RSA: News
- 1300 Trans World Radio, Bonaire: News [S]

- 1300 Voice of America: News
- 1315 Radio Berlin Int'l: News
- 1325 HCJB: News [M-F]
- 1330 Christian Science Monitor: News [M-F]
- 1330 Radio Moscow (World Service): News in Brief [S-M]
- 1330 Swiss Radio Int'l: News
- 1330 Voice of America: News (Special English)
- 1345 Radio Berlin Int'l: News
- 1352 Radio RSA: News in Brief
- 1400 BBC: News Summary [A-S]; Five-Minute News [M-F]
- 1400 Christian Science Monitor: News
- 1400 Radio Australia: International Report
- 1400 Radio Beijing: News
- 1400 Radio Berlin Int'l: News
- 1400 Radio Canada Int'l: News [S]
- 1400 Radio France International: News
- 1400 Radio Japan: News
- 1400 Radio Korea: News
- 1400 Radio Moscow (World Service): News
- 1400 Radio Peace and Progress: News
- 1400 Radio RSA: News
- 1400 Radio Tirana, Albania: News

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- 0334 Christian Science Monitor: Letterbox. See M 0334.  
 0334 Deutsche Welle: Living in Germany. See W 1534.  
 0404 Radio Canada Int'l: L'attitude. See M 0304.  
 0406 Christian Science Monitor: News Focus. See M 0206.  
 0409 Deutsche Welle: Morning Magazine. See M 0209.  
 0430 BBC: Off the Shelf. See M 0430.  
 0434 Christian Science Monitor: Kaleidoscope. See M 0234.  
 0434 Deutsche Welle: Africa Report. See M 0434.  
 0445 BBC: Andy Kershaw's World of Music. See M 0215.  
 0506 Christian Science Monitor: One Norway Street. See M 0306.  
 0509 BBC: Twenty-Four Hours. See S 0509.  
 0509 Deutsche Welle: Newslines Cologne. See M 1109.  
 0530 BBC: Financial News. See M 2310.  
 0534 Christian Science Monitor: Letterbox. See M 0334.  
 0534 Deutsche Welle: Living in Germany. See W 1534.  
 0540 BBC: Words of Faith. See S 0540.  
 0545 BBC: The World Today. See M 1645.  
 0606 Christian Science Monitor: News Focus. See M 0206.  
 0609 Deutsche Welle: Morning Magazine. See M 0209.  
 0630 BBC: Food Plants. See W 1215.  
 0634 Christian Science Monitor: Kaleidoscope. See M 0234.  
 0634 Deutsche Welle: Africa Report. See M 0434.  
 0640 BBC: The Farming World. See W 1225.  
 0706 Christian Science Monitor: One Norway Street. See M 0306.  
 0709 BBC: Twenty-Four Hours. See S 0509.  
 0730 BBC: Mediawatch. Keith Hindell monitors developments in communications.  
 0734 Christian Science Monitor: Letterbox. See M 0334.  
 0745 BBC: Network UK. See T 0215.  
 1106 Christian Science Monitor: One Norway Street. See M 0306.  
 1109 Deutsche Welle: Newslines Cologne. See M 1109.  
 1115 BBC: New Ideas. See T 0445.  
 1125 BBC: Book Choice. See S 0745.  
 1130 BBC: Drama. A dramatic production in serial form.  
 1134 Christian Science Monitor: Letterbox. See M 0334.  
 1134 Deutsche Welle: Hallo Africa. See M 1134.  
 1206 Christian Science Monitor: News Focus. See M 0206.  
 1208 Radio Canada Int'l: Current Affairs. See S 1208.  
 1215 BBC: Multitrack 2. See W 1830.  
 1234 Christian Science Monitor: Kaleidoscope. See M 0234.  
 1245 BBC: Sports Roundup. See S 1330.  
 1306 Christian Science Monitor: One Norway Street. See M 0306.  
 1309 BBC: Twenty-Four Hours. See S 0509.  
 1330 BBC: Network UK. See T 0215.  
 1330 Radio Canada Int'l: North Country. See M 1330.  
 1334 Christian Science Monitor: Letterbox. See M 0334.  
 1334 Radio Canada Int'l: Spotlight on Science. See S 0138.  
 1345 BBC: Folk in Britain/Jazz Scene UK. A look at folk or jazz music on the British Isles.  
 1405 BBC: Outlook. See M 1405.  
 1406 Christian Science Monitor: News Focus. See M 0206.  
 1430 BBC: Off the Shelf. See M 0430.  
 1434 Christian Science Monitor: Kaleidoscope. See M 0234.  
 1445 BBC: Mediawatch. See H 0730.  
 1506 Christian Science Monitor: One Norway Street. See M 0306.  
 1509 Deutsche Welle: Newslines Cologne. See M 1109.  
 1515 BBC: The Pleasure's Yours. Gordon Clyde presents classical music requests.  
 1534 Christian Science Monitor: Letterbox. See M 0334.  
 1534 Deutsche Welle: Spotlight on Sport. Background stories and coverage of important sporting events.  
 1553 Radio Canada Int'l: Reports/Commentaries. See S 1553.  
 1606 Christian Science Monitor: News Focus. See M 0206.  
 1609 Deutsche Welle: Newslines Cologne. See M 1109.  
 1615 BBC: Assignment. See H 0230.  
 1634 Christian Science Monitor: Kaleidoscope. See M 0234.  
 1634 Deutsche Welle: Asia-Pacific Report. See M 1634.  
 1645 BBC: The World Today. See M 1645.  
 2305 BBC: Commentary. See M 2305.  
 2306 Christian Science Monitor: One Norway Street. See M 0306.  
 2308 Radio Canada Int'l: Current Affairs. See S 1208.  
 2310 BBC: Financial News. See M 2310.  
 2315 BBC: Music Review. Classical music events



Deutsche Welle staff discuss material for a program

and developments from around the world.  
 2334 Christian Science Monitor: Letterbox. See M 0334.

## Friday

Dec 1st, 8th, 15th, 22nd, 29th

- 0006 Christian Science Monitor: News Focus. See M 0206.  
 0030 BBC: Best on Record. Jeremy Siepmann searches for the best recording of classical music works.  
 0030 Radio Canada Int'l: As It Happens. See T 0030.  
 0034 Christian Science Monitor: Kaleidoscope. See M 0234.  
 0101 BBC: Outlook. See M 1405.  
 0106 Christian Science Monitor: One Norway Street. See M 0306.  
 0109 Deutsche Welle: Newslines Cologne. See M 1109.  
 0125 BBC: Financial News. See M 2310.  
 0130 BBC: Folk in Britain/Jazz Scene UK. See H 1345.  
 0134 Christian Science Monitor: Letterbox. See M 0334.  
 0134 Deutsche Welle: Science and Technology. See M 0234.

## news guide cont'd from p.61

- 1400 Voice of America: News  
 1400 WWCN: News [M-F]  
 1405 Radio Finland: Northern Report [T-A]  
 1410 Radio Beijing: News About China  
 1425 HCJB: News [M-F]  
 1430 Christian Science Monitor: News [M-F]  
 1430 Radio Moscow (World Service): News in Brief [S]  
 1430 Radio Netherlands: News [M-A]  
 1445 Radio Berlin Int'l: News  
 1500 BBC: Newsweek  
 1500 Belize Radio One: News [M-A]  
 1500 Christian Science Monitor: News  
 1500 Deutsche Welle: World News  
 1500 Radio Australia: World and Australian News  
 1500 Radio Beijing: News  
 1500 Radio Japan: News  
 1500 Radio Moscow (World Service): News  
 1500 Radio RSA: News  
 1500 Voice of America: News  
 1510 Radio Beijing: News About China

- 1525 HCJB: News [M-F]  
 1526 Radio Veritas Asia: World News [M-A]  
 1530 BRT, Brussels: News [M-S]  
 1530 Christian Science Monitor: News [M-F]  
 1530 Deutsche Welle: African News [M-F]  
 1530 Radio Moscow (World Service): News in Brief  
 1530 Radio Tirana, Albania: News  
 1530 Swiss Radio Int'l: News  
 1545 Radio Berlin Int'l: News  
 1545 Radio Canada Int'l: News  
 1552 Radio RSA: News in Brief  
 1600 BBC: World News  
 1600 Christian Science Monitor: News  
 1600 Deutsche Welle: World News  
 1600 Radio Australia: International Report  
 1600 Radio France International: News  
 1600 Radio Korea: News  
 1600 Radio Moscow (World Service): News  
 1600 Radio Portugal: News [M-F]  
 1600 Voice of America: News  
 1609 BBC: News About Britain  
 1625 HCJB: News [M-F]  
 1630 Christian Science Monitor: News [M-F]  
 1630 Radio Moscow (World Service): News in Brief

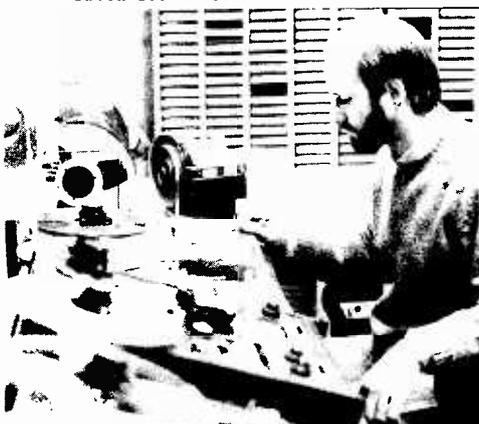
- [S-M]  
 1630 Radio Netherlands: News [M-A]  
 1630 Radio Peace and Progress: News  
 1630 Voice of America (except Africa): News (Special English)  
 1645 Radio Berlin Int'l: News  
 1645 Radio Berlin Int'l: News  
 1700 BBC: World News [S-F]; News Summary [A]  
 1700 Belize Radio One: News [M-F]  
 1700 Christian Science Monitor: News  
 1700 Radio Australia: World and Australian News  
 1700 Radio Japan: News  
 1700 Radio Moscow (World Service): News  
 1700 Voice of America: News  
 1715 Radio Canada Int'l: News  
 1730 BRT, Brussels: News  
 1730 Christian Science Monitor: News [M-F]  
 1730 Radio Moscow (World Service): News in Brief [S]  
 1730 RAE, Buenos Aires: News  
 1730 Swiss Radio Int'l: News  
 1800 BBC: Newsdesk  
 1800 Belize Radio One: Headline News [M-A]  
 1800 Christian Science Monitor: News

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- 0145 BBC: The Learning World. A look at news, views, and ideas of those involved with education.
- 0200 Radio Canada Int'l: As It Happens. See T 0030.
- 0206 Christian Science Monitor: News Focus. See M 0206.
- 0209 BBC: British Press Review. See S 0209.
- 0209 Deutsche Welle: Morning Magazine. See M 0209.
- 0215 BBC: Seven Seas. A weekly program about ships and the sea.
- 0230 BBC: Drama. See H 1130.
- 0234 Christian Science Monitor: Kaleidoscope. See M 0234.
- 0234 Deutsche Welle: Spotlight on Sport. See H 1534.
- 0306 Christian Science Monitor: One Norway Street. See M 0306.
- 0308 Radio Canada Int'l: Current Affairs. See S 1208.
- 0309 Deutsche Welle: Newline Cologne. See M 1109.
- 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.
- 0334 Christian Science Monitor: Letterbox. See M 0334.
- 0334 Deutsche Welle: Science and Technology. See M 0234.
- 0404 Radio Canada Int'l: Spotlight on Science. See S 0138.
- 0406 Christian Science Monitor: News Focus. See M 0206.
- 0409 Deutsche Welle: Morning Magazine. See M 0209.
- 0430 BBC: Off the Shelf. See M 0430.
- 0434 Christian Science Monitor: Kaleidoscope. See M 0234.
- 0434 Deutsche Welle: Africa Report. See M 0434.
- 0445 BBC: Folk in Britain/Jazz Scene UK. See H 1345.
- 0506 Christian Science Monitor: One Norway Street. See M 0306.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0509 Deutsche Welle: Newline Cologne. See M 1109.
- 0530 BBC: Financial News. See T 0125.
- 0534 Christian Science Monitor: Letterbox. See M 0334.
- 0534 Deutsche Welle: Science and Technology. See M 0234.
- 0540 BBC: Words of Faith. See S 0540.
- 0545 BBC: The World Today. See M 1645.

- 0606 Christian Science Monitor: News Focus. See M 0206.
- 0609 Deutsche Welle: Morning Magazine. See M 0209.
- 0630 BBC: Meridian. See W 0630.
- 0634 Christian Science Monitor: Kaleidoscope. See M 0234.
- 0634 Deutsche Welle: Africa Report. See M 0434.
- 0706 Christian Science Monitor: One Norway Street. See M 0306.



*Christian Science monitor broadcasting facilities in Boston*

- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: Feature. Programming on various subjects.
- 0734 Christian Science Monitor: Letterbox. See M 0334.
- 1106 Christian Science Monitor: One Norway Street. See M 0306.
- 1109 Deutsche Welle: Newline Cologne. See M 1109.
- 1115 BBC: The Learning World. See F 0145.
- 1130 BBC: Meridian. See W 0630.
- 1130 Christian Science Monitor: Letterbox. See M 0334.
- 1134 Deutsche Welle: Hallo Africa. See M 1134.
- 1206 Christian Science Monitor: News Focus. See M 0206.
- 1208 Radio Canada Int'l: Current Affairs. See S 1208.
- 1215 BBC: Feature. See F 0730.
- 1234 Christian Science Monitor: Kaleidoscope. See M 0234.
- 1245 BBC: Sports Roundup. See S 1330.
- 1306 Christian Science Monitor: One Norway

- Street. See M 0306.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1330 BBC: John Peel. See T 0330.
- 1330 Radio Canada Int'l: North Country. See M 1330.
- 1334 Christian Science Monitor: Letterbox. See M 0334.
- 1334 Radio Canada Int'l: Coast to Coast. See S 0038.
- 1405 BBC: Outlook. See M 1405.
- 1406 Christian Science Monitor: News Focus. See M 0206.
- 1430 BBC: Off the Shelf. See M 0430.
- 1434 Christian Science Monitor: Kaleidoscope. See M 0234.
- 1445 BBC: Nature Now. See M 0445.
- 1506 Christian Science Monitor: One Norway Street. See M 0306.
- 1509 Deutsche Welle: Newline Cologne. See M 1109.
- 1515 BBC: Music Review. See H 2315.
- 1534 Christian Science Monitor: Letterbox. See M 0334.
- 1534 Deutsche Welle: Economic Notebook. See T 0234.
- 1553 Radio Canada Int'l: Reports/Commentaries. See S 1553.
- 1606 Christian Science Monitor: News Focus. See M 0206.
- 1609 Deutsche Welle: Newline Cologne. See M 1109.
- 1615 BBC: Science in Action. See M 0230.
- 1634 Christian Science Monitor: Kaleidoscope. See M 0234.
- 1634 Deutsche Welle: Asia-Pacific Report. See M 1634.
- 1645 BBC: The World Today. See M 1645.
- 2305 BBC: Commentary. See M 2305.
- 2306 Christian Science Monitor: One Norway Street. See M 0306.
- 2308 Radio Canada Int'l: Current Affairs. See S 1208.
- 2310 BBC: Financial News. See M 2310.
- 2315 BBC: Worldbrief. A roundup of the week's news headlines and human-interest happenings.
- 2330 BBC: Multitrack 3. Sarah Ward presents innovative and alternative rock music.
- 2334 Christian Science Monitor: Letterbox. See M 0334.

- 1800 Kol Israel: News
- 1800 Radio Australia: International Report
- 1800 Radio Bras. Brasilia: News
- 1800 Radio Canada Int'l: News
- 1800 Radio Korea: News
- 1800 Radio Moscow (World Service): News
- 1800 Radio RSA: News
- 1800 Voice of America: News
- 1800 WWCR: News [M-A]
- 1815 Radio Berlin Int'l: News
- 1830 Belize Radio One: Network News
- 1830 Christian Science Monitor: News [M-F]
- 1830 Radio Finland: Northern Report [M-F]
- 1830 Radio Kuwait: News
- 1830 Radio Moscow (World Service): News in Brief
- 1830 Radio Netherlands: News [M-A]
- 1830 Swiss Radio Int'l: News
- 1830 Voice of America: News (Special English)
- 1852 Radio RSA: News in Brief
- 1900 BBC: News Summary
- 1900 Christian Science Monitor: News
- 1900 Deutsche Welle: World News
- 1900 HCJB: Latin American News [M-F]
- 1900 Radio Australia: World and Australian News

- 1900 Radio Canada Int'l: News [M-F]
- 1900 Radio Havana Cuba: Int'l News [M-A]
- 1900 Radio Japan: News
- 1900 Radio Moscow (World Service): News
- 1900 Radio New Zealand Int'l: News
- 1900 Radio Portugal: News [M-F]
- 1900 Radio RSA: News
- 1900 Spanish National Radio: News
- 1900 Voice of America: News
- 1903 Radio Jamahiriya, Libya: Headlines
- 1930 Christian Science Monitor: News [M-F]
- 1930 Radio Berlin Int'l: News
- 1930 Radio Budapest: News
- 1930 Radio Canada Int'l: News [M-F]
- 1930 Radio Havana Cuba: Cuban National News [M-T]; Newsbreak [W-A]
- 1930 Radio Moscow (World Service): News in Brief [A-S]
- 1935 Radiotelevisione Italiana: News
- 1947 Radio Jamahiriya, Libya: News
- 1950 HCJB: News [M-F]
- 2000 BBC: World News
- 2000 Christian Science Monitor: News
- 2000 Kol Israel: News

- 2000 Radio Australia: International Report
- 2000 Radio Havana Cuba: Int'l News [M-A]
- 2000 Radio Jordan: News
- 2000 Radio Moscow (World Service): News
- 2000 Radio New Zealand Int'l: News
- 2000 Radio RSA: News
- 2000 Voice of America: News
- 2000 Voice of Indonesia: News
- 2015 Radio Berlin Int'l: News
- 2025 Radio Havana Cuba: Cuban National News [M-A]
- 2025 Radiotelevisione Italiana: News
- 2030 Christian Science Monitor: News [M-F]
- 2030 Radio Havana Cuba: News [M-A]
- 2030 Radio Korea: News
- 2030 Radio Moscow (World Service): News in Brief [S]
- 2030 Radio Netherlands: News [M-A]
- 2030 Radio Tirana, Albania: News
- 2045 Radio Berlin Int'l: News
- 2052 Radio RSA: News in Brief
- 2055 Voice of Indonesia: News in Brief
- 2100 BBC: News Summary

# program **guide**

## SUGGESTIONS? SOMETHING MISSING?

Let u know your correctlons, additions, and suggestlons of what you'd llke to see to Program Manager Kannon Shanmugam at 4412 Tunberry Circle, Lawrence, Kansas. 66047.

## Saturday

### Dec 2nd, 9th, 16th, 23th, 30th

- 0006 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0030 BBC: From the Weeklies. A review of the weekly British press.
- 0030 Radio Canada Int'l: As It Happens. See T 0030.
- 0045 BBC: Recording of the Week. See M 0545.
- 0101 BBC: Outlook. See M 1405.
- 0106 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0109 Deutsche Welle: Newslne Cologne. See M 1109.
- 0125 BBC: Financial News. See M 2310.
- 0127 Deutsche Welle: Caribbean Report. A weekly look at developments in the Caribbean region.
- 0130 BBC: Behind the Wall. Colin Thubron's account of his travels across China.
- 0134 Deutsche Welle: Random Selection. Larry Wayne takes a look at Germany from the lighter side.
- 0145 BBC: Book Choice. See S 0745.
- 0150 BBC: New Ideas. See T 0445.
- 0200 Radio Canada Int'l: As It Happens. See T 0030.
- 0206 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0209 BBC: British Press Review. See S 0209.
- 0209 Deutsche Welle: Commentary. See S 0109.
- 0213 Deutsche Welle: International Talking Point. See S 1513.
- 0215 BBC: Network UK. See T 0215.
- 0230 BBC: People and Politics. Background to the British political scene.
- 0234 Deutsche Welle: Man and Environment. A program on all topics relating to the

- environment in industrial and developing countries.
- 0300 Radio Canada Int'l: Innovation Canada. See S 0008.
- 0306 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0309 Deutsche Welle: Newslne Cologne. See M 1109.
- 0315 BBC: The World Today. See M 1645.
- 0325 Radio Canada Int'l: Shortwave Listeners' Digest. See S 0108.
- 0327 Deutsche Welle: Caribbean Report. See A 0127.
- 0330 BBC: The Vintage Chart Show. Paul Burnett presents top ten hits from the music charts of yesteryear.
- 0334 Deutsche Welle: Random Selection. See A 0134.
- 0350 Radio Canada Int'l: Music Spot. See S 0130.
- 0406 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0409 Deutsche Welle: Africa Highlight. A weekly feature on an important topic concerning Africa.
- 0423 Deutsche Welle: Development Forum. Reports and interviews on projects and progress in Africa and Asia.
- 0430 BBC: Here's Humph! All that jazz with Humphrey Lyttelton.
- 0434 Deutsche Welle: Science and Technology. See M 0234.
- 0445 BBC: Personal View. See A 0030.
- 0506 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0509 Deutsche Welle: Newslne Cologne. See M 1109.
- 0527 Deutsche Welle: Caribbean Report. See A 0127.
- 0530 BBC: Financial News. See M 2310.
- 0534 Deutsche Welle: Random Selection. See A 0134.
- 0540 BBC: Words of Faith. See S 0540.
- 0545 BBC: The World Today. See M 1645.
- 0606 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0609 Deutsche Welle: Africa Highlight. See A 0409.
- 0623 Deutsche Welle: Development Forum. See A 0423.
- 0630 BBC: Meridian. See W 0630.
- 0634 Deutsche Welle: Science and Technology. See M 0234.
- 0706 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: From the Weeklies. See F 2315.

- 0745 BBC: Network UK. See T 0215.
- 1106 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 1109 Deutsche Welle: Panorama. A review of the major events of the week.
- 1115 BBC: Behind the Wall. See A 0130.
- 1130 BBC: Meridian. See W 0630.
- 1134 Deutsche Welle: Mailbag Africa. Listeners' questions, music requests, and the club corner.
- 1206 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 1208 Radio Canada Int'l: Current Affairs. See S 1208.
- 1215 BBC: Multitrack 3. See F 2330.
- 1245 BBC: Sports Roundup. See S 1330.
- 1306 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1330 BBC: Network UK. See T 0215.
- 1345 BBC: Short Story. See T 0130.
- 1401 BBC: The Ken Bruce Show. See S 0230.
- 1406 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 1430 BBC: Sportsworld. Saturday sports, including a preview of English and Scottish soccer matches.
- 1506 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 1509 Deutsche Welle: Commentary. See S 0109.
- 1513 Deutsche Welle: Africa This Week. A review of trends and events on the African continent.
- 1515 BBC: Sportsworld. Saturday sports, including direct reports from more than a dozen key soccer contests.
- 1534 Deutsche Welle: Man and Environment. See A 0234.
- 1553 Radio Canada Int'l: Reports/Commentaries. See S 1553.
- 1606 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 1609 Deutsche Welle: Panorama. See A 1109.
- 1615 BBC: Sportsworld. Commentary on an English or Scottish soccer match.
- 1623 Deutsche Welle: Development Forum. See A 0423.
- 1634 Deutsche Welle: Religion and Society. See S 0409.
- 2306 Christian Science Monitor: Herald of Christian Science. See S 0006.
- 2308 Radio Canada Int'l: Innovation Canada. See S 0008.
- 2309 BBC: Book Choice. See S 0745.
- 2315 BBC: A Jolly Good Show. See T 1515.

## news guide cont'd from p.63

- 2100 Belize Radio One: News [M-F]
- 2100 BRT, Brussels: News
- 2100 Christian Science Monitor: News
- 2100 Deutsche Welle: World News
- 2100 KVOH: UPI Radio News
- 2100 Radio Australia: World and Australian News
- 2100 Radio Finland: Northern Report [M-F]
- 2100 Radio Japan: News
- 2100 Radio Moscow (World Service): News
- 2100 Radio New Zealand Int'l: News
- 2100 Radio Peace and Progress: News
- 2100 Spanish National Radio: News
- 2100 Swiss Radio Int'l: News
- 2100 Voice of America: News
- 2130 Christian Science Monitor: News [M-F]
- 2130 KVOH: UPI Headline News
- 2130 Radio Budapest: News
- 2130 Radio Canada Int'l: News
- 2130 Radio Moscow (World Service): News in Brief
- 2130 Swiss Radio Int'l: News
- 2200 BBC: Newshour

- 2200 Christian Science Monitor: News
- 2200 KVOH: UPI Radio News
- 2200 Radio Australia: International Report
- 2200 Radio Berlin Int'l: News
- 2200 Radio Canada Int'l (Asia): News
- 2200 Radio Canada Int'l (Western Europe): News [A-S]; The World at Six [M-F]
- 2200 Radio Havana Cuba: Int'l News [M-A]
- 2200 Radio Moscow (World Service): News
- 2200 Radiotelevisione Italiana: News
- 2200 RAE, Buenos Aires: News
- 2200 Voice of America: News
- 2200 Voice of Free China: News and Commentary
- 2230 Christian Science Monitor: News [M-F]
- 2230 Kol Israel: News
- 2230 KVOH: UPI Headline News
- 2230 Radio Havana Cuba: Cuban National News [M-A]
- 2230 Radio Moscow (World Service): News in Brief [A-S]
- 2230 Voice of America: News (Special English)
- 2245 Radio Berlin Int'l: News
- 2300 BBC: World News [A-S]; Five-Minute News [M-F]

- 2300 Belize Radio One: News [M-F]
- 2300 Christian Science Monitor: News
- 2300 KVOH: UPI Radio News
- 2300 Radio Australia: World and Australian News
- 2300 Radio Canada Int'l: News
- 2300 Radio for Peace Int'l: News [F]
- 2300 Radio Japan: News
- 2300 Radio Moscow: News
- 2300 Voice of America: News
- 2300 Voice of Turkey: News
- 2330 BRT, Brussels: News
- 2330 Christian Science Monitor: News [M-F]
- 2330 KVOH: UPI Headline News
- 2330 Radio for Peace Int'l: News [M]
- 2330 Radio Korea: News
- 2330 Radio Moscow (World Service): News in Brief [A-S]
- 2330 Radio Polonia: News
- 2330 Radio Tirana, Albania: News
- 2335 Voice of Greece: News [S]

# MT Monitoring Team

**Greg Jordan,**  
Frequency Manager

1855-I Franciscan Terrace  
Winston-Salem, NC 27127

**Joe Hanlon**

Philadelphia, Pennsylvania

**Richard A. Keen**

Golden, Colorado

# frequency

section

## 0000 UTC [7:00 PM EST/4:00 PM PST]

0000-0030	BBC, London, England	5975	6005	6175	7325
		9590	9915	12095	15260
		17875			
0000-0030	Kol Israel, Jerusalem	9435	9930	11605	
0000-0030	Radio Finland, Helsinki	9645			
0000-0030	Radio Korea (South), Seoul	15575			
0000-0030	M Radio Norway, Oslo	15165			
0000-0045	WINB, Red Lion, Pennsylvania	15145			
0000-0050	Radio Pyongyang, North Korea	15115	15160		
0000-0055	Radio Beijing, PR China	15066	15130	17715	17855
0000-0100	All India Radio, New Delhi	6055	7215	9535	9910
		11715	11745	15110	
0000-0100	Adventist World Radio, Costa Rica	9725	11870		
0000-0100	CBC Northern Quebec Service	6195	9625		
0000-0100	CBN, St. John's, Newfoundland	6160			
0000-0100	CBU, Vancouver, British Columbia	6160			
0000-0100	CFCF, Montreal, Quebec	6005			
0000-0100	CFCN, Calgary, Alberta	6030			
0000-0100	CHNS, Halifax, Nova Scotia	6130			
0000-0100	Christian Science World Service	7400	9850	13760	
0000-0100	CKWX, Vancouver, British Columbia	6080			
0000-0100	CFRB, Toronto, Ontario	6070			
0000-0100	FEBC, Manila, Philippines	15480			
0000-0100	KSDA, Guam	15125			
0000-0100	KVOH, Rancho Simi, California	17775			
0000-0100	Radio Australia, Melbourne	15140	15160	15240	15320
		17750	17795	21740	
0000-0100	Radio Canada Int'l, Montreal	5960	9755		
0000-0100	Radio Havana Cuba	11820			
0000-0100	Radio Japan, Tokyo	11660	15330		

0000-0100	Radio Luxembourg	6090			
0000-0100	Radio Moscow	17890			
0000-0100	Radio Moscow N. America Service	7115	9685		
0000-0100	Radio New Zealand, Wellington	15485	17705		
0000-0100	Radio for Peace, Costa Rica	13660	21565		
0000-0100	Radio Sofia, Bulgaria	9700	11680		
0000-0100	Radio Thailand, Bangkok	9655	11905		
0000-0100	Radio Tonga, Tonga	5025			
0000-0100	SBC Radio One, Singapore	5010	5052	11940	
0000-0100	Spanish National Radio, Madrid	9630	11880		
0000-0100	Superpower KUSW, Utah	15580			
0000-0100	Voice of America, Washington	5995	6130	9455	9775
		9815	11580	11695	11740
		15205			
0000-0100	WHRI, Noblesville, Indiana	7315	9495		
0000-0100	WRNO, New Orleans, Louisiana	7355			
0000-0100	IRR WWCR, Nashville, Tennessee	15690			
0000-0100	WYFR, Oakland, California	5985	9505	15440	
0030-0045	BBC, London, England*	6195	7235	9570	11945
		15360	17875		
0030-0100	BBC, London, England	5975	6005	6175	7325
		9915	9590	12095	15260
		9925			
0030-0100	BRT, Brussels, Belgium	9745	11775	15155	15230
0030-0100	HCJB, Quito, Ecuador	6110	9520	9598	9835
0030-0100	Radio Budapest, Hungary	11910	15160		
0030-0100	Radio Kiev, Ukrainian SSR	7400	9765	15180	17665
		17690			
0030-0100	Radio Netherlands, Hilversum	6020	6165	15315	
0030-0100	SLBC, Colombo, Sri Lanka	6005	9720		
0035-0040	All India Radio, New Delhi	3925	4860		
0045-0100	Radio Berlin Int'l, E. Germany	6080	11890	13690	
0045-0100	Radio Korea (South), Seoul	15575			
0045-0100	Radio New Zealand, Wellington	15485	17705		
0048-0100	WINB, Red Lion, Pennsylvania	15145			
0050-0100	Vatican Radio, Vatican City	6150	9605	11780	

## 0100 UTC [8:00 PM EST/5:00 PM PST]

0100-0110	Vatican Radio, Vatican City	6150	9605	11780	
0100-0115	All India Radio, New Delhi	6055	7215	9535	9910
		11715	11745	15110	
0100-0120	RAI, Rome, Italy	9575	11800		
0100-0125	Radio Netherlands, Hilversum	6020	6165	15315	

## 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.

## 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 (the 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!

# frequency

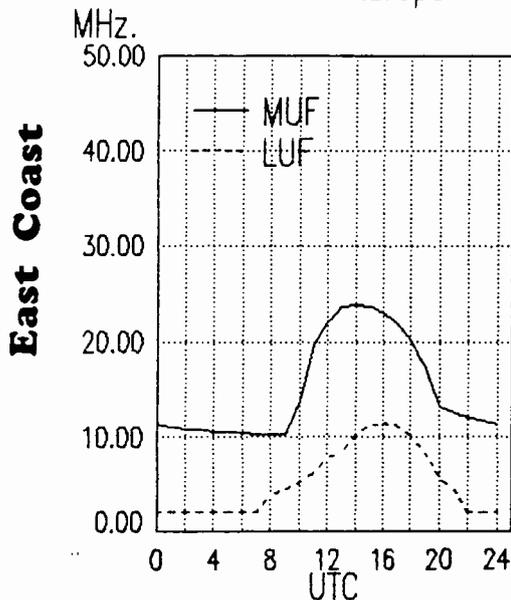
section

0100-0130	Kol Israel, Jerusalem	9435	9930	11605			
0100-0130	Radio Berlin Int'l, E. Germany	6080	11890	13690			
0100-0130	Radio Japan, Tokyo	17775					
0100-0130	Radio Sweden, Stockholm	7225	9640				
0100-0130	Laolian National Radio	7113v					
0100-0130 S,M	WINB, Red Lion, Pennsylvania	15145					
0100-0145	Radio Yugoslavia, Belgrade	5980	6005	11735			
0100-0150	Deutsche Welle, West Germany	6040	6145	9565	9735		
		11865					
0100-0200	BBC, London, England	5975	6175	7135	7325		
		9410	9590	9915	12095		
		15260	17705				
0100-0200	CBC Northern Quebec Service	6195	9625				
0100-0200	CBN, St. John's, Newfoundland	6160					
0100-0200	CBU, Vancouver, British Columbia	6160					
0100-0200	CFCF, Montreal, Quebec	6005					
0100-0200	CFCN, Calgary, Alberta	6030					
0100-0200	CHNS, Halifax, Nova Scotia	6130					
0100-0200	Christian Science World Service	7400	9850	13760			
0100-0200	CKWX, Vancouver, British Columbia	6080					
0100-0200	CFRB, Toronto, Ontario	6070					
0100-0200	FEBC, Manila, Philippines	15480					
0100-0200	HCJB, Quito, Ecuador	9745	11775	15155	15230		
0100-0200 T-A	KVOH, Rancho Simi, California	17775 (ML)					
0100-0200	Radio Australia, Melbourne	15160	15180	15240	15320		
		15395	17715	17795			
		17750	21740				
0100-0200	Radio Canada Int'l, Montreal	5960	9535	11845	11940		
0100-0200	Radio Havana Cuba	11820					
0100-0200	Radio Japan, Tokyo	17810	17835	17845			
0100-0200	Radio Luxembourg	6090					
0100-0200	Radio Moscow N. American Service	7115	7150	7310	9685		
0100-0200	Radio New Zealand, Wellington	15485	17705				
0100-0200 T-A	Radio for Peace, Costa Rica	13660	21565	25945(A)			
0100-0200	Radio Prague, Czechoslovakia	5930	7345	9540			
		11685					
		11990	13715	15540			
0100-0200	Radio Thailand, Bangkok	9655	11905				
0100-0200	Radio Tonga, Tonga	5025					
0100-0200	RAE, Buenos Aires, Argentina	9690					
0100-0200	SBC Radio One, Singapore	5052	11940				
0100-0200	SLBC, Colombo, Sri Lanka	6005	9720	15425			
0100-0200	Spanish National Radio, Madrid	9630	11880				
0100-0200 T-S	Superpower KUSW, Utah	11695					
0100-0200	Voice of America, Washington	5995	6130	7205	9455		
		9740	9775	9815	11580		
		11740	15160	15205	17735		
		18157	USB				
0100-0200	Voice of Indonesia, Jakarta	9680	11784				
0100-0200	WHRI, Noblesville, Indiana	7315	9495				
0100-0200	WRNO New Orleans, Louisiana	7355					
0100-0200 IRR	WWCR, Nashville, Tennessee	15690					
0100-0200	WYFR, Oakland, California	5985	9505				
0130-0140 T-S	Voice of Greece, Athens	9395	9420	11645			
0130-0155	Radio Austria Int'l, Vienna	9870	9875	13730			
0130-0200	Radio Baghdad, Iraq	9515	11810				
0130-0200	Radio Budapest, Hungary	6110	9520	9585	9835		
		11910	15160				
0130-0200	Radio Canada Int'l, Montreal	9535	11845	11940			
0130-0200	Radio Veritas Asia, Philippines	15220	15360				
0130-0200	WINB, Red Lion, Pennsylvania	15145					

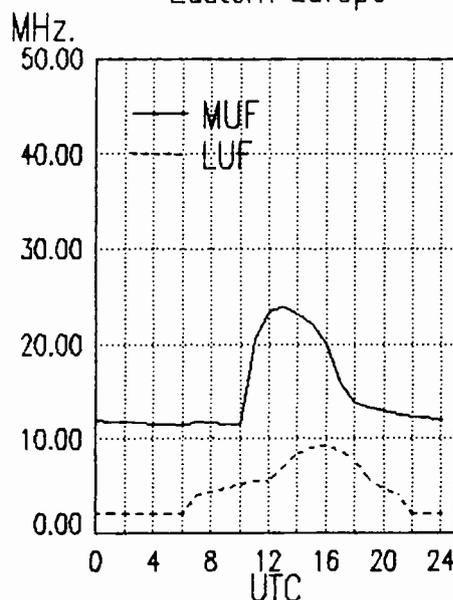
## 0200 UTC [9:00 PM EST/6:00 PM PST]

0200-0215	Vatican Radio, Vatican City	7125	9650	11750			
0200-0230	Burma Bcating Service, Rangoon	7185					
0200-0230	FEBC, Manila, Philippines	15480					
0200-0230	Kol Israel, Jerusalem	9435	9930	15615			
0200-0230	Swiss Radio Int'l, Berne	6095	6135	9725	9885		
		12035	17730				
0200-0230	Voice of America, Washington	7205					
0200-0245	Radio Berlin Int'l, E. Germany	6080	11890	13690			
0200-0250	Deutsche Welle, West Germany	6035	7285	9690	11945		
		15205	15235	17770			
0200-0250	Radio Bras, Brasilia, Brazil	11745v					
0200-0255	Radio Bucharest, Romania	5990	6155	9570	11830		
		11940	15380				
0200-0300	BBC, London, England	5975	6005	6110	6175		
		7135	7325	9590	9915		
		12095	15260	15390	21715		
0200-0300	CBC Northern Quebec Service	6195	9625				
0200-0300	CBN, St. John's, Newfoundland	6160					
0200-0300	CBU, Vancouver, British Columbia	6160					
0200-0300	CFCF, Montreal, Quebec	6005					
0200-0300	CFCN, Calgary, Alberta	6030					
0200-0300	CFRB, Toronto, Ontario	6070					
0200-0300	CHNS, Halifax, Nova Scotia	6130					

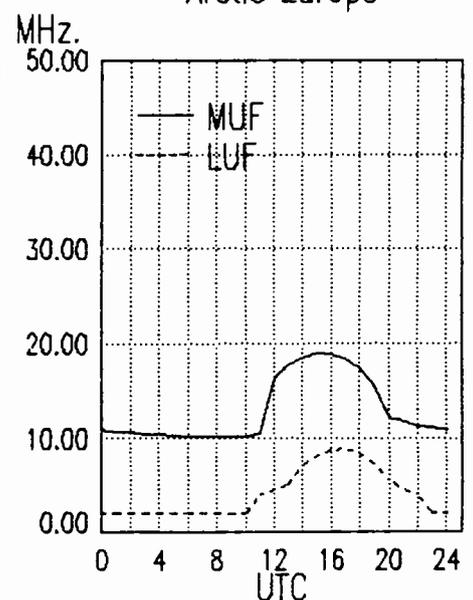
East Coast To  
Western Europe



East Coast To  
Eastern Europe



East Coast To  
Arctic Europe



# frequency

section

0200-0300	Christian Science World Service	9455	9850	13760
0200-0300	CKWX, Vancouver, British Columbia	6080		
0200-0300	HCJB, Quito, Ecuador	9745	11775	15155
0200-0300 A,S	KSDA, Guam	13720		
0200-0300 T-A	KVOH, Rancho Simi, California	17775 (ML)		
0200-0300	Radio Australia, Melbourne	15160	15180	15240 15320
		15395	17715	17750 17795
		21740		
0200-0300	Radio Baghdad, Iraq	9515	11810	
0200-0300	Radio Cairo, Egypt	9475	9675	
0200-0300 T-A	Radio Canada Int'l, Montreal	9535	9755	11845 11940
0200-0300	Radio Havana Cuba	9710	11820	
0200-0300	Radio Luxembourg	6090		
0200-0300	Radio Moscow, USSR	7370	17590	17890
0200-0300	Radio Moscow N. America Service	7115	7150	7310 9685
0200-0300	Radio Orion, South Africa	3955		
0200-0300 T-A	Radio for Peace, Costa Rica	13660	21565	25945(A)
0200-0300	Radio New Zealand, Wellington	15485	17705	
0200-0300	Radio RSA, South Africa	9580	9615	11935
0200-0300	Radio Thailand, Bangkok	9655	11905	
0200-0300	Radio Tonga, Tonga	5025		
0200-0300	RAE, Buenos Aires, Argentina	11710		
0200-0300	SBC Radio One, Singapore	5052	11940	
0200-0300	SLBC, Colombo, Sri Lanka	6005	9720	15425
0200-0300 T-S	Superpower KUSW, Utah	11695		
0200-0300	Voice of Asia, Taiwan	7285		
0200-0300	Voice of Free China, Taiwan	5950	9680	11860
0200-0300	Voice of Kenya, Nairobi	6045		
0200-0300	WINB, Red Lion, Pennsylvania	15145		
0200-0300	WHRI, Noblesville, Indiana	7315	9495	
0200-0300	WRNO, New Orleans, Louisiana	7355		
0200-0300 IRR	WWCR, Nashville, Tennessee	7520		
0200-0300	WYFR, California	5985	9505	15170
0215-0220	Radio Nepal, Kathmandu	5005	7165	
0230-0240	Port Moresby, Papua New Guinea	3925	4890	5960 5985
		6020	6040	6080 6140
		9520		
0230-0245 WHF	Radio Budapest, Hungary	6110	9520	9585 9835
A		11910	15160	
0230-0245	Radio Pakistan, Islamabad	7010	11570	15115 15580
		17660		
0230-0300	Radio Finland, Helsinki	11755	15185	
0230-0300 T-A	Radio Portugal, Lisbon	6060	6080	9600 9680
		9705	11840	
0230-0300	Radio Sweden, Stockholm	9695	11705	

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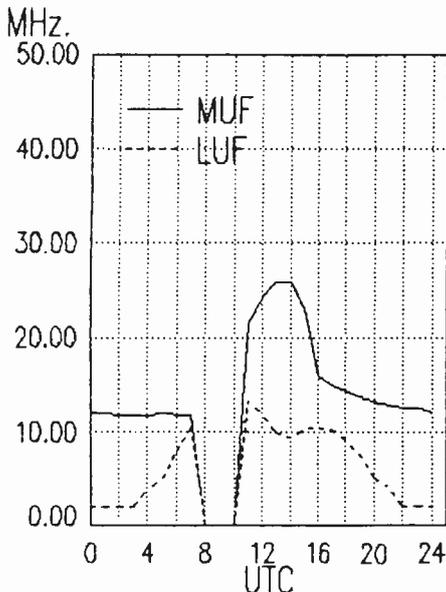
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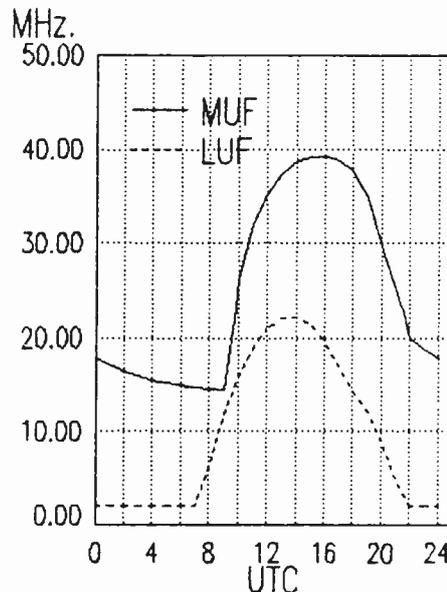
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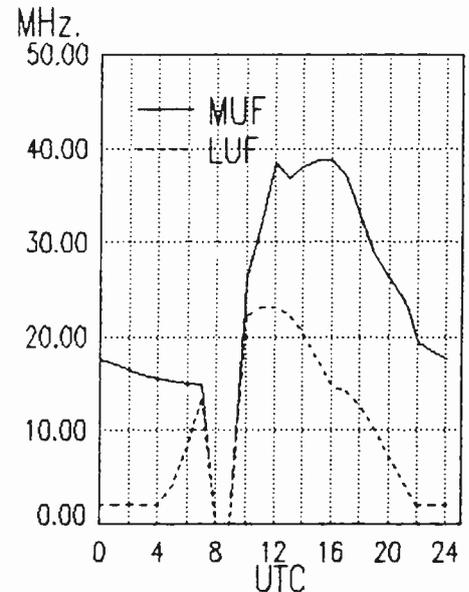
East Coast To  
Middle East



East Coast To  
West Africa



East Coast To  
Central Africa



East Coast

# frequency

section

0230-0300	Radio Tirana, Albania	9762v			
0230-0300	Voice of America, Washington	7205	15160		
0240-0250	All India Radio, New Delhi	3905	4860	4880	4895
		5960	5990	6110	6120
		7195	7295	9550	9610
		11830	11870	15305	
0245-0300	Radio Berlin Int'l, E. Germany	6080	11785	11890	15125
0245-0300	Radio Korea, Seoul, South Korea	9640	15575		

## 0300 UTC [10:00 PM EST/7:00 PM PST]

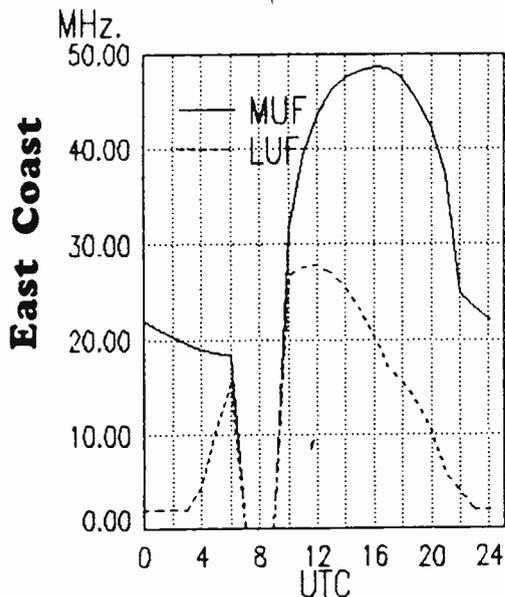
0300-0330	WINB, Red Lion, Pennsylvania	15145			
0300-0307	Radio Pakistan, Islamabad	5090	5930	7095	
0300-0330	BBC, London, England	3955	5975	6005	6195
		7325	9410	9915	11750
		12095	15260	15420	
0300-0330	Radio Berlin Int'l, E. Germany	6080	11785	11890	15125
0300-0330	Radio Cairo, Egypt	9475	9675		
0300-0330	Radio Japan, Tokyo	9645	15325	17825	21610
0300-0330	Radio Kiev, Ukrainian SSR	9765	7400	15180	17665
0300-0350	Deutsche Welle, West Germany	6120	9545	9605	11810
0300-0350	Radio Baghdad, Iraq	11810	11945		
0300-0355	Radio Beijing, China	9690	11715	15066	15130
		15510	17855		
0300-0400	CBC Northern Quebec Service	6195	9625		
0300-0400	CBN, St. John's, Newfoundland	6160			
0300-0400	CBU, Vancouver, British Columbia	6160			
0300-0400	CFCF, Montreal, Quebec	6005			
0300-0400	CFCN, Calgary, Alberta	6030			
0300-0400	CHNS, Halifax, Nova Scotia	6130			
0300-0400	Christian Science World Service	9455	9850	13760	
0300-0400	CKWX, Vancouver, British Columbia	6080			
0300-0400	CFRB, Toronto, Ontario	6070			
0300-0400	HCJB, Quito, Ecuador	9745	11775	15155	
0300-0400	La Voz Evangelica, Honduras	4820			
0300-0400	Radio Australia, Melbourne	11945	15160	15240	15320
		15395	17750	17795	21740
		9710	11820		
0300-0400	Radio Havana Cuba	5960			
0300-0400	Radio Japan, Tokyo	7150	7310	9685	9700
0300-0400	Radio Moscow, USSR	9720	17700	17825	
0300-0400	Radio New Zealand, Wellington	15485	17705		
0300-0400 T-A	Radio for Peace, Costa Rica	7375	21565		

0300-0400	Radio Prague, Czechoslovakia	5930	7345	9540	11990
		13715	15540		
0300-0400	Radio Thailand, Bangkok	9655	11905		
0300-0400	SBC Radio One, Singapore	5052	11940		
0300-0400	SLBC, Colombo, Sri Lanka	6005	9720	15425	
0300-0400 T-S	Superpower KUSW, Utah	9815			
0300-0400	TIFC, Costa Rica	5055	9645		
0300-0400	Trans World Radio, Bonaire	9535	11930		
0300-0400	Voice of America, Washington	6035	7280	9525	9575
		11835			
0300-0400	Voice of Free China, Taiwan	5950	7445	9680	11745
		15345			
0300-0400	Voice of Kenya, Nairobi	6045			
0300-0400	WHRI, Noblesville, Indiana	7315	9495		
0300-0400	WMLK, Bethel, Pennsylvania	9465			
0300-0400	WRNO, New Orleans, Louisiana	7355			
0300-0400 IRR	WWCR, Nashville, Tennessee	7520			
0300-0400	WYFR Satellite Net, California	5985	9505	15566	
0310-0330	Vatican Radio, Vatican City	11725			
0315-0345	Radio France Int'l, Paris	3955	5990	7135	7280
		9550	9790	9800	11705
		11995			
0330-0400	BBC, London, England	3955	5975	6005	6175
		9410	9915	12095	15280
		15310	15420	21715	
		9590	11720		
0330-0400	Radio Netherland, Hilversum	15145			
0330-0400 S,M	WINB, Red Lion, Pennsylvania	15145			
0335-0400	Radio New Zealand, Wellington	15485	17705		
0330-0400	Radio Tanzania, Dar es Salaam	9684			
0330-0400	Radio Tirana, Albania	9500			
0330-0400	United Arab Emirates Radio	11940	15400	15435	17890
0335-0340	All India Radio, New Delhi	3905	4860	9610	11830
		11870	11890	15305	
0340-0350 M-A	Voice of Greece, Athens	7430	9395	9420	
0350-0400	RAI, Rome, Italy	15330	17795	21610	
0352-0357v	Radio Yerevan, Armenian SSR	9610	9765	11675	15180
		17665			

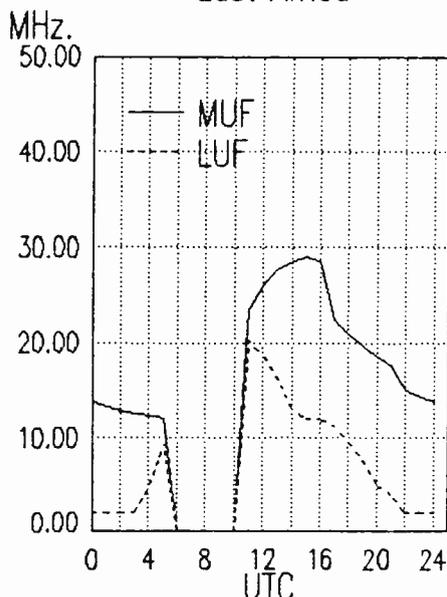
## 0400 UTC [11:00 AM EST/8:00 PM PST]

0400-0405	Radio Uganda, Kampala	4976	5026		
0400-0410	Radio Thailand, Bangkok	9655	11905		
0400-0410	RAI, Rome, Italy	6155	11905	15330	
0400-0420	Radio Botswana, Gabarone	4820			
0400-0420 T-S	Radio Zambia, Lusaka	3345	6165		

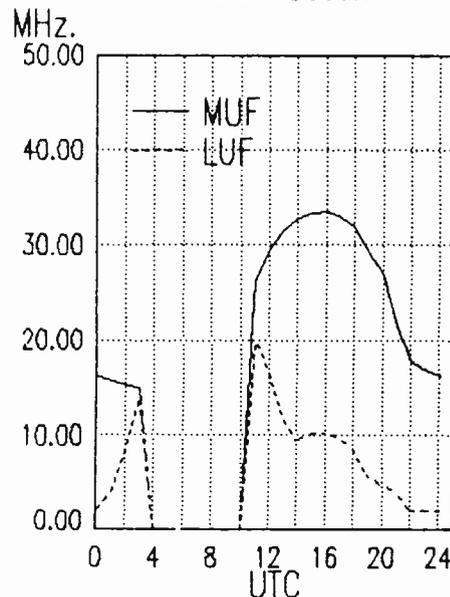
East Coast To South Africa



East Coast To East Africa



East Coast To Indian Ocean



# frequency

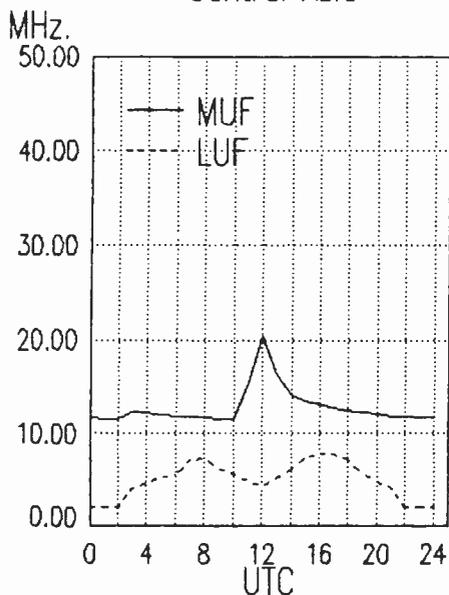
section

0400-0425	Radio Bucharest, Romania	6155	9510	9570	11830	0400-0500	Voice of Kenya, Nairobi	6045
		11940	15380			0400-0500V	Voice of Nicaragua, Managua	6100
0400-0425	Radio Netherland, Hilversum	9590	11720			0400-0500	Voice of Turkey, Ankara	9445 17760
0400-0430	BBC, London, England	3955	5975	6005	6175	0400-0500	WHRI, Noblesville, Indiana	7315 9495
		6195	7105	9410	9540	0400-0500	WMLK, Bethel, Pennsylvania	9465
		9580	9600	9610	9915	0400-0500	WRNO, New Orleans, Louisiana	6185
		11750	12095	15070	15280	0400-0500 IRR	WWCR, Nashville, Tennessee	7520
		15310	17885	21715		0400-0500	WYFR Satellite Net, California	5985 9505
0400-0430	La Voz Evangelica, Honduras	4820				0425-0440	RAI, Rome, Italy	5990 7275
0400-0430	SLBC, Colombo, Sri Lanka	6005	9720	15425		0430-0455	Radio Netherlands, Hilversum	9895 13700
0400-0430	Radio Tanzania, Dar es Salaam	9684				0430-0500	BBC, London, England	3955 5975 6005 7185
0400-0430	Swiss Radio Int'l, Berne	6135	9725	9885	12035			9410 9600 9915 12095
0400-0500	TIQ, Costa Rica	5955v						15070 15245 15280 15310
0400-0430	Trans World Radio, Bonaire	9535	11930					15420 21715
0400-0430 S,M	WINB, Red Lion, Pennsylvania	15145				0430-0500	BBC, London, England*	7210 9750 11945
0400-0445	Radio Berlin Int'l, E. Germany	11785	15125			0430-0500	Radio Tirana, Albania	9480 11835
0400-0450	Deutsche Welle, West Germany	7150	7225	9565	9765	0430-0500 S,M	Trans World Radio, Bonaire	9535 11930
		15265				0430-0500	Trans World Radio, Swaziland	3205 7205
0400-0450	Radio Pyongyang, North Korea	15160	15180			0432-0500 A,M	FEBA, Seychelles	15325 17820 (irr)
0400-0455	Radio Beijing, China	11685	11840	15195		0445-0500	Radio Berlin Int'l, E. Germany	11785 15125
0400-0500	CBC Northern Quebec Service	6195	9625					
0400-0500	CBN, St. John's, Newfoundland	6160						
0400-0500	CBU, Vancouver, British Columbia	6160						
0400-0500	CFCF, Montreal, Quebec	6005						
0400-0500	CFCN, Calgary, Alberta	6030						
0400-0500	CHNS, Halifax, Nova Scotia	6130						
0400-0500	Christian Science World Service	9455	9840	13760				
0400-0500	CKWX, Vancouver, British Columbia	6080						
0400-0500	CFRB, Toronto, Ontario	6070						
0400-0500	HCJB, Quito, Ecuador	11775	15155					
0400-0500	Radio Australia, Melbourne	11910	15160	15240	15320			
		17715	17795	21740				
0400-0500	Radio Havana Cuba	5965	9710	11760	11820			
0400-0500	Radio Moscow, USSR	7150	7310	9600	9765			
		15180	15280					
0400-0500	Radio New Zealand, Wellington	15485	17705					
0400-0500	Radio for Peace, Costa Rica	7375USB	21565					
0400-0500	Radio Sofia, Bulgaria	7115	9700	11750				
0400-0500	Radio Tonga, Tonga	5025						
0400-0500	Radio 5, South Africa	4880	11880					
0400-0500	SBC Radio One, Singapore	5052	11940					
0400-0500 T-S	Superpower KUSW, Utah	9815						
0400-0500	Voice of America, Washington	3980	5995	6035	6140			
		7200	7280	9525	9540			
		9575	11835					

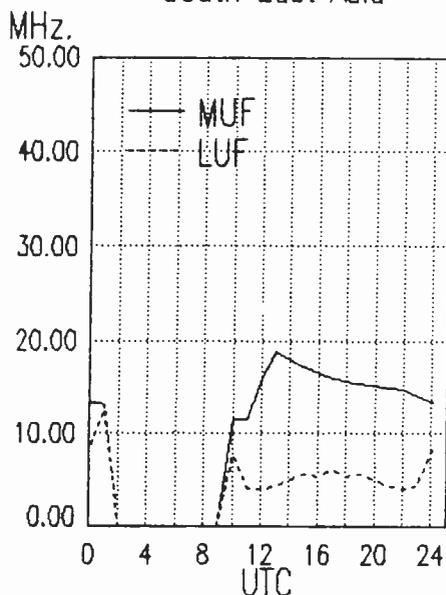
## 0500 UTC [12:00 PM EST/9:00 PM PST]

0500-0510	Radio Lesotho, Maseru	4800
0500-0510 M-A	Radio Zambia, Lusaka	3345 6165
0500-0515	GBC, Accra, Ghana	4915
0500-0515	Kol Israel, Jerusalem	7460 9435 11588 11605
		11655 15485 17630 17685
0500-0515	Vatican Radio, Vatican City	9645 11740 15190
0500-0530	BBC, London, England*	7105
0500-0530	Radio Berlin Int'l, E. Germany	11785 15125
0500-0530 S,M	Trans World Radio, Bonaire	9535 11930
0500-0530	Trans World Radio, Swaziland	3205 5055 7210
0500-0550	Deutsche Welle, West Germany	5960 9670 9700 9845
		11705 11845
0500-0600	BBC, London, England	5975 6005 6195 9410
		9580 9600 9640 9915
		12095 15070 15245 15280
		15400 15420 17885
0500-0600	CBC Northern Quebec Service	6195 9625
0500-0600	CBU, Vancouver, British Columbia	6160
0500-0600	CFCF, Montreal, Quebec	6005
0500-0600	CFCN, Calgary, Alberta	6030

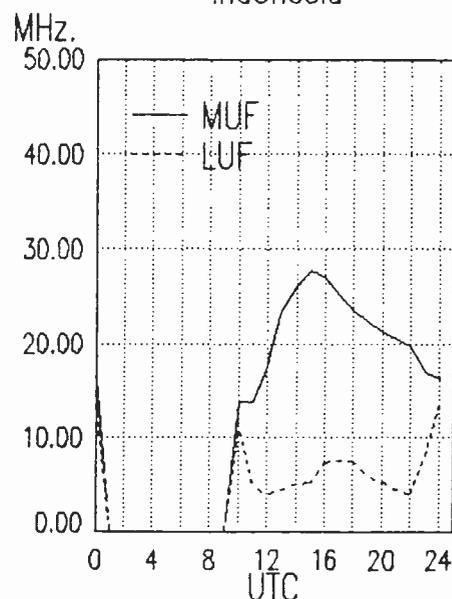
East Coast To  
Central Asia



East Coast To  
South East Asia



East Coast To  
Indonesia



East Coast

# frequency

section

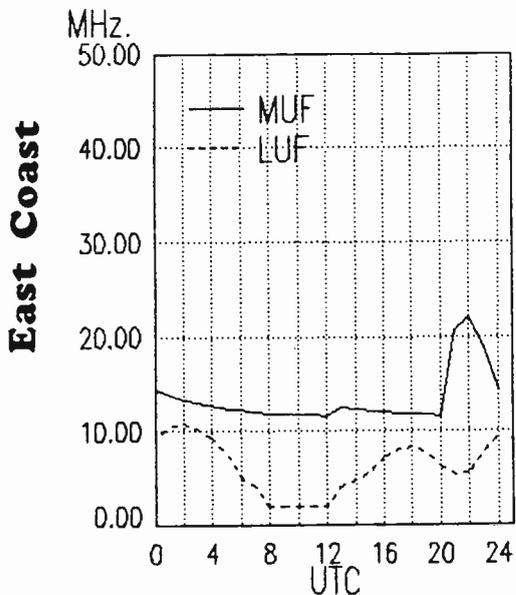
0500-0600	CHNS, Halifax, Nova Scotia	6130			
0500-0600	Christian Science World Service	9455	9840	13760	
0500-0600	CKWX, Vancouver, British Columbia	6080			
0500-0600	CFRB, Toronto, Ontario	6070			
0500-0600	HCJB, Quito, Ecuador	6230	9745	11775	
0500-0600	Radio 5, South Africa	4880	11880		
0500-0600	Radio Australia, Melbourne	11910	15160	15240	15320
		17715	17795	21740	
0500-0600	Radio Beijing, China	11840			
0500-0600	Radio Havana Cuba	5965	11760	11820	
0500-0600	Radio Japan, Tokyo	15195	15270	17765	17810
		17825			
0500-0600	Radio Kuwait	15345			
0500-0600	Radio Moscow, USSR	7150	7310	9765	15455
0500-0600	Radio New Zealand, Wellington	15485	17705		
0500-0600	Radio for Peace, Costa Rica	7375	USB	21565	
0500-0600	Radio Thailand, Bangkok	9655	11905		
0500-0600	Radio Tonga, Tonga	5025			
0500-0600	S,M Radio Zambia, Lusaka	11880			
0500-0600	SBC Radio One, Singapore	5052	11940		
0500-0600	Spanish National Radio, Madrid	9630			
0500-0600	A,S Superpower KUSW, Utah	6175			
0500-0600	S Swaziland Commercial Radio	6155	9705		
0500-0600	TIQ, Costa Rica	5955v			
0500-0600	Voice of America, Washington	6035	7170	7200	7280
		9670	15205		
0500-0600	Voice of Kenya, Nairobi	6045			
0500-0600	IRR Voice of Nicaragua, Managua	6100			
0500-0600	IRR Voice of Nigeria, Lagos	7255			
0500-0600	WINB, Red Lion, Pennsylvania	15145			
0500-0600	WHRI, Noblesville, Indiana	7315	9495		
0500-0600	M-A WMLK, Bethel, Pennsylvania	9465			
0500-0600	WYFR Satellite Net, California	5985	11580	15566	
0510-0520	Radio Botswana, Gaborone	3356	4820	7255	
0515-0530	M-F Radio Canada Int'l, Montreal	6055	6140	7155	9740
		9750	9760	11840	15225
0527-0600	F FEBA, Seychelles	17820			
0530-0545	BBC, London, England*	3990	6050	6140	7210
		9750			
0530-0555	Radio Austria Int'l, Vienna	6015			
0530-0555	Radio Bucharest, Romania	9640	11840	11940	15340
		15380	17720		
0530-0600	Radio Tirana, Albania	9500			
0530-0600	Trans World Radio, Swaziland	5055	7210		
0530-0600	UAE Radio, United Arab Emirates	15435	17775	21700	

0545-0600	M-F Radio Canada Int'l, Montreal	6055	6140	7155	9740
		9760	11840	15225	
0555-0600	Ghana Broadcasting Corp., Accra	3366	4915		
0555-0600	Voice of Malaysia, Kuala Lumpur	6175	9750	15295	

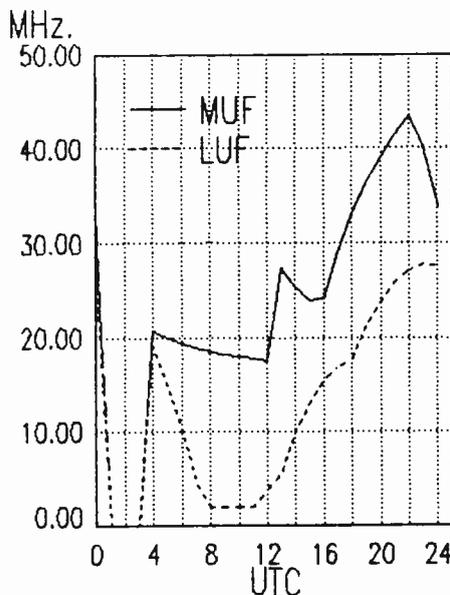
## 0600 UTC [1:00 AM EST/10:00 PM PST]

0600-0615	Radio Ghana, Accra	3366	4915		
0600-0615	M-A Radio Zambia, Lusaka	6165	7235		
0600-0620	Vatican Radio, Vatican City	6185	9645		
0600-0630	F FEBA, Mahe, Seychelles	17820			
0600-0630	Laotian National Radio	7113			
0600-0630	Radio Australia, Melbourne	11910	15160	15240	15395
		17715	21525	21740	
0600-0630	S Radio Norway Int'l, Oslo	15165			
0600-0630	Trans World Radio, Swaziland	6070			
0600-0630	Voice of Kenya, Nairobi	6045			
0600-0645	S Radio Cameroon, Yaounde	4850			
0600-0650	Deutsche Welle, West Germany	11765	13790	15185	17875
0600-0650	Radio Pyongyang, North Korea	13650	15160	15180	
0600-0700	BBC, London, England	5975	6005	6195	7150
		9410	9580	9600	9610
		9640	9760	11925	11940
		12095	15070	15245	15280
		17740	17815	17885	21470
0600-0700	CBU, Vancouver, British Columbia	6160			
0600-0700	CFCF, Montreal, Quebec	6005			
0600-0700	CFCN, Calgary, Alberta	6030			
0600-0700	CHNS, Halifax, Nova Scotia	6130			
0600-0700	Christian Science World Service	9455	9840	11980	
0600-0700	CKWX, Vancouver, British Columbia	6080			
0600-0700	CFRB, Toronto, Ontario	6070			
0600-0700	HCJB, Quito, Ecuador	9745	11775		
0600-0700	King of Hope, South Lebanon	6215			
0600-0700	Radio Havana Cuba	11835			
0600-0700	Radio Jordan, Amman	9560			
0600-0700	Radio Korea, Seoul, South Korea	7275	9570	11830	
0600-0700	Radio Kuwait	15345			
0600-0700	Radio Moscow, USSR	12010	12030	12050	13605
		13645	13710	15135	15320
		15540	15425	15585	21690
		21790			
0600-0700	Radio New Zealand, Wellington	15485	17705		
0600-0700	A,S Radio Thailand, Bangkok	9655	11905		

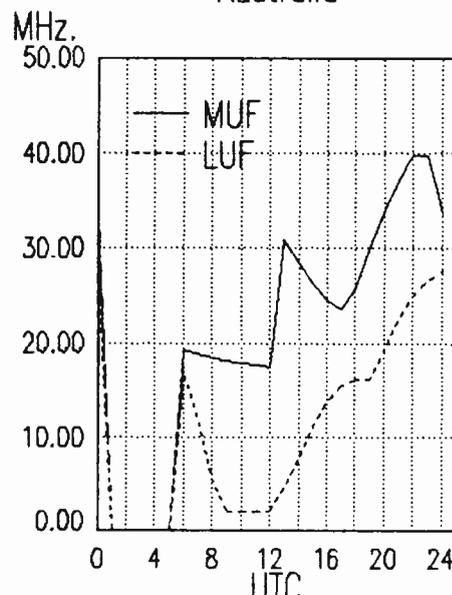
East Coast To Far East



East Coast To Pacific



East Coast To Australia





# frequency

section

0700-0800	WHRI, Noblesville, Indiana	9495	9620		
0700-0800	WYFR, Oakland, California	6065	7355	9852.5	15566
0700-0800	WYFR Satellite Network	13760			
0715-0730	Radio Korea, Seoul, South Korea	13670	15575		
0715-0730 M-A	Vatican Radio, Vatican City	11725	15190		
0715-0735 S	FEBA, Mahe, Seychelles	15115	17785		
0720-0730 M-A	Vatican Radio, Vatican City	6248	9645	11740	
0730-0735	All India Radio, New Delhi	5990	6010	6020	7110
		7205	9610	9675	11850
		11935	15235	15250	17705
		2310	[ML]		
0730-0800	ABC, Alice Springs, Australia	2485			
0730-0800	ABC, Katherine, Australia	2325	[ML]		
0730-0800	ABC, Tennant Creek, Australia	9655	15160	15395	17715
0730-0800	Radio Australia, Melbourne	3975	6010	7230	9915
0730-0745	BBC, London, England*	6155	13730	15410	21490
0730-0755	Radio Austria Int'l, Vienna	6120	9560	11755	
0730-0755	Radio Finland, Helsinki	7125			
0730-0800	AWR, Forli, Italy	3955	7150	7325	9410
0730-0800	BBC, London, England	9600	9640	9760	11860
		11940	12095	15070	15360
		15400	17815	21470	
0730-0800	Radio Netherland, Hilversum	9630	9715		
0730-0800	Radio Prague, Czechoslovakia	11685	17840	21705	
0730-0800	Swiss Radio Int'l, Berne	3985	6165	9535	
0740-0750 W	Radio Free Europe, Munich*	5985	7115	9695	9725
		11895	15355		
0755-0800	Radio Pacific Okean, USSR	12050	12070	17605	

0800-0830 S	Radio Austria Int'l, Vienna	6155	13730	15410	15450
0800-0830	Radio Bangladesh, Dhaka	12030	15525		
0800-0830	Radio Berlin Int'l, East Germany	6040	6115	7185	9730
		21465	21540		
0800-0830 S	Radio Norway, Oslo	15165	25730		
0800-0830	Radio Tirana, Albania	9500	11835		
0800-0830	Voice of Islam, Pakistan	15525	17870		
0800-0835 S	FEBA, Mahe, Seychelles	15325	17785		
0800-0835	Trans World Radio, Swaziland	6070	9725		
0800-0840	Trans World Radio, Monte Carlo	9485			
0800-0850	Deutsche Welle, West Germany	9770			
0800-0850	Radio Pyongyang, North Korea	11830	15115	15160	15180
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	AFAN, Antarctica	6010.5			
0800-0900	BBC, London, England	7150	7325	9410	9600
		9640	9760	11860	11940
		15280	15360	15070	15400
		17815			
0800-0900	CBN, St. John's, Newfoundland	6160			
0800-0900	CBU, Vancouver, British Columbia	6160			
0800-0900	CFCF, Montreal, Quebec	6005			
0800-0900	CFCN, Calgary, Alberta	6030			
0800-0900	CHNS, Halifax, Nova Scotia	6130			
0800-0900	Christian Science World Service	9455	17855		
0800-0900	CKWX, Vancouver, British Columbia	6080			
0800-0900	CFRB, Toronto, Ontario	6070			
0800-0900	King of Hope, South Lebanon	6215			
0800-0900	KNLS, Anchor Point, Alaska	7365			
0800-0900	Radio Australia, Melbourne	5995	6020	6080	9580
		9655	9710	11720	15395
		17715			
0800-0900	Radio Jordan, Amman	11955			
0800-0900	Radio Moscow, USSR	13710	15135	15210	15585
		17570	17660	21625	
0800-0900	Radio for Peace, Costa Rica	12030			
0800-0900	Radio Tonga, Tonga	5025			
0800-0900	SBC Radio One, Singapore	5052	11940		
0800-0900 S	Superpower KUSW, Utah	6135			
0800-0900	Voice of Indonesia, Jakarta	11790	15105		
0800-0900 A,S	Voice of Kenya, Nairobi	7270			
0800-0900	WHRI, Noblesville, Indiana	7355			
0805-0900	KTWR, Guam	15210			

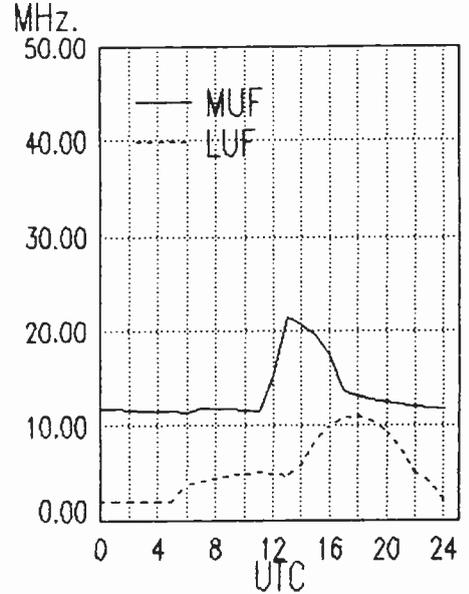
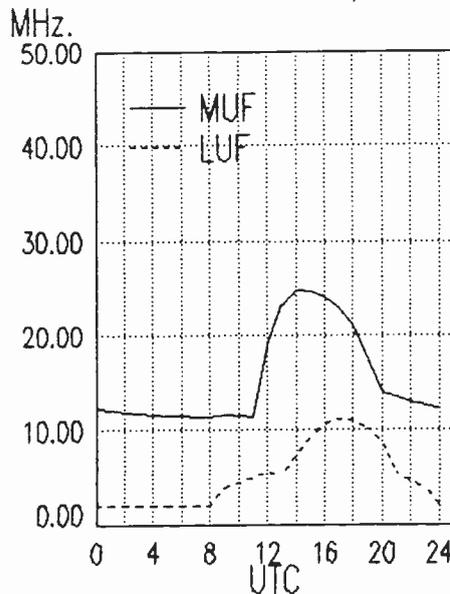
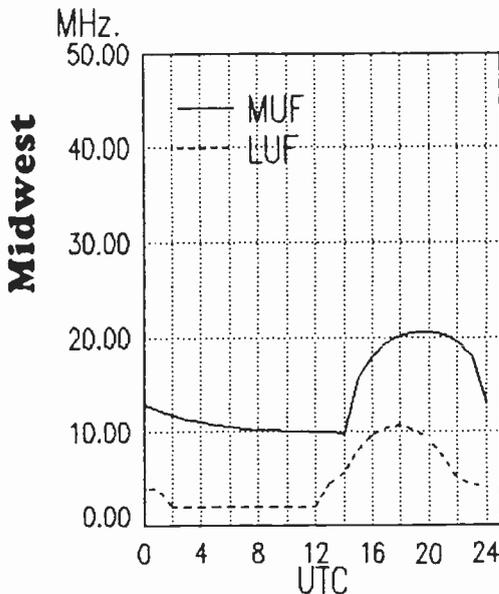
**0800 UTC [3:00 AM EST/12:00 PM PST]**

0800-0805 M-F	Port Moresby, Papua New Guinea	3925	4890	5960	5985
		6020	6040	6080	6140
		9520			
0800-0805	Soloman Islands Broadcasting Corp	9545			
0800-0825 M-F	BRT, Brussels, Belgium	6035	11695	21815	
0800-0900	Radio Berlin Int'l, E. Germany	7185	9730	21465	21540
0800-0815 M-A	Radio Zambia, Lusaka	6165	7235		
0800-0825 M-A	Radio Finland, Helsinki	17795	21550		
0800-0825	Radio Netherland, Hilversum	9630	9715		
0800-0825	Voice of Malaysia, Kuala Lumpur	6175	9750	15295	
0800-0830	HCJB, Quito, Ecuador	6130	9610	9745	11835
		11925			

East Coast To  
Alaska

Midwest To  
Western Europe

Midwest To  
Eastern Europe





# frequency

section

0930-0940	Radio Canada Int'l, Montreal	5960	9755
0930-0945	BBC, London, England*	9725	11955
0930-1000	CBN, St. John's, Newfoundland	6160	
0930-1000	Radio Beijing, China	9700	11755 15440
0930-1000	Radio Sweden Int'l, Stockholm	15390	
0945-1000	BBC, London, England*	5995	7180 9725 11955
0945-1000 M-A	Radio Prague, Czechoslovakia	6055	7345 9505

## 1000 UTC [5:00 AM EST/2:00 AM PST]

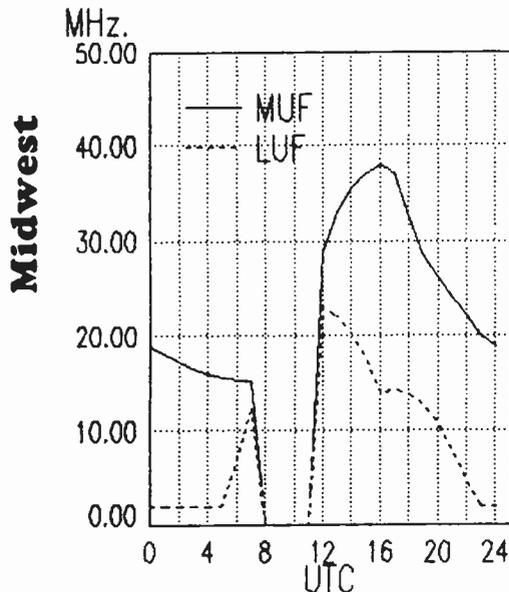
1000-1025	BRT, Brussels, Belgium	21810	26050
1000-1030	HCJB, Quito, Ecuador	6130	9745 11925
1000-1030	Radio Beijing, China	11755	15440 17710
1000-1030	Radio Tanzania, Dar es Salaam	7165	
1000-1030	Swiss Radio Int'l, Berne	9560	13685 17670 21695
1000-1030	Voice of Ethiopia, Addis Ababa	9560	
1000-1030	Voice of Vietnam, Hanoi	9840	15010
1000-1045	Radio Berlin Int'l, E. Germany	9770	11890 21540
1000-1055 A	Trans World Radio, Monte Carlo	7105	
1000-1100	ABC, Alice Springs, Australia	2310	[ML]
1000-1100	ABC, Katherine, Australia	2485	
1000-1100	ABC, Perth, Australia	9610	
1000-1100	ABC, Tennant Creek, Australia	2325	[ML]
1000-1100	All India Radio, New Delhi	11785	111860 11915 15130
		15335	15050 17387 17665
1000-1100	BBC, London, England	9410	9740 11750 12095
		15070	15360 17640 17790
		21710	25750
1000-1100	CBN, St. John's, Newfoundland	6160	
1000-1100	CFCF, Montreal, Quebec	6005	
1000-1100	CFCN, Calgary, Alberta	6030	
1000-1100	CHNS, Halifax, Nova Scotia	6130	
1000-1100	Christian Science World Service	9455	9495
1000-1100	CKWX, Vancouver, British Columbia	6080	
1000-1100	CFRB, Toronto, Ontario	6070	
1000-1100	FEBC, Manila, Philippines	11850	
1000-1100	KSDA, Guam	13720	
1000-1100	KTWR, Agana, Guam	11805	
1000-1100	Radio Afghanistan, Kabul	4405	6085 15435 17720
1000-1100	Radio Australia, Melbourne	5995	9580 9655 9770
		15415	
1000-1100	Radio Moscow, USSR	9600	15405 15535 17570
		17775	21690
1000-1100	Radio New Zealand, Wellington	9850	11780

1000-1100	Radio RSA, South Africa	11805	
1000-1100	SBC Radio One, Singapore	5010	5052 11940
1000-1100 S	Superpower KUSW, Utah	6135	
1000-1100	Voice of America, Washington	6030	5985 9590 11720
		11915	15425
1000-1100	Voice of Kenya, Nairobi	7270	
1000-1100	WHRI, Noblesville, Indiana	7355	
1000-1100	WYFR, Oakland, California	5950	
1005-1010	Radio Pakistan, Islamabad	15606	17660
1030-1040	Voice of Asia, Taiwan	5980	
1030-1055	Radio Austria Int'l, Vienna	15450	21490
1030-1100	BBC, London, England*	7180	9660 9725
1030-1100	HCJB, Quito, Ecuador	6130	9745 11925
1030-1100	Radio Netherlands, Hilversum	6020	9675
1030-1100 A,S	Radio Tanzania, Dar es Salaam	7165	
1030-1100	SLBC, Colombo, Sri Lanka	11835	15120 17850 [ML]
1030-1100	UAE Radio, United Arab Emirates	15320	15435 17775 21605
1030-1100	Voice of America, Washington*	11965	
1040-1050 H	Radio Free Europe, Munich*	7115	9695 9725
		11895	15355
1040-1050 M-A	Voice of Greece, Athens	11645	15630
1045-1100	Radio Berlin Int'l, E. Germany	6115	
1045-1100 S	Radio Budapest, Hungary	7220	9585 9835 11910
		15160	15220
1045-1100 M-A	Radio Prague, Czechoslovakia	6055	7345 9505
1055-1100	Trans World Radio, Bonaire	11815	15345
1055-1100 S	Trans World Radio, Monte Carlo	7105	

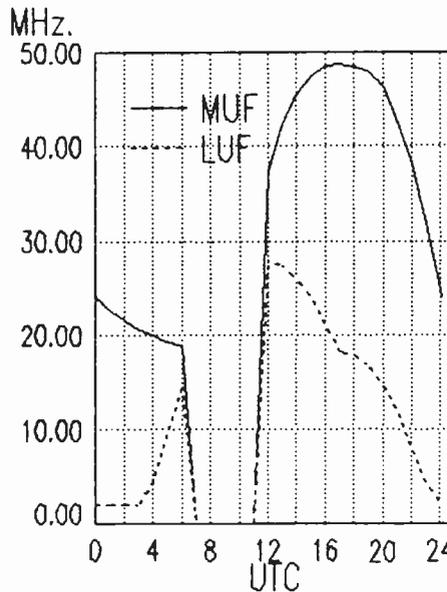
## 1100 UTC [6:00 AM EST/3:00 AM PST]

1100-1105	Radio Pakistan, Islamabad	6090	7290
1100-1120	Radio Pakistan, Islamabad	15606	17760
1100-1125	Radio Netherland, Hilversum	6020	9675
1100-1130	BBC, London, England*	7120	
1100-1130	HCJB, Quito, Ecuador	6130	9745 11925
1100-1130	Kol Israel, Jerusalem	11585	15485 15650 17575
		17590	17685 21780
1100-1130	KTWR, Guam*	9820	11665
1100-1130	Radio Berlin Int'l, E. Germany	6115	
1100-1130	Radio Finland, Helsinki	15400	21550
1100-1130	Radio Mozambique, Maputo	9525	11818 11835
1100-1130	SLBC, Colombo, Sri Lanka	11835	15120 17850 [ML]
1100-1130	Swiss Radio Int'l, Berne	13635	15570 17830 21770
1100-1130	Voice of Vietnam, Hanoi	9840	15010

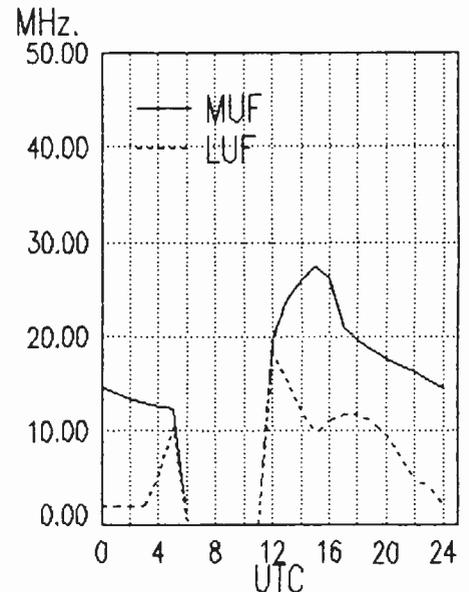
Midwest To  
Central Africa



Midwest To  
South Africa



Midwest To  
East Africa

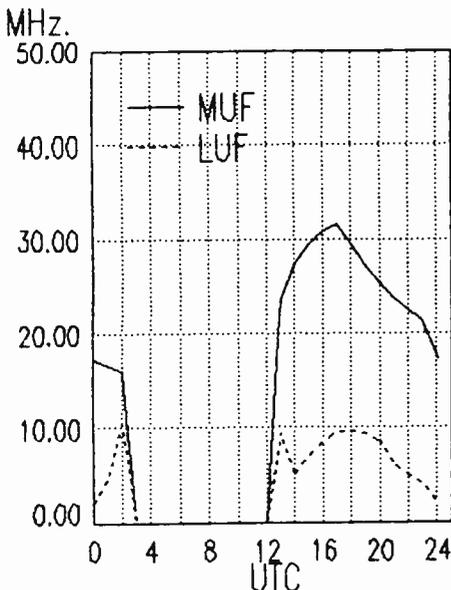


# frequency

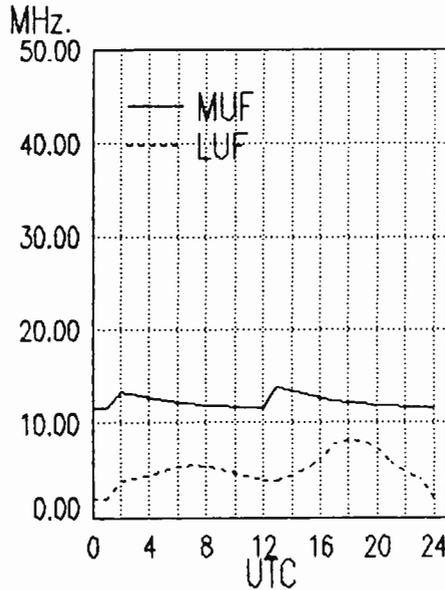
section

1100-1150	Deutsche Welle, West Germany	15410	17765	17800	21600	1130-1155	Radio Austria Int'l, Vienna	6155	13730	15430	21475
1100-1150	Radio Pyongyang, North Korea	9600	9977	11735		1130-1200	BBC, London, England*	15115	15390	17695	
1100-1155	Radio Beijing, China	9660	15540	17855		1100-1200	HCJB, Quito, Ecuador	11740			
1100-1200	ABC, Alice Springs, Australia	2310	[ML]			1130-1200	Radio Netherland, Hilversum	5955	9715	17575	21480
1100-1200	ABC Brisbane, Australia	9660						21520			
1100-1200	ABC, Katherine, Australia	2485				1130-1200	Radio Thailand, Bangkok	9655	11905		
1100-1200	ABC, Perth, Australia	9610				1130-1200	Radio Tirana, Albania	9480	11855		
1100-1200	ABC, Tennant Creek, Australia	2325	[ML]			1130-1200	Voice of Islamic Republic Iran	7190	7230	9695	11790
1100-1200	BBC, London, England	5965	6195	7180	9410	1135-1140	All India Radio, New Delhi	6065	7110	9610	9675
		9515	9740	11750	11775			11620	11850	15320	
		15070	15420	17640	17790	1140-1145 M-A	Vatican Radio, Vatican City	6248	9645	11740	
		21470	21710	25750		1145-1200	Radio Prague, Czechoslovakia	6055	7345	9505	
1100-1200	CBC Northern Quebec Service	6065	9625			<b>1200 UTC [7:00 AM EST/4:00 AM PST]</b>					
1100-1200	CBN, St. John's, Newfoundland	6160				1200-1205	Radio New Zealand, Wellington	9850	11780		
1100-1200	CFCF, Montreal, Quebec	6005				1200-1215	BBC, London, England*	3915	6065	7275	
1100-1200	CFCN, Calgary, Alberta	6030				1200-1215	Vatican Radio, Vatican City	17865	21515		
1100-1200	CHNS, Halifax, Nova Scotia	6130				1200-1215	Voice of Kampuchea, Phnom-Penh	9693	11938		
1100-1200	Christian Science World Service	9455	9495			1200-1220	Radio Bucharest, Romania	17720	21665		
1100-1200	CKWX, Vancouver, British Columbia	6080				1200-1225 M-F	Radio Finland, Helsinki	15400	21550		
1100-1200	CFRB, Toronto, Ontario	6070				1200-1225	Radio Polonia, Warsaw, Poland	6095	7285		
1100-1200	Radio Australia, Melbourne	5995	6060	6080	7215	1200-1225	Voice of Islamic Republic Iran	7190	7230	9695	11790
		9580	9645	9710	11800	1200-1230	Radio Netherland, Hilversum	5955	9715	17575	21480
1100-1200	Radio Japan, Tokyo	6120	11815	11840				21520			
1100-1200	Radio Moscow, USSR	9600	15135	15220	15585	1200-1230 S	Radio Norway, Oslo	15165			
		17645	17660	17815	17830	1200-1230	Radio Somalia, Mogadishu	6095			
		9850	11780			1200-1230	Radio Tashkent, Uzbek, USSR	9540	9600	11785	15460
1100-1200	Radio New Zealand, Wellington	11805	11900	21590		1200-1230	Radio Thailand, Bangkok	9655	11905		
1100-1200	Radio RSA, South Africa	7165				1200-1230 S	Radio Zambia, Lusaka	11880	[IRR]		
1100-1200 A,S	Radio Tanzania, Dar es Salaam	11880	[IRR]			1200-1230	Swiss Radio Iny'l, Berne	6165	9535	12030	
1100-1200 S	Radio Zambia, Lusaka	5010	5052	11940		1200-1235 M-A	Radio Ulan Bator, Mongolia	9615	12015		
1100-1200	SBC-1, Singapore	9850				1200-1255	Radio Beijing, China	11600	11660	15400	15540
1100-1200 S	Superpower KUSW, Utah	11815	15345					17855			
1100-1200	Trans World Radio, Bonalre	5985	6030	9590	9660	1200-1300	ABC, Alice Springs, Australia	2310	[ML]		
1100-1200	Voice of America, Washington	9760	11915	15160	15425	1200-1300	ABC Brisbane, Australia	9660			
		5980	7445			1200-1300	ABC, Katherine, Australia	2485			
1100-1200	Voice of Asia, Taiwan	7270				1200-1300	ABC, Perth, Australia	9610			
1100-1200	Voice of Kenya, Nairobi	9465	11790			1200-1300	ABC, Tennant Creek, Australia	2325	[ML]		
1100-1200	WHRI, Noblesville, Indiana	6185				1200-1300 S	Adventist World Radio, Africa	17890			
1100-1200	WRNO, New Orleans, Louisiana	5950	11580			1200-1300	AFAN, Antarctica	6012			
1100-1200	WYFR, Oakland, California	4820	5955	7255		1200-1300	Adventist World Radio, Costa Rica	9725	11870		
1110-1120 M-F	Radio Botswana, Gaborone	11740				1200-1300	BBC, London, England	6195	9515	9740	11750
1115-1130	Radio Korea, Seoul, South Korea	17840	21485					11775	11940	12095	15070
1115-1130	Vatican Radio, Vatican City	5005									
1115-1145	Radio Nepal, Kathmandu	7220	9585	9835	11910						
1130-1145 A	Radio Budapest, Hungary	15160	15220								

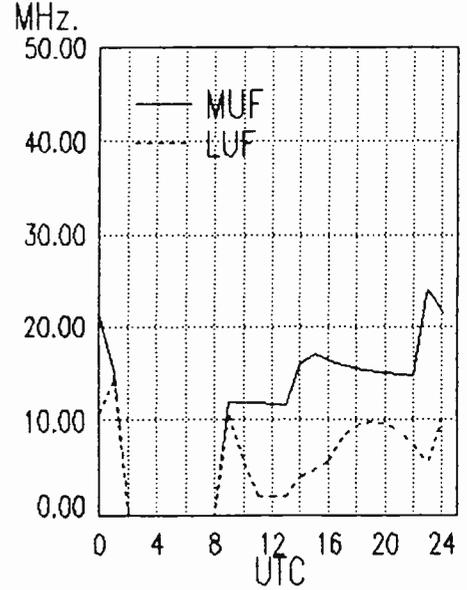
Midwest To  
Indian Ocean



Midwest To  
Central Asia



Midwest To  
South East Asia

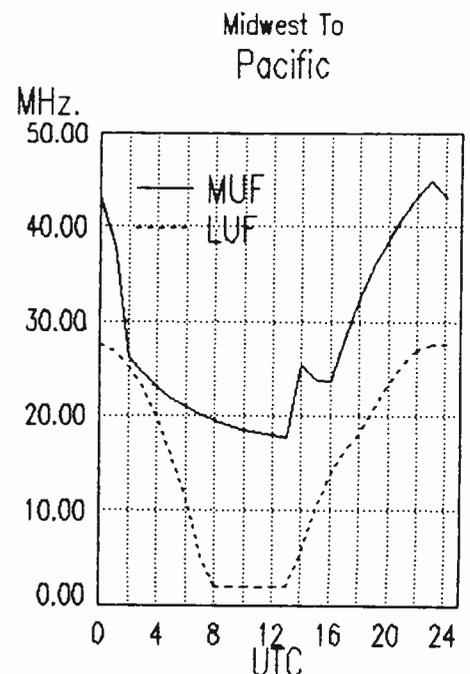
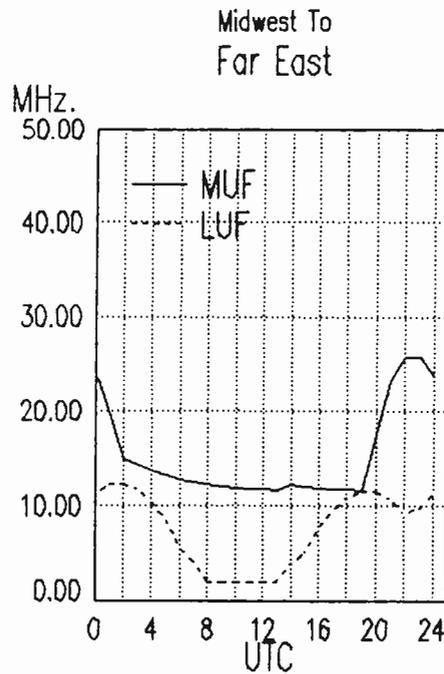
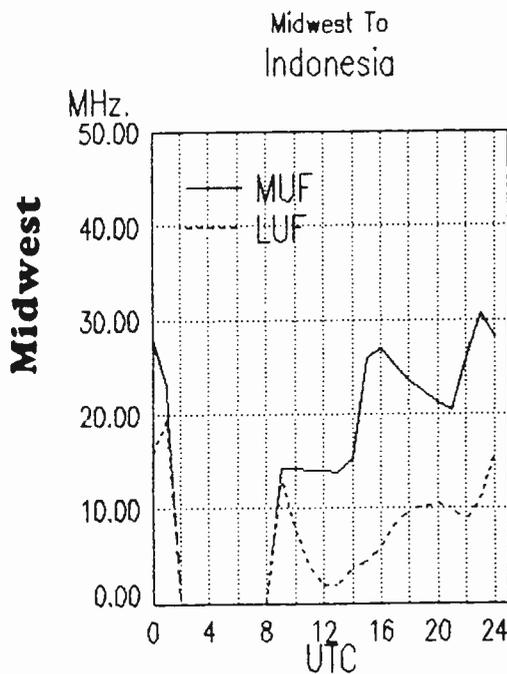


Midwest

# frequency

section

1200-1300	CBC Northern Quebec Service	6065	9625	17640	17705	17790	21470	1235-1245	Voice of Greece, Athens	11645	15630	17550	
1200-1300	CBN, St. John's, Newfoundland	6160		21710	25750			1240-1250	M Radio Free Europe, Munich*	5985	7115	9695 9725	
1200-1300	CFCF, Montreal, Quebec	6005								11895	15355		
1200-1300	CFCN, Calgary, Alberta	6030						1245-1300	Radio France Int'l, Paris	9805	11670	15155 15195	
1200-1300	CHNS, Halifax, Nova Scotia	6130								15365	17650	21635 21645	
1200-1300	Christian Science World Service	9495	9530	11930				<b>1300 UTC [8:00 AM EST/5:00 AM PST]</b>					
1200-1300	CKWX, Vancouver, British Columbia	6080						1300-1310	Radio France Int'l, Paris	11670	15155	15365 17650	
1200-1300	CFRB, Toronto, Ontario	6070								21635	21645		
1200-1300	HCJB, Quito, Ecuador	11740	15115	17890				1300-1315	Radio Berlin Int'l, E. Germany	15440	17880	21465 21540	
1200-1300	Radio Australia, Melbourne	5995	6060	6080	7205			1300-1325	Radio Bucharest, Romania	9690	11940	15365 17750	
		7215	9580	9710	9770			1300-1330	BBC, London, England	5995	6195	7180 9515	
		11800								9740	11750	11775 11940	
1200-1300	Radio Canada Int'l, Montreal	9635	11855	17820						12095	15070	15310 15420	
1200-1300	Radio Moscow, USSR	9600	9875	11800	15135					17640	17790	21470 21710	
		15320	15490	15540	15550			1300-1330	Radio Cairo, Egypt	17595			
		15585	17830	17850				1300-1330	Radio Finland, Helsinki	15400	21550		
1200-1300	Radio RSA, South Africa	9585	11805	21590				1300-1330	Radio Ghana, Accra	4915	7295		
1200-1300 A,S	Radio Tanzania, Dar es Salaam	7165						1300-1330	Radio Norway Int'l, Oslo	9590			
1200-1300	SBC Radio One, Singapore	5010	5052	11940				1300-1330	Radio Yugoslavia, Belgrade	17740	21555	25795	
1200-1300 A,S	Superpower KUSW, Utah	9850						1300-1330	Trans World Radio, Sri Lanka	11920			
1200-1300	Trans World Radio, Bonaire	11815	15345					1300-1330	Voice of Kenya, Nairobi	7270			
1200-1300	Trans World Radio, Sri Lanka	11920						1300-1332	A,S Trans World Radio, Bonaire	11815	15345		
1200-1300	Voice of America, Washington	6110	9760	11715	15160			1300-1350	Radio Pyongyang, North Korea	9325	9345	9555	9600
		15425								11335	11735		
1200-1300	Voice of Kenya, Nairobi	7270						1300-1355	Radio Beijing, China	11600	11660	11855	15280
1200-1300	WHRI, Noblesville, Indiana	9465	11790							15455			
1200-1300	WYFR, Oakland, California	5950	11580	11830	13695			1300-1400	ABC, Alice Springs, Australia	2310	[ML]		
		15215	15255					1300-1400	ABC Brisbane, Australia	9660			
1215-1245	Radio Korea, Seoul, South Korea	7275	11740					1300-1400	ABC, Katherine, Australia	2485			
1215-1300	Radio Cairo, Egypt	17595						1300-1400	ABC, Perth, Australia	9610			
1230-1235	All India Radio, New Delhi	3905	4800	4920	7280			1300-1400	ABC, Tennant Creek, Australia	2325	[ML]		
		9565	9615	11620	11735			1300-1400	CBC Northern Quebec Service	9625	11720		
		15120	15250	17620				1300-1400	CBN, St. John's, Newfoundland	6160			
1230-1245	A Radio Budapest, Hungary	7220	9585	9835	11910			1300-1400	CBU, Vancouver, British Columbia	6160			
		15160	15220					1300-1400	CFCF, Montreal, Quebec	6005			
1230-1255	Voice of Turkey, Ankara	15255						1300-1400	CFCN, Calgary, Alberta	6030			
1230-1300	BBC, London, England*	6125	7255	6195	9635			1300-1400	CHNS, Halifax, Nova Scotia	6130			
		9660	11780	12040	15270			1300-1400	Christian Science World Service	9495	9530	11930	
		15390	15435	17695				1300-1400	CKWX, Vancouver, British Columbia	6080			
1230-1300	Radio Bangladesh, Dhaka	15195	17853v					1300-1400	CFRB, Toronto, Ontario	6070			
1230-1300	Radio Berlin Int'l, East Germany	15440	17880	21465	21540			1300-1400	S ELWA, Monrovia, Liberia	11830			
1230-1300	Radio Sweden, Stockholm	15190	17740	21570				1300-1400	FEB, Manila, Philippines	11850			
1230-1300	Sri Lanka Broadcasting Corp.	9720											



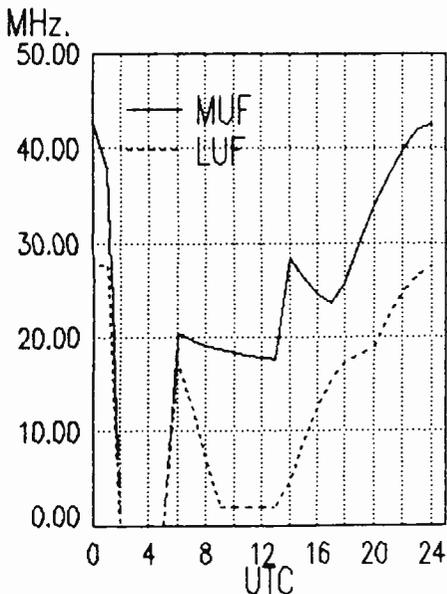
# frequency

section

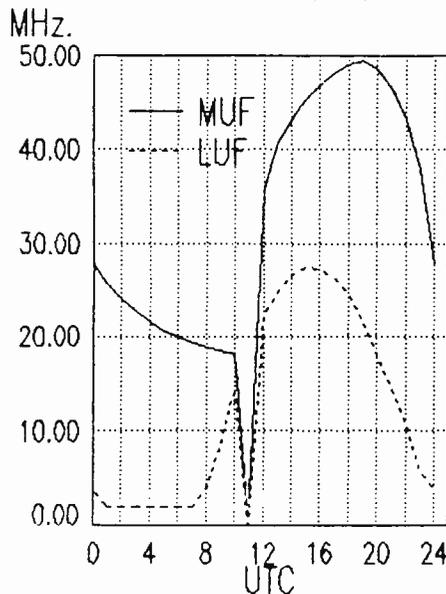
1300-1400	HCJB, Quito, Ecuador	11740	15115	17890
1300-1400	Radio Australia, Melbourne	5995	6060	6080 7205
		9580		
1300-1400 S	Radio Canada Int'l, Montreal	9625	11720	11955 17820
1300-1400	Radio Jordan, Amman	9560		
1300-1400	Radio Korea (South), Seoul	9750	15575	
1300-1400	Radio Moscow, USSR	7315	7370	9640 9650
		9655	9755	11840 12050
		15220	15540	15585 17655
		17830	17870	
1300-1400	Radio Peace and Progress, USSR	11870	11900	15180 17635
1300-1400	Radio RSA, South Africa	11805	17730	21590
1300-1400 A,S	Radio Tanzania, Dar es Salaam	7165		
1300-1400	SBC Radio One, Singapore	5010	5052	11940
1300-1400 A,S	Superpower KUSW, Utah	9850		
1300-1400	Voice of America, Washington	6110	9760	11715 15160
		15425		
1300-1400	Voice of Malaysia	7295		
1300-1400	WHRI, Noblesville, Indiana	9465	11790	
1300-1400 IRR	WWCR, Nashville, Tennessee	15690		
1300-1400	WYFR, Oakland, California	5950	11580	11830 13695
		15215		
1315-1400	Radio Berlin Int'l, E. Germany	11705	15240	
1330-1345	Radio Korea, Seoul, South Korea	7275	11740	
1330-1355 M-A	BRT, Brussels, Belgium	21810	21815	
1330-1400	BBC, London, England	5995	6195	7180 9410
		9515	11750	11775 12095
		15140	15310	17640 17790
		17885	21470	21710 25750
		9565	10330	11760 15335
1330-1400	All India Radio, New Delhi	7113		
1330-1400	Laotian National Radio	15430		
1330-1400	Radio Australia, Melbourne	15400		
1330-1400 S	Radio Finland, Helsinki	15400	21550	
1330-1400	Radio Tashkent, Uzbek, USSR	5945	9540	9600 11785
		15460		
1330-1400	Swiss Radio Int'l, Berne	9620	11695	13635 15570
		17830	21695	
1330-1400	UAE Radio, United Arab Emirates	15435	17775	21605
1330-1400	Voice of Islamic Republic Iran	9525	9685	9770
1330-1400	Voice of Kenya, Nairobi	6100		
1330-1400	Voice of Vietnam, Hanoi	12010	15010	
1332-1400 A	Trans World Radio, Bonaire	11815	15345	
1345-1400	Radio Berlin Int'l, East Germany	9730		

1400 UTC [9:00 AM EST/6:00 AM PST]		
1400-1430	ABC, Alice Springs, Australia	2310 [ML]
1400-1430	ABC, Tennant Creek, Australia	2325 [ML]
1400-1430	Radio Finland, Helsinki	9560 11715 11925 15185
		17800 21550
1400-1430	Radio France Int'l, Paris	21770
1400-1430 S	Radio Norway Int'l, Oslo	21710
1400-1430	Radio Polonia, Warsaw, Poland	6095 7285
1400-1430	Radio Sweden Int'l, Stockholm	17740 11905
1400-1430	Radio Tirana, Albania	9500 11985
1400-1430	Swiss Radio Int'l, Bern	6165 9535 12030
1400-1430	Voice of Ethiopia, Addis Ababa	9550 11710
1400-1450 T	Radio Free Europe, Munich*	5985 7115 7695 9725
		11895 15355
1400-1450	Radio Pyongyang, North Korea	6576 11735
1400-1455	Radio Beijing, China	7405 11600 11855 15165
1400-1500	ABC, Katherine, Australia	2485
1400-1500	ABC, Perth, Australia	9610
1400-1500	Adventist World Radio, Italy	7275
1400-1500	All India Radio, New Delhi	9545 11810 15335
1400-1500	BBC, London, England	5995 6195 7180 9740
		9750 11750 12095 15070
		15140 15400 17640 17705
		17790 21470 25750
1400-1500	CBN, St. John's, Newfoundland	6160
1400-1500	CBC Northern Quebec Service	9625 11720
1400-1500 M-A	CBU, Vancouver, British Columbia	6160
1400-1500	CFCF, Montreal, Quebec	6005
1400-1500	CFCN, Calgary, Alberta	6030
1400-1500	CHNS, Halifax, Nova Scotia	6130
1400-1500	Christian Science World Service	13760 17555 21780
1400-1500	CKWX, Vancouver, British Columbia	6080
1400-1500	CFRB, Toronto, Ontario	6070
1400-1500 S	ELWA, Monrovia, Liberia	11830
1400-1500	FEBC, Manila, Philippines	11850
1400-1500	HCJB, Quito, Ecuador	11740 15115 17890
1400-1500	Radio Australia, Melbourne	5995 6035 6060 6080
		7205 9580 15140 15245
1400-1500 S	Radio Canada Int'l, Montreal	9625 11720 11955 17820
1400-1500	Radio Japan, Tokyo	9505 9695 11865 11815
		15410
1400-1500	Radio Korea, Seoul	9570 9750 15575
1400-1500	Radio Moscow, USSR	11840

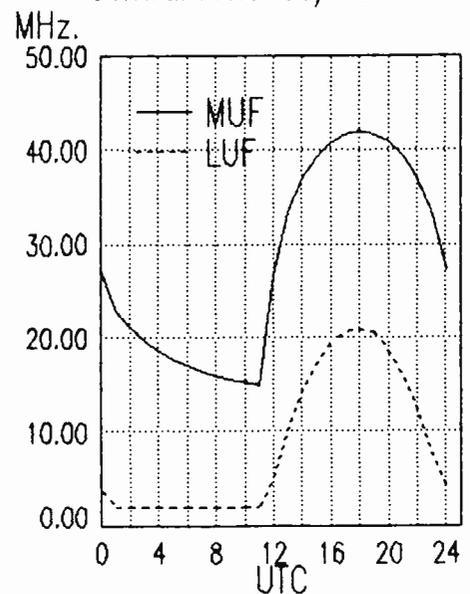
Midwest To  
Australia



Midwest To  
South America



Midwest To  
Central America/Caribbean



Midwest

# frequency

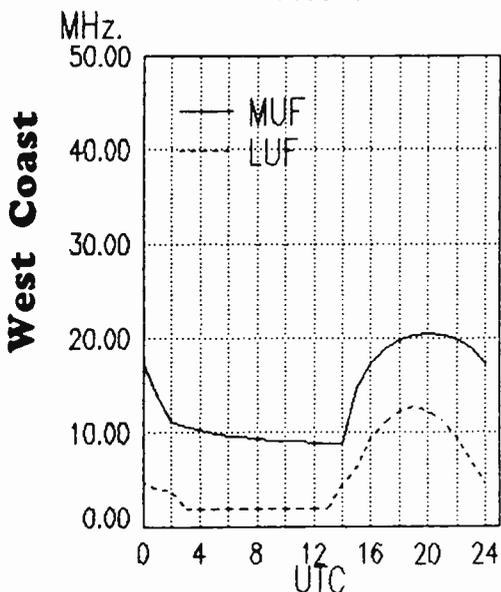
section

1400-1500	Radio RSA, South Africa	11925 21535 21590 25790	1500-1550	Radio Pyongyang, North Korea	6576 9325 9345 9640
1400-1500 A,S	Radio Tanzania, Dar es Salaam	7165	1500-1555	Radio Beijing, China	9977 11740
1400-1500	SBC Radio One, Singapore	5010 5052 11940	1500-1600	ABC, Alice Springs, Australia	7405 11600 11795 15165
1400-1500	Superpower KUSW, Utah	9850	1500-1600 F	ABC, Perth, Australia	2310 [ML]
1400-1500	Voice of America, Washington	6110 9760 11920 15160	1500-1600 F	ABC, Tennant Creek, Australia	9610
		15205 15245 15410 15425	1500-1600	Adventist World Radio, Guam	2325 [ML]
1400-1500	Voice of Kenya, Nairobi	6100	1500-1600	AWR, Alajuela, Costa Rica	11980
1400-1500	Voice of Malaysia, Kuala Lumpur	4950	1500-1600	BBC, London, England	15460
1400-1500	Voice of Mediterranean, Malta	11925			5995 6155 6195 7180
1400-1500	WHRI, Noblesville, Indiana	9465 15105			9410 9515 9740 11750
1400-1500	WRNO Worldwide, New Orleans	11965			11775 11940 12095 15070
1400-1500 IRR	WWCR, Nashville, Tennessee	15690			15260 15400 17640 17705
1400-1500	WYFR, Oakland, California	5950 9705 11830 13695			17790 21470 21660 21710
		17640			25750
1415-1420	Radio Nepal, Kathmandu	3230 5005	1500-1600	Burma Broadcasting Service	5985
1430-1500 F	ABC, Alice Springs, Australia	2310 [ML]	1500-1600	CBC Northern Quebec Service	9625 11720
1430-1500 F	ABC, Tennant Creek, Australia	2325 [ML]	1500-1600	CBN, St. John's, Newfoundland	6160
1430-1500	Burma Broadcasting Service	5985	1500-1600	CBU, Vancouver, British Columbia	6160
1430-1500	King of Hope, Southern Lebanon	6280	1500-1600	CFCF, Montreal, Quebec	6005
1430-1500	KTWR, Agana, Guam	9780	1500-1600	CFCN, Calgary, Alberta	6030
1430-1500	Radio Austria Int'l, Vienna	6155 11780 13730 21490	1500-1600	CHNS, Halifax, Nova Scotia	6130
1430-1500 S	Radio Finland, Helsinki	21550	1500-1600	Christian Science World Service	13760 17555 21780
1430-1500	Radio Netherland, Hilversum	5955 13770 15150 17605	1500-1600	CKWX, Vancouver, British Columbia	6080
1430-1500	Radio Prague, Czechoslovakia	9605 11685 13715 15110	1500-1600	CFRB, Toronto, Ontario	6070
		17705 21505	1500-1600 S	ELWA, Monrovia, Liberia	11830
1445-1500	Radio Canada Int'l, Montreal	5995 7235 15325 17795	1500-1600	FEB, Manila, Philippines	11850
		17820 21545	1500-1600	HCJB, Quito, Ecuador	11740 15115 17890
1445-1500 M-A	Radio Ulan Bator, Mongolia	9645 15305	1500-1600	King of Hope, Southern Lebanon	6280
			1500-1600 T-S	KNLS, Anchor Point, Alaska	7355
			1500-1600	KTWR, Agana, Guam	11650
			1500-1600	Radio Australia, Melbourne	5995 6035 6060 6080
					7205 7215 9580 15140
					15245
			1500-1600 S	Radio Canada Int'l, Montreal	9625 11720 11955 17820
			1500-1600	Radio Japan, Tokyo	11815 11865 15195 21700
			1500-1600	Radio Jordan, Amman	9560
			1500-1600	Radio Korea (South), Seoul	9870
			1500-1600	Radio Moscow, USSR	11840 17810 21725
			1500-1600	Radio RSA, South Africa	11925 21535 21590 25790
			1500-1600	SBC Radio One, Singapore	5010 5052 11940
			1500-1600	SLBC, Sri Lanka	9720
			1500-1600	Superpower KUSW, Utah	15650
			1500-1600	Voice of America, Washington	6110 9575 9645 9700
					9760 15205 15260
			1500-1600	Voice of Ethiopia, Addis Ababa	7165 9560

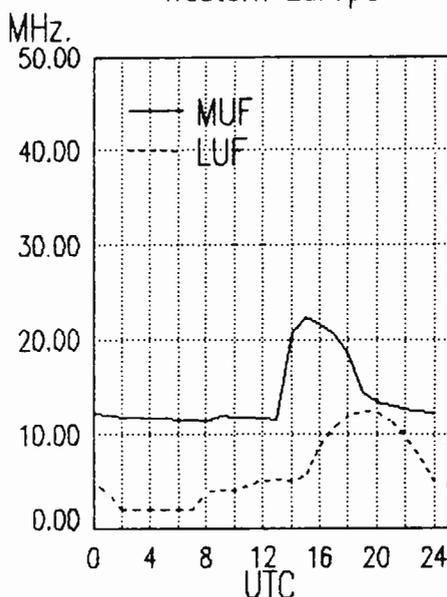
## 1500 UTC [10:00 AM EST/7:00 AM PST]

1500-1505	Africa No. 1, Gabon	7200 17630	1500-1600 S	Radio Canada Int'l, Montreal	9625 11720 11955 17820
1500-1510	Vatican Radio, Vatican City	11955 15090 17870	1500-1600	Radio Japan, Tokyo	11815 11865 15195 21700
1500-1515	FEBA, Mahe, Seychelles	15325	1500-1600	Radio Jordan, Amman	9560
1500-1515	Radio Ulan Bator, Mongolia	9645 15305	1500-1600	Radio Korea (South), Seoul	9870
1500-1525	Radio Bucharest, Romania	9510 9690 11775 11940	1500-1600	Radio Moscow, USSR	11840 17810 21725
		15250 15335	1500-1600	Radio RSA, South Africa	11925 21535 21590 25790
1500-1525	Radio Netherland, Hilversum	5955 13770 15150 17605	1500-1600	SBC Radio One, Singapore	5010 5052 11940
1500-1530	Radio Berlin Int'l, East Germany	15240 17880	1500-1600	SLBC, Sri Lanka	9720
1500-1530	Radio Sofia, Bulgaria	9560 11735 15310	1500-1600	Superpower KUSW, Utah	15650
1500-1530 A,S	Radio Tanzania, Dar es Salaam	7165	1500-1600	Voice of America, Washington	6110 9575 9645 9700
1500-1530	Radio Veritas Asia, Philippines	9525 9770 15445			9760 15205 15260
1500-1550	Deutsche Welle, West Germany	9735 11965 17765 21600			7165 9560

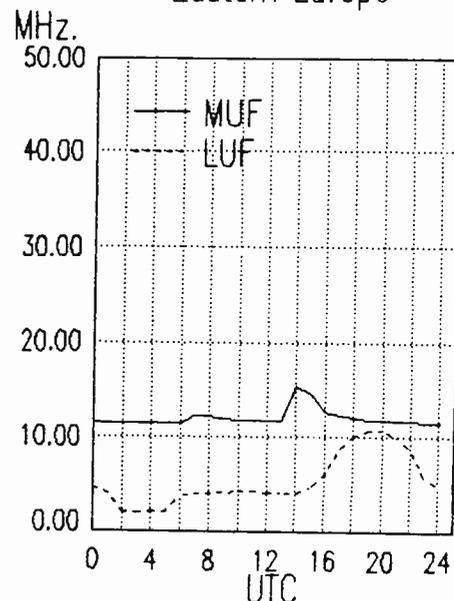
Midwest To  
Alaska



West Coast To  
Western Europe



West Coast To  
Eastern Europe



# frequency

section

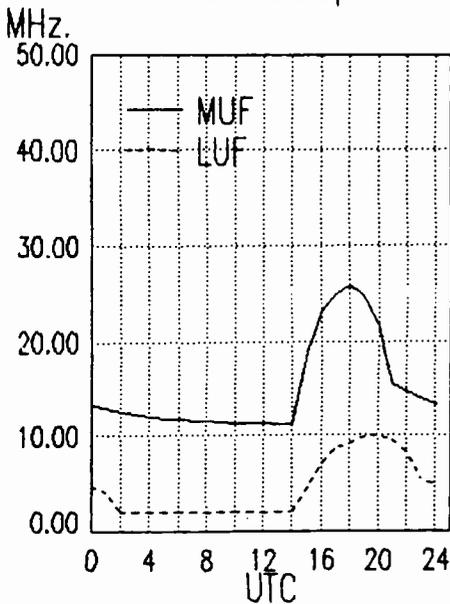
1500-1600	Voice of Indonesia, Jakarta	11784	15150
1500-1600	Voice of Kenya, Nairobi	6100	
1500-1600	Voice of Malaysia, Kuala Lumpur	4950	
1500-1600	Voice of Mediterranean, Malta	11925	
1500-1600	WHRI, Noblesville, Indiana	15105	21840
1500-1600	WRNO, New Orleans, Louisiana	11965	
1500-1600	WWCR, Nashville, Tennessee	15690	
1500-1600	IRR WYFR, Satellite Network	5950	11830 13695 15215
		17640	
1515-1600	FEBA, Mahe, Seychelles	11865	15325
1530-1545	All India Radio, New Delhi	3905	3925 4860 6160
		7160	7412 9545 9950
1530-1600	Radio Prague, Czechoslovakia	6055	7395 9605 11685
		11990	13715 15110 15155
		17705	17840 21405 21505
		7245	9740 11735
1530-1600	Radio Sofia, Bulgaria	17880	21610 21655
1530-1600	Radio Sweden, Stockholm	9684	
1530-1600	Radio Tanzania, Dar es Salaam	9480	11835
1530-1600	Radio Tirana, Albania	17595	
1530-1600	Radio-Television Morocco, Rabat	3985	13685 17830 21630
1530-1600	Swiss Radio Int'l, Berne	5980	7445
1530-1600	Voice of Asia, Taiwan	15630	17550
1530-1540	M-A Voice of Greece, Athens	15120	17730 21650
1545-1600	Vatican Radio, Vatican City	10011	11750
1545-1600	S Voice of Vietnam, Hanoi	9780	
1550-1600	H-S KTWR, Agana, Guam		

1600-1630	SLBC, Colombo, Sri Lanka	6075	9720
1600-1630	Trans World Radio, Swaziland	5055	9525
1600-1630	Voice of Asia, Taiwan	5980	7445
1600-1630	Voice of Vietnam, Hanoi	12020	15010
1600-1645	Radio Nacional Angola, Luanda	7245	9535 11955
1600-1645	UAE Radio, United Arab Emirates	15320	15435 21605
1600-1650	Deutsche Welle, West Germany	6170	7200 9745 15105
		15595	17825 21680
1600-1655	Radio Beijing, China	9570	11600 11715 15110
1600-1700	F ABC, Alice Springs, Australia	2310	[ML]
1600-1700	ABC, Perth, Australia	9610	
1600-1700	F ABC, Tennant Creek, Australia	2325	[ML]
1600-1700	AWR, Alajuela, Costa Rica	15460	
1600-1700	BBC, London, England	5975	5995 6195 7180
		9740	9410 11640 11750
		11775	11810 12095 15070
		15260	15310 15400 17640
		17695	17705 17880 21470
		21710	25750
1600-1700	CBC Northern Quebec Service	9625	11720
1600-1700	CBN, St. John's, Newfoundland	6160	
1600-1700	CBU, Vancouver, British Columbia	6160	
1600-1700	CFCF, Montreal, Quebec	6005	
1600-1700	CFCN, Calgary, Alberta	6030	
1600-1700	CHNS, Halifax, Nova Scotia	6130	
1600-1700	Christian Science World Service	21640	
1600-1700	CKWX, Vancouver, British Columbia	6080	
1600-1700	CFRB, Toronto, Ontario	6070	
1600-1700	KNLS, Anchor Point, Alaska	9815	
1600-1700	KSDA, Guam	13720	
1600-1700	KTWR, Guam	11650	
1600-1700	Radio Australia, Melbourne	5995	6035 6060 6080
		7205	7215 9580 15245
1600-1700	Radio Beijing, China	15130	
1600-1700	S Radio Canada Int'l, Montreal	9625	11720 11955 17820
1600-1700	Radio France Int'l, Paris	6175	11705 15360 17620
		17795	
1600-1700	Radio Jordan, Amman	9560	
1600-1700	Radio Korea, Seoul, South Korea	5985	9870
1600-1700	Radio Malawi, Blantyre	3380	5995
1600-1700	Radio Moscow, USSR	11840	17810
1600-1700	Radio for Peace, Costa Rica	21565	25945
1600-1700	Radio Riyadh, Saudi Arabia	9705	9720
1600-1700	Radio Tanzania, Dar es Salaam	9684	
1600-1700	Superpower KUSW, Utah	15650	

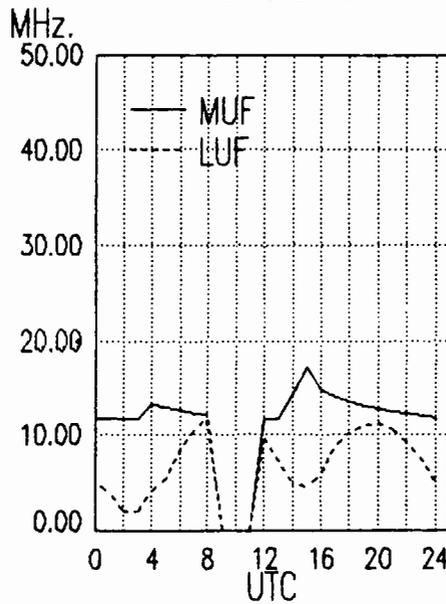
## 1600 UTC [11:00 AM EST/8:00 AM PST]

1600-1605	SBC Radio One, Singapore	5010	5052 11940
1600-1610	FEBA, Mahe, Seychelles	11865	15325
1600-1610	Radio Lesotho, Maseru	4800	
1600-1625	Radio Prague, Czechoslovakia	6055	9605 11665 11685
		11990	13715 15110 15155
		17705	21450 21505
		11830	
1600-1630	ELWA, Monrovia, Liberia	15115	17890
1600-1630	HCJB, Quito, Ecuador	15240	17880
1600-1630	Radio Berlin Int'l, E. Germany	17765	21705
1600-1630	S Radio Norway Int'l, Oslo	7365	9465 9785 11615
1600-1630	Radio Pakistan, Islamabad	11625	15125
1600-1630	Radio Polonia, Warsaw, Poland	6135	9540
1600-1630	M-F Radio Portugal, Lisbon	15120	
1600-1630	Radio Sofia, Bulgaria	9560	11735 15310

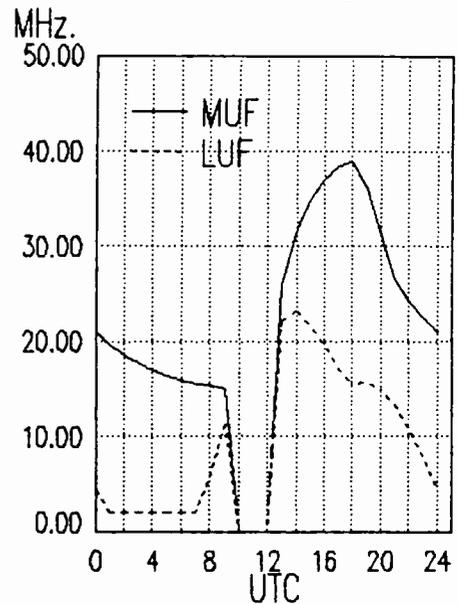
West Coast To Arctic Europe



West Coast To Middle East



West Coast To West Africa



West Coast

# frequency

section

1600-1700	Voice of America, Washington, DC	9575 9645 9760 11920
		15205 15410 15445 15580
		15600 17785 17800 17870
1600-1700	WHRI, Noblesville, Indiana	15105 21840
1600-1700	WINB, Red Lion, Pennsylvania	15295
1600-1700	WRNO, New Orleans, Louisiana	15420
1600-1700 IRR	WWCR, Nashville, Tennessee	15690
1600-1700	WYFR, Oakland, California	11830 13695 15170 15215
		15566 21525 21615
1600-1700	Radio Zambia, Lusaka	9580
1605-1700 F,A	SBC Radio One, Singapore	5052 11940
1615-1630 M-H	Radio Budapest, Hungary	7220 9535 9535 11910
		15160 15220
1615-1630	Voice of Vietnam, Hanoi	10011 11750
1630-1655 M-A	BRT Brussels, Belgium	17580 21810
1630-1700 A	Radio Austria Int'l, Vienna	6155 11780 13730 21490
1630-1700	Radio Netherlands, Hilversum	6020 15570
1630-1700	Radio Peace & Progress, USSR	9830 11670 11695 11910
		11775 12055 17595 17615
1630-1700	RTM Morocco	17595 17815
1645-1700	Radio Berlin Int'l, East Germany	15340
1645-1700	Radio Korea (South), Seoul	5975 7275 9870

1700-1800 F	ABC, Alice Springs, Australia	2310 [ML]
1700-1800	ABC, Tennant Creek, Australia	2325 [ML]
1700-1800	AWR Africa, Gabon	9625
1700-1800	CBC Northern Quebec Service	9625 11720
1700-1800	CBN, St. John's, Newfoundland	6160
1700-1800	CBU, Vancouver, British Columbia	6160
1700-1800	CFCF, Montreal, Quebec	6005
1700-1800	CFCN, Calgary, Alberta	6030
1700-1800	CHNS, Halifax, Nova Scotia	6130
1700-1800	Christian Science World Service	21640
1700-1800	CKWX, Vancouver, British Columbia	6080
1700-1800	CFRB, Toronto, Ontario	6070
1700-1800	Radio Havana Cuba	11920
1700-1800	Radio Jordan, Amman	9560
1700-1800	Radio Korea, Seoul, South Korea	5975 9870 15575
1700-1800 M-F	Radio Malabo, Equatorial Guinea	9553 [ML]
1700-1800	Radio Moscow, USSR	9655 9755 9795 9825
		9895 11730 11840 11940
		11995 12010 12030 12050
		12080 13605 15135 15295
		15540 15585 15615 17570
		17595

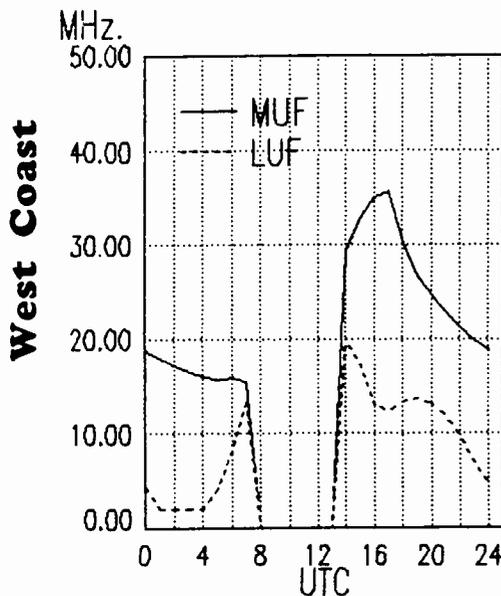
1700-1800	Radio for Peace, Costa Rica	21565 25945
1700-1800	Radio Riyadh, Saudi Arabia	9705 9720
1700-1800	Radio Tanzania, Dar es Salaam	9684
1700-1800	Radio Zambia, Lusaka	9580
1700-1800	RTM Morocco	17815
1700-1800	SBC Radio One, Singapore	5052 11940
1700-1800	Superpower KUSW, Utah	15650
1700-1800 A,S	Swaziland Commercial Radio	6155
1700-1800	Voice of Africa, Egypt	15255
1700-1800	Voice of America, Washington	6110 9575 9645 9760
		11760 11920 15205 15410
		15445 15580 15600 17785
		17800 17870

1700-1800	Voice of Kenya, Nairobi	6100
1700-1800	WHRI, Noblesville, Indiana	13760 15105
1700-1800	WINB, Red Lion, Pennsylvania	15295
1700-1800 S-F	WMLK, Bethel, Pennsylvania	9465
1700-1800	WRNO, Louisiana	15420
1700-1800 IRR	WWCR, Nashville, Tennessee	15690
1700-1800	WYFR Satellite Net	13695 15170 15215
1700-1800	WYFR, Okeechobee, Florida	11580 13770
1715-1730	Radio Canada Int'l, Montreal	11935 15305 15325 17820
		21545

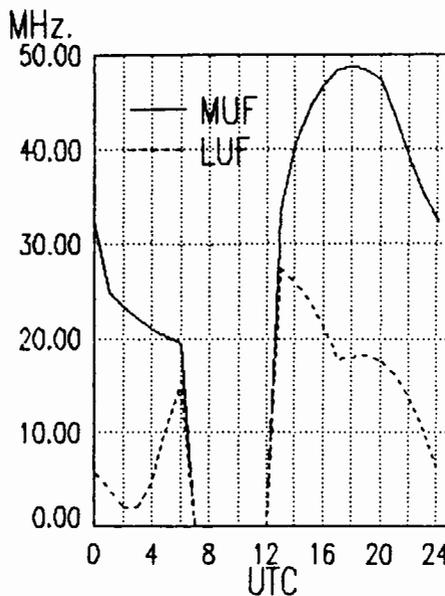
## 1700 UTC [12:00 PM EST/9:00 AM PDT]

1700-1705	Radio Uganda, Kampala	4976 5026
1700-1715 M-A	Voice of Namibia (Angola)	11955
1700-1725	Radio Budapest, Hungary	6110 9585 9835 11910
		15160
1700-1725	Radio Netherland, Hilversum	6020 15570
1700-1730	Radio Australia, Melbourne	5995 6060 6080 7205
		9580 15140 15245
1700-1730	Radio Berlin Int'l, E. Germany	15340
1700-1730	Radio Japan, Tokyo	9695 11815 11865
1700-1730 S	Radio Norway Int'l, Oslo	21705
1700-1730	Radio Sweden Int'l, Stockholm	6065 9655
1700-1730	SLBC, Colombo, Sri Lanka	11800
1700-1745	BBC, London, England	9410 9515 9740 11750
		11940 12095 15070 15260
		15310 15400 17640 17695
		17880 21470 21660 21710
1700-1750	Radio Pyongyang, North Korea	7290 9345 9640 9977
		11760
1700-1755	Radio Beijing, China	9570 9750 11575

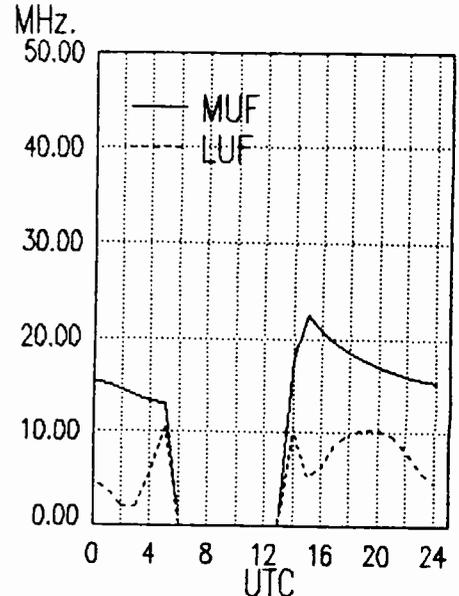
West Coast To  
Central Africa



West Coast To  
South Africa



West Coast To  
East Africa



# frequency

section

1715-1745	BBC, London, England*	3975	6185	7165
1718-1800	Radio Pakistan, Islamabad	6210		
1725-1740	Radio Suriname Int'l, Paramibo	17835v		
1725-1800	Radio New Zealand, Wellington	11780	15150	
1730-1735	All India Radio, New Delhi	4840	4860	4920 6160
		7412	9950	
1730-1755	Radio Austria Int'l, Vienna	5945	6155	12010 13730
1730-1755	Radio Bucharest, Romania	7105	9530	9685 11790
		11940	15270	15340 17860
1730-1800	Radio Australia, Melbourne	5995	6035	6060 6080
		7205	9580	15245
1730-1800	Radio Polonia, Warsaw, Poland	6135	9540	
1730-1800	Radio Prague, Czechoslovakia	9605	11685	11990 13715
		15110	17840	21505
1730-1800	Swiss Radio Int'l, Berne	3985	6165	9535
1734-1800	FEBA, Mahe, Seychelles	11810		
1745-1800	BBC, London, England	9410	9740	11750 12095
		15070	15310	15400 17640
		17695	17880	21470
1745-1800	Radio Canada int'l, Montreal	11935	15305	15325 17820

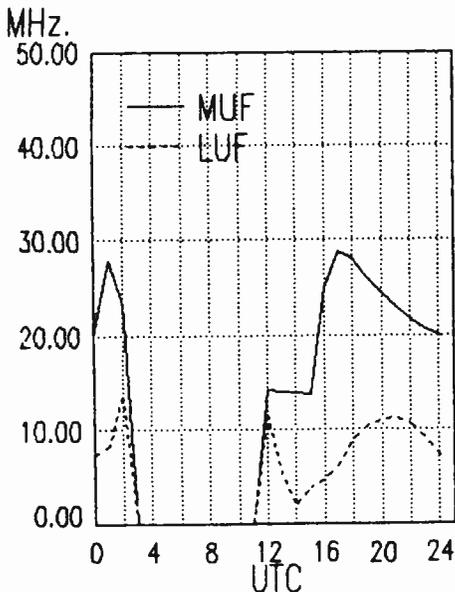
1800-1900	F	ABC, Tennant Creek, Australia	2325 [ML]
1800-1900		All India Radio, New Delhi	11935 15360
1800-1900		CBC Northern Quebec Service	9625 11720
1800-1900		CBN, St. John's, Newfoundland	6160
1800-1900		CBU, Vancouver, British Columbia	6160
1800-1900		CFCF, Montreal, Quebec	6005
1800-1900		CFCN, Calgary, Alberta	6030
1800-1900		CHNS, Halifax, Nova Scotia	6130
1800-1900		Christian Science World Service	21640
1800-1900		CKWX, Vancouver, British Columbia	6080
1800-1900		CFRB, Toronto, Ontario	6070
1800-1900		KNLS, Anchor Point, Alaska	11945
1800-1900		Radio Australia, Melbourne	5995 6035 6060 6080
			7205 7215 9580 15245
1800-1900		Radio Jordan, Amman	9560
1800-1900		Radio Kuwait, Kuwait	11665
1800-1900		Radio Malabo, Equatorial Guinea	9553v [ML]
1800-1900		Radio Moscow, USSR	9755 9825 9895 11730

1800-1900		Radio New Zealand, Wellington	11780 15150
1800-1900		Radio for Peace, Costa Rica	21565 25945
1800-1900		Radio Riyadh, Saudi Arabia	9705 9720
1800-1900		Radio Tanzania, Dar es Salaam	9684
1800-1900		Radio Zambia, Lusaka	9580
1800-1900		Superpower KUSW, Utah	15650
1800-1900	A,S	Swaziland Commercial Radio	6155
1800-1900		Voice of America, Washington	9575 9760 11760 11920
			15205 15410 15445 15580
1800-1900		Voice of Ethiopia	9662
1800-1900		Voice of Kenya, Nairobi	6100
1800-1900		WHRI, Noblesville, Indiana	13760 17830
1800-1900		WINB, Red Lion, Pennsylvania	15295
1800-1900	S-F	WMLK, Bethel, Pennsylvania	9465
1800-1900		WRNO, New Orleans, Louisiana	15420
1800-1900	IRR	WWCR, Nashville, Tennessee	15690
1800-1900		WYFR, Oakland, California	11580 15215 15345
1800-1900		WYFR Satellite Net, California	11830 13695 15170
1815-1830		Kol Israel, Jerusalem	9385 11585 12077 13750
1815-1830	M-F	Radio Canada Int'l, Montreal	5995 7235 15325 17820
1815-1900		Radio Bangladesh, Dhaka	6240 7505 11510 15510

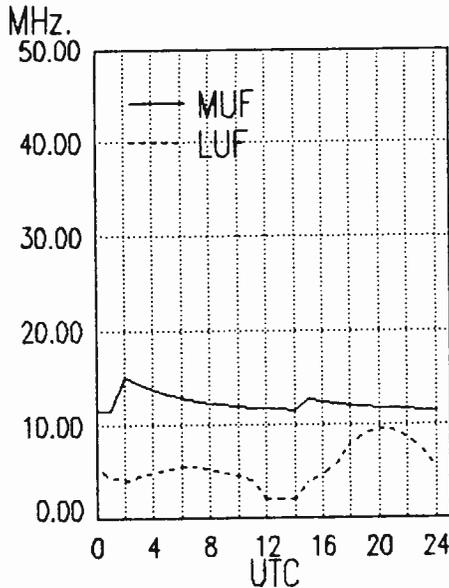
## 1800 UTC [1:00 PM EST/10:00 AM PST]

1800-1805	A	SBC Radio One, Singapore	11940
1800-1815		Radio Cameroon, Yaounde	3970 4750 4795 4850
			5010
1800-1815		SLBC, Colombo, Sri Lanka	11800
1800-1825	A,S	FEBA, Mahe, Seychelles	11760
1800-1825		Radio Prague, Czechoslovakia	9605 11685 11990 13715
			15110 17840 21505
1800-1830		BBC, London, England	7325 9410 9740 11750
			12095 15070 15310 15400
			15420 17640 17695 17830
			17880
1800-1830	S	Radio Bamako, Mali	4835 5995
1800-1830		Radio Mozambique, Maputo	3265 4855 9618
1800-1830	S	Radio Norway, Oslo	15235
1800-1830		Voice of Africa, Egypt	15255
1800-1830		Voice of Vietnam, Hanoi	12020 15010
1800-1845		Radio Abidjan, Ivory Coast	11920
1800-1845		Trans World Radio, Swaziland	9525
1800-1850		Radio Bras, Brasilia, Brazil	15265
1800-1856		Radio RSA, South Africa	17765 21535
1800-1900	F	ABC, Alice Springs, Australia	2310 [ML]

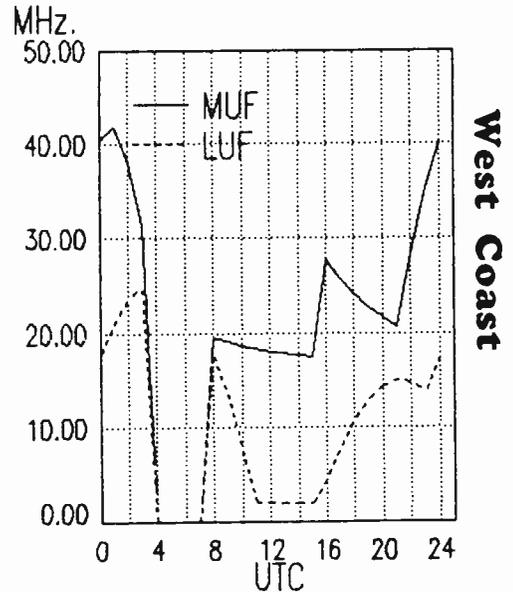
West Coast To Indian Ocean



West Coast To Central Asia



West Coast To Indonesia



# frequency

section

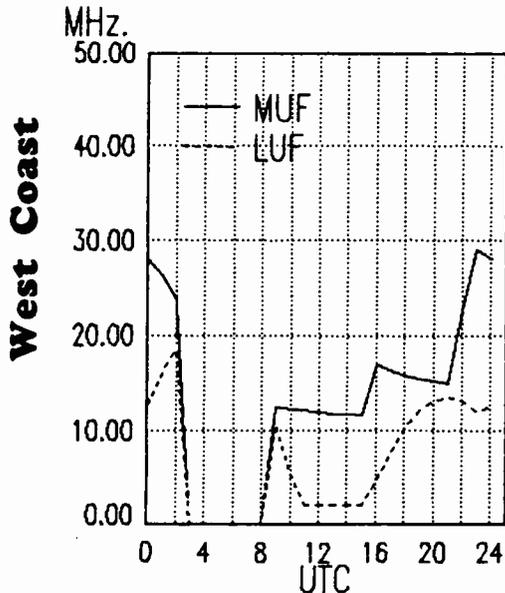
1800-1855	Radio Polonia, Warsaw, Poland	5995	6135	7125	7285
		9525	11840		
1830-1855	BRT, Brussels, Belgium	5915	11695		
1830-1900	BBC, London, England	7325	9410	9740	11750
		12095	15070	15245	15400
		17695	17880		
1830-1900	Radio Berlin Int'l, E. Germany	9665	13610	15145	15255
1830-1900 M-F	Radio Canada Int'l, Montreal	13650	15325	17875	21675
1830-1900	Radio Korea, Seoul, South Korea	9870	15575		
1830-1900 MWF	Radio Mozambique, Maputo	3265	4855	9618	
1830-1900	Radio Netherland, Hilversum	6020	15560	17605	21685
1830-1900	Radio Sofia, Bulgaria	7245	9560	11735	15330
1830-1900	Swiss Radio International, Berne	9885	11955		
1840-1850 M-A	Voice of Greece, Athens	11645	12045	15630	
1840-1900	Radio Senegal, Dakar	4950			
1845-1855	Radio Nacional, Conaky, Guinea	4833	4900	7125	
1845-1900	Africa No. 1	15475			
1845-1900	All India Radio, New Delhi	7412	11620		

1900-2000	CFCN, Calgary, Alberta	6030			
1900-2000	CHNS, Halifax, Nova Scotia	6130			
1900-2000	Christian Science World Service	21640			
1900-2000	CKWX, Vancouver, British Columbia	6080			
1900-2000	CFRB, Toronto, Ontario	6070			
1900-2000	HCJB, Quito, Ecuador	15270	17790	21470	
1900-2000	Radio Algiers, Algeria	9509	9685	15215	17745
1900-2000	Radio Australia, Melbourne	6035	6060	6080	7205
		7215	9580	15140	
1900-2000	Radio Ghana, Accra	6130			
1900-2000	Radio Havana Cuba	15340			
1900-2000	Radio Jordan, Amman	9560			
1900-2000	Radio Kuwait, Kuwait	11665			
1900-2000 M-A	Radio Malabo, Equatorial Guinea	9553	[ML]		
1900-2000	Radio Moscow, USSR	9685	11840	17570	
1900-2000	Radio Moscow British Service	7240	7350	9450	9695
1900-2000	Radio New Zealand, Wellington	11780	15485		
1900-2000	Radio for Peace, Costa Rica	21566	25944		
1900-2000	Radio Prague, Czechoslovakia	5930	7345	11855	
1900-2000	Radio Riyadh, Saudi Arabia	9705	9720		
1900-2000	Radio RSA, South Africa	17765	21535		
1900-2000	Radio Zambia, Lusaka	9580			
1900-2000	Spanish Foreign Radio, Madrid	11790	15280	15375	15395
1900-2000	Superpower KUSW, Utah	15650			
1900-2000 A,S	Swaziland Commercial Radio	6155			
1900-2000	Trans World Radio Swaziland	3205			
1900-2000	Voice of America, Washington	9525	9700	9760	11760
		11870	15180	15205	15410
		15445	15580	15600	17740
		17785	17800	17870	
1900-2000	Voice of Ethiopia, Addis Ababa	9595			
1900-2000	Voice of Kenya, Nairobi	6100			
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 IRR	WWCR, Nashville, Tennessee	15690			
1900-2000	WYFR, Okeechobee, Florida	11580	11830	13695	15215
		15215	15566	17895	21615
1910-1920	Radio Botswana, Gaborone	3356	4820		
1920-1930 M-A	Voice of Greece, Athens	7430	9395	9425	
1930-1940	Radio Togo, Lome	5047			
1930-2000	ABC, Katherine, Australia	2485			
1930-2000	Radio Beijing, China	6955	7480	9440	
1930-2000	Radio Austria Int'l, Vienna	5945	6155	12010	13730

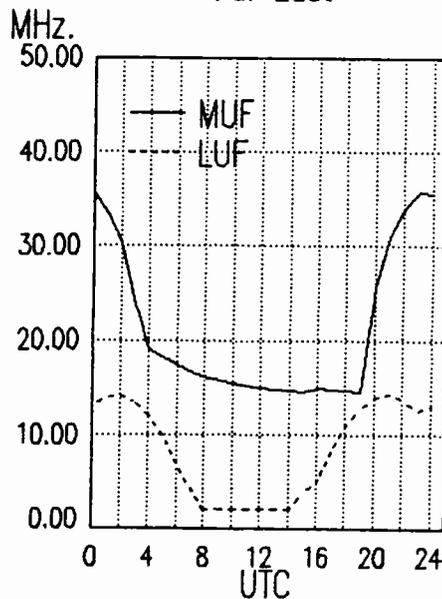
**1900 UTC [2:00 PM EST/11:00 AM PST]**

1900-1905 M-A	Vatican Radio, Vatican City	6190	6248	7250	9645
1900-1915	Radio Bangladesh, Dhaka	6240	7505	11510	
1900-1915	Radio Tanzania, Dar es Salaam	9684			
1900-1925	Radio Netherland, Hilversum	6020	15560	17605	21685
1900-1925	Voice of Islamic Republic Iran	9695			
1900-1930 F	ABC, Alice Springs, Australia	2310	[ML]		
1900-1930 F	ABC, Tennant Creek, Australia	2325	[ML]		
1900-1930	Radio Afghanistan, Kabul	7160	7310	9640	
1900-1930 M-F	Radio Canada Int'l, Montreal	15260	17820		
1900-1930	Radio Japan, Tokyo	9695	11850	11865	15270
1900-1930	Radio Kiev, Ukrainian SSR	7150	7240	7250	9600
1900-1930 S	Radio Norway Int'l, Oslo	15235			
1900-1930 M-F	Radio Portugal, Lisbon	11740	11870	15250	
1900-1930	Voice of Vietnam, Hanoi	9840	12020	15010	
1900-1950	Deutsche Welle, Köln, W. Germany	11810	13790	15390	17810
1900-1955	Radio Beijing, China	6860	9470		
1900-2000	All India Radio, New Delhi	7412	11620	11935	15360
1900-2000	BBC, London, England	9410	9740	11750	12095
		15070	17880		
1900-2000	CBC Northern Quebec Service	9625	11720		
1900-2000	CBN, St. John's, Newfoundland	6160			
1900-2000	CBU, Vancouver, British Columbia	6160			
1900-2000	CFCF, Montreal, Quebec	6005			

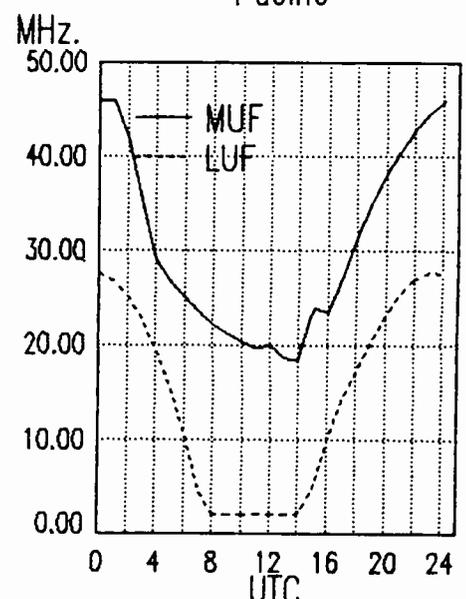
West Coast To South East Asia



West Coast To Far East



West Coast To Pacific



# frequency

section

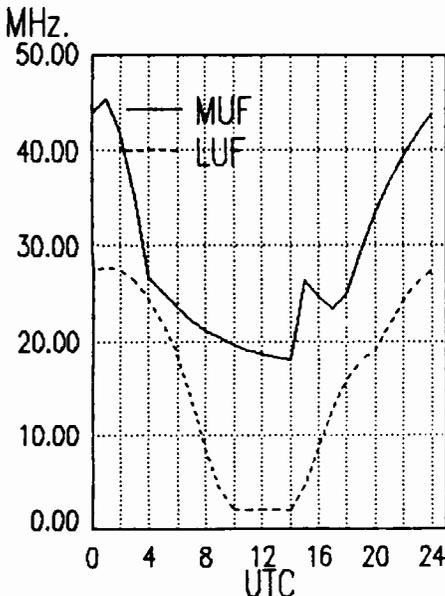
1930-2000	Radio Bucharest, Romania	7145	9690	9750	11940
1930-2000	Radio Korea, Seoul, South Korea	9870	15575		
1930-2000	Swiss Radio Int'l, Bern	3985	6165	9535	
1930-2000	Voice Islamic Republic Iran	9022	11895		
1930-2000	WINB, Red Lion, Pennsylvania	15185			
1935-1955	RAI, Rome, Italy	7275	7290	9575	
1940-2000	M-A Radio Ulan Bator, Mongolia	9575	11870		
1945-2000	All India Radio, New Delhi	9755	11860		
1950-2000	Vatican Radio, Vatican City	6190	7250	9645	

2000-2055	Radio Beijing, China	15260	15400	17630	17760
2000-2100	CBC Northern Quebec Service	17880			
2000-2100	CBN, St. John's, Newfoundland	6955	7480	9440	9745
2000-2100	CBU, Vancouver, British Columbia	15110			
2000-2100	CFCF, Montreal, Quebec	9625	11720		
2000-2100	CFCN, Calgary, Alberta	6160			
2000-2100	CHNS, Halifax, Nova Scotia	6160			
2000-2100	Christian Science World Service	6005			
2000-2100	CKWX, Vancouver, British Columbia	6030			
2000-2100	CFRB, Toronto, Ontario	6130			
2000-2100	King of Hope, Southern Lebanon	13770	17555	15610	
2000-2100	KVOH, Rancho Simi, California	6080			
2000-2100	Radio Baghdad, Iraq	6070			
2000-2100	Radio Havana Cuba	6280			
2000-2100	Radio Jordan, Amman	17775			
2000-2100	Radio Kuwait, Kuwait	13660			
2000-2100	Radio Malabo, Equatorial Guinea	15340			
2000-2100	Radio Moscow, USSR	9560			
2000-2100	Radio New Zealand, Wellington	11665			
2000-2100	A,S Radio for Peace, Costa Rica	9553v			
2000-2100	Radio Riyadh, Saudi Arabia	9685	9865	11840	17570
2000-2100	Radio Tonga, Tonga	15485	17705		
2000-2100	Radio Zambia, Lusaka	21566	25944		
2000-2100	Superpower KUSW, Utah	9705	9720		
2000-2100	Voice of America, Washington	5025			
2000-2100	WHRI, Noblesville, Indiana	9580			
2000-2100	WINB, Red Lion, Pennsylvania	15650			
2000-2100	WRNO, New Orleans, Louisiana	9700	9760	11760	15205
2000-2100	IRR WWCR, Nashville, Tennessee	15410	15445	15580	15600
2000-2100	WYFR, Oakland, California	17785	17800	17870	
2005-2100	Radio Damascus, Syria	13760	17830		
2010-2100	A,S Voice of Kenya, Nairobi	15185			
2015-2100	ELWA, Monrovia, Liberia	15420			
2025-2045	RAI, Rome, Italy	15690			
2030-2055	Radio Polonia, Warsaw, Poland	9455	11830	13695	15215
2030-2100	BBC, London, England	17612	17845	21525	
		15095	17710		
		6100			
		11830			
		6165	9575		
		6095	7285		
		5975	7325	9410	11715
		11920	12095	15070	15160
		15260	15400	17695	17755
		17760	17880		

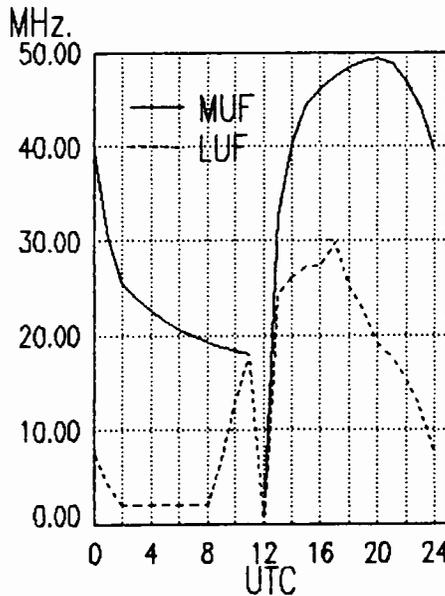
**2000 UTC [3:00 PM EST/12:00 PM PST]**

2000-2005	Radio Zambia, Lusaka	3345	6165		
2000-2010	A Radio Zambia, Lusaka	3345	6165		
2000-2010	Voice of Kenya, Nairobi	6100			
2000-2015	Radio Togo, Lome	3220	5047		
2000-2015	M-A Radio Ulan Bator, Mongolia	9575	11870		
2000-2015	Trans World Radio, Swaziland	3205			
2000-2025	Radio Beijing, China	6955	7480	9440	9745
		11715			
2000-2025	Radio Bucharest, Romania	5990	6105	7145	7195
		9750	9690	11940	
2000-2030	Kol Israel, Jerusalem	9435	11605	13750	15640
		15485	17630		
2000-2030	Radio Australia, Melbourne	6035	7205	7215	9580
		9620			
2000-2030	Radio Berlin Int'l, East Germany	9665	11920	15255	
2000-2030	M-F Radio Canada Int'l, Montreal	15260	17820		
2000-2030	Radio Ghana, Nairobi	3366	4915		
2000-2030	Radio Korea, Seoul	6480	7550	15575	
2000-2030	Radio Polonia, Warsaw, Poland	7125	7145	9525	
2000-2030	Radio Sofia, Bulgaria	7245	9560	11735	
		15310			
2000-2030	Swaziland Commercial Radio	6155			
2000-2030	Voice of Islami Republic of Iran	9022	11895		
2000-2045	All India Radio, New Delhi	7412	9755	9910	11620
		11860			
2000-2050	Radio Pyongyang, North Korea	6576	9345	9640	9977
2000-2100	M-A ABC, Alice Springs, Australia	2310	[ML]		
2000-2100	ABC, Katherine, Australia	2485			
2000-2100	M-A ABC, Tennant Creek, Australia	2325	[ML]		
2000-2030	BBC, London, England	5975	9410	9630	11750
		11820	12095	15070	15140

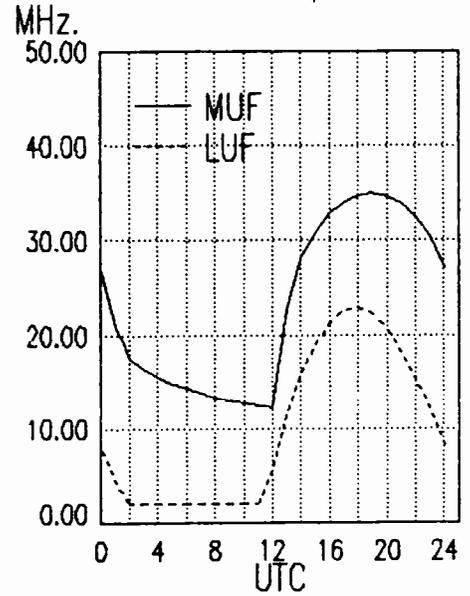
West Coast To Australia



West Coast To South America



West Coast To Central America/Caribbean



West Coast

# frequency

section

2030-2100	Radio Australia, Melbourne	9580 9620
2030-2100	Radio Korea, Seoul, South Korea	6480 7550 15575
2030-2100	Radio Netherland, Hilversum	9860 13700 15560
2030-2100 M	Radio Tallin, Estonian SSR	5925
2030-2100	Radio Tirana, Albania	9480 11835
2030-2100	Voice of Africa, Cairo, Egypt	15375
2030-2100	Voice of Vietnam, Hanoi	9840 12020 15010
2045-2100	All India Radio, New Delhi	7412 9550 9910 11620 11715
2045-2100	IBRA Radio, Malta	7110
2045-2100	Vatican Radio, Vatican City	9625 11700 11760 15120

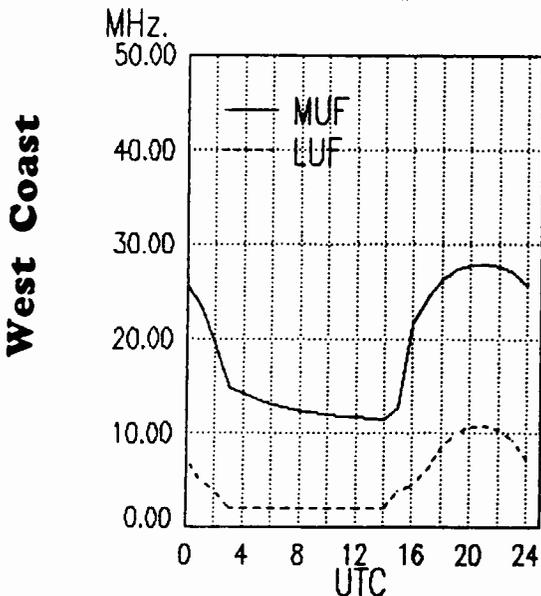
2100-2200	All India Radio, New Delhi	7412 9910 11620 11715
2100-2200	BBC, London, England	3995 5975 6005 6175 6195 7325 9410 11750 12095 15070 15260 15400 17715
2100-2200 M-F	CBC Northern Quebec Service	9625 11720
2100-2200	CBN, St. John's, Newfoundland	6160
2100-2200	CBU, Vancouver, British Columbia	6160
2100-2200	CFCF, Montreal, Quebec	6005
2100-2200	CFCN, Calgary, Alberta	6030
2100-2200	CHNS, Halifax, Nova Scotia	6130
2100-2200	Christian Science World Service	13770 15610 17555
2100-2200	CKWX, Vancouver, British Columbia	6080
2100-2200	CFRB, Toronto, Ontario	6070
2100-2200	King of Hope, Southern Lebanon	6280
2100-2200	KSDA, Agat, Guam	7365 15125
2100-2200	KVOH, Rancho Simi, California	17775 (ML)
2100-2200	Radio Australia, Melbourne	15160 15240 15395 17795
2100-2200	Radio Jordan, Amman	9560
2100-2200	Radio Moscow, USSR	9860 11840 15130
2100-2200 A.S	Radio Malabo, Equatorial Guinea	9552.5
2100-2200	Radio Tonga, Tonga	5025
2100-2200	Radio for Peace, Costa Rica	21566 25944
2100-2200 A.S	Radio Zambia, Lusaka	9580
2100-2200	Spanish Foreign Radio, Madrid	11790 15280
2100-2200	Superpower KUSW, Utah	15650
2100-2200	Voice of Africa, Cairo, Egypt	15280
2100-2200	Voice of America, Washington	9700 9760 11760 15205 15410 15445 15580 15600 17785 17800 17870

2100-2200	WHRI, Noblesville, Indiana	13760 17830
2100-2200	WRNO, New Orleans, Louisiana	15420
2100-2200 IRR	WWCR, Nashville, Tennessee	15690
2103-2200	WINB, Red Lion, Pennsylvania	15185
2110-2200	Radio Damascus, Syria	15095 17710
2110-2200	VOA Pacific Service	9525 11965 15185
2115-2200	Radio Cairo, Egypt	9900
2130-2145	BBC, London, England*	5965 7160
2130-2200	BBC, London, England*	6030 7230 9635
2130-2200	HCJB, Quito, Ecuador	15270 17790 21470
2130-2200 A.S	Radio Canada Int'l, Montreal	11880 15150 17820
2130-2200	Swiss Radio Int'l, Berne	6190
2135-2150 S-F	ELWA, Monrovia, Liberia	11830
2145-2200	Radio Berlin Int'l, East Germany	5965 9730
2150-2200 M-F	ELWA, Monrovia, Liberia	11830

## 2100 UTC [4:00 PM EST/1:00 PM PST]

2100-2105	Radio Damascus, Syria	15095 17710
2100-2105	Radio New Zealand, Wellington	15485 17705
2100-2105	Radio Zambia, Lusaka	3345 6165
2100-2110 A.S	Voice of Kenya, Nairobi	6100
2100-2115	IBRA Radio, Malta	7110
2100-2125	BRT, Brussels, Belgium	5915 9925
2100-2125	Radio Bucharest, Romania	5990 6105 7145 7195 9690 9750 11940
2100-2125	Radio Finland, Helsinki	6120 11755 11845
2100-2125	Radio Netherland, Hilversum	9860 13700 15560
2100-2130	Radio Berlin Int'l, E. Germany	6115
2100-2130	Radio Japan, Tokyo	11800 11765 15230 15270 17810 17890
2100-2130	Radio Korea, Seoul, South Korea	6480 7550 15575
2100-2130	Radio Peace & Progress, USSR	7340 7420 9550 9820 11980 15240
2100-2130	Radio Sweden, Stockholm	9655 11705
2100-2130	Swiss Radio Int'l, Berne	6165 9535 9885 13635 21705
2100-2135	ELWA, Monrovia, Liberia	11830
2100-2150	Radio Baghdad, Iraq	13660
2100-2150	Voice of Turkey, Ankara	9795
2100-2200	WYFR, Oakland, California	9455 11830 13695 15566 17612 17845 21525 21615
2100-2150	Deutsche Welle, West Germany	9670 9765 11785 13780
2100-2155	Radio Beijing, China	9820 11500
2100-2200 M-A	ABC, Alice Springs, Australia	2310 [ML]
2100-2200	ABC, Katherine, Australia	2485
2100-2200 M-A	ABC, Tennant Creek, Australia	2325 [ML]

West Coast To  
Alaska



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# frequency

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## 2200 UTC [5:00 PM EST/2:00 PM PST]

2200-2205	M-F	ELWA, Monrovia, Liberia	3993	11830			
2200-2205		Radio Damascus, Syria	15095	17710			
2200-2210		Radio Sierra Leone, Freetown	5980				
2200-2215	M-A	ABC, Alice Springs, Australia	2310	[ML]			
2200-2215	M-A	ABC, Tennant Creek, Australia	2325	[ML]			
2200-2215		BBC, London, England*	5965	7160			
2200-2215	M-F	Voice of America, Washington	9640	11740	15120		
2200-2225		BRT, Brussels, Belgium	5910	9925			
2200-2225		RAI, Rome, Italy	5990	9710			
2200-2225		Vatican Radio, Vatican City	9615	11830	15105		
2200-2230		ABC, Katherine, Australia	2485				
2200-2230		All India Radio, New Delhi	7412	9550	9910	11620	
			11715				
2200-2230		CBC Northern Quebec Service	9625	11720			
2200-2230	S	KGEI, San Francisco, California	15280				
2200-2230		Radio Beijing, China	3985	6165			
2200-2230		Radio Jordan, Amman	9560				
2200-2230	S	Radio Norway Int'l, Oslo	15225				
2200-2230		Radio Prague, Czechoslovakia	6055				
2200-2245		BBC, London, England	3955	5975	6110	6175	
			6195	7325	9410	9590	
			9595	9915	11750	11820	
			12095	15070	15260	15400	
2200-2245		Radio Berlin Int'l, E. Germany	9730				
2200-2245		Radio Cairo, Egypt	9900				
2200-2245		Radio Yugoslavia, Belgrade	7215	9620	9660	11735	
2200-2300		CBN, St. John's, Newfoundland	6160				
2200-2300		CBU, Vancouver, British Columbia	6160				
2200-2300		CFCF, Montreal, Quebec	6005				
2200-2300		CFCN, Calgary, Alberta	6030				
2200-2300		CHNS, Halifax, Nova Scotia	6130				
2200-2300		Christian Science World Service	9465	15300	17555		
2200-2300		CKWX, Vancouver, British Columbia	6080				
2200-2300		CFRB, Toronto, Ontario	6070				
2200-2300		FEBC, Manila, Philippines	6030				
2200-2300		King of Hope, Southern Lebanon	6280				
2200-2300		KVOH, Rancho Simi, California	17775				
2200-2300		Radio Australia, Melbourne	15160	15240	15320	15395	
			17795	21740			
2200-2300	A,S	Radio Canada Int'l, Montreal	9760	11945			
2200-2300		Radio for Peace, Costa Rica	21566	25944			
2200-2300		Radio Havana Cuba	7140				
2200-2300		Radio Moscow, USSR	15130				
2200-2300		Radio Moscow North American Svc	7150	9685	9860	9870	
2200-2300		Radio Tonga, Tonga	5025				
2200-2300		SBC Radio One, Singapore	5010	5052	11940		
2200-2300		Superpower KUSW, Utah	15580				
2200-2300		Voice of America, Washington	11760	15185	15290	15305	
			15320	17735	17740	17820	
			18157	USB			
2200-2300		Voice of Free China, Taiwan	9955	11805	15345		
2200-2300		Voice of the UAE, Abu Dhabi	9595	11985	13605		
2200-2300		WHRI, Noblesville, Indiana	13760	17830			
2200-2300		WINB, Red Lion, Pennsylvania	15185				
2200-2300		WRNO, New Orleans, Louisiana	15420				
2200-2300		WWCR, Nashville, Tennessee	15690				
2200-2300		WYFR, Oakland, California	11830	13695	15215	17612.5	
			17845	21525			
			11820	15390			
2215-2230		BBC, London, England*	9625	11720			
2230-2300	A,S	CBC Northern Quebec Service	9435	9930	11605	13750	
2230-2300		Kol Israel, Jerusalem	15615				
			6110				
2230-2300		Radio Mediterran, Malta	5995	6135	7125	7270	
2230-2300		Radio Polonia, Warsaw, Poland	7215	9480			
2230-2300		Radio Tirana, Albania	6100				
2230-2300		Radio Vilnius, Lithuanian SSR	6055	7215	9535	9910	
2245-2300		All India Radio, New Delhi	11715	11745			
			3955	5975	6005	6175	
2245-2300		BBC, London, England	7325	9410	9570	9590	
			9915	11785	11945	12095	
			15070	15260	15400	17755	
2245-2300		Radio Berlin Int'l, E. Germany	5965	9730			

## 2300 UTC [6:00 PM EST/3:00 PM PST]

2300-2330		Radio Mediterran, Malta	6110				
2300-2330	S	Radio Norway, Oslo	11785				
2300-2345		WINB, Red Lion, Pennsylvania	15145				
2300-2345		WYFR, Oakland, California	5985	11580	15170		
2300-2350		Radio Pyongyang, North Korea	13650				
2300-0000		All India Radio, New Delhi	6055	7215	9535	9910	
			11715	11745			
2300-0000		Adventist World Radio, Costa Rica	9725	11870			
2300-0000		BBC, London, England	3955	5975	6110	6175	
			7325	9410	9590	9915	
			11945	12095	15260		
2300-0000	M-F	CBC Northern Quebec Service	6195	9625			
2300-0000		CBN, St. John's, Newfoundland	6160				
2300-0000		CBU, Vancouver, British Columbia	6160				
2300-0000		CFCF, Montreal, Quebec	6005				
2300-0000		CFCN, Calgary, Alberta	6030				
2300-0000		CHNS, Halifax, Nova Scotia	6130				
2300-0000		Christian Science World Service	9465	15300	17555		
2300-0000		CKWX, Vancouver, British Columbia	6080				
2300-0000		CFRB, Toronto, Ontario	6070				
2300-0000		KVOH, Rancho Simi, California	17775				
2300-0000		Radio Australia, Melbourne	15160	15240	15320	15395	
			17795	21740			
2300-0000		Radio for Peace, Costa Rica	21565				
2300-0000		Radio Japan, Tokyo	11765	15195	17810		
2300-0000		Radio Luxembourg	6090				
2300-0000		Radio Moscow	11845	12025	12055	17620	
			17850	21690	21790		
2300-0000		Radio Moscow, (N. American Svc)	9530	9765	11710	11730	
			11750	15290			
2300-0000		Radio Polonia, Warsaw	5995	6135	7125	7270	
2300-0000		Radio Thailand, Bangkok	9655	11905			
2300-0000		Radio Tonga, Tonga	5050				
2300-0000		SBC Radio One, Singapore	5010	5052	11940		
2300-0000		Superpower KUSW, Utah	15580				
2300-0000		Voice of America, Washington, DC	15290	17735	17820	18157	
			USB				
2300-0000		Voice of the UAE	9595	11985	13605		
2300-0000		WHRI, Noblesville, Indiana	13760	17830			
2300-0000		WRNO, New Orleans, Louisiana	13720				
2315-2330		BBC, London, England*	11820	15390			
2330-0000		Radio Korea, Seoul, South Korea	15575				
2330-0000		Radio Tirana, Albania	9760v				
2330-0000		Voice of Vietnam, Hanoi	9840	15010			
2335-2345	M-A	Voice of Greece, Athens	9395	9420	11645		
2345-0000		BBC, London, England*	3915	6080	7180	9580	
2348-0000		WINB, Red Lion, Pennsylvania	15145				

Radio Exterior de Espana, Spanish National Radio's Exterior Service - submitted by Ray Labrie of Portsmouth, New Hampshire.

Send us your special QSLs and we'll copy and return them promptly, to be used as space permits (QSL editor, PO Box 98, Brasstown, NC 28902).



## The Grundig Yacht Boy 230

I remember several years ago talking to the Responsible Official at a large American electronics firm. This was a nice fellow -- somebody I had come to know over the years -- and when we talked shop, more often than not, the result was a new and successful product.

Back then, this fellow was open to ideas about everything -- except shortwave radio. For years they had produced a well-known receiver, but its sales were falling by the year. Never mind that the radio sounded awful. Never mind that you could hardly tell where you were tuning. And that it had no clock to let you know World Time, or UTC. As far as he was concerned, the market was dying and there was no point in coming out with a better model.

### World Clock/Map Aids Listening

Radio manufacturers began realizing that if they were going to reach out successfully to the general public, they would have to make UTC easily understood by the layman. After all, listeners need to know what time it is if they're to make sense out of station schedules.

But there's also the question of what time it is in the country you're listening to -- espe-

cially if you're hearing a domestic service program. So UTC clocks have slowly been giving way to specialized devices that show not only UTC, but also the time in each of the various parts of the world.

You can purchase dedicated world clocks, made by Seiko and other manufacturers, at all kinds of stores. One, the large American-made Geochron, distributed by Ham Radio Outlet, even shows where the sun is shining throughout the world. These fancy timepieces can cost anywhere from around \$30 to over \$1,000 as in the case of the innovative Geochron. They usually work well and can be fun to use, but few adjust for summer, or daylight savings, time.

### World Clocks Appear in Radios

Similar map-like clocks are starting to appear in world band radios, as well. Arguably the first among these was the Opal OP-36, which is also sold as the Siemens RK 702. You may recall in our earlier *Monitoring Times* test report on this model that it's a great clock, but a dreadful radio.

West Germany's Grundig has introduced something along the same lines: the Yacht Boy 230. Like the Opal, it has a map of the world from which you can choose the time in any area. Also like the Opal, the '230

doesn't adjust for summer time. Unlike the Opal, though, the '230 is a reasonable, if uninspiring, performer.

### Travel Model Has Wide Band Coverage

The '230 is compact -- about the size of the Sony ICF-7601 -- and so is well suited for traveling. It covers FM in stereo, no less, at least when stereo headphones are used; plus longwave, AM up to 1600 kHz, and the shortwave 120, 90, 75, 60, 49, 41, 31, 25, 22, 19, 13...and 11 meter bands.

That's a lot of coverage for the globetrotter. About the only "holes" are below 9450 kHz shortwave and from 1600-1700 kHz in the AM band -- the forthcoming expanded upper end of that band in the Western Hemisphere.

It also has little touches that make it handy for the traveler. An alarm, for example, plus a timed-off setting and a dial light that fades out automatically in five seconds. However, its tuning is analog and there is no digital readout.

The '230's performance, although perfectly acceptable, reflects the fact that it's hard to manufacture a radio that sells for \$150 -- the '230's list price in the U.S. -- if it has a snazzy clock included. Something has to give, and in this case the axe fell hardest on shortwave performance.

### Performance Only Adequate

The most obvious sign of this is that the radio uses single-conversion circuitry. This reduces production cost, which makes its relatively modest price tag possible. But it also results in all sorts of unwanted whistles, squeals and Morse-code images interfering with the station you're trying to hear. The '230's selectivity -- the ability to reject adjacent-channel signals -- is also mediocre.

Another small drawback is that the volume is controllable only by a pair of up/down slewing controls -- the sort you find on TV remote controls. In principle, there's nothing wrong with this. But, again, cost cutting shows. The volume goes up and down in discrete increments that are pretty large, so the radio can be a bit louder or softer than you might like, and there's nothing you can do about it.

Finally, there is some dial backlash at the low end of each band. It's only an annoyance, but it's also a problem that I haven't encountered in many years -- something of a step backwards.



## Niche Radio for The Compleat Traveler

It used to be that shortwave radios were thought of as a "niche market." Now, that market has grown to the point where there are a number of types of niche radios within that market.

The Grundig Yacht Boy 230 is one of these. For the traveler who wants an alarm clock, something to lull him to sleep, a radio he can tune in a dark hotel room, a clock to tell him not only world time but also the time in the next country he has to visit -- and also a radio that can keep him in touch with news and music from around the world, as well as from local stations -- all at a price that's reasonable and with FM stereo thrown in, the '230 fits the bill at less than half the cost of the better-performing Sony ICF-SW1S, which doesn't have the Grundig's flexible clock facilities.



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."

## DATAMETRICS COMMUNICATIONS MANAGER

```

SCAN MEMORY FILE
Filename : MONITOR.FRQ

----- Parameters -----
Longest duration : 0
Minimum duration : 0
Delay : 2
Autolog (O,S,D) : 0
Bounceback : 0

----- Status Indicators -----
Frequency : 800.6000
Signal : OFF
Time : 08:42:51
Monitor time : 1.05
Scan rate : 9.65

Air rescue command channel

800.0000 800.1000 800.2000 800.3000 800.4000 800.5000
800.6100 800.1100 800.2100 800.3100 800.4100 800.5100
800.0200 800.1200 800.2200 800.3200 800.4200 800.5200
800.0300 800.1300 800.2300 800.3300 800.4300 800.5300
800.0400 800.1400 800.2400 800.3400 800.4400 800.5400
800.0500 800.1500 800.2500 800.3500 800.4500 800.5500
800.0600 800.1600 800.2600 800.3600 800.4600 800.5600
800.0700 800.1700 800.2700 800.3700 800.4700 800.5700
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PASSPORT'S "RDI White Paper" equipment reports contain everything found during its exhaustive tests of communications receivers and advanced portables. These reports are now avail-

able in the US from Universal Shortwave and EEB; in Canada from PIF, C.P. 232, L.d.R., Laval PQ H7N 4Z9; and in Europe from Interbooks, 8 Abbot Street, Perth PH2 0EB, Scotland.

A catalog of these reports may be obtained by sending a self-addressed stamped envelope to International Broadcasting Services, Ltd., Box 300M, Penn's Park, PA 18943 USA.

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## The Radio Shack PRO-2024 Scanner

Newly released from Tandy is the Realistic PRO-2024 scanner, now available for \$199.95 at Radio Shack stores nationwide. The low profile, woodgrain vinyl cabinet offers a backlit LCD display which confirms various functions entered from the keyboard (see illustration).

The 2024 operates from 120 VAC, 60 Hz line current only; no provision is made for 12 VDC mobile applications. A top hole allows attachment of a telescoping whip antenna; a rear-panel Motorola jack accommodates the installation of an outside antenna.

Frequency ranges are 30-54, 118-136, 144-174 and 380-512 MHz; 60 channels of memory allow recall from any combination of six ten-channel banks. Scan and search speed is a fast 25 channels per second, reduceable to 13 channels per second if desired. A temporary "scratchpad" memory allows storage of up to six frequencies uncovered during the search sequence.

Sensitivity and selectivity are much better than the specifications state. Our lab tests showed squelch threshold averaging 0.25 microvolts on all ranges, while adjacent channel rejection is approximately 6 kHz at 6 dB down.

Audio is a powerful 1.2 watts, enough to blow you out of the room with the top-mounted speaker. At normal listening levels audio quality is clean, distorting somewhat at full output.



Although a front-panel headphone jack is provided, anti-blast protection built into the scanner reduces the audio substantially when an external speaker is connected to that port.

Keyboard-selectable functions include search, fast/slow scan and search speed, channel one priority, individual channel delay and individual channel lockout. Memory backup (no battery required) will preserve channel entries for up to one hour during a power failure. All channels resume scanning

after about two seconds delay to await replies.

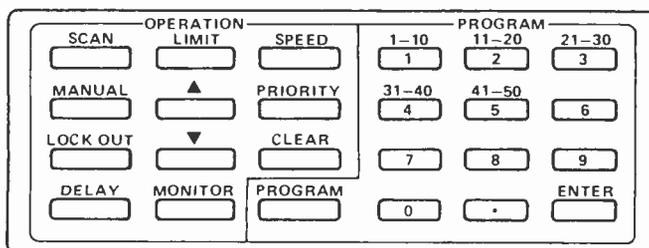
The instruction manual is quality printed and written in easy-to-understand terms, logically organized to introduce the newcomer to scanning and to the PRO-2024.

We were impressed by the price/performance of the new PRO-2024 and would recommend it for a basic, no-frills, desktop scanner where 800 MHz reception is not a consideration.

### A LOOK AT THE DISPLAY



### A LOOK AT THE KEYBOARD



## Autosearch/Store for the PRO2004/PRO2005

The Realistic PRO2004 wide-coverage scanner and its replacement, the PRO2005, have certainly captured the imagination of the monitoring public. With extremely wide frequency coverage and enormous memory capability, the scanners offer excellent performance at modest cost.

As originally designed, the 2004 and 2005 allow up to ten "scratchpad" search memories to be manually entered. That is, if an interesting frequency is uncovered while the unit is searching between two limits, the operator

may enter that frequency into a separate bank of ten memory slots reserved for that function.

Key Research (Post Office Box 5054, Cary, NC 27511) has now released a tiny, easy-to-install module which automatically loads up to ten frequencies into memory as they are sequentially uncovered during the search process.

The inventor of the simple and useful accessory is Tom McKee who is one of the original inventors of scanning receivers, awarded a patent in 1964. His SS-45 module is only \$24.95 postpaid in the U.S. and comes with an unconditional 90 day guarantee.

### Let's Install One

Our favorite desktop scanner is the PRO2005; we were eager to try Tom's auto-store module and assigned the task to Sue, our service liaison specialist. She enjoys this kind of challenge and, with pliers in one hand and a soldering iron in the other, she was off!

The flat module is protected by a cardboard cover and measures about 2-1/2" x 3-1/2" square. We elected to place a couple of strips of double-sided adhesive tape to hold it in place once installed.

Tom's instructions are excellent and easy to follow. The only tools needed were a pencil-tip soldering iron with rosin core solder, needle-nose pliers, Phillips screwdriver and wire cutters.

Although the procedure is relatively simple and the directions are specific, we wouldn't recommend that someone unfamiliar with soldering or electronics attempt the job. If you solder about as well as I draw, you'd better get some help from someone who knows what he's doing!

Once the SS-45 was installed and the eight wires were securely in place, it was time to test our handiwork -- and Tom's design. Following the directions, we turned the scanner on, entered our search limits, pressed the "V" (downward search) button and watched. Sure enough, every time the squelch broke, the scanner dutifully stored the frequency!

This is an excellent adjunct feature for the PRO2004 and PRO2005 and we highly recommend it for those inveterate frequency hunters who are always looking for new listening targets. Next time those Air Force jets fly over here during their dogfight training, I know what button on my 2005 I'm going to push!



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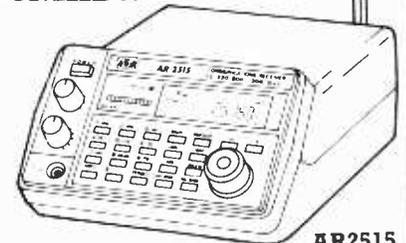


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# catalogs

## The House Detective

It's 7:30 at night. Dinner is over and you've just settled down into your favorite chair. Sleep is about to overtake you when the doorbell rings. You get up, open the door and there stands Joe Woodlock, who immediately begins talking about longwave beacons. Your eyes roll back in your head. If only you had known!

Now there is a way to know who is at your door before you open it. The DAK catalogue calls it "The House Detective," and it's an inexpensive, ultra-small, TV monitor and camera.

Engineered by Uniden, the camera weighs in at just 7 ounces; the monitor, 2.5 lbs. It comes complete with 65 foot cable, a 60 degree lens and can be run off a car battery (cigarette lighter adapter not included). If you'd like to make a permanent record of Joe's visit, the House Detective can even be connected to your VCR.

DAK suggests that it be used as a security camera or

to keep an eye on the kids (interestingly, it looks like a Fisher-Price kid's toy in white and baby blue). But what makes this little gizmo really interesting is the price. The whole set-up is just \$149.00 plus

\$9.00 shipping.

To order, call 1-800-325-0800. If you're not on their mailing list, write them at 8200 Remmet Ave, Canoga Park, CA 91304.

## Peace in the Family

From Benny's Express, a company that can also supply you with all the Garfield clip-on air fresheners

you'll ever need, comes the Labtec infrared wireless stereo headphones.

Here's how it works. There's two parts. The first is a little transmitter that plugs into the output jack of your radio (or TV, stereo, whatever). The second part is a pair of headphones that have a little receiver built in so that you can wander around the house (within 30 feet, anyway) and listen to the radio without bothering anyone else.

The Labtec infrared wireless stereo headphones come complete with an AC power adapter and audio plugs for either stereo or mono. Just \$89.99 plus \$8.00 shipping and handling. Call 1-800-456-1700.



## Radio Nostalgia

Suppose you've got a 1926 Sears Silvertone radio and it's just gone on the blink? What to do when you threw away the manual back in '27? Go to ARS.

ARS says that they can usually supply the diagram and data on any radio or TV manufactured from the early 1920s to the 1950s -- if you supply the make and model. How much? A very modest \$3.00 plus handling.

For more details on this and other nostalgic radio goodies (like 6 pounds of electrical parts for \$19.95) write to ARS at P.O. Box

ARS Enterprises, P.O. Box 997, Mercer Island, WA 98040

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Our hobby continues to grow. The popularity of radio collecting has never been greater! Since we haven't heard from you recently, we thought you might like to know about the unusual items ARS now offers. We have included our current catalog. As an incentive, we are offering you a discount of 20% on orders you place within the next 30 days.

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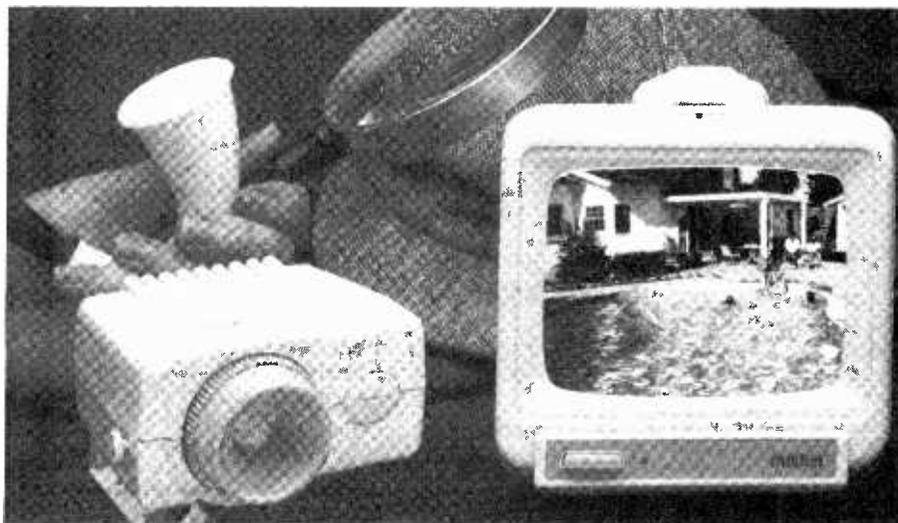
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997, Mercer Island, WA 98040.

## More Nostalgia from K-Mart

Nostalgia. It's big business these days. Perhaps that's why K-Mart, that megolothic American retailer, now stocks "a complete assortment of nostalgic

radios."

In their most recent catalogue, you'll find one such example of the "nostalgic radio," a replica of an unnamed "cathedral" design from the 1930s. We're gonna stick our necks out here and guess that it's a 1931 RCA R5 'Radiolette'.



The K-Mart version is a good looker with its realistic wood-grain cabinet. But don't look too close. Inside are some updates that would make granddad gasp for air.

Like FM to go along with the AM. And, yes, even a cassette player on which to listen to tapes of nostalgic radio programs.

## Busted Antennas

Have you ever wanted to replace that bent or broken whip antenna but didn't know where to find a new one? Needed a fuse for the scanner? Coax switches? Speakers? Bulbs? A microfiche viewer? Batteries or other parts?

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45459-4072.

## RF Power

If power is your game then you'll want to get a copy of the new Bird Electronics Corporation's new catalogue of RF power measuring devices.

The catalogue includes hundreds of photos and features thousands of Bird Products ranging from their famous Bird Wattmeters to calorimeters, plug-in elements, line sections, QC-connectors, RF loads, directional couplers, switches and more.

OK. So it's not light reading for most of us. But for the qualified RF engineer, its 60 pages are highly desirable material. Get your copy by writing to the Bird Electronic Corp., 30303 Aurora Rd., Solon, OH 44139 or call 216-248-1200.

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MT

## Learning to work with tuning diodes

A *Monitoring Times* reader recently asked me to write an article about tuning diodes and how to use them. Indeed, it is a subject that you should find interesting if you like to experiment with electronics circuits.

Tuning diodes are known by several names, some of which are trade names assigned by various manufacturers. You will hear them called VVC (voltage variable capacitance) diodes and varactor diodes. One manufacturer calls his product Epicap diodes. Generally, the diodes all serve the same purpose, irrespective of their names.

Perhaps you are wondering what advantages, if any, there are when using tuning diodes. The major justification associated with using these products is that they can replace the bulky, expensive, and hard-to-find mechanical tuning capacitors. Most tuning diodes are no larger than the familiar 1N914 silicon diode.

A tuning capacitor, on the other hand, may be two or three inches square, depending upon its maximum capacitance and plate spacing. The market has practically dried up in the USA with respect to newly manufactured small variable capacitors. The demand is no longer there for mechanical tuning capacitors since semiconductors replaced vacuum tubes.

### How do VVCs Work?

Tuning diodes are active devices. That is, they require an operating voltage (variable) in order for us to cause a change in their junction capacitance. Passive devices need no

operating voltage. An example of a passive component is a coil-capacitor filter network, such as those used in audio circuits.

Nearly all diodes can be used as VVC diodes. A 1N914, or a group of 1N914s in parallel, will provide a change in capacitance if the applied DC voltage is varied. The junctions of silicon transistors (2N3904, for example) will change capacitance as the operating voltage is varied. They work quite well as VVC diodes when connected as shown in Figure 1.

In all cases, a reverse bias voltage is applied to the semiconductor that is being used as a VVC diode. In other words, a positive voltage is applied to the diode cathode. The lower the applied voltage, the greater the diode junction capacitance.

Furthermore, there is a linear portion of the capacitance-change curve for a VVC diode. If we operate only over the linear part of the curve, we will have a relatively constant change in capacitance per each volt of bias change. At either end of the response curve it takes several volts to cause a minor change in junction capacitance. Figure 1 illustrates this phenomenon.

It is worth noting that VVC diodes are unlike mechanical tuning capacitors in another respect: minimum capacitance is normally quite high, even at the maximum permissible operating voltage. A typical small mechanical tuning capacitor might exhibit 5 pF of minimum capacitance, with a maximum of, say, 30 pF. An equivalent VVC diode might have a minimum capacitance of

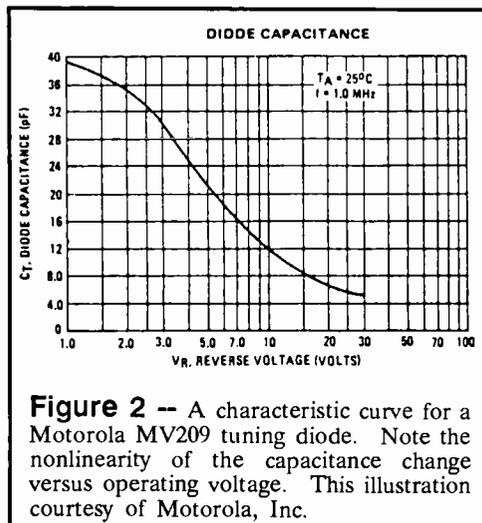


Figure 2 -- A characteristic curve for a Motorola MV209 tuning diode. Note the nonlinearity of the capacitance change versus operating voltage. This illustration courtesy of Motorola, Inc.

20 pF and a maximum value of 40 pF.

Therefore, we need to design our circuits to conform to these capacitance limits. It is not difficult to do, once we know the diode characteristics. Data sheets that illustrate these characteristics are usually available from the product manufacturer.

What shortcomings might we expect when VVCs are used in an RF circuit? The primary area of concern lies with tunable oscillators. All semiconductor devices exhibit changes in junction capacitance as the operating voltage is varied and when changes in heat occur. A solid-state oscillator (JFET or bipolar transistor, alike) is subject to frequency drift until the device junction comes up to operating temperature. Short-term drift generally stops after approximately two or three minutes, or as soon as the device junction warms up and settles down.

Long-term drift (often lasting an hour or more) is most often caused by RF-current heating of the components associated with the oscillator. When we add one or more VVC diodes to an oscillator circuit, we must include the changes in junction capacitance (caused by heating) of the VVC diode. This adds to the short-term drift problem. The advantages associated with the use of tuning diodes generally outweighs the inconvenience of increased drift.

Tuning diodes come in various capacitance ranges. Some have sufficient capacitance to work well for tuning the circuits in a standard AM broadcast-band radio. Others have a low maximum capacitance, and they

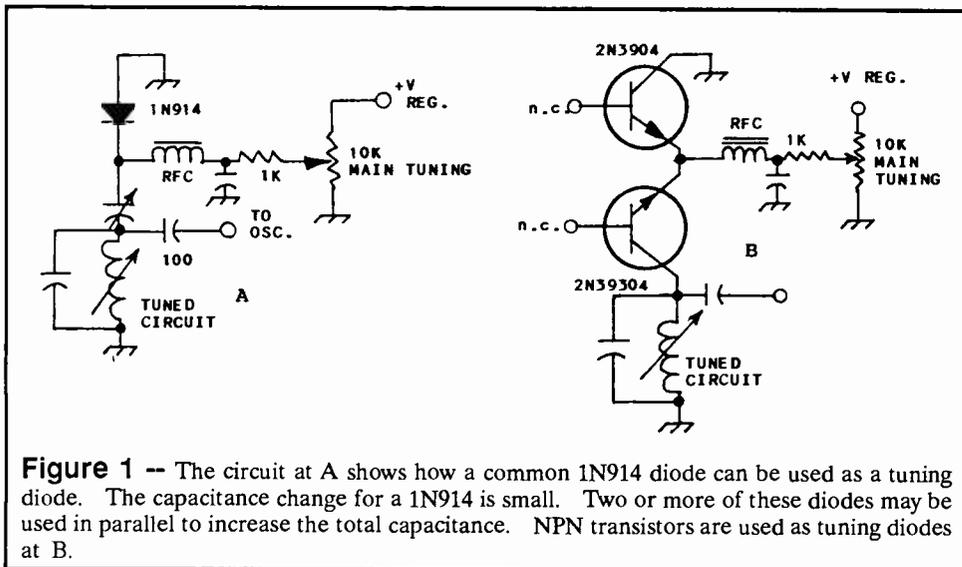
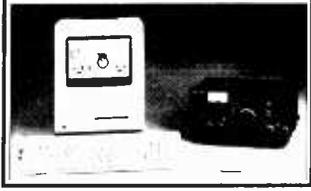


Figure 1 -- The circuit at A shows how a common 1N914 diode can be used as a tuning diode. The capacitance change for a 1N914 is small. Two or more of these diodes may be used in parallel to increase the total capacitance. NPN transistors are used as tuning diodes at B.

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are ideal for VHF circuits. Each type of VVC diode has a Q rating, and this must be taken into account when designing a tuned circuit.

Specifically, you must make sure the diode Q (quality factor) is substantially higher than the desired Q of your tuned circuit. If not, the diode can degrade the Q of the overall circuit, which can result in poor performance. For example, if you design a tuned circuit to have a loaded Q of 15, make sure your VVC diode has a Q of five or ten times that value

(or greater) at the operating frequency of the tuned circuit.

Tuning diodes are inexpensive. They are available from a number of electronics surplus dealers.<sup>1</sup> Check your catalogs for these bargain-priced devices.

### A Practical Circuit Example

Figure 3 shows how a pair of VVC diodes can be used in a tunable oscillator. The principle is the same when you use them to

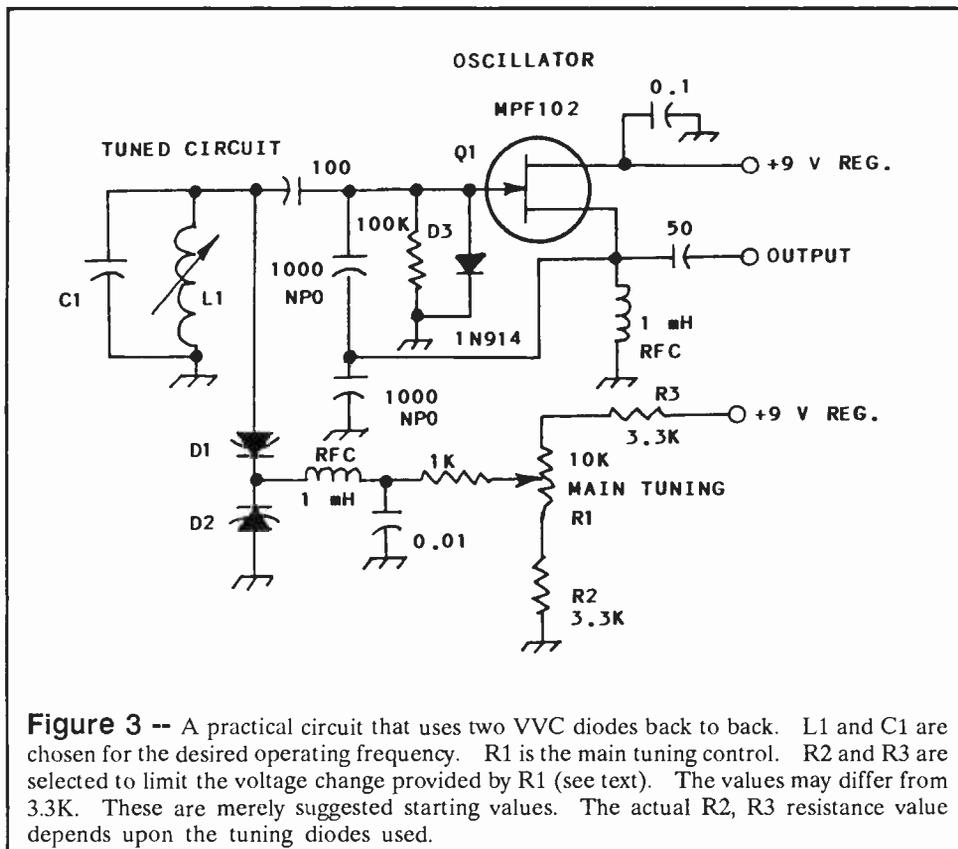
provide resonance in an RF or IF amplifier circuit. The back-to-back diode arrangement in Figure 3 is preferred when we use them in oscillators. A single diode is okay for RF amplifiers. If we use the back-to-back diodes in our oscillators, we provide a more linear waveform at the output of the oscillator. The reason for this is somewhat detailed, so I won't go into it here.

Notice that a regulated +9 volts is shown for the operating voltage of both the oscillator and the VVC diode. This prevents jumps in frequency if the primary voltage source suddenly changes. A standard potentiometer is used for the frequency control of the oscillator. Limiting resistors are seen at each end of R1. They prevent the VVC diode from operating in the nonlinear part of its curve.

A vernier drive may be used to turn the potentiometer for smoother tuning. A 10-turn Helipot and dial is an even better choice for making the diode tuning less critical. The oscillator drift can be reduced if you mount your VVC diodes on a small heat sink. Epoxy glue may be used to affix the diodes to the heat sink.

### In Summary

I hope this article has given you a better understanding of how tuning diodes work. More importantly, I encourage you to experiment with tuned circuits that use VVC diodes. You can tack together a simple oscillator circuit for your tests in an hour or less!



**Figure 3** -- A practical circuit that uses two VVC diodes back to back. L1 and C1 are chosen for the desired operating frequency. R1 is the main tuning control. R2 and R3 are selected to limit the voltage change provided by R1 (see text). The values may differ from 3.3K. These are merely suggested starting values. The actual R2, R3 resistance value depends upon the tuning diodes used.

<sup>1</sup> VVC diodes in various capacitance ranges are available from Hosfelt Electronics, Inc., 2700 Sunset Boulevard, Steubenville, OH 43952. Call 800-524-6464 for ordering.

## Readers' Choice

Many people have written to express their delight with the modifications we presented on the ICOM R-7000 receiver.

Edward Faggart is a reader from Lincolnton, North Carolina, who uses one of these radios. And while he likes the extra 100 channels provided by the initial modification, he does raise some questions. For example, Ed asks "What good is the 100 channel mod if the scanning speed remains the same? Are there any increased scanning speed mods available for the R-7000? How about a mod to provide additional scan delay settings instead of the stock 5 and 15 seconds?"

"Any front end mods that will increase the sensitivity? (I would be very careful here as the possibility of decreasing the dynamic range and increasing intermod problems can occur if you start modifying the RF section of a receiver like the R-7000). Audio mods to lower distortion? Power supply mods to lower the heat generated by the PSU and increase surge protection?"

Ed also raises the question of realignment of the receiver to produce optimum performance. While the methods of RF and IF alignment are generally well known, they require some very specific test equipment and experience on the part of the technician doing the alignment. Several retail outlets (AEA, AES, and others) offer "optimized tuneups" for specific equipment. Check out the various retailers in the magazine ads for prices and availability.

Ed's final question (whew!) centers on a low resistance ground system. A good DC ground system is essential for both operator and equipment safety. In most cases a good ground system will reduce noise pick-up. This will benefit the AM listener. FM, by its very nature, tends to be less susceptible to noise pick-up than AM. Therefore, the noise reduction should not be noticeable on the FM mode.

A good source of ground braid is to strip out the shield of old discarded coaxial cable and use this as a low resistance conductor between the antenna mast, receiver, accessories, and several ground rods driven into the earth near the shack. Alpha-Delta makes some commercial grade lightning protectors for coax. Buy them and use them. Sure they're expensive, but so is that kilobuck you just plunked down for the R-7000.

Unfortunately, absolutely nothing will protect equipment from a direct lightning strike. All of these protective devices will only protect the equipment from nearby strikes and static discharges. If anyone has any word on Ed's suggested mods for the R-

7000, do share!!

● Roger Mundy, KQ8C, of Milford, Michigan, writes to echo Ed's plea for a scan speed modification. Roger (a USAF survivor) managed a tour in my old stomping ground at Lajes Field, The Azores, while assigned to the 1936CS. My Lajes tour was 1970/73 and I had a ball licensed as CT2BH. For Roger and others, the DC-to-DC information is included below.

### ICOM R-7000 Factory Updates:

**Initialization Failure:** If the unit does not power up when the switch is pressed or appears to be operational but no audio is heard, try turning the main tuning dial or repressing the power switch. If operation is restored, chances are that the integrated circuit (IC-3) needs to be replaced.

**Mode Switch Failure:** If pressing the mode switch keys (USB/LSB/FM/AM/CW) does not change the mode, chances are good that the crimp connections on the green jumper wire that goes from the side of the switch to the side of the logic board (labeled W148) are not making contact. Tighten the crimp to restore proper operation.

**Display Fails to Operate at Power-Up:** If the display does not come on when the radio is powered up, there is a good chance that the components on the DC-to-DC converter will need to be replaced (refer to original article on R-7000 mods in the July issue of *Monitoring Times* for the procedure).

If your radio is under warranty, ICOM America will do these mods for you. However, if your R-7000 is out of warranty, then contact ICOM America for prices (last time I checked, it was \$45/hour, they will normally charge two hours labor plus parts) and you will pay the shipping both ways.

### Sony 2010, Kenwood R-2000, ICOM R-71

● Larry Well of Salem, New Hampshire, writes to bemoan the lack of mods to increase the number of memory channels on general coverage receivers like the Sony 2001, 2002, and the Kenwood R-2000. Well? How 'bout it, gang? Anybody got some ideas on how to expand the memories on some of these old workhorses?

● A letter from Gary Hooverman of Saginaw, Michigan, brings to light a problem he has experienced with the ICOM R-71 receiver. Occasionally the receiver will be

dead when powered up. The display works, as does the digital dial and all the function buttons. However, there is nothing on the S-Meter.

At full volume there is only a slight hum in the background even when tuned to local stations. After letting the receiver sit for a couple of days, it will fire up and work fine. In a couple of weeks, it may fail again. (Don't you just love intermittent problems?!) Anyone have a similar problem? What was your solution? Write so we can get the word out to the multitude.

● Jeffrey Less of Toledo, Ohio, writes to comment on the tunable ground system outlined in the August issue of *MT* (The Terrigator tuneable ground system). Jeff wants to know if the Terrigator circuitry will improve his MW DX station.

While the Terrigator will tune a ground system at 80 meter (3.5-4.0 MHz) frequencies, additional inductance may have to be incorporated to get the unit to tune MW frequencies. One thing for sure, resonance will be *very* sharp.

About the only way to use this system with a receiver is to incorporate an antenna noise bridge (Palomar Engineers, Box 455, Escondido, California 92025). This device is placed between the receiver and the antenna (or in this case, the ground system) and tuned for minimum on the S-Meter. This represents a resonant condition. I really doubt that the hassle required to make this work with an AM receiver will be worth the effort.

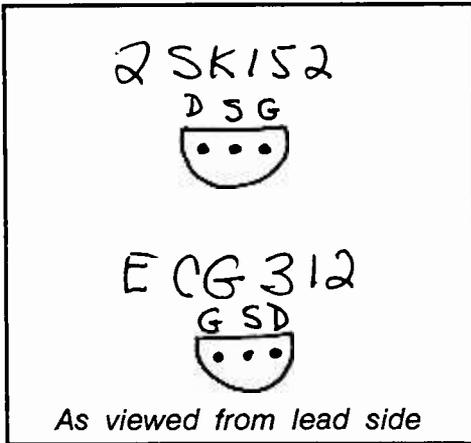
● SONY 2010 Department: Several readers have written to express their tale of woe regarding the Sony 2010's nasty habit of blowing the first FET (Q-303) due to static, RF overload, etc.

Having owned a 2010 for nine months, and using it with several active antenna systems, including the AN-1, Datong AD-270 and the Inline Components AC-1 Micro-module, I concluded that the 2010 is not the receiver for me. I have heard horror stories from close DXing buddies and read others in various magazines attesting to the inability of Sony design engineers to come up with a bullet-proof RF front end circuit that won't go "Tango Uniform" at the drop of a hat.

Unfortunately, the Sony 2010 is a classic example of "electronic inbreeding." Like its human and animal counterparts, the 2010 has its own form of recessive genes that manifest themselves in poor performance and costly repairs. That's why I'm now using an old,

beat-up Sony 2001 (my third, actually) for my portable applications. I'll put up with the lack of selectivity and memories and horrendous battery drain, just for the peace of mind knowing that the 2001 won't easily shed its first RF amp.

• Joe Topinka, WA9LAE, writes to say that if you want a replacement for the Sony 2010 FET, Q-303, the ECG-312 will do the job. However, *the leads are reversed* (see attached diagram). Joe also cautions, "Be extremely careful of the ferrite antenna wires (all four of them) as they are very fragile."

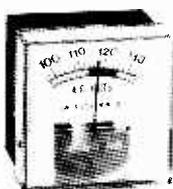


• John Bryant, of Stillwater, Oklahoma, who some months ago lent his hand to an article in this magazine on Indonesian DXing, writes to express his sadness at the loss of the front end FET on his Sony 2010 when used with the Inline Components AC-1 Micromodule active antenna. John and I have had a couple of looooooong phone conversations regarding this problem.

As stated earlier, I used my 2010 with the AC-1 with no adverse effects at all. However, John managed to take out Q-303 on not one, but two, Sony 2010s! In talking with Wes Olson of Inline Components, 4521 Campus Drive, No. 113, Irvine, CA 92715, it has been concluded that the AC-1 Micromodule does, in fact, zap the RF front end on late production 2010s. The gain of the AC-1 makes up for any loss of sensitivity resulting from the demise of Q-303.

It becomes apparent that something is wrong only if you use the 2010 without the AC-1 on the Tropical Bands or MW. It becomes especially noticeable when a "healthy" 2010 is placed along side and signal levels of the two receivers are compared. Word of CAUTION: be careful of what you plug into the external antenna socket of your 2010. Solution: quit buying Sony 2010s and force the Sony design staff to build a receiver worth the price they are charging.

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• Finally, Craig Spilman of Sacramento, California, wants to know if there are any mods to the Uniden Bearcat 100XL scanner and if the default frequencies initially set into the scanner ROM are accessible (changeable) by some mod? Anyone out there have an answer? If so, send it to me for publication.

Once again, we are at the end of our rope. If you have anything to share with the readership, don't hesitate to write. Till next month, have a Merry Christmas, Happy and Safe New Year, and lots of good DX!!

*Monitoring Times* invites you to submit your favorite projects for publication. For more information, contact Rich Arland, P.O. Box 98, Brasstown, NC 28902.



## Beam your signal in, Scotty!

When Captain Kirk gives the command, "Beam me up, Scotty," Scotty responds by throwing the switch on a marvelous device which utilizes a beam antenna to send a signal containing matter through space. Of course, beaming humans through space is presently possible only in science fiction. But on the other hand, we do now have antennas which can "beam radio signals in" from specific directions.

### The Nice Thing About Beams

A very nice thing about beam antennas is that most of them also have gain, which means increased sensitivity to the signals which you want to hear. So beam antennas are useful for weak signal work, and for communications with stations in specific directions from your location.

Another plus is that interference from all directions except the direction of the beam heading will be suppressed. And the beam described in this month's column is economical, light-weight, and easy to build.

This antenna's unique boomless construction is allowed by the use of a strong monofilament line which supports the "ultra-light" aluminum elements as shown in Figure 1. The monofilament is attached at its ends to whatever happens to be handy for holding the antenna elevated. Thus, the antenna can be mounted from hooks on the walls in a room or attic in a house. For temporary or portable use, it can also be used outside, hung between trees, towers, buildings, or whatever is handy.

If you want to mount this antenna outside on a long-term basis, substitute light aluminum tubing for the wire of the elements, and use light nylon or dacron rope in place of monofilament. I've made the antenna both ways (wire elements and tubing elements) and it works well.

So, if you'd like to monitor some of those weak elusive signals better, or concentrate on signals from a particular direction, or even to reduce interfering signals or noise from off-beam directions, then this month's Yagi-Uda beam may be

just the thing for you!

### Constructing the Antenna:

1. The beam's elements are made from eight gauge aluminum ground wire available from Radio Shack. The lengths of the elements for two different beams, with their respective band-centers at frequencies of 146 MHz (two-meter ham band) and at 153 MHz (utility band) are given in Figure 1.

Also given are formulas for finding lengths of elements for other bands if you wish. The formulas are easy to use. For instance, if you want a beam centered on 115 MHz, the table in Figure 1 says divide 444.6 by 115 MHz to get the length in feet (which is 3.87 feet, or about 3 feet 10-3/8 inches) for the reflector.

Each element for the beam consists of a single piece of wire, except for the driven element, which is made in two halves. Cut each half of the driven element to one-half the length shown for the driven element in Figure 1.

Take each half and flatten one end with a hammer for about an inch until the wire is about one and one-half times its initial width. Then two holes are drilled in the flattened portion, as shown in Figure 1B,

to accommodate one-half inch long number three round-head machine screws.

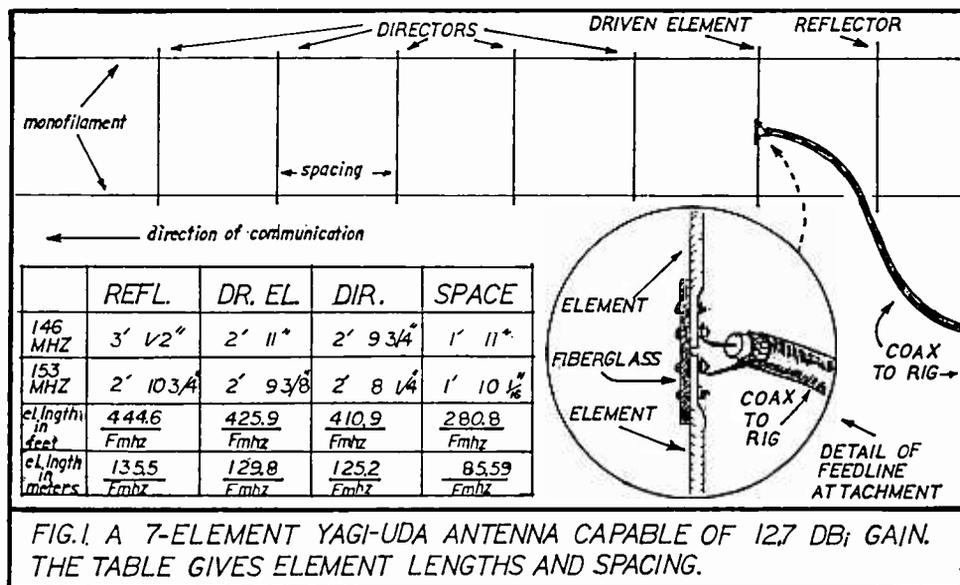
2. The drilled ends of the element-halves are then bolted, with their ends separated by about 1/8 inch, to a 4-1/2 inch by 1/2 inch strip of fiberglass. The fiberglass can be salvaged from a printed circuit board which has been stripped of metal foil. Plastic is okay too.

Drill four holes in the fiberglass to accommodate four screws as shown in Figure 1. Bolt the element-halves to the strip, putting a lockwasher and then a nut on each.

3. Once the element-halves are bolted firmly in place, put two plain flat washers followed by another nut onto each of the two innermost screws. These two screws will be the terminals for connecting the feedline.

4. When the driven element is completed, cut the other elements to length (see Figure 1) and drill a hole for the monofilament support line in each end of each element, 15-1/2 inches from the element's center. These holes will be near the element's outer end (see Figure 1).

5. The monofilament line (I used 30 pound test) is then threaded through the



elements, one at a time. Tie and knot the filament in place at each hole, so that the elements stay at the proper separations given in Figure 1.

6. Attach the center connector of a 75-ohm coaxial cable to either of the screw terminals on the driven element, and connect the shielded braid of the cable to the other screw terminal (see Figure 1). Although no balun is used, the system performs well.

7. Mount the antenna so that the elements are vertical, and attach the lead-in cable to your rig. The antenna is then ready to use.

## Using the Beam

Best-practice tradition has it that the feedline should come away from the vertical driven element at right angles (horizontally). I find, however, that the antenna still works fine with the feedline hanging limply near the driven element. Another rule is that generally, the higher you mount the antenna, the better it will perform.

If you've never used a beam antenna before, the gain of this skywire may surprise you. Using my HT (1 watt power output) with nonbeam antennas, I usually have trouble working into my favorite repeater in a city about 40 miles away. Using this beam, I get reports which say that my signal sounds like a local mobile rig (95 percent quieting). And I still get decent reports (50 percent quieting) when I cut the power from 1 watt to 1/4 watt. For the little effort and expense involved, this is quite an antenna.

## RADIO RIDDLES

**Last month:** I asked you why the early radio pioneers, like Marconi, first developed the less useful longer waves and ignored the more useful short waves (HG), very short waves (VHF), and ultra short waves (UHF) for so many decades. Well, it was all coincidental to Marconi discovering the grounded quarterwave vertical

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antenna, the dominant antenna design of his early work.

The longer (taller) he made his vertical antenna, the farther he found he could communicate. The most important reason for this was that the longer the antenna, the lower the frequency the old spark-coil transmitters would radiate. In those days the only tuned circuit in the transmitter was often the antenna itself! The longer waves thus produced tend to travel well along the surface of the earth, and therefore will extend beyond the line-of-sight limitations of the shorter wavelength bands.

So longer, taller antennas, producing their longer wavelengths, accidentally led radio pioneers, who were seeking to cover greater distances, to avoid short waves and microwaves for a long time. I feel sure that those early radio pioneers would be quite pleased today, if they could just hear our long-distance ionospheric-skip short-wave communication and the long-distance microwave links now possible via communication satellite!

**This month:** The antenna described above is properly referred to as a "Yagi-Uda" antenna. Often, it is mistakenly called simply a "Yagi." Why is this a mistake? Would it be okay, or even more proper, to call it a "Uda"?

Find the answer to this month's riddle, and much more, next month in your copy of *Monitoring Times*. Till then, Happy Holidays, Peace, DX, and 73.



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**Q.** Can you tell me why my NRD525 will suddenly cut off in the middle of a program, then come on again? I don't use the timer. (George Snyder, Torrance, CA)

**A.** This question often comes in from Kenwood users as well. Although it is remotely possible that the microprocessor or power supply is defective, it is more likely that the squelch control knob has been set above its fully-off position. Check that first.

If the condition persists, and AGC and RF gain controls are normal, you might have a problem. In the NRD525, there was a short period of time when an erratic line cord connection caused the entire receiver to shut down unpredictably. This was easily corrected by replacing a component under warranty repair.

**Q.** My Yaesu FRG9600 has 100 memory channels, but only 10 can be scanned at any one time. Is there any modification which will allow all 100 channels to be scanned? (Steve Pinto, Philadelphia, PA)

**A.** None that we have ever heard of.

**Q.** My R2000 receiver reads slightly high in the upper sideband (USB) mode; LSB and AM seem to be right on frequency. Why is this and what can be done? (John Richardson, Titusville, FL)

**A.** Modern communications receivers have (at least) two oscillators: the local oscillator for main tuning and the product detector oscillator for SSB/CW modes. Some manufacturers deliberately make the USB 1.5 kHz high and LSB 1.5 kHz low to match the offset of the audio energy of the sideband. Others let well enough alone and the display will read the original center carrier ("window") frequency, regardless of which sideband is chosen (preferred by most).

First, use a frequency counter to be sure that the local oscillator frequency is exact; then SSB alignment is simple. Tune

in WWV at 10.000 or 15.000 MHz and select either USB or LSB mode. Locate the two trimmer capacitors in the product and carefully adjust each trimmer in the proper mode (USB or LSB) for zero-beat on WWV (whistle tone gets lower in pitch until it disappears and the signal sounds normal). Switch back and forth between AM, LSB and USB to be sure they all sound the same on the WWV tone.

**Q.** My new scanner antenna hasn't helped reception; in fact, there is more noise and the radio hangs up on quiet channels. What gives? (Donnie Blackwell, Charlotte, NC)

**A.** Scanners have a distinct range of signal levels they can endure without adverse effects; you have exceeded your scanner's dynamic range by using a better antenna!

The results of front-end overload include desensitization (signals appear weaker than before), image reception (the same signals are heard 21.4-21.6 MHz higher or lower), and intermodulation (mixed combinations of voices and services are heard on many frequencies).

Some of these signal products may not have modulation on them, or may have modulation different from what the scanner is set for (AM signals received when the scanner is set for FM mode and vice versa), accounting for the scanner's hanging up on "quiet" channels.

**Q.** Modern receivers have digital tuning -- pushbutton frequency entry. So why do they still have tuning knobs? (Joseph Johnson, Savannah, GA)

**A.** Listeners like to command their radios manually for fine tuning or signal searching. It is both psychologically satisfying to know that you are still in charge of your radio in these days of automation, as well as good engineering.

**Q.** What is the best antenna to use for mobile shortwave listening with my portable shortwave radio? (Steve Eschner, Lima, OH)

**A.** The farther from the engine compartment, and the longer, the better. Be sure to use a good grade of coax for shielding. The worst problem mobile SWLs encounter is electrical ignition noise, from their own cars as well as from others.

If the machine-gun rat-a-tat ignition noise persists, switch to resistor spark plugs; you will not suffer any reduction in engine performance. If resistor spark plugs don't solve the problem, more extensive shielding, filtering and bypassing, not within the scope of this column, will be required.

**Q.** What frequencies are used by the Canadian flying team, the Snowbirds? (Paul Neary, St. John's, Newfoundland)

**A.** The last set of frequencies sent in by a Canadian reader showed 20 channels (in order): 275.8, 295.6, 310.8, 227.6, 243.4, 240.5, 378.5, 266.3, 294.5, 322.8, 245.7, 316.5, 344.5, 356.6, 236.6, 283.9, 363.8, 289.4, 245.0 and 239.8 MHz AM.

**Q.** My "Best of MT 1985" is getting rather dog-eared from use. Will there be another useful anthology of questions, answers and hints for the listener? (Jim Ellis, Vero Beach, FL)

**A.** By the time you read this, my newest book, entitled, "Bob Grove's Scanner and Shortwave Answer Book," should be available from Grove Enterprises and other dealers of monitoring supplies.

**Q.** On an old receiver I see a switch marked "AVC" and "MVC." What do these mean? (Kevin Neal, Flippin, AR)

**A.** They mean "automatic volume control" and "manual volume control," respectively. AVC automatically compensates for wide differences in received signal strengths to accommodate the weakest signals, yet prevent the receiver from overloading or "blasting" on strong signals. MVC requires the operator to adjust the sensitivity (or RF gain) control to compensate for the differences.

Strictly speaking, this level-compensat-

ing circuitry doesn't really adjust the volume (audio); it varies the gain (sensitivity) of the signal amplification stages. For this reason, manufacturers prefer to call AVC "AGC."

**Q. Are there any companies who specialize in upgrading shortwave receivers like my Kenwood R2000? (William Kiely, Co. Cork, Ireland)**

**A.** Yes, indeed there are, although shipping would be expensive for Europeans. Send an IRC for a reply from International Radio and Computers, 751 South Macedo Blvd., Port St. Lucie, FL 34983; Universal Shortwave Radio, 1280 Aida Dr., Reynoldsburg, OH 43068; Electronic Equipment Bank, 137 Church St. N.W., Vienna, VA 22180; and Radio West, 850 Ann's Way Dr., Vista, CA 92083.

**Q. I have an extension speaker on my communications speaker with a separate volume control attached to it. Will this hurt the receiver in any way? (George Mayberry, Rantoul, IL)**

**A.** Probably not at the low power levels that you are likely to be running. To be safe, however, it would be better to use a low-resistance control which will prevent high audio voltages to build up on the output transistors because of impedance mismatch.

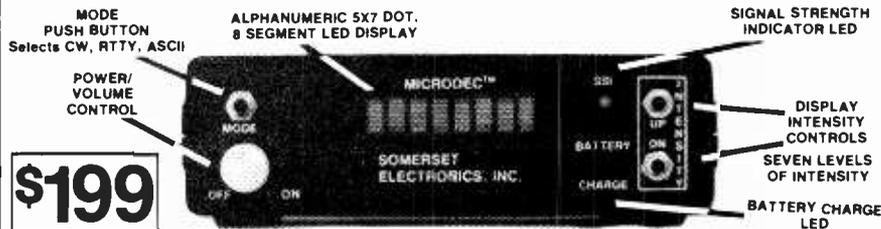
Try a common "fader" control used for automotive rear-seat speaker balancing (Radio Shack 270-046), or even a cheap rheostat (Radio Shack 271-265).

Another disadvantage to using carbon volume controls like you presently have is that they are rated at about 1/4 watt; over a period of time, overheating degrades the carbon coating and results in excessive noise or erratic sound levels at various settings.

*Questions or suggestions sent to Bob Grove are printed in this column as space permits. If you prefer an answer by return mail, you must enclose a self-addressed, stamped envelope.*

Bob Grove's Scanner and Shortwave Answer Book is available for \$12.95 plus \$2 from Grove Enterprises.

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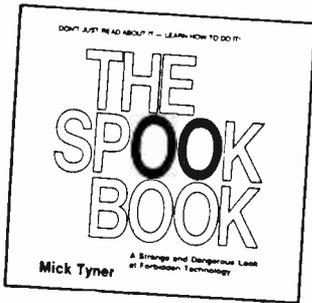


**American Heart Association**



## LETTERS

continued from page 3



R. George Newton, a dentist in Skaneateles, New York, writes to say that he finds the Advance Technologies' advertisement "tacky."

"In my opinion," says Dr. Newton, "it's in poor taste. Teflon bullets! Hand Grenades!"

I've never seen the book; however, I defer to Bob Grove's review in last month's issue (November, p. 37). In it, he calls *The Spook Book* "articulate and nonpolitical. It is objective, well-paced and informative. Rather than sinister and inflammatory, it is educational and urbane."

Not to worry, Doctor. We're not going to start pandering to the blood and guts crowd. Heck, I don't think we've run even one cover photo in which the models are dressed in camouflage and greasepaint.

"You want to make *Monitoring Times* better?" asks M. H. Schneider of Montchanin, Delaware. "Make it thicker by about ten pages and bring it to us weekly!"

We showed your letter around the editorial and production offices a couple of minutes ago. If you listen quietly, you can still hear the hysterical sobbing coming from down the hall....

Do you remember the name Tony Goldish? Late last summer, Tony wrote in to say that he was trying to get his ham license but was a bit discouraged because none of the local hams would lend him a hand. "Is it too much to expect a ham to let me come to his shack and watch him operate for a night?" concluded Tony's plea. We heard from Tony again and he still remains discouraged about his prospects of getting a ham license.

Well, there is now an answer for people like Tony and it involves three of ham radio's heavy hitters: Radio Shack, the American Radio Relay League (ARRL) and Gordon West. According to West, you can now get the name, address and phone number of a helping ham at your local Radio Shack store. The computer-

ized listing, which is available at no charge, "allows a Novice candidate to find local assistance or a local testing team right around the corner." Now that's a great idea.

We had another great idea. We rang up Gordon West and told him of Tony's plight. And he quickly agreed to send Tony a copy of the excellent "Gordon West 21 Day Novice Course," complete with book, code cassette and all materials necessary to get your ham license. You can pick up your own copy of the 21 Day Novice Course for \$19.95 from your local Radio Shack or ham store.

Vince Migliore of Petaluma, California, writes to pass along a clipping from the *Pacific Sun*. Entitled, "Eavesdroppers Listen Up...", the article says that you don't even need a radio to tune in cellular phone calls.

"Just set one TV on top of the other and connect separate antennas to the UHF terminals and turn them on. Tune one of them to somewhere around channel 75 to 83 (with the sound off) and then tune the other one (with the sound on) around the same channel range and listen until you hear a conversation. You may have to fool around a bit," cautions the article, "but it usually works." Now how about that!

Ivan Leech and his wife have been out sailing their 37 foot sloop, presumably around Puget Sound, since they live in Seattle, Washington, home. Well, to

make a long story short, one foggy night when Ivan was on the foredeck watch with his 49 MHz transceiver, he heard... a baby.

"We were near the shore," relates Ivan, "so we figure that the transmission must have been from a wireless room monitor in a house on the shore."

The idea intrigues Ivan. "One of these evenings I'll take the transceivers for a walk in the neighborhood and see what I can hear. By the way, I thoroughly enjoy *Monitoring Times* and look forward to its arrival."

Speaking of eavesdropping, did you see the October issue of *Consumer Reports*? In an article rating cordless phones, they caution readers that "Lamentably, an article earlier this year in a shortwave magazine called *Monitoring Times* encouraged owners of FM scanners to do just that [tune in cordless calls] and instructed such 'cordless enthusiasts' on tuning and antenna construction." We are bad sometimes.

We got a copy of the Northeast Indiana UHF Associates newsletter from editor Jack D. Forbing, K9LSB. Jack, a very active ham (who even does a little utility monitoring from time to time), puts out a fine little sheet full of local news and information. If you're in the northeast Indiana area and want to find out more about NIUA, drop Jack a note at 1416 Lakewood Drive, Fort Wayne, Indiana 46819-1330. A self-addressed, stamped envelope would help defray the group's cost.



Gordon West, WB6NOA, author of the 21-day Novice course, shown here in his ham station. You can now find a listing of local hams (and Gordon's course) at Radio Shack.



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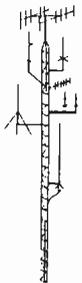
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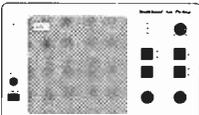
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