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MONITORING TIMES

December 1991

60 Years of Vatican Radio

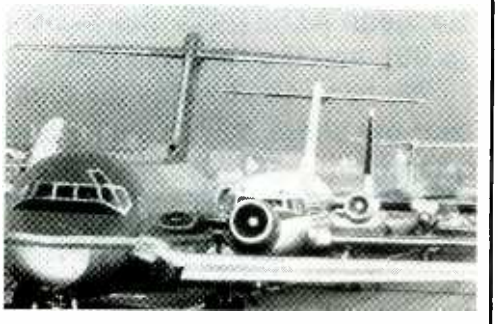
by Larry Miller **8**

It's a Christmas tradition at many houses — Mom and Dad surrounded by ribbons and wrapping paper and tags on Christmas Eve, listening to midnight Mass celebrated by the Pope with all the pomp and circumstance. But for thousands of people throughout the world, the live broadcasts by the Pope have been a daily source of inspiration, thanks to Vatican Radio's sixty years of broadcasting.

Flying High

by David Sutcliffe **12**

Seasoned aero listeners know there's no predicting VHF aircraft communications. There is no limit to what you might hear; Even the Space Shuttle has been heard hailing an old friend at a local airport on a Unicom frequency! This feature will decipher aircraft transmissions so you can practice monitoring routine communications. Then, when the great catch comes along, you can follow right along with the action.



My First Shortwave

by Salvatore Emma **18**

What a waste of a Saturday. Sal Emma vividly remembers the day he had to sort through all the hand-me-downs and clean out the closet: The day he discovered The Radio.

COVER PHOTO: Cloud photo by Harry Baughn

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How to Start a Local Club

by Wayne Heinen **22**

It started with a handful of hobbyists, a sponsor, and a meeting place. Through trial and error, the Rocky Mountain Radio Listeners has grown in numbers, gained direction and increased in enthusiasm. What this club has learned along the way they now pass on to other aspiring clubs. Tip Number One: Be realistic and learn the pitfalls from others!

Monitoring Times 1991 Index **24**

And Much More ...

Did you hear about the unlicensed broadcast station sponsored by the Department of Defense? It's WKDT, "The Only Alternative," on the campus of West Point Military Academy. For prospective young officers, it's also "the only opportunity" to experience a brush with broadcasting (p.50).

If you enjoyed the article on aircraft communications and want more, you're in for a special treat as Plane Talk profiles Delta Airline communications (p.48). And the mysterious military traffic at the Las Vegas McCarran Int'l Airport receives more speculation this month at the hands of Federal File readers (p.46).

You'll find a super project this month in Experimenter's Workshop: an S-meter which can be utilized with virtually any receiver. And you can build it yourself if you'll turn to page 102.

Two respectable new receivers are reviewed this month: the Sangean ATS818CS shortwave portable cassette receiver (p.96), and the Realistic PRO-37 handheld scanner (p.98).

We hope you'll enjoy the time conversion wheel printed on the tear-out sheet. With a little assembly, UTC should never defeat you again!

DEPARTMENTS

MONITORING TIMES

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LETTERS

What a year it has been! We thought it would be hard to surpass 1990 for drama, but the events of 1991 have proven the surprises aren't over yet. Still, few of us can sustain our global consciousness with ear glued to three radios for long. Eventually local concerns and daily living will impose themselves upon us once again.

And in that daily world with its mundane frustrations, you'd be surprised how many folks still get disgruntled trying to understand how UTC time relates to their local time. So behold our Christmas gift to our readers—a time conversion wheel. Credit for the original diagram goes to E.J. Gaspard of Creole, Louisianna, who donated it to Grove Enterprises. Use the wheel (which will be much more durable if encased in plastic) with our sincere wishes that all your times with radio are good ones.

Indulging in a bit more nostalgia, a letter from Leslie Edwards of Doylestown, Pennsylvania, starts out, "What an event it was to hear you and Judy and Bob Grove, interviewed by Kim Shippey of the Christian Science Monitor World Service at the Monitoring Times Convention in Knoxville on October 5. To hear the voices of people that I had only known through the pages of the magazine was a delight, and the expressions of support for shortwave radio were encouraging."

My mind was cast back to Knoxville not only by Leslie's kind comments, but also by a story from the *Knoxville News-Sentinel* sent by a couple of readers. The Knox County Enhanced 911 center, toured by many MT Convention attenders, has been plagued with problems since it was installed in 1987. Authorities suspect it's the work of "techno dweebs" (first cousins of computer hackers) who appear to do mischief just to prove that they can. But it is no laughing matter. Knoxville resident Hugh Winfrey worries that such shenanigans "may result in regulations that will hurt us all."

Mark Lefler of Athens, Tennessee, speculates that the latest concern arose after two deputies were shot in a remote section of the county. "Apparently their radios would not work in this area and they were unable to call-in for back up help."

The fact that unauthorized persons have access to both radios and programming software could pose a serious safety and security problem for the state-of-the-art system. Both the FCC and the FBI have been consulted.

Mark, however, is not so quick to blame radio problems on deliberate interference. He says, "When Motorola installed the system in 1987, they recommended that six towers/repeaters be installed. Knox County only installed four, so there are considerable dead spots."

A constant stream of such newsclippings come through the *MT* office. If there weren't so much at stake at times, it could be entertaining to watch our cumbersome legal system go into contortions to try to cover new knowledge and technology. Take, for example, this ruling from a Manhattan court reported in the *New York Law Journal* and sent by Paul Mitchell: Radio waves and the equipment that generate them are tangible property and therefore may be protected against criminal mischief and tampering; while the speed with which they travel — the frequency — is not tangible and therefore is not so covered.

The decision, though potentially controversial, shows some logical thinking. Not so learned was the lawyer who charged the defendant with "damaging the frequency" of the plaintiff.

"Obviously, whoever drafted the papers for New York State didn't read *Monitoring Times*," chuckled Paul.

So far Canada does not have an Electronic Communications Privacy Act to forbid monitoring of cellular communications, but Lambert Huneault of Windsor says that may change. He enclosed clippings from *The Windsor Star* which indicated that for the first time a judge in Canada has said a cellular phone conversation is subject to the wiretap provisions of the Criminal Code.

"Personally," says Bert, "I think this is a terrible ruling, as cellular phone conver-

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LETTERS
continued

sations are radio communications — and if they are not scrambled there should be no expectation of privacy. The defense lawyer indicated that the ruling will probably be appealed...I'll keep you informed. But for the time being...the monitoring of cellular telephone conversations appears to have suddenly become illegal in this country."

Moving on to more cheerful communications, Bert says, "I am still quite active in shortwave monitoring, especially with my meteorology hobby. As you will note from the photograph, I now have Radiofax as well as RTTY monitoring facilities. The Universal M-900 decoder does a super good job of decoding RTTY and SITOR communications as well as printing excellent weather maps and satellite cloud pictures with the Seikosha 9-pin printer."

How are you doing on your reception reports this year? Back in the fall, Debra Emrie of Springfield, Missouri, asked if there was software available for translating reception reports. Evidently there is, because The Radio Collection has a software package called "The Language Assistant" in Spanish, French, German, or Italian in their catalog. I'm sure they'd be glad to give you more details on the program. Last month we inadvertently left out The Radio Collection's ad for the *World Radio TV Handbook*, so be sure to check out their ad and address on page 7.

Gordon Trigg of New Zealand writes with some good cautionary advice for Debra or anyone trying to use a dictionary for a word-for-word translation. Take translating English to the Philippine language Tagalog, for example. "The result would be unreadable, as the text would not make sense. There can be several suitable words to use for one English word, so which one do you use? Worse still there are English words not even covered in the other language."

Even with sophisticated computer software, Gordon reminds us that one's printer imposes severe limitations on what can be printed. If it can't print the alphabet, then Chinese, Japanese, Russian, and Arabic are all out of reach.

Gordon's best recommendation for language translations is to find someone who speaks the language. He writes out his report in English and then "I pay a visit to some of the Asian take-away shops. If you are a regular customer they are normally very willing to assist you... I find this is the safest way of sending a report or a letter as it avoids insults, has perfect or near as possible grammar, and where required, script. It also gets noticed at the other end where the receiver may not know English or may only have a limited grasp of English."

Thanks for those good tips, Gordon. "Asian take-away shop?!" Is that a repossession agency or a Chinese carry-out? You make a good point; the difference could be important!

Philip Ross of Allied Electric Supply Company in Southfield, Michigan, doubted a newspaper report we picked up about a "bullet" which zapped illegal cable boxes in Queens. So we checked it out and sure enough, American Cablevision snared 317 such boxes last April. They fired what they termed an "electronic bullet" which only disabled the illegal chip that had been enabling viewers to receive the premium channels. It seems the company obtained one of the illegal chips and took it to Tocom, the company that makes their converter. Tocom designed the electronic impulse to target that chip. When the customers brought their boxes in for repair, the company held the boxes for use as evidence in court.

Are you in a Christmas mood? From time to time we receive requests for the *Monitoring Times* from folks who are unable to purchase it themselves. *MT* readers and clubs have already shown their generosity, so we make this offer: If you are interested in sponsoring a DXer, write to *MT*. We will be glad to send you a copy of correspondence from anyone who has requested help. These are primarily from overseas, but not always.

Robert Bennett is a beginning radio

(please turn to p. 109)

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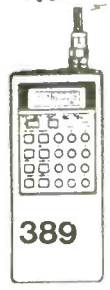

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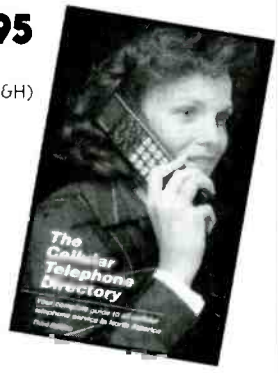

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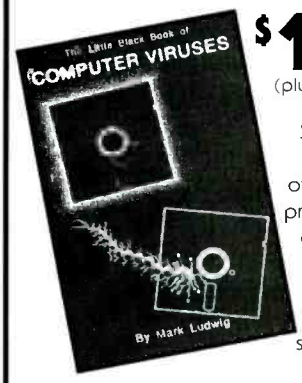

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COMMUNICATIONS

Cellular Ban Update — There's Still Time to Write!!

The proposal to ban the manufacture of scanners with cellular frequency coverage is now before the Senate. House Bill HR1674 passed without a dissenting vote. The Senate version of the Bill, S1132, does not contain the proposal to ban such scanners--yet.

But John Windhausen, counsel for Senator Ernest "Fritz" Hollings (D-SC) who is chairman of the Senate Commerce Committee deliberating the wording, feels that such a ban would enforce the Electronic Communications Privacy Act which makes it unlawful to listen in on mobile telephones.

If you have not yet written to your Senators, refer to last month's Closing Comments and write to to your two Senators, c/o U.S. Senate, Washington, DC 20510, and to the Senate Commerce Committee, 227 Hart Senate Office Building, Washington, DC 20510, urging them to reject the cellular frequency ban amendment in the House version of the Bill.

Barbies on the Air

Five year old Veronica Harrington is the country's youngest full-fledged ham radio operator. So says the respected *National Inquirer*. In a recent article, writer Joe Mullins gushed, "the tyke has ham operators far and wide chuckling when she's on the air gabbing away about her...Barbie dolls."

"I talk about my three Barbie dolls and about our neighbor's cat who brings me dead mice..." says Veronica. The precocious little rag-chewer is on the air for a half an hour a day.

Rosalie White, American Radio Relay League educational activities manager, says "we think [Veronica's] great! There are three other 5-year-olds that have their novice license but Veronica is the youngest to have a technician's tag which has a Morse code requirement."

Alleged Scam Rips Broadcasters

Law enforcement officials are on the lookout for Jerry Kautz, president of Imperial Transmitter Worldwide. According to *Radio World*, broadcasters were asked for a 50% deposit on used transmitters — amounts ranging from $1,000 to well over $10,000 — and then promised that the units would be delivered by company truck.

The trucks, as of press time, never arrived. Ironically, Kautz recently authored an article on used equipment for *Radio World* in which he warned broadcasters to "be careful about sending money." Three months later, says *Radio World*, "Kautz has disappeared and state and federal authorities are investigating the man and his business."

Detective Ike Brown of the McCook, Nebraska police department would not discuss the case but did confirm that he had received formal complaints of theft by deception or fraud against Kautz and his firm. Brown also indicated that a number of other complaints had been filed against Kautz for "misuse of financial transaction instruments" — primarily credit cards.

VOA Broadcaster Kidnapped

A Voice of America broadcaster was apparently abducted in broad daylight from the parking lot of the station recently. A group calling itself the Salvadoran Patriotic Directorate claimed responsibility.

According to reports, Isidro Olace, a Mexican citizen working for the VOA, left the station Sunday at 12:10 in the afternoon. Fifty minutes later Olace was on the phone to the Voice, telling them that he had been abducted. Shortly thereafter, the VOA received two letters demanding that the station broadcast a number of statements in return for Olace's release.

The VOA declined to read the manifestos over the air. "We of course don't do that," said spokesman Joseph O'Connell.

The FBI began looking for Olace until the following weekend when, on Saturday, he telephoned his wife to tell her that he had been released at National Airport and was taking the Metro to his home in Montgomery County.

The FBI says that it is "investigating ... aggressively" in cooperation with the D.C. police.

Giant Shortwave Transmitter May Save Earth

It sounds like an old Japanese "horror" movie from the 1960s but the Japanese Ministry of Posts and Telecommunications was quite serious when it signed an agreement with the University of Alaska to build a giant shortwave transmitter that could save the planet.

The Japanese PTT and the University will conduct joint experiments on using radio waves to protect the ozone layer. Under the agreement, a high-powered shortwave generating facility will be built in Alaska. The giant transmitter will then beam its signals some 40 to 100 kilometers above the earth.

According to officials in Kyodo, experiments have shown that when ozone-damaging chlorofluorocarbons (CFCS) are irradiated with short burst of high-powered shortwave, their chlorine atoms become chlorine ions, which do not affect the ozone layer.

There is no word on how the giant shortwave generator will affect shortwave reception or if the Japanese PTT will QSL.

I Won't Be Home For Dinner...

Journalism can be dangerous to your health. According to the Swedish newspaper *Sydsvenska*, some 36 journalists died last year. As of late October, 1991, (the most recent date for which figures are available) 41 journalists are known to have given their lives in pursuit of their professional duties.

Sydsvenska goes on to say that these figures may be misleading in that they represent only those reporters *known* to have died. "If a reporter from a major newspaper, news agency, television or radio network is missing, news of the

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COMMUNICATIONS

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disappearance is quickly spread around the world. Representatives of smaller organizations disappear in silence."

The most dangerous assignment in the world today is Yugoslavia where a French and a Swiss journalist hit a mine in Zagreb recently. A total of eight journalists have died in Yugoslavia alone.

ICOM Releases R7100

ICOM is now selling their new R7100, smaller than the venerable R7000, but with better specs including: higher sensitivity, 900 memory channels in 9 banks, 10 programmable search ranges, 24 hour clock/timer with 5 on/off times, eight tuning steps (0.1/1/5/10/12.5/20/25/100 kHz) and "Window Scan" (a programmable dual-function cycle).

Watch for a full review of this VHF/UHF receiver.

Radio Warning: Ghost Soviet Research Station

Ships plying the waters north of Alaska have been receiving radio messages from the Coast Guard, warning them that an ice floe carrying an abandoned Soviet research station and hundreds of drums of potentially hazardous chemicals is lost somewhere in the Arctic Ocean.

The island of ice broke loose from the Soviet coast during the summer and was last reported 56 miles north of Barrow. The Soviets have promised to remove the chemicals and buildings from the floe but bad weather has been making it difficult to locate by satellite or airplane.

"It's called `needle in a haystack' time," says Randy Crosby, director of search and rescue for Alaska's North Slope borough.

Intelligent Life? Not at This Office

Next October, after 30 years of searching the skies for signs of intelligent life in the universe, NASA will begin a decade-long search for radio transmissions in the 1,000 to 3,000 MHz range.

NASA's Search for Extraterrestrial Intelligence (SETI) project will use state-of-the-art receivers in a systematic, long-range observing program. In the first few minutes of the project, says a NASA spokesman, more searching will be accomplished than in the combined total of all previous SETI's.

In a complementary search, a sky survey will use the 34-meter antennas at NASA's Deep space Network (DSN) to scan the sky from 1,000 to 10,000 MHz. NASA promises to let us know if they are able to ring anyone up.

Ham Pizza

The FCC is reportedly contemplating a rule change that would allow hams to use their radios to conduct business on a no-interference basis. According to the *W5YI Report*, FCC Private Radio Bureau Chief Ralph Haller startled listeners during a recent speech when he said he was receptive to permitting a third type of non-amateur communications on the ham bands.

Haller suggested that frequency usage be arranged so as to give precedence to priority or emergency communications, as is the current practice. Primary communications would be normal ham operations and the new category, called secondary, might even give hams the right to conduct personal business, "including ordering pizzas."

Currently, ham radio is restricted to "self-training, intercommunications and technical investigation carried out by duly authorized persons interested in radio technology solely with a personal aim and without pecuniary interest."

Thanks and credits to: Mike Braukus, NASA; Maryanne Kehoe, Atlanta, Georgia; Mary Longo, West Palm Beach, Florida; Bob Lucore, Washington, D.C.; Henderson L. Ledvis, Altemont, California; Alex W. McIlWain, Lakeland, Florida; Eldrige Massey, Nassau, Bahamas; the Washington Post and the W5YI Report.

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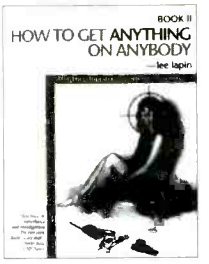

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Vatican Radio

Answering to a Higher Authority

By Larry Miller

It is officially called "Christian Messaging from the Vatican" but the news media quickly dubbed it "Dial-a-Pope." The Vatican, it seems, has authorized a fund-raising 900 number. "Now," according to promotional literature, "the Pontiff is available at any time of the day or night, in the privacy of your own home." Organizer Michael Fahringer crowed that he had "invented the world's first electronic collection plate."

While Mr. Fahringer, a former copy machine salesman, may indeed have invented the world's first electronic collection plate, his boastful balloon might have been deflated a bit if he had known that innovation is practically the Vatican's middle name.

When shortwave stations began taking punches from the worldwide recession, they cut back. English programs were taken off the air, staffs were reduced and some station vanished altogether. At the Vatican — itself in something of a financial straightjacket — they put their heads together, sighed, and began selling compact discs (CDs) of classical and sacred music. This, along with some prudent, but hardly noticeable belt tightening, once again turned the wolves from the door.

Nothing Vatican Radio does is second class, its $13.00 CDs included. When Pope Pius XI decided in 1929 to build a radio station, he turned to "the Father of Radio" himself, Guglielmo Marconi. Marconi set a high standard for Vatican Radio by personally constructing the station's first transmitter.

According to writer Erik Amfitheatrof, the idea that the Vatican should have its own radio station "was shaped by the violent events of 1870 when troops from the newly united Italian army invaded the Papal States, which covered most of central Italy."

"The Pope's troops were routed," relates Amfitheatrof, and the Pope, Pius XI, became "a prisoner of the Vatican." The tension continued until February 11th, 1929, when Benito Mussolini and the Vatican signed the Lateran Pact, establishing the 108.7 acre Vatican City-State.

Once forced to live within the bounds of St. Peter's Basilica, Pius XI now felt the need to step beyond Rome and reach the world itself. Less than two years later, the Pope — with Marconi looking on — was on the air. Stiffly and in Latin, Pius launched the inaugural broadcast in Old Testament style, saying "Hear and listen... oh distant peoples." Immediately, aides began translating the text of the speech into the world's major languages for broadcast later that same evening.

Vatican Radio journalist doing an interview.

The world did hear. In America, the *New York Herald* told its readers that "few events can match the impression of hearing the message of that the head of the Roman Catholic Church broadcast to the entire world." One man even wrote from Prague, Czechoslovakia, to say that, although deaf, he was able to hear the Pope's speech by running a wire from his radio to his teeth.

Some of Vatican Radio's initial programs were somewhat dry. One of the first was called "Scientiarum Nuncius Radiophonicus," a Latin report on the activity of the Pontifical Academy of Sciences. This was not totally unexpected. From the beginning, Vatican Radio had been staffed almost exclusively by Jesuits, traditionally the Church's intelligencia. But as the years wore on, the normally neutral, non-controversial Vatican Radio began to bravely face off against the Fascist government in Italy — the very government on which the station depended for such vital supplies as electricity to run its transmitters!

By 1938, Pius XI established the "Catholic Information Service" in an effort to combat what he saw as atheistic propaganda coming out of shortwave stations in Germany, Italy and the Soviet Union. As a result, Vatican Radio became an important source of information during World War II, "not withstanding the protest of the German diplomats, disturbances and censors." Goebbels himself, says official Vatican literature, "had sworn to silence Vatican Radio." He was never able to fulfill his vow, although over a dozen priests perished in concentration camps across Europe for collaborating with the station.

Vatican Radio did provide a number of services during the war. It claims to have been the first station — despite its reputation for neutrality in secular state affairs — to denounce the Nazi concentration camps. On January 23rd, 1940, an American Jesuit named Coffey reportedly told the world that "Jews and Polish prisoners are being enclosed in new ghettos, tightly sealed..."

During the following six years, the Vatican became a clearinghouse of information between prisoners-of-war, displaced families and their loved ones, transmitting some 1,240,000 personal messages. Broadcasts of Vatican Radio were transcribed and secretly distributed by the French resistance.

Like a teenager who takes on heavy manual

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labor for the summer, Vatican Radio emerged from the war years with some serious muscle. Now it was a major powerhouse, both in terms of transmitters and number of languages. By 1949, it was broadcasting in 19 languages and, in order to accommodate this growth, began the construction of a new transmission center.

Located some 20 miles north of Rome, the Santa Maria di Galeria transmitter center is located on a 4.5 acre plot originally owned by St. Ignatius and set aside for the Jesuits. It was inaugurated in 1957 and by 1958, the year in which Pope John XXIII was elected, was putting out broadcasts in 39 languages. To this day, it remains the starting point for virtually every signal that Vatican Radio sends out.

Reaching Out to the Faithful

Many people begin their day at 0630 UTC by listening to the Holy Mass, celebrated by priests who work at Vatican Radio. The Mass itself is still celebrated in Latin, the official language of the church, but the scripture readings are alternated in 13 different languages. The day ends with the Holy Rosary, broadcast live every day at 7:40 UTC.

In between, however, almost anything goes. The range of music alone is astounding, encompassing everything from Brahms to—no kidding—Elvis Presley.

In Rome, listeners can find any one of four Vatican Networks on the air. One, known as "Studio A," offers programs of light and classical music. In the evening, from sunset to sunrise, the station can be heard throughout Europe on 1530 kHz mediumwave (AM). By far, however, the bulk of Vatican Radio's audience listens to the "General Service" on shortwave.

According to the latest schedule, there is but one English transmission officially targeted to America. It is at 0250 UTC and can be heard on 9615 and 11625 kHz. Other English broadcasts to Africa, some of which can also be heard in America, are scheduled for 0500 UTC on 11625, 15090 and 17730 kHz; 0630 UTC on 11625, 15090 and 17730 kHz; 1730 UTC on 11625, 15090, 17730 kHz and 2100 UTC on 9645, 11625 and 15090 kHz.

Transmissions to Asia and the Pacific contain four English programs the enthusiastic listener can try for. These are scheduled at 0145 UTC on 11935 and 15090 kHz; 1345 UTC on 9615, 11830, 15090 and 17535 kHz; 1545 UTC on 15090 and 17865 kHz and 2245 UTC on 11830 and 15105 kHz.

Vatican Radio's 1st and 2nd Program (networks) are directed toward Europe almost around the clock. The 1st Program offers programs in a rainbow of the world's languages, each a snippet of news, information or music lasting between 10 and 15 minutes per language.

The 2nd Program concentrates more on the languages of the Baltics and the Soviet Union. Here you are likely to pick up programs in Byelorussian, Latvian and Armenian. Both networks are carried on shortwave and, with patience, can become a rewarding experience for the skilled shortwave listener.

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The 1st Program is on 6245 kHz from 0150 to 2010 UTC when it changes over to 6185 kHz. Throughout the day, check other frequencies like 7250, 9645, 11740 and 15210 kHz. The 2nd Program can most often be found on 7365 or 9755 kHz between 0210 and 2100 UTC. Also check 6185 and 11715 kHz.

And so it is that after 60-plus years of operation, Vatican Radio "feels surprisingly young."

"We are happy," says Director General Fr. Pasquale Borgomeo S.J., "to proclaim faith in Christ, to promote unity within the church, and to serve the cause of man." "Perhaps," he continues, "this sense of energy and enthusiasm can be attributed to the springtime in Europe. The contribution that Vatican Radio made to ending Eastern Europe's long winter is known only to God."

Still, despite this buoyant statement of faith, Fr. Borgomeo expresses some apprehension. "We admit that Vatican Radio's future depends on the generosity of all those who want it to continue serving the Church and man." The Director General toasts the station's 60 years, saying "Ad multos annos! (*And many more!*)" but adds that "All those who join in making this wish...know that they can do something to ensure it comes true."

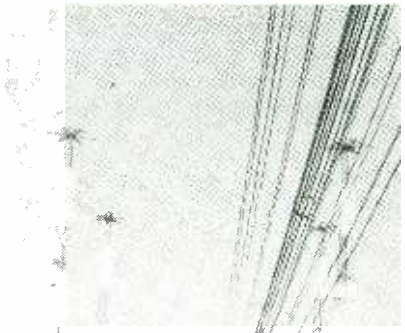
Pick up the phone and dial.

mt

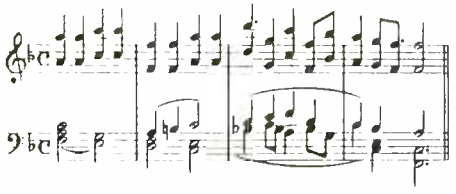
Site Improvements

During the last ten years, the equipment at the S. Maria Aleria transmission center has been updated. The Vatican now boasts four 500 kw shortwave transmitters. A twin pair manufactured by Asea Brown Boveri (ABB), have a high rate of efficiency which reduces power consumption. They use Pulse Step Modulation (PSM), utilize solid state Gate Turn Off (GTO) devices and are equipped for Double Side Band (DSB) as well as Single Side Band (SSB) operation.

Three new curtain antennas were put into operation last year. Each uses optic fibers in the radiators, making it possible to give computer commands via a special coupling system, adapting them to the desired frequency and angle of radiation. This year, the Telefunken Company has begun installation of three more fixed band curtain antennas in an effort to improve the quality of transmissions to Eastern Europe, West Africa and Central America. — *Vatican Radio*



CHRISTUS VINCIT



The "Christus vincit," has been Vatican Radio's interval signal since January 1, 1949.

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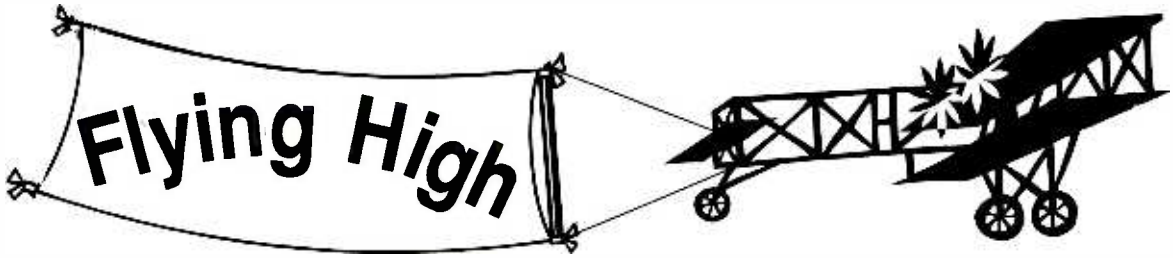

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by David Sutcliffe

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"Cessna 45 Alpha squawk 4231 and ident."
"Cessna 5345 Alpha."
"Cessna 45 Alpha radar control contact twenty four miles northwest, turn right heading one four zero vectors to runway three three right, descend to two thousand."
"Cessna 45 Alpha right to one four zero, descend to two thousand."
"Cessna 45 Alpha traffic 1 o'clock four miles northbound altitude unknown."
"Cessna 45 Alpha traffic in sight."
"Cessna 45 Alpha position five miles south of BWI, contact tower 119.4."
"Cessna 45 Alpha."
"BWI Tower, Cessna 5345 Alpha five miles south for landing."
"Cessna 45 Alpha enter left base to runway three three right, number two behind the King Air on two mile final."
"Cessna 45 Alpha."
"Cessna 45 Alpha cleared to land runway three three right, caution wake turbulence United DC-8 heavy on short final three three left."
"Cessna 45 Alpha."

The interchange you have just read landed a Cessna aircraft at Balitmore-Washington International Airport.

Most modern scanners have the VHF aircraft band (118-135.975 MHz) included in their coverage. There is plenty of exciting radio traffic to hear, from the routine, to the dramatic, to the humorous. However, if you are not a pilot or an air traffic controller yourself, you can get stuck before you get started. How do you determine the active frequencies in your area? And how can you make sense of what you hear?

This article will explain how to find those frequencies and decipher that aviation jargon. For an example: "Mayday" is widely understood as the term for "Emergency!" But if you hear "Pan" (usually repeated three times) over the air, that means trouble, too. Urgent, but not quite bad enough to declare an emergency.

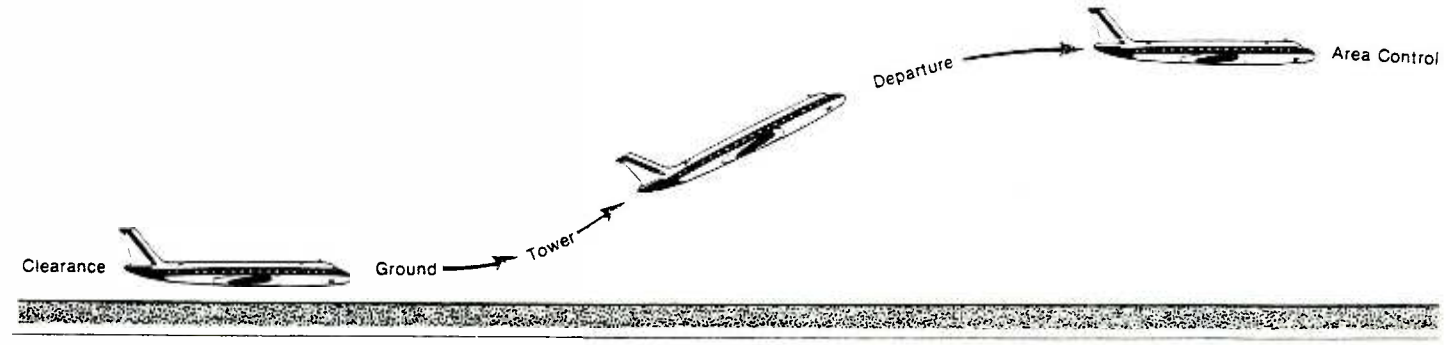

Figure 2: Air Traffic Control Flowchart

CLEARANCE DELIVERY FREQUENCY

• Information on assigned flight route, altitude and other details are provided the pilot on this frequency. At busy airports, this is usually the first channel on which pilot and controller communicate.

GROUND CONTROL FREQUENCY

• Instructions to the pilot for movement of the aircraft in the airport other than on the active runway are communicated on this channel. Clearance information is also given on this frequency at less busy airports.

TOWER FREQUENCY

• Also called "local control," this channel is used to communicate with departing and landing aircraft. When ready to take off, the pilot calls tower prior to turning onto the active runway. Tower is responsible for sequencing and safe separation of aircraft within a specified distance from the airport.

DEPARTURE CONTROL

• Provides separation and sometimes revised route and altitude information for the portion of flight between airspace controlled by Tower and Air Route Traffic Control Center. Departure control is primarily for aircraft flying under Instrument Flight Rules (poor weather and most airline operations) and in crowded airspace.

AIR ROUTE TRAFFIC CONTROL CENTER

• The safe and orderly flow of IFR flights and some aircraft operating under Visual Flight Rules (good weather - mostly non airline) is the responsibility of the "Center Controllers." Most airspace throughout the world is divided between these centers.

During a flight a pilot is typically told to change frequencies as he passes through different sectors (a center's assigned airspace is divided into areas and sectors). Where possible (ie. not in the middle of an ocean), aircraft are followed by radar.

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The international emergency frequencies are 121.5 MHz (civil) and 243.0 (military). These are worth programming on your scanner. But most "Mayday" and "Pan" situations are not broadcast on 121.5 or 243.0 MHz. Most of the time, a pilot already has his radio set to an active communications frequency that is monitored by an FAA facility, airport operations desk or other aircraft. In a tight spot, the flier has enough to do without having to change radio channels.

What frequency the radio is tuned to depends on the phase and circumstances of the flight. If taking off from a small airport that does not have a control tower, or if the tower is closed (very few towers are staffed 24 hours a day), the channel used for that field will be a "Unicom" frequency. Unicom is a general aviation air to ground communication service. The most common Unicom frequency is 122.8, but the following advisory frequencies may also be used: 122.7, 122.725, 122.975, 123.0, or the Multicom frequency 122.9.

Relatively few airports have a control tower. According to the Aircraft Owners and Pilots Association (AOPA), of the 12,946 airports in the USA, only 693 had towers as of 1989.

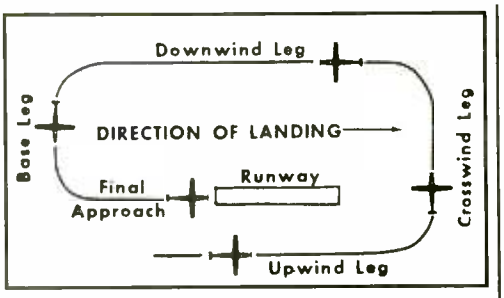
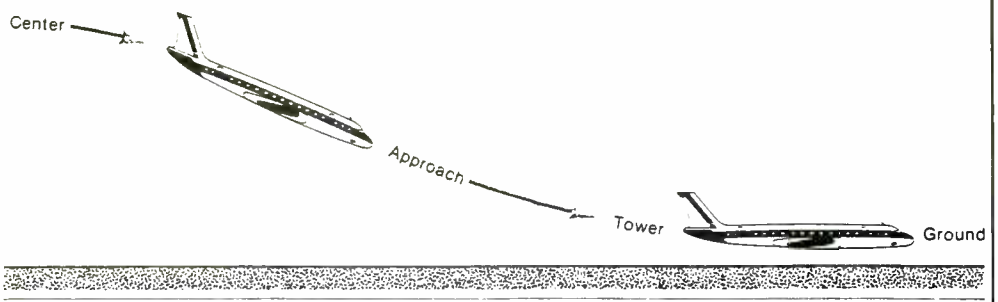


Figure 1: Standard Traffic Pattern

When flying from a field with an operating control tower there are a series of frequencies used. After listening to the Automatic Terminal Information Service (ATIS) frequency to get current weather and other data, a pilot departing a busy airport will transmit on the "clearance delivery" frequency.

Next is "ground control" for taxiing instructions from the "ramp" to the "active" (runway in use). When actually ready to take off, but before entering the "active," the "tower" frequency is used. In reality, all of these channels come from the control tower and sometimes the same controller covers more than one channel (when things are slow).



APPROACH CONTROL FREQUENCY

• Approach control is similar to departure control in function. In fact, sometimes the same controller at the same radar scope handles both functions. So-called "hand-offs" between all controllers in the system are done mostly by telephone lines between tower, approach/departure control and center facilities.

TOWER FREQUENCY

• A flight is handed off to tower by approach control at a predetermined point in the flight (decided by the approach controller). Most non-airline and other VFR flights will call tower directly about 10 or 15 miles from the field.

These flights have not been handled by approach/departure control or center controllers. Very busy areas such as Terminal Control Areas are an exception. All aircraft operating within this congested airspace are required to be in communication with approach/departure control for safe separation.

GROUND CONTROL

• After the plane lands and just as he turns off the active runway, he is switched over to ground control. When traffic is light, the same controller may handle both tower and ground control positions. Clearance delivery, ground control and tower controllers are all located in the control tower cab, usually right next to each other.

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At some point during take off, "tower" will have the pilot change to another frequency. It could be "departure control" or he could say "freq change approved." This means the aircraft is outside his airport traffic area and the pilot is free to go to any channel he chooses.

When operating under Instrument Flight Rules (IFR), the radio traffic flows from "departure control" to Air Route Traffic Control Center ("center") to "approach control" for the destination airport. IFR is required for most airline flights or during poor weather flying, or when operating at or above an altitude of 18,000 feet.

Visual Flight Rules (VFR) are used for all other flights. However, many pilots will tune to "departure control" or other air traffic control channels even when flying VFR. This is a good way of keeping track of other planes near you. When they are not too busy, controllers give traffic advisories based on radar information to VFR flights (on request).

Figure 1 shows the standard traffic pattern flown at airports. Most of the time, planes enter on the downwind leg, turn base and then final approach.

A handy graphic showing the flow of Air Traffic Control (ATC) communications from take off to landing (for IFR flights) is shown in Figure 2.

Runways are identified by a number corresponding to the magnetic heading of the final approach course of the landing aircraft — but with the final digit omitted. So runway 22 is aligned with the magnetic heading of 220 degrees. Where there are parallel runways, there would be runway 22 right and 22 left (and even 22 center). Runway 05 would be aligned with the magnetic heading of 5 degrees. The other end of runway 22 would be its reciprocal, runway 04.

Finding Local Frequencies

The first step is to determine what large and small airports are within about 50 miles from your location. VHF being "line of sight," 50 miles is about as far away as you will be able to receive ground stations. If you have a great scanner, an excellent directional antenna such as Grove's Scanner Beam, and no major obstacles such as mountains or tall buildings between you and the airport, your chances of picking up more distant signals is greater. You will be able to hear planes from farther away when they are at higher altitude.

A good place to start looking for airports is with a road map and the Yellow Pages. Look for listings such as "Aircraft Charter, Rental & Leasing", "Aircraft Dealers" or "Aircraft Schools."

With the names and locations of the local airports, you now need to refer to aviation charts (maps) and other sources for the frequencies. The most basic is the *Sectional Aeronautical Chart* for your region. The sectional chart gives control tower, ATIS and Unicom frequencies for airports it covers. These and most other materials you might want are available from one of the places you found in the Yellow Pages. New charts are published every six months.

If you live too far from the airport (or just don't feel like driving over there) everything you need can be obtained from Sporty's Pilot Shop (Clermont Airport, Batavia, OH 45103). They will gladly mail you a free catalog with a toll free call to 1-800-LIFTOFF (543-8633). You will also find there a world of flying toys and necessities that are mailed the same day (phone orders accepted with a major credit card). If you don't know which sectional or other chart you need, call their "Chart Doctor" at 1-513-732-0856 and he will be happy to help.

The single best source for all frequencies in use at airports, the phone numbers of flying services and much more is AOPA's *Aviation USA*. This "gold mine" of information is available from Sporty's as well. The book contains a glossary of all aviation terms you will likely hear over the air, a section listing all aircraft (except big jets and military) with specs and prices and a similar listing of the "avionics" (two way radios, navigation systems, weather radar, etc.) on the market. These days, the "avionics" on a small plane may be worth more than the plane itself! The book costs $25.00 but is well worth it.

The "bible" of aviation is an FAA publication called the *Airman's Information Manual*. It covers everything from emergency procedures, Pilot/Controller roles and responsibilities, to radio communication phraseology and techniques. The *AIM* is also available at most flight schools and always from Sporty's. They are updated periodically; my last one cost $7.95.

A bargain, where frequencies are concerned, is the *Airport/Facility Directory* for your region. Also worth considering are the *Terminal Procedures Publications* (commonly referred to as "approach plates") despite being printed in booklet form on newsprint quality paper, and *Terminal Area Charts* (available for 29 high density traffic areas like New York, Chicago and Los Angeles).

Understanding the Jargon

Now that you know how to find the frequencies, what about understanding the lingo? A busy controller seems to talk faster than an auctioneer. Having some idea of what he or she is supposed to be talking about definitely helps.

Aircraft are identified by the name of the carrier and flight number for airliners. But bear in mind that of the 225,179 active civil aircraft registered with the FAA (as of 1989), fewer than 6,000 are airliners. All the rest are General Aviation. They identify themselves by make and/or model of plane and a series of numbers and letters that make up their registration number.

General Aviation is everybody besides airlines and military aircraft. The AOPA points out that General Aviation flies 120 million passengers per year to more than 14,000 airports. Airlines serve fewer than 300 locations, concentrating 75 percent of their flights at 48 major airports.

Photo: FAA

General aviation is everyone besides airlines and military aircraft, and they are to be found everywhere, even in downtown Chicago.

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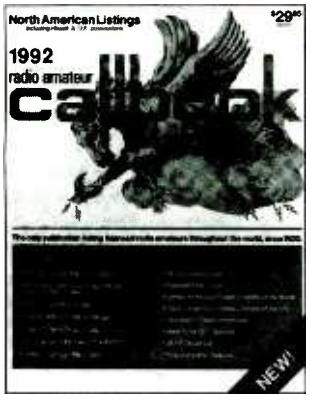

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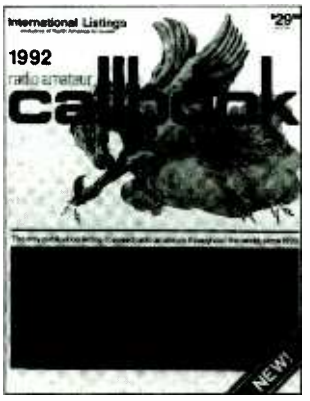

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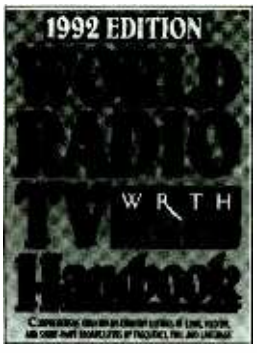

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General Aviation is not just small planes either. It includes large cargo jets and helicopters; air ambulance, business and personal transportation, emergency rescue, law enforcement, news reporting, forestry and fire fighting, express mail and package delivery, crop dusting and pipeline patrol are all General Aviation.

By the way, air ambulance flights and even airliners with an ill passenger aboard all use the term "Lifeguard" as part of their ID on the air.

On the initial call to an ATC facility, the pilot should always use his full ID. For example, "Piper 1234 November" or "Cessna 567 Charlie Charlie" (CC is used for many Cessna Citation business jets). See Figure 3 for the IACO alphabet and number pronunciation.

In subsequent transmissions, the last two or three numbers and/or letters may be used to acknowledge transmissions instead of saying "Roger." This helps the controller and pilot be sure the right plane got the message.

Besides control towers, centers and approach/departure control facilities, the FAA operates nearly 200 Flight Service Stations (FSS) throughout the USA.

These FSS's are in business to provide pilots with weather briefings, assist lost aircraft, handle emergencies and more. They are usually are located at airports, but mostly pilots communicate with them by radio or over the telephone. When calling a Flight Service Station over the air, the pilot uses the location of the station and "radio" (i.e., "Miami Radio).

One FSS frequency worth monitoring is 122.0 MHz. This is the En Route Flight Advisory Service channel. Mostly you will hear pilots reporting bad weather conditions(unless you live close to the transmitter site — VHF is line of sight).

One thing you will hear a lot on the air is "squawk." This has nothing to do with complaints. "Squawks" are transmissions from airborne radar beacon transceivers that identify the "target" on a controllers' radar scope. If you hear a controller say "Squawk 1420" he is telling the pilot to enter that number into his transponder (that airborne radar beacon referred to above). This code identifies that plane on the radar/computer system.

"Squawk Ident" means the pilot is asked to press a button on his transponder that sends out a special signal causing his blip to flash on the radar scope— a quick means of identification for a busy controller. Most planes are equipped with transponders and most transponders are Mode C (meaning they automatically transmit the aircraft's altitude when placed in that mode).

A	Al-fah	S	See-air-rah
B	Brah-voh	T	Tang-go
C	Char-lee or Shar-lee	U	You-nee-form or Oo-nee-form
D	Dell-tah	V	Vik-tah
E	Eck-oh	W	Wiss-key
F	Foks-trot	X	Ecks-ray
G	Golf	Y	Yang-key
H	Hoh-tel	Z	Zoo-loo
I	In-dee-ah	1	Wun
J	Jew-lee-ett	2	Too
K	Key-loh	3	Tree
L	Lee-mah	4	Fow-er
M	Mike	5	Fife
N	No-vem-ber	6	Six
O	Oss-cah	7	Sev-en
P	Pah-pah	8	Ait
Q	Keh-beck	9	Nin-er
R	Row-me-oh	0	Zee-ro

Figure 3: Alphabet and Number Pronunciation

Getting in on the Action

Folks who have a hand held or mobile scanner can have a real adventure visiting an airport and hearing both sides of each transmission. At some fields it is possible to park where you can see the runways. Larger airports usually have some sort of observation area in the terminal.

Check the *Airport/Facility Directory* or AOPA's *Aviation USA* to get all the frequencies (ATIS, Clearance Delivery, Ground Control, Tower and Approach/Departure Control) for that field. Start by listening to the ATIS which will give current weather and operational data. A new letter will identify the message each time it is updated by the tower. When the pilot makes his initial call (whether to Clearance Delivery or Approach Control if he is inbound to the field), one of the things he will say is "with Echo" or whatever letter represents the latest ATIS data.

Suppose Aunt Millie (whom you have kindly offered to drive to the airport) is departing on Delta Flight #123. You will be able to hear her flight's transmissions from initial call up (probably to Clearance Delivery or Ground Control) right through Tower and Departure Control. For inbound flights, you can monitor Approach Control through Tower and Ground Control right up to when the plane parks at the gate.

At small airports you monitor Unicom (the frequency is on the sectional chart). That way you hear the planes call in for the "active" (runway in use) and announce their position in the traffic pattern. It adds interest to watching take offs and landings.

For a very special occasion, treat yourself to a demo ride in a small plane. Arrange for a four seater if you plan to take a spouse, friend or children along. If you want to, the pilot may even let you "drive" for a while. I took my first flying lesson at 16 years of age. For me the experience of flight is enormously exhilarating. It's just not the same in an airliner. Every pilot's first solo flight is an experience he will never forget.

Warning: listening to (and flying) airplanes can be habit forming!

mt

FAA controllers keep close watch from the glass-walled "tower cab."

Photo: FAA

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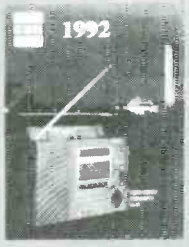

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My First Shortwave

By Sal Emma

I found my first shortwave radio. Literally found it, in the bottom of my bedroom closet.

It was a Saturday in the summer of my 12th birthday. Kind of warm, hazy, and New Jersey muggy. The kind of day that makes even a 12 year old want to avoid work of any kind.

The grass was mowed. I was safe from that particular job. Saturdays in my house, however, were cleaning days. Vacuuming, dusting, scrubbing — a 12-year-old's living nightmare.

I think Mom made her vacuum cleaner selection based on which one was loudest. To this day she fondly remembers her old Kirby upright. When you plugged in the braided cloth-covered power cord you were ready to wake the dead with one touch of the toe. It was powered by a Pratt-Whitney rotary piston engine. At least that's what I thought it sounded like when I was 12.

Usually I was awakened on Saturdays by the ceaseless whine of the Kirby upright getting closer and closer to my room, louder and louder, until the iron sucking machine began banging the bottom of my bedroom door.

In my dreamy morning sleep, the Kirby upright was a Corsair F4U fighter, trying to take off with its brakes stuck. I finally roused with a start, rushed the door ready to verbally lash my sister for waking me up, flung it open with a bang, and it was Mom.

My tongue lashing was prematurely silenced. She hit the Kirby's switch with her right toe and we both waited patiently for the Pratt-Whitney to wind down to a cough and die.

"Well, good afternoon, young man," she said with a sarcastic edge in her voice. "Get dressed."

She turned and wheeled the squeaking machine back down the hallway. She stopped, poised her toe, and said, "Before you get involved in one of your projects you're going to clean that closet."

Not the closet. Anything but that. I'll mow the lawn again. I'll mow the neighbor's lawn. I'll weed the garden. I'll paint the porch — anything but the closet.

You see, as the youngest of four kids and one of the youngest cousins in the family, my closet was a dark tangle of ill-fitting, unstylish hand-me-downs, most of which were purchased in the late 1950s. I hated them. I hated the closet. I hated everything in it and about it. I hated the doors. Stinking, ugly, vinyl tri-fold things that never opened or closed right. Piles of old shoes, the wrong size, handed down to my closet where they slept a long sleep. None of it mine — well, really mine — but I had to clean it out. Why not get the brothers and uncles and cousins who unloaded the junk to clean it out? I inherited the mess. I'm not going to clean it up. I was starting to sound like a new president.

Man, what a waste of a Saturday.

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The closet was my nemesis. the day looked as black as it could look to a 12 year old.

I brushed my teeth and dressed at the pace of giant tortoise. The slower the better. Maybe Mom would forget about the closet. Maybe, I thought as I ate my Cheerios one at a time, I could sabotage the Kirby. Sugar in the fuel tank maybe. Forget it. It would never work. I would get at least "grounded for a week" for killing the Kirby. I guess I'll be cleaning out the closet today. And tonight. And tomorrow. And Monday.

Man, what a waste of a Saturday.

As a result of her fondness for loud vacuums, Mom developed an amazing repertoire of facial expressions, all which my siblings and I could read instantly. I knew I had better get a move on.

I trudged to the room. The tri-fold doors glared and laughed at me. "C'mom, make my day," the closet jeered. I opened the doors with a grunt and planned my attack. Hangers first. Then floor.

I started looking for the junk I had inherited but never wore, and never would. Flood pants, western shirts, polyester ties, leisure suits — all went in a pile in the middle of the floor.

I knew this activity was pointless. Later, when Mom came in to check my progress, she would put it all back, reminding me how my generous relatives had parted with these priceless items just for me. I was left with the things I really wore. Two pairs of bluejeans and six flannel shirts. I knew I was in for it.

The floor next. First pull out the single mateless shoes. Then the leaky rubber boots Uncle Sam handed down. The cowboy boots that never fit, the wayward shoes without heels or soles, laceless vagabonds — all out to the pile.

As I sifted through old moldy sneakers and hairballs, I saw something I could not identify in the dim closet light. A box, about the size of a kid's lunch box, maybe two stacked lunch boxes. I grabbed it and lifted it out of the dark closet. It was heavier than it should have been. Real substantial. It had a rough, textured feel. I got it into the light. It was grey-green with a dusty leather covering, like the cover of an old book. And had weird knobs and dials and what looked like skinny light bulbs inside. Soon it dawned on me that I was looking at a radio. But a radio like none I had ever seen.

It had two big dials, for starters. One labeled "tuning," the other "bandspread." I

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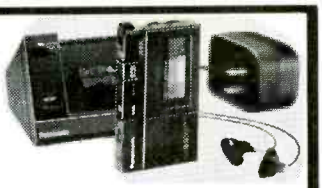

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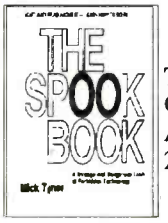

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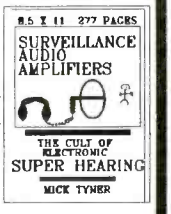

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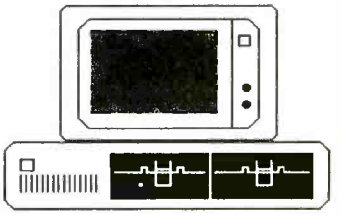

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It was sloppy, noisy and inaccurate. And I loved it. It was the greatest radio ever built.

had never heard of bandspread. Between the big dials was stenciled in white letters: "Explor-Air." Four knobs marked "antenna." And what's "RF gain?" This was the weirdest, coolest thing I had ever found in my possession. But where did it come from? It was sitting in the bottom of my closet behind old shoes. For how long?

My closet nemesis was quickly forgotten. "Mom, Mom, where did this come from?" I yelled, clutching the Explor-Air and running toward the roar of the Kirby. She saw my mouth moving and assumed I had some important business. She toed the Kirby and waited for the monster to grind to a halt.

"What?" asked Mom.

"This radio thing. Where did it come from?" I replied, displaying the Explor-Air.

"From your room, by the looks of it."

"Yeah, but . . . ."

"Is it yours?"

"I guess. I dunno."

"It was in your room, right?"

"Yeah."

"Well, then it must be yours. You better get that closet done. I'm coming in there to check on you." She was finished with this little exchange and gave the Kirby her toe to restart its gargantuan engine.

I returned to the closet before the Kirby had reached top speed. I sped through the rest of the job, dying to plug in the box to see what it would do. What a find! I finished my chore trying to imagine where the box came from. I must have gotten it with a load of old clothes and shoes from one of my cousins. I picked up the clothes from the pile and hung them up, silently thanking each cousin for his thoughtful donations. I straightened out the shoes and filled a brown bag with stuff for Goodwill. I was finished. In record time. Now, plug in the Explor-Air.

Man, what a Saturday.

I plugged it in, half expecting a shower of sparks and flames. Okay. It's in, safely. Now, switch it on.

Click. I heard noises coming from inside the box. Not radio noises but physical noises. Tiny clicks, like metal heating. Then the smell. The unforgettable smell of old dusty vacuum tubes warming up for the first time in 10 years.

At the time I was not so sentimental about that smell. In fact, I considered yanking the plug to prevent the thing from burning up. Then the smell sort of subsided, or maybe my nose just got used to it.

Then, nothing.

I turned up all the knobs. Of course I couldn't turn up the "antenna" knob since it just spun and spun without beginning or end.

Then I turned the big dials. Nothing. I clicked the band switch. Nothing but a lot of dirty-contact noise. Damn. All that excitement for nothing. I hadn't given up, however, and continued to tweak. Suddenly, some music. I didn't know where I had tuned the thing since I had no way of knowing how to read the dial. Then an announcer. A familiar voice. It was Phil Allen on WBUD, 1260 AM. Wait a minute. WBUD was about half a mile from my bedroom. Again disappointment. The thing wouldn't hear any more than my crystal radio.

The Explor-Air nagged me as I thought about it. It did not seem right. If it heard WBUD, then it should at least hear WFIL, WIP and other Philadelphia stations. Maybe even WOR and WABC in New York. I tweaked. No soap. I tweaked again. As I twisted the "antenna" knob, I was struck by lightning inspiration for a 12 year old.

My crystal radio experience told me I could not even hear WBUD without an antenna. I turned the Explor-Air around and peered at the back. Hey, those light bulb things are lit up. Just faintly, kind of red. Cool. Very cool.

I scanned the back panel and saw a black plastic protrusion. Next to it, stamped in the tinplate, ANTENNA.

I scoured my room for — what? What kind of antenna did the Explor-Air want? I had to make a decision. Not difficult considering that I had little more than scraps of wire in my room. "A scrap of wire," I proclaimed to the little green box. "You shall receive a scrap of wire." After all, a scrap of wire always worked for the crystal set.

I stripped the end of the first scrap of wire I scrounged, with my teeth of course, and stuck it in the hole surrounded by black plastic, forgetting I had tweaked the volume to full.

The Explor-Air screamed and so did I. I wasn't sure what to do at first, so I pulled the wire out of its hole. Silence. I turned down the volume and stuck the wire back in.

I turned up the volume and heard, for the first time in my life, that whistling, hissing, rushing sound that fills the space between stations on shortwave bands.

I tweaked and clicked. Suddenly from the noise came a voice. In some foreign language. WOW! Very, very cool. I tweaked some more, and heard more voices. Many languages. Then, one in English. A man. He sounded as though he was a million miles away. Inside a big coffee can. I listened. He was talking about I don't know what. Goods. Economy. Stuff I didn't understand. Then: "You are tuned to the North American Service of Radio Moscow."

What? Moscow, like Russia? USSR? CCCP? The Reds? I was aghast. Amazed. Astonished. A very excited 12 year old.

The Explor-Air was a miracle of modern science. Russia. Right in my bedroom in Trenton, N.J.

I would spend hours to come with that little green box. It was an abysmal radio, but I thought it was the cat's meow. Later, when I learned the difference between a megacycle and a kilocycle, I realized you couldn't really tune the Explor-Air since the tuning knobs had no stops. The dial was marked in 180 degrees and the dials rotated 360. I could pull the knobs off and replace them in a different position. I listened to WWV and CHU all the time, but didn't know I could use them to calibrate the rig.

It was sloppy, noisy and inaccurate. It tuned WBUD everywhere on all bands. And I loved it. It was the greatest radio ever built.

I was hooked.

My love of radio is ceaseless. I'm a writer now, but I can attribute at least part of my career to the Explore-Air, since I started my career writing — in radio. I studied radio in college and started out as a news director in a small market station, writing my news and reading it on the air. It was a gas.

Of course, I'm still hooked. I collect vacuum tube receivers the way some people collect stamps, much to wife's bewildered amusement.

And most of them run on a scrap of wire.

Some things never change.

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Starting A Local Radio Monitoring Club

(Some tips to help you along)

By Wayne Heinen

Many readers have written letters to *MT* with a request to publish their name and address so that other radio hobbyists in their area can contact them. Radio monitoring, be it shortwave, scanning or broadcast band, just seems to be more fun when it's shared with others. *MT* is a great vehicle, but wouldn't it be great to have friends locally to share the hobby with? Here's what some of us tried in the Denver area. For us, it works.

Ron Downing, Rodney Johnson, Rob Harrington and myself actually started the club. Over the years Rob had gleaned names and addresses of area hobbyists from many DX club bulletins and publications. Occasionally, a gathering was held at someone's home. Out of these gatherings Rocky Mountain Radio Listeners was formed in late 1985.

No one in the group wanted to see a dues-oriented club. Dues would mean bookkeeping, a bank account and headaches for at least one of us. What we needed was a sponsor. We found a local radio dealer who showed enthusiasm and interest in our idea. We would prepare a newsletter and he would pay for the printing and postage. The newsletter contained information on the club and our sponsor's advertising.

We found two cooperative libraries, one on each side of metropolitan Denver. Many libraries have meeting rooms and will make them available to hobby groups for free or for a nominal fee. At the time, both libraries offered the rooms free of charge. We scheduled our first meeting and mailed our first newsletter. Fifteen people attended.

We began scheduling monthly meetings on the third Saturday in the west and the third Sunday in the east. The monthly newsletters were sponsored for three months when our first pitfall was encountered. The dealer who had been very optimistic lost interest in the venture. Evidently he expected to sell lots of radios to this new-found clientele and when the sales didn't meet his expectations, he withdrew his financial support.

Tip Number One: *Be realistic in your expectations.*

A monthly newsletter is going to be too expensive for any sponsor of a local club. A calendar of the meetings for the remainder of 1986 was mailed out. The printing and postage was around $35. It was paid for by a few of us who wanted to keep our club going.

The following year we approached another local radio-oriented business. With our new-found knowledge, we made a deal with Electronic Bits `n' Pieces. This store, located at 1462 Ida St., Aurora, CO 80010, specializes in used equipment, new and used electronic parts and various periodicals. Owner Bub Barber pays for the printing and mailing of our calendar, which also contains advertising for the store. Bud has been our sponsor since 1987.

In our effort to find other radio hobbyists, we sent copies of our calendar to ANARC member clubs, shortwave broadcasters with DX programs and *Monitoring Times*. The cooperation we received from them was excellent. We've received many inquiries that began, "I heard about your club on Glenn Hauser's `World of Radio.'" or "I read about Rocky Mountain Radio Listeners in *Monitoring Times*."

The best way to reach other radio hobbyists is through the groups and businesses that serve them. Our calendar is also posted at Bits `n' Pieces and in a few other radio oriented businesses.

Tip Number Two: *Advertise where hobbyists will find it.*

Getting together with other monitors can add a whole new dimension to your hobby. Present at this meeting of the Rocky Mountain Radio Listeners were from left to right—Standing: Curt Mann, Simon Byrd, Wayne Heinen, Jim Nelson, John Pirnat. Seated: Andy Kovschak, Frank Mezak, Rob Harrington, Les Dickenson. Paul Origlio took the photo.

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Jim Nelson

Our display in the Aurora Central Library was one way of reaching out to the public by making ourselves visible.

Our meetings are open affairs and the interests of those who attend varies from DC to Daylight. We have at least one person representing each area of monitoring that you normally find in an issue of *Monitoring Times*. The meetings are gab sessions where everyone shares the latest news of their particular area of the hobby.

It was at these open free-form meetings that we encountered our second pitfall. We had a gentleman who enjoyed hearing himself talk, regardless of the interest of the others or the accuracy of his information. After only a few months, we noticed newcomers never returned and some of our long-time members stopped attending.

Tip Number Three: *No one can dominate.*

Although we felt sorry for him, we eventually dropped his name from our mailing list and he stopped coming. Our attendance returned to its previous level and meetings were fun again.

Our west side Saturday meetings were discontinued in 1988. Saturday afternoons didn't fit most members' schedules and there wasn't an available Sunday meeting room on that side of town. We ended up with monthly Sunday meetings in Aurora.

Tip Number Four: *Beflexible. If something doesn't work find an alternative that will.*

This was a compromise that cost us a few regular members, but was necessary to keep the club intact and eliminate meetings that few attended. We found, if only a few people showed up for a meeting., it was hard to generate any excitement or increase the attendance.

The Aurora Central Library meeting room was free until this year. Due to Aurora City budget constraints, we were asked to either pay rent or make some kind of donation to the library. After negotiations with the library's meeting services coordinator, who was very helpful, the club agreed to donate $1 per member per meeting. This arrangement allows us to avoid dues and the attendant headaches while continuing to use the facility.

Tip number five: *Negotiate with your facility.*

Some members made jokes, some wanted to go elsewhere, and some may have been legitimately upset about the fact that money would have to change hands. But in the end, we were able to keep meeting without an extensive search for a new location.

Keeping your local club going after its initial meetings does require some volunteer effort. The mailing list must be entered and maintained on computer. Someone has to negotiate with the library for the use of the facilities; and the yearly calendar must be prepared for printing.

One of the newer members thought that it would be nice if we could go see Denver's FAA Air Traffic Control Center and he arranged for a tour. As new members became comfortable with the club, they began to volunteer ideas and time to help make the organization better. We're now planning a tour of the new City of Aurora Police and Fire dispatch. These kinds of activities create an atmosphere that encourages more people to volunteer to do more things, and the fun multiplies.

Tip Number Six: *Keep it interesting.*

Recently, several of us volunteered to fill the library's display case with a display on radio monitoring. We wrote articles on our favorite areas of the hobby and gathered items to display. One member let us use some of his standby equipment, Al's Electronics of Brighton lent us a DX-440, and Electronic Bits 'n' Pieces gave us books and copies of *Monitoring Times*. The library appreciated the display and we hope their patrons enjoyed the glimpse into our hobby.

Tip Number Seven: *Involve your members and reach out to the public.*

The support of various organizations is important in maintaining your no-dues club.

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Tip Number Eight: *Remember to say thanks.*

This can be by letter, certificate of appreciation or in person. Rocky Mountain Radio Listeners thanks those at Monitoring Times and Glenn Hauser's "World of Radio," the ANARC member clubs, our calendar sponsor Electronic Bits 'n' Pieces and our meeting facility, the City of Aurora Central Library. Without their support we would no longer exist. When you start your club keep in mind the national and local support that is out there and remember to publicly thank them at every opportunity.

Rocky Mountain Radio Listeners has been meeting regularly since 1985. I have made new friends and have been exposed to many other aspects of radio monitoring that I may otherwise never have explored. When we started the club, I was almost exclusively a broadcast band DXer. Now, I listen regularly to world-band broadcasts and have a scanner to monitor my local public safety bands.

Tip Number Nine: *Have fun with your club.*

Hopefully, our experience with Rocky Mountain Radio Listeners will give you some ideas on how you can form your own local radio monitoring club.

mt

Editor's Note:

Over the years compliments from *MT* readers have invariably ended with the words, "the only way *MT* could get any better is by coming out twice a month!"

That's not going to happen, but you have the equivalent of an issue of *MT* right within your own neighborhood. At a monthly meeting of fellow enthusiasts, there is a wealth of information on local frequencies, reception conditions from your locale, experienced advice on equipment—all specifically geared to your region. Especially if you're a beginner, comparing notes with others can be invaluable, and there's nothing like talking to someone face-to-face. Why else do you think we started the *MT* Convention?!

To find a local group, turn to our new "Club Circuit" on page 108. If there's no club listed for your area, why not start one?

1992
Rocky Mountain Radio Listeners

January
12 1300 RMRL Meet

February
9 1300 RMRL Meet

March
15 1300 RMRL Meet

April
19 1300 RMRL Meet

May
17 1300 RMRL Meet

June
21 1300 RMRL Meet

July
19 1300 RMRL Meet

August
16 1300 RMRL Meet

September
20 1300 RMRL Meet

October
18 1300 RMRL Meet

November
15 1300 RMRL Meet

December
20 1300 RMRL Meet

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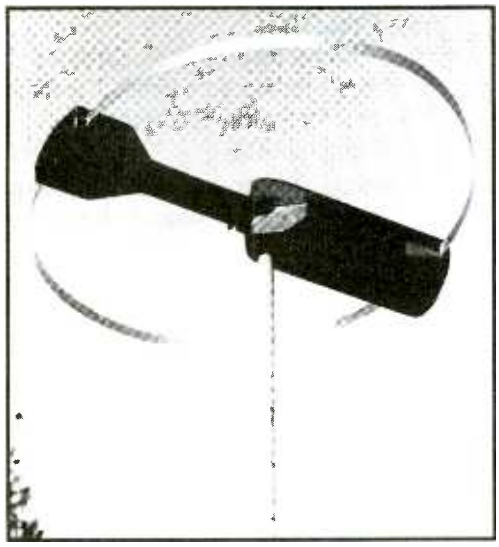

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Magne tests: Realistic DX-350
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Below 500 kHz: Fish net beacons; GWEN delay
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My Shortwave Radio Phase

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One Man's Opinion

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Fed File: Strategic Air Command Shortwave Network
High Seas: VTS and VTM: Managing Ship Traffic
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Satellite TV: Listening to your satellite dish
Ham Bands: Ham goodies; HCJB anniversary Freqs
Outer Limits: Anti-Castro; Liberation Radio; QSLing
Below 500 kHz: Confirming your catch
RTTY: Cape Town RTTY
Magne: Magnavox/Philips AE3205; The Zero Surge
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Satellite TV: Future of satellites
Bandscan: WKDT, West Point
Outer Limits: Radio Tower; Radio Harmony
Magne: Sangean ATS818CS
Scanner Equip: Realistic PRO-37
Demaw: Mobiling with your SW receiver
Workshop: An all-purpose S-meter for any receiver
Antenna: Feeding your receiver a line
Ask Bob Tip: Memory Backup on the AR1000

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Shortwave Broadcasting

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Enid, OK 73702

ALBANIA National domestic service, ex-5057, now regular on new 6100, off a few Hz with a slight het. ITU lists at 0600-1700, and I often hear final hour. Programming much zippier and more westernised than the last time I heard it on SW! (Dave Kernick, England)

AZERBAIJAN Baku still has transmitter problems, wandered away from 4785 and settled on 4673, strong signal but poor modulation with domestic first program (ibid.)

BOTSWANA Radio Botswana heard 1800-2000 on both 4830 and 3355 (not 3356) in parallel (Vashek Korinek, RSA, via Dario Monferini)

First two of four new VOA shortwave transmitters may go into use after December 7, tentative schedule: English 0300-0500 on 7265, 0300-0430 on 11940, 1600-2200 on 15445; other languages: 0430-0500 on 15370, 1630-2300 on 17705. Special QSL will be available only from Washington. Tests on other frequencies may be carried out before this schedule becomes regular. (Dan Ferguson, VOA)

BHUTAN BBS, 5025.0, so good I cannot call it DX any longer, English at 1415 with news, 1420 clear ID, 1430 various music, 1450 fading, 1500 sign-off (Ron Howard, CA, *Fine Tuning*)

BRAZIL New station in Aquidauana, Mato Grosso, is A Voz do Pantanal, 4795.0, heard at 0916-0930, ID again at 0958 (Julian Anderson, Argentina)

CANADA Morale at RCI is at rock-bottom. Aldo Marchini is doing traffic reports on CBC Montreal (Larry Shewchuk, Manitoba, World of Radio) Wojtek Gwiazda is filling out paperwork for freelancers, answering phones (Jackie Poulet, RCI, RFPI Costa Rica) Lobbying efforts continue, however, with some encouraging signs (Gwiazda via Rachel Baughn)

AM source of 6005 in Montreal has new calls and format, CIQC, country (Daryl Rocker, Howard Box, Richard Urenya, Stanley Kolodricki, *W.O.R.*) SW call of CFCX was tied to the former AM call, CFCF, so is there a new official SW ID on the books, or on the hour?

CHINA (non) Voice of China, 15280 via CBS Taiwan at 2100-2200, announces new address, copied through jamming: P.O. Box 11696, Berkeley CA, 94701 (Toru Yamashita, Radio Japan)

COLOMBIA Radio Catolica, 3579.94v, heard 2330-0515 sign-off with two versions of national anthem, one choral, one instrumental; but has Ecuadorian music programs, ads for Ibarra, and *curanderos* (witch doctors); very picturesque and rustic unofficial station; announces 3500. Other pirates at times relaying different legal stations or networks are on 3500, 5530, 5873.54, the latter with relays from Narinyo. La Voz de la Selva, inactive on 6170, heard on 3270.77, third harmonic of mediumwave (Juan Carlos Codina©, Peru, via Dario Monferini)

CUBA (non) La Voz de la Federacion de Ex-Presos Politicos Cubanos, heard again after two months, on 7082.77, UTC Saturday at 0043-0054 (Juan Carlos Codina©, Peru, via Dario Monferini, *W.O.R.*) In mid-October, Radio Miami Internacional resumed heavy schedule of Cuban exile programs via WRNO, now in the 0100-0400 period on 7355; lots of clients including Brigade 2506 and Alpha 66 anticipate the coming collapse of Castro's Cuba.

Gale Reed, head of RHC's English service, says 70% of staff are Americans, 10% Canadians, rest Cuban (Marty Delfin, TX) Reed was profiled on ABC during PanAm Games coverage—came to Cuba in the *Venceremos Brigade*. Remains American, visits parents in Chicago without problems.

RHC's SSB broadcasts a total failure—strong signal but unable to clear up in SSB or AM (Dick Trost, CA) Agreed, 5965 at 0030-0600 often modulated only on audio peaks, extremely annoying; long periods of dead air, presumably during soft music. But now 5965 has replaced 15140 as early as 2300 and may be used in regular a.m.

ECUADOR Radio Juventud-Uno, or Radio-Jota-Uno, La Voz de la Juventud, with same echo-effect jingles as 9 years ago, heard at 2222 on 6501.24 varying to 6501.79 (Juan Carlos Codina, (C), Peru, via Dario Monferini) See also COLOMBIA.

Radio Central, Riobamba, heard on harmonics 2340, 3510, 4680 around 1125; many IDs. Espejo still off 4680. Radio Popular, Cuenca, nominal 4800, a mess on 4774 with bits of modulation, excellent strength at 1159. Radio Centinela del Sur has been staying on 4899, not hopping to 4890, when checked at 1100 (Rich McVicar, HCJB *DX Partyline*)

HCJB has started a regular weekly call-in program, UTC Tuesdays 0130 on 9745, 15155, 21455, *Open Line* with Ken MacHarg; will have different topics and guests. Calls from the US average less than $1 a minute; 011-593-2-241-560 (HCJB)

HCJB will be on the 20, 15 and 10 m ham bands starting Dec. 6 at 2100 for 30 hours to celebrate 60th anniversary, using callsign HC60JB, on 14225, 21300, 28500, with their own antennas and transmitters at reduced power, presumably on USB (ANARC SWL net via Daryl Rocker)

HCJB will be moving their worldwide headquarters from Opa Locka, Florida, to Colorado Springs in June 1992 (Rob Harrington, NONNI, Denver, *SW Echo* via Kirk Baxter)

ESTONIA Radio Estonia, Tallinn, has English Mondays at 2130-2200 on 5925, with new DX program the first week of the month. Also has used 9560 for this service, and plans to add English on Thursdays in 1992 (BBC Monitoring)

GUAM AWR-Asia is adding more Soviet languages. All AWR stations are issuing a 20th anniversary commemorative QSL. DX Asiawaves is heard Saturdays at 1615 on 11980, 2315 on 15610, UTC Sundays 0215 on 13720 (Bill Matthews, Radio Korea) Program is produced by Australian Radio DX Club, additionally on Sundays at 1815 on 13720; and Saturday time is 2330. ARDXC offers its own QSL for this (Bob Padula, *Australian DX News*)

GUIANA FRENCH Swiss PTT is to buid a 500-kW transmitter at RFI's Montsinery site, to be on air by late 1994, when it will replace relays via Brazil and Gabon for SRI (Mick Ogrizek, Holland, *ADXN*)

HONDURAS Radio Miami International's station in Tegucigalpa has been assigned calls HRJA, and allocated 9950 and new 15670 with 1 kW (Marcel Rommerts, DSWCI *SW News*)

HUNGARY Radio Budapest shows 0200-0300 but it really shifted to 0300-0400, on 11910, 9835, and 6110 (or 6100? both are blocked). Concluding each Monday hour, repeated Thursday and Saturday are music features: Dec. 2, *Music and Mozart "Authentick"*; Dec. 9, *Music and the Animators*; Dec. 16, *Music and Eating Out*; Dec. 23,

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Music and the Seasons; Dec. 30, *Music and the Year End* (via John S. Carson, OK)

INDONESIA Mystery intermittent Christian station on 4881 around 0900-1200 is solved! It is Radio Suara Kasih Agung (Voice of the High Friend), in Jayapura, Irian Jaya, which I heard in the early 1970s on 2400 kHz as Suara Kasih (Geoff Cosier, Australia, DSWCI *SW News*)

INTERNATIONAL WATERS Radio Caroline has obtained a licence from a Third World country not in the ITU to operate an international service from the *Ross Revenge*. Bob Geldorf would invest in the project to promote famine relief. Station would then be legal enabling offices and supplies in Britain (Radio Caroline via WDXC *Contact*)

IRAN VIRI began English to North America Oct. 15, 0030-0130 on 15260, 9765, 9022 (BBCM) One evening played nothing but interval signal on 9022 (Joe Hanlon, OR) Another seemed to be open carrier, and when modulated unreadable on 9022, blocked on 9765, and of course BBC is on 15260! (gh, OK) Fair with commentary on Palestinians, Koran (Harold Frodge, MI)

(non) Voice of the Mojahed from 0125 music, 0130 sign-on, 4750, 6160, 7150, not even jamming on 4240, 3560; and 8500 dropped. Again from 1530 on 7150, 6150, 5635, 4750, no 8500 or other previous channels, until 1830; down from maximum of 11 transmitters. Keeps shifting + 10 kHz to avoid jamming (Asanta Sirimanne, Sri Lanka, *Union of Asian DXers*)

ISRAEL From Nov. 3, Israel Radio resumed English news at 0500 but only on 11588; also at 1100-1130 only on 17545; the 1800 and 2000 broadcasts to Africa on 17575, at the expense of Asia and Pacific, no longer targeted; "damage repair" (IBA and via Joe Hanlon, PA)

LATVIA Latvian Radio, Riga, English is Saturday 1830-1900, repeated Sunday 0700-0730; also has weekday English/German at 2130-2140, all on 5935 (BBCM)

LITHUANIA Radio Vilnius, 0000-0030 on 17690, 17605, 15180, 9710, 7400 (BBCM)

MOZAMBIQUE (non?) Last active 7-1/2 years ago as Voice of Free Africa on 62 meters, clandestine Voice of RENAMO is now heard on 9990 at 1500-1600 and 0500-0530 in Portuguese and Chissena (BBCM via RNMN)

NEW ZEALAND Contrary to expectations of listeners and some programmers, RNZI did not shift its external programs one hour earlier by UTC for local summer time, so *Mailbox* stayed alternate Mondays 0430; *Calling Pitcairn/Norfolk, Tokelau, Around the World* with Rudi Hill rotating 4-weekly Fridays at 0430 on 17770. Tony King kept promoting his February two-week guided tour of NZ including radio facilities, but never gave the price on the air; brochure reveals it's US$3157 including airfare from Los Angeles, plus a $540 penalty for those travelling single (*W.O.R.*)

OMAN Caution with Arabics on 17725; Libya signs on around 1115, but before then Oman is heard on both 17725 and 17735 (Dave Kernick, Caversham, England, *W.O.R.*)

PERU 3800.28, Radio Oyon, usually heard mornings 1100-1200, once in two months at 2338-2359.

4140.93, Radio Gran Pajaten normally here in evenings; for two days was on 4555 instead.

4438.00, varying + 30 Hz, Radio Lider, town unknown in Cuzco area, could be harmonic, 2200-0200.

4553.30 varying to 4553.60, Radio Uno, Huanuco at 2330-2350; next day 1130-1200 around 4545; formerly on 4370.

5269.55, Radio Ruder, new station at 2344-0400, in province of San Ignacio de Cajamarca, town sounds like Chinchas, mentions it's on Ecuadorian border. A few days later on 5269.68 from 0000 past 0030, conflicting with next station...

5271.77, Radio Nororiental, Rodriguez de Mendoza, big carrier but weak modulation, opening at 2355, echo-effect ID claims "6570," went off at 0026, perhaps letting Ruder know the frequency is occupied.

5361.15, Radio Jauja, 4th harmonic around 1200.

5619.29, Radio Ilucan, Cutervo, very rarely active, heard with mass on a Sunday at 1200, but not the following week.

6599.38, Raido Futura, 0030-0200 on a UTC Friday and said would be back next week. (Juan Carlos Codina©, Lima, Peru, via Dario Monferini, *W.O.R.*)

POLAND Last active 7-1/2 years ago, Pathfinders station is back on 7205 until 1700 (BBCM via RNMN)

QATAR Doha on 21555.6 at 0707-1707, 11910.7 at 1707-2130 (Wolfgang Bueschel, Germany, DSWCI *SW News*) Always notable by the heterodyne (Noel Green, *DSWCI* Ed.)

RUSSIA Radiostudiya Dvizheniye (Traffic Radio Studio) is a new station in Yekaterinburg (formerly Sverdlovsk), from morning until 1300 on 9695 (RMWS via BBCM) Was 0530-0700 on 9695, but to have been replaced by 9670, 7200 or 6090 (Fyodor Brazhnikov, Irkutsk, via Jorma Mantyla, Finland, SW Echo via Kirk Baxter)

Radio DVR (Far East Russia) not heard since Oct. 8 on 4060, 5965, 9560, but doubt it is closed, as planned to install 100 kW transmitter (S. Aoki and Y. Kato, Radio Japan)

Radio Moscow in French at 1700 on 29680, not an image; my only guess is the 4th harmonic of 7420 (Mike Schulsinger, OH)

Radio Vedo, 13710, 1810-1901 in Russian, English and French (Hans Johnson, MD)

Radio Tikhly Okean, 7490 apparently reactivated, tentatively at Birobidzhan, heard several nights around 0800-1100 with drama, comedy, light music (Harold Frodge, HI)

Raido Alla, new private station sprang up in St. Petersburg, with traditional folk music, 0730-1600 on 7400, 1630-0700 on 5040, 0700-1200 on 11925, 1200-1500 on 11920, 1530-0700 on 6055 (BBCM) Heard much better than Tbilisi on 5040, 0045 (Dave Kernick, Caversham) The 7400 transmitter is in St. Pete, the rest in Kaliningrad (Radio Sweden *Mediascan*) Named for folksinger Alla Pugachova. Studios are in Moscow at the Gosteleradio address, Pyatnitskaya 25. Except for 7400, transmitters are at Kalilin, near Moscow (Andrei Nekrasov via Dario Monferini) Not to be confused with the Russian enclave west of Lithuania, Kaliningrad, which some consider a separate radio country.

DX LISTENING DIGEST
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New Deutsche Welle relays via Russia monitored: English 0200-0250 on 17620, 1600-1650 on 9875. Pashto 0300-0350 on 17620, Dari 0800-0850 on same. Urdu 1430-1515 and Hindi 1515-1600 on 9875. German 1000-1400 on 11730, 2200-2400 on 9885. Japanese 1100-1150 on 15560. The last one is a regular Radio Moscow frequency via Irkutsk. Chinese 1200-1320 on 15525 from Novosibirsk, surrounded by Radio Moscow Korean service (S. Aoki and T. Yamashita, Radio Japan) Also heard in German at 1400-1800 on 11655 (Don Rhodes, *ADXN*)

RWANDA RRR plans to get a 100 kW Swiss SW transmitter to cover Africa/Mideast with two channels (Reuter via *DX Partyline*)

SARAWAK Raido Kuching, Malaysia, not found in *MT* logs, but on 4950 at 1330 in native language, 1400-1430 local and world news in English, heard several times since July (Dennis Harrington, CA)

SOUTH AFRICA Radio RSA has an interesting program, *The Editors*, roundtable discussion with journalists from local and foreign media, Sundays at 1630 on 15270; one was about right wing hit squads (Larry Shewchuk, Manitoba, *W.O.R.*)

SWEDEN Nomenclature news: Radio Sweden's magazine program is now called *60 Degrees North*. The moose mascot is Gustafsson. *Sweden Calling DXers* has become *MediaScan*. The new one-hour English program at 1930 on 15270, 9655, 6065, seems to be the first show of the program day, which means that *MediaScan* repeats run into UTC Wednesday at 1345 on 17740, 21570, and 1545 on 17870 and 21500, where *SCDX* formerly appeared on first and third Tuesdays. Plans were for additional *MediaScans* to appear only during the second half of the 1930 broadcast on other Tuesdays, but it also shows sometimes on the half-hour repeats.

TAIWAN (non?) Voice of Taiwan, clandestine, heard on 9990 Oct. 23 at 1305 in Japanese, 1322-1333 in English, music until 1353; 1400 in Chinese dialect--Amoy?, 1434 Chinese, 1500 Japanese, 1525-1600 English repeating previous day's transmission. Strongly opposes ruling KMT (or GMD) party and some policies of the Democratic Progressive Party. Seems to be run by Taiwan local people, who have had huge fund-raising campaign for two years; already had TV station Voice of Democracy; anticipated arrest at any time. Announced address, and fax (886) 2-522-2080 (S. Aoki, T. Kondo, T. Yamashita, Asian Broadcasting Institute, R. Japan)

UGANDA Letter from Yona Hamala says Radio Uganda will soon resume U.S. service on 15250 with 250 kW, 20 db gain antenna (Sheryl Paszkiewicz, WI, *Fine Tuning*) Years ago it was at 0300 on 15325 in English.

UKRAINE Radio Lugansk, 7240 at 0510-0600 with local programs; at other times relays Moscow foreign service or Ukraine national services (Soviet correspondent via *DXPL* via *DX Ontario*)

Radio Nezalezhnist (Independence) has been broadcasting from Lvov since Sept. 18, 1600-1800 on 11825, and planned to add 5980; initially Wednesdays and Thursdays, later daily. Address is Ulitsa Vatutina 6, Lvov 290 005 (RMWS via BBCM) Name is Nezavennost (Fyodor Brashnikov, Irkutsk, via Jorma Mantyla, Finland, SW Echo via Kirk Baxter)

Second Republican program of Ukrainian Radio is 24 hours on 9560, 9720, 9785, 4940 (*ibid.*)

UNITED ARAB EMIRATES UAE Radio, Abu Dhabi, announced for English it would resume summer frequencies in winter, 13605, 15305, 17855, at 2200-2400 (Mrs. Leslie Edwards, PA, *W.O.R.*)

UNITED KINGDOM After intense lobbying by the Foreign Office, BBC separated its Serbian and Croatian services (*Daily Telegraph* via Max White and Jack Fitzsimmons, WDXC *Contact*) BBC will add Ukrainian service next year (TASS via BBCM! and *European Journal* via Terry Powers, CA) Plagued by interference on 15205, BBC's morning Antigua relay tried 17745, and then 17840 at least from 1430 to 1615.

UNITED STATES Your columnist conveys lots more news of shortwave and other media on *World of Radio*, now scheduled on WWCR: Fridays 2300 UTC on 12160, UTC Sundays 0405 on 7435; and on WRNO: UTC Sundays 0030 on 7355, 2130 on 15420; also up to 16 times a week on RFPI, Costa Rica, and on *Let's Talk Radio* via satellite--see last month.

W.O.R. is not scripted, but non-stop information; following it Saturday night on WWCR at 0435 UTC Sunday is *Signals*, concentrating on media other than SWBC, with regular phone-in contributors, commercials, lots of jingles and production; yet another approach on *Crossband* at 0530, a live show with call-ins; when it started, Steve Cole said it was experimental, at least until Dec. 7.

WWCR replaced 7520 with 7490 evenings and overnight, mostly for Dr. Gene Scott, especially weekends; and planned to shift 17525 to 17535 daytime to avoid Greece. Unhappy with breakdowns of transmitter No. 2, a Harris, WWCR was considering going Continenal for No. 3, not yet under construction, but frequencies approved for it are 5935, 9370. Whether on the same or different bands, the two transmitters have produced 2B-A or 2A-B mixing products heard by Alan Roberts, PQ in *CIDX Messenger*.

Impressed with the increased audience for *Prayerline*, weeknights at 0050 on WWCR 7435, its orignators in Upton, KY plan their own shortwave station, Worldwide Gospel Radio. FCC has already granted a construction permit at the site of their FM station WJCR, 90.1, SE of Millerstown, KY. Plans to convert two old 50 kW RCA AM transmitters, not a good idea as brand-new SW transmitters have enough problems; and use two corner-reflectors aimed 40 and 150 degrees (George McClintock, WWCR, *World of Radio*)

Eternal Word Television Network got a SW CP in September; four 500 kW Continentals in Alabama will feed eight TCI 611 curtains; to launch first quarter of 1993, 18-20 hours per day in 20 languages (Matt Scalici, EWTN)

VOA Chinese audible under CPBS-1 jamming on new 12040 (Bruce MacGibbon and Joe Hanlon, OR) Yes, VOA in a frequency range not used before, scheduled 1100-1700 via Philippines 250 kW parallel to 11965 (via Dan Ferguson, VOA)

VATICAN VR's new frequency turned out to be 5895 instead of the planned 5935 (BBCM)

VENEZUELA Exiled Haitian president Aristide made some broadcasts via Radio Nacional Venezuela, mid-October in English, Spanish, French, Creole for Haiti, during regular transmissions on 9540. Unconfirmed press reports say other Venezuelan transmitters would carry his clandestine broadcasts (Marty Delfin, RNV, *W.O.R.*)

Surprised to hear Radio Rumbos, 4970, in French before closing at 0504 (Bill Oxner, TX, *SW Echo* via Kirk Baxter)

A new government policy: to occupy as many SW frequencies as possible. Every Venezuelan who wants to start a SW station will get his SW license very soon and the MW license is added as a present. If somebody only wants a MW license, there is a waiting list (Marcel Rommerts, Holland, DSWCI *SW News*)

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Broadcast Loggings

Thanks to our contributors -- Have you sent in YOUR logs?
Send to ***Gayle Van Horn,*** *c/o Monitoring Times.*
English broadcast unless otherwise noted.

0000 UTC on 11735
YUGOSLAVIA: Radio Yugoslavia. Sign-on into news and commentary on the Baltics."DX Program" to interval signal and sign-off at 0043 UTC. (John Carson, Norman, OK) (Robert Tucker, Savannah, GA)

0012 UTC on 9675
BRAZIL: Radio Cancao Nova. Portuguese. Excellent signal for Brazilian music, station ID/frequency quote and station address. Additional Brazilian stations include Radio Anhaguera on 0046 UTC on 11.830 kHz and Radio Universo at 0050 UTC on 9.565 kHz. (Oleg Shevelyou, USSR)

0020 UTC on 17705
CHINA: Radio Beijing. National newscast with good signal quality. "Listeners' Letterbox" audible on 11.685 kHz at 0450 UTC. (Carson, OK) Regional news and "Sports Scene" and chat on women's role in China. (Cralg Young, Okinawa, Japan)

0040 UTC on 15155
ECUADOR: HCJB. "DX Partyline" to newscast at 0040 UTC. Additional programming audible noted, 0035 UTC on 9.745 kHz, 0125 UTC on 21455 USB, 0239 UTC on 15.155/9.745 kHz. Excellent signal quality on 9.745 kHz at 0755 UTC. (Harold Bower, Sunbury, PA) (Bob Fraser, Cohasset, MA) (Tucker, GA)

0106 UTC on 7345
CZECHOSLOVAKIA: Radio Prague International. News and commentary on German policy toward Sudeten Germans. DX show at 0114 UTC and report on ballooning for tourists. (Tucker, GA) Audible on 7.345 kHz from 0315-0330 UTC. (Carson, OK)

0132 UTC on 9942
CLANDESTINE: La Voz del CID. Spanish. IDs and commentary. (Shevelyou, USSR) Anti-Castro talk with music on 7.340 kHz at 0202 UTC. Signal fade-out at 0253 UTC. (Tucker, GA)

0143 UTC on 7130
GERMANY: Deutsche Welle. Religious service with choral music to newscast at 0150 UTC. Additional programming heard on 9.545 kHz at 0323 UTC and 9.670 kHz at 0518 UTC. (Carson, OK) (Wright, MS)

0145 UTC on 5960
JAPAN: Radio Japan. "DX Corner" show on pirate radio. (Cralg Young, Okinawa, Japan) "Report From Asia" heard on 21.610 kHz at 0515 UTC. (Witham, HI) Radio Japan's Gabon relay noted on 11.735 kHz at 2340 UTC. (Shevelyou, USSR) (Carson, OK)

0159 UTC on 9570
ROMANIA: Radio Romania International. Interval signal and sign-on into newscast and commentary. Sign-on also noted at 0258 UTC on 11.940 kHz monitored *to* 0400 UTC. Discussion on Yugoslavia heard on 9.570 kHz at 0400 UTC. (Carson, OK)

0200 UTC on 11910
HUNGARY: Radio Budapest. Newscast, press review. "DX World" and tourist feature. (Carson, OK)

0208 UTC on 6085
GERMANY: Bayerischer Rundfunk. German. German folk tunes and Paul Anka's "Diana" in English. (Tucker, GA)

0245 UTC on 4920
ECUADOR: Radio Quito. Spanish. Latin folk tunes and frequent IDs. Good signal quality audible to 0330 UTC. (Dave Frenz, Milwaukee, WI)

0300 UTC on 11920
SOUTH AFRICA: Radio RSA. Sign-on national anthem into newscast. (Wright, MS) Additional monitoring with excellent signal quality at 0400 UTC on 11.860 kHz. Station IDs, news and music tunes. (Scott Billingsley, Camden, AR) English/Swahili service heard on 15.365 kHz at 1350 UTC. (Jack Davis, Birmingham, AL)

0320 UTC on 6135
SWITZERLAND: Red Cross Broadcasting Service. Program on the ICRC's relief efforts in Kuwait, Iraq and Colombia. (Tucker, GA)

0335 UTC on 5061
ANGOLA: Er do Huambo (tentative). Indigenous/Portuguese. Long-winded dialogue to 0350 UTC. Continued text until program sign-off and national anthem at 0404 UTC. (Jerry Witham, Keaau, HI)

0430 UTC on 7481
ETHIOPIA: Clandestine-Voice of the Tigray (tentative). Tribal style African music and chanting to radio drama at 0440 UTC. Sign-off without recognizable identification at 0458 UTC. Signal suffered from carrier drift and low modulation. (Witham, HI)

0430 UTC on 17770
NEW ZEALAND: Radio New Zealand. "Tagata Atu Motu" Pacific Islands magazine feature. Discussion on child abuse in the Pacific islands. (Tucker, GA) Audible on 9.700 kHz at 1207 UTC. (Young, Japan) (Carson, OK)

0445 UTC on 7255
NIGERIA: Voice of Nigeria. Interval signal and sign-on with ID and schedule. "Morning Flight" program of music and discussion of Nigeria resuming diplomatic relations with Iraq. (Tucker, GA) Audible on this frequency to 0550 UTC which included sports report and news review. (Carson, OK)

0449 UTC on 3270
NAMIBIA: Namibian Broadcasting Corporation. National and local news to classic rock tunes. Parallel frequency 3.270 kHz slightly weaker. (Frenz, WI) News, IDs and African music heard on 3.270 kHz at 1945 UTC. (Shevelyou, USSR)

0504 UTC on 4850
CAMEROON: CRTV-Yaounde. National and local news. Music variety of jazz and 60s folk tunes. (Frenz, WI)

0510 UTC on 3390
BOLIVIA: Radio Camargo. Spanish. Male DJ playing typical eastern Bolivian music. "Radio Disaurus de Chuquisarn des do Cuita de Camargo de Bolivia de Sud America" ID at 0530 UTC. Announcer then spoke of a festival which accounts for the station's extended programming. (*Special thanks to Chuck Boehnke for his assistance on this log.*) (Witham, HI)

0510 UTC on 5097
PERU: Radio Eco. Spanish. South American music with brief DJ's chatter. "Radio Eco" ID at 0515 UTC, repeated with echo effect at 0525 UTC. Poor signal copy. (Witham, HI)

0600 UTC on 9765
MALTA: Voice of the Mediterranean. Hostess Monica presents a program variety of text on volcanos, music and Maltese poetry and legends. (Frenz, WI)

0619 UTC on 7105
CONGO: RDTV-Congolalse. French. News and reggae music. English lesson prompt at 0630 UTC. Good signal on parallel frequency 9.610 kHz audible. (Frenz, WI)

0640 UTC on 17565
SWITZERLAND: Radio Swiss International. "Dateline" show with commentary and current world topics. Station ID at 0657 and musical interlude to Italian service at 0700 UTC. (Witham, HI)

1115 UTC on 9977/11335
NORTH KOREA: Radio Pyongyang. Usual communist diatribe of the young people's responsibility to keep the country clean. Plans included for planting flowers and the end of litter. The announcer proclaimed this latest national economic plan should be followed no matter how difficult. (Young, Japan) South Korea's Radio Korea, heard on 15.575 kHz at 1650 UTC. (Wright, MS) Russian service noted on 5.975 kHz at 1916 UTC. Shevelyou, USSR)

1212 UTC on 9725
COSTA RICA: AWR-Costa Rica. Music and religious programming. (Tucker, GA) (Fraser, MA) Religious "Your Story Hour" and "Costa Rica Today" heard on 9.725 kHz at 2355 audible to 0035 UTC. (Carson, OK)

1226 UTC on 15010
VIETNAM: Voice of Vietnam. Japanese. Traditional Vietnam music and talk. English service at 1230 UTC. (Young, Japan) Audible at 1230 UTC on 15.009 kHz. (Tucker, GA) Monitoring continued on this frequency to 1345 UTC. (Wright, MS)

1238 UTC on 7445
TAIWAN: Voice of Asia. Indonesian. Kenny Roger's music and talk. (Young, Japan) Voice of Free China via WYFR audible on 17.750 kHz at 2230 UTC. (Carson, OK) (Bower, PA) (Wright, MS) Indonesian service heard on 7.445 kHz at 1500 UTC with talk, news and music. (Shevelyou, USSR)

1255 UTC on 6055
JAPAN: Radio Tanpa. Japanese. Regional and world news at 1300 UTC. (Young, Japan) Also heard on 3.925 kHz at 1428 UTC. (Shevelyou, USSR)

1300 UTC on 11865
PHILIPPINES: FEBC. International news on India and the USSR. Additional headlines at 1330 UTC. (Scott Billingsley, Camden, AR)

1328 UTC on 9710
AUSTRALIA: Radio Australia. Pop music and show "Whole Lotta Things To Sing About." (Young, Japan) Additional monitoring on the following: 17.795 kHz at 0400 UTC, 15.160 kHz at 0510 UTC, 11.720 kHz at 1200 UTC. (Carson, OK) (Wright, MS)

1347 UTC on 13675
UNITED ARAB EMIRATES: UAE Radio-Dubai. Medical field in the Arabic countries discussed. (Carson, OK) Classical music and ID at 1629 UTC on 21.605 kHz. (Tucker, GA)

1501 UTC on 15355
NORWAY: Radio Norway. News and IDs audible with good signal quality. (Tucker, GA) Interview with foreign minister on 21.705.5 kHz at 2200 UTC. (Frenz, WI)

1545 UTC on 3355
INDIA: All India Radio. International news read by the features editor of "India Today." Editorial on the continued world wide tensions over Iraq. Music to station ID at 1600 UTC. (Witham, HI) *Special thanks to Jerry and his colleagues at Puna DX Club.-ed.*

1937 UTC on 15770
ICELAND: Icelandic National Broadcasting Service. Icelandic. Talk into newscast, suffering from static and weak signal. (Tucker, GA) (Wright, MS)

2030 UTC on 13700
NETHERLANDS: Radio Netherlands. "Happy Station" with live listener phone-ins. (Fraser, MA) Heard on 6.020 kHz at 0055 UTC. (Carson, OK)

2130 UTC on 15690
UNITED STATES: WWCR. Religious programming with good signal quality. Additional monitoring on 7.520 kHz at 0130 UTC. (Carson, OK) Interview with editor of UFO magazine and Radio Network news on the half-hour. (Tucker, GA)

2304 UTC on 7270
POLAND: Radio Poland. National newscast, music program, and "Panorama" show. Good signal for monitoring. (Frenz, WI)

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Utility World

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Well folks, the results are in for the first *MT* Ute World Top 10 Favorite Ute Frequency poll. I would like to thank all of you who contributed to the fun. If you were at the *MT* Knoxville 91 convention, then you have had a preview of this list. For the rest of you, here is the 'Top 10' including the ties:

1.	6761 kHz	SAC channel S-391/Quebec
2.	5696 kHz	Coast Guard Air/Ground channel (nights-pri)
3.	11176 kHz	USAF GCCS channel
4.	8993 kHz	USAF GCCS channel
5.	11246 kHz	USAF GCCS channel
6.	8984 kHz	Coast Guard Air/Ground channel (days-pri)
7.	20193 kHz	NASA Ascension Island MUX channel (Space Shuttle audio)
	11200 kHz	RAF VOLMET
8.	13247 kHz	SAC channel W-109/Mystic Star frequency
9.	9242.2 kHz	AFRTS Broadcast Feeder
	11300 kHz	Africa-3 MWARA
	500 kHz	International Marine Distress channel
10.	6840 kHz	Popular numbers channel
	11243 kHz	SAC channel S-393/Alpha
	13244 kHz	USAF GCCS channel
	2670 kHz	Coast Guard Broadcast channel

The winner of our random drawing from the submissions is a gentleman who lives in the UK. Due to the radio monitoring issue in the UK, we will only refer to our winner as "David." I certainly don't want to get him in trouble by identifying him in this column as a radio listener. Congratulations, David; a print-out of my ute database should be in your hands by now. Thanks to all who contributed to the contest; do you want more of these in the future? Let me know.

New Marine Frequencies in Australia

It was nice to renew friendships at the *MT* convention. A real bonus was to see Mark Hanrahan, a cameraman/communication expert with TV-7 news in Brisbane, and Bob Bell, of Yagoona, NSW, publisher of the *Australian Airband Guide*. As they did last year, Mark and Bob had a package of material on the latest ute action from the land down under.

They passed on to me the new list of marine radiotelephone frequencies in use by Australian marine stations since the WARC-87 conference frequencies took effect on July 1, 1991. Those of you wondering where the Aussie's went on the marine frequencies should consult the following list:

Ship/Shore Frequency Schedule

Station	Call	Channel	Shore	Ship	Schedule
Adelaide Radio	VIA	412	4390	4098	On request
		419	4411	4119	0800-2000
		817	8767	8243	On request
		829	8803	8279	0800-2000
		1227	13155	12308	On request
Brisbane Radio	VIB	404	4366	4074	On request
		412	4390	4098	On request
		415	4399	4107	0600-2000
		829	8803	8279	0600-1800
		1229	13161	12314	0600-1800
Darwin Radio	VID	415	4399	4107	0800-2000
		419	4411	4119	On request
		811	8749	8225	0800-2000
		815	8761	8237	On request
		1227	13155	12308	0800-2000
		1229	13161	12314	On request
		1622	17305	16423	0800-2000
Hobart Radio	VIH	404	4366	4074	0730-1730M-S
					0800-1600Su
Melbourne Radio	VIM	404	4366	4074	0800-2000
		417	8767	8243	On request
		811	8749	8225	0800-2000
		1226	13152	12305	On request
Perth Radio	VIP	404	4366	4074	0600-2200
		415	4399	4107	On request
		806	8734	8210	0600-2200
		811	8749	8225	On request
		815	8761	8237	On request
		1226	13152	12305	0600-2200
		1229	13161	12314	On request
		1604	17251	16369	0600-2200
		1612	17275	16393	On request
		2212	22729	22033	0600-2200
		2228	22777	22081	On request
Rockhampton Radio	VIR	417	4405	4113	0800-1730
Sydney Radio	VIS	405	4369	4077	Continuous
		417	4405	4113	On request
		802	8722	8198	Continuous
		829	8803	8279	On request
		1203	13083	12236	Continuous
		1231	13167	12320	On request
		1602	17245	16363	Continuous
		1610	17269	16387	On request
		1622	17305	16423	On request
		2203	22702	22006	0600-1900
		2223	22762	22066	On request
Townsville Radio	VIT	404	4366	4074	On request
		412	4390	4119	On request
		419	4411	4119	0600-2200
		817	8767	8243	0600-2200
		822	8782	8258	On request
		1203	13083	12236	On request
		1231	13167	12320	0800-1800
		1612	17275	16393	0800-1800

Channels indicated with a time (all times are local Australian times) are available immediately. Ship just have to call on the frequency and the indicated station will answer. Channels indicated as "On Request" are available after initial contact is made on another channel/frequency.

All these channels are full duplex with the ships on one channel and the shore stations on another channel. You will probably hear both types of stations using channel numbers, so I have included those channel numbers in our list.

A tone alert system uses a two-tone signalling system fitted to some mobile HF sets enabling callers to alert shore station operators with audio and visual alarms for prompt assistance. The following marine stations can use the tone alert system: Sydney, Perth, Brisbane, Townsville, Darwin and Melbourne. SELCAL (Selective calling) is available for all suitably equipped ships and land mobile stations using marine frequencies.

There is another set of major services in Australia that can be heard worldwide from time to time. A lot of folks are interested in the Royal Flying Doctor Service, the St. John Ambulance & School of the Air

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Outpost radio stations. Mark and Bob have provided the latest update on these services also:

Station	Call	Royal Flying Doctor Svce	Radiotelephone	School of the Air
Derby	VJB	5300/6945	5300/6945	5650/6925
Port Hedland	VKL	2280/4030/6960	4030/6960	4030/6960
Carnarvon	VJT	2280/4045/6890	4926/6890	4926/5230
Meekatharra	VKJ	2280/4010/6880	4010/6880	4880/5260
Kalgoorlie	VJQ	2656/5260/6825	5360/7550t/8144r	5010
Alice Springs	VJD VZ8BZ	2020/4350/5410/6950	5410/6950	5340/5370/8035
Port Augusta	VNZ	2020/4010/6890/8165	4010/6890/8165	5145/5845
Darwin	VJY	2360/4010/6840/7975(Also St.John Ambulance)		
Katherine	VZ8SK	4860/5731/7340/8014		
Cairns	VJN	2020/2260/5145/7465	4880t/4926r	5300/5865/7357 6866t/6785r
Mount Isa	VJI	2020/5110/6965	4606t/4935r	4800/5445/7803 7475t/7392r
Charleville	VJJ	2020/4980/6845	7307t/7410r	4045/5227/6945
Broken Hill	VJC	2020/4055/6920	4055/6920	4635/5130/7565/8150

The Royal Flying Doctor Service is a fascinating story of aviation, medicine and radio that have been jointly put to work in the service of the people who live and travel in the remote in-land areas of Australia. The service was established at Cloncurry on May 15, 1928, and it provides free medical care to people in remote areas of Australia. The School of the Air (called School of Distance Education in Queensland) provides schools over the radio to students in the Outback and remote areas of Australia. All these services are provided free of charge and the system operates via donations from the public.

USSR Naval Update

M.L. (Gib) Gibson, W7JIE in Renton, Washington, has provided an update of our October feature regarding the Soviet Navy. Gib is a monitor for the IARU (International Amateur Radio Union) checking for non-amateur radio signals in the ham bands.

Gib says that one of his constant signals is "UMS." He says with the help of the field operations bureau of the FCC (Federal Communications Commission) in Washington, DC, the following information regarding "UMS" has been verified.

"UMS" is originated by two different stations. One is located near Murmansk in northern Russia, the other is near Petropavlovsk on the far east coast of Russia. Both stations transmit the same type of traffic, that is, naval traffic using F1B and A1A transmissions. Murmansk is identified by the sending of A1A dots when there is not a traffic transmission. Petropavlovsk just goes silent. The following amateur radio frequencies have been used by "UMS":

21032	Petropavlovsk
21284	Murmansk
14171	Murmansk
14141	Petropavlovsk
18152	Murmansk
7007	Murmansk (Both stations have used this frequency even at the same time, but Murmansk uses it the majority of the time.)

Each station has a definite schedule of frequency utilization depending on the time of day, day of the month, and month of the year.

Gib also provides the following list of intruders to the amateur radio bands heard recently:

CMU967	Cuba	18167
LRO84	Argentina weather FAX	18093
RWB24	Vladisvostok, USSR	18090
'K'	Beacon 'K', USSR	7039
'V'	Beacon Vladisvostok,USSR	7002

Gib says that China sends A1A marker pulses and F1B data burst on: 14058, 15063.7, 14307, and 21427. This station is located near Guangzhou (Canton), China.

Many thanks, Gib, on behalf of all the *MT* Ute World listeners for your continued valuable insight into some of the strange signals we hear on the utility bands.

Russian Maritime Update

New contributor Stewart Todd Morgan from Raleigh, North Carolina, has just passed on some interesting information regarding Soviet third-shift cyrillic transmission he has noted since the WARC-87 band plan took over on July 1, 1991. Todd says that although some Soviet vessels are still using the old frequencies, most of the activity on 8, 12, 16, 22, and 25 MHz has shifted. Todd says that he has not had time to determine the exact boundaries for the new RTTY bands, but the following ranges will give ute enthusiast a good idea where to look:

8 MHz	8385 - 8405 kHz
12 MHz	12555-12575 kHz
16 MHz	16780-16805 kHz
22 MHz	22350-22360 kHz
25 MHz	25190-25205 kHz

Todd has noted some stations in the range of 16705 - 16780 kHz, but not nearly as many as in the band given above. He still doesn't have a handle on the 4 and 6 MHz marine bands. Thanks, Todd, for the input. Now let's see what our veteran Russian ship reporter, Sam Ricks in Philadelphia, Pennsylvania, has to add.

The Soviet SESS spaceflight tracking ship nets have changed frequency, although they seem to have maintained their schedule. The 0305 and 2205 UTC nets, formerly on 8418 kHz, have moved to 8375 kHz. Currently, only the NIS Akademik Sergei Korolev [UISZ] and the NIS Kosmonaut Georgi Dobrovolskiy [UZZV] are at sea. Sam has not yet identified the other two net frequencies.

Sam also mentions that he has noticed a significant drop in scientific expeditions from prior years. Other than daily traffic from the traffic ships and Hydromet weatherships, few 'NIS' ships are operating.

However, recently in the 8 MHz simplex NBDP (Narrow Band Direct Printing) bands, he has picked up strong signals from the NIS Professor Zubov [UMFW] contacting RNO-Moscow, the Soviet Arctic/Antarctic Meteo Center. That ship operated in the Caribbean until October, then returned to Leningrad via Rotterdam.

During one session with RNO, Zubov inquired about their sister ship the NIS Professor Vize, the icebreaker NIL Akademik Fedorov, the Antarctic supply ship NIS Mikhail Somov, and RUZU, the Soviet base at Molodezhnaya, Antarctica. Despite economic conditions within the Soviet Union, the Soviets apparently are still funding their annual Antarctic expedition schedules.

Thanks a bunch, Sam, for that update; as always we look forward to more of your incisive looks at the Soviet maritime scene.

Loggings Update

Helmut Klain over Austria way says that the 18145 logging in the August issue of this column is probably an amateur radio station RA9YD. Helmut's ham call is OE1TRW.

A.L.B. Jansen provides us with a spelling correction to some Dutch place names we had in the June logging column. He is located at Utrecht, Netherlands. They are as follows: PBB-3 Den Helder; PBG-3 Walcheren; PBU-3 Hoek van Holland.

Thanks, to both of you, for the updates. Maybe Gayle and I will get to visit my Dutch homeland someday. But for now, let's check out what else you have been hearing in the Utility World.

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Utility World

Utility Loggings

Abbreviations used in this column

AF-1	Air Force One	LKA	Amphibious Cargo Ship
AFB	Air Force Base	MARS	Military Affiliate Radio System
AFRTS	Armed Forces Radio & Television Service	MHz	Megahertz
AM	Amplitude Modulation	M/T	Motor Tanker
ARQ-E	Single channel ARQ radio teletype system	M/V	Motor Vessel
CANFORCE	Canadian Forces	Nav	Navigation
CAP	Civil Air Patrol	NDB	Non-directional Beacon
CG	Coast Guard	Op	Operator
Comms	Communications	Ops	Operation(s)
COMSTA	Communications Station	QRA	What is the name of your station?
CW	Morse Code	QSY	Change frequency
DEA	Drug Enforcement Agency	RCAF	Royal Canadian Air Force
Dept	Department	RPM	Revolutions Per Minute
DF	Direction Finding	SAC	Strategic Air Command
DXing	Distant station monitoring	SAM	Special Air Mission
ETA	Estimated Time of Arrival	SAR	Search and Rescue
FAA	Federal Aviation Administration	UK	United Kingdom
FAX	Facsimile	Unid	Unidentified
FM	Frequency Modulation	US	United States
GCCS	Global Command and Control	USCG	United States Coast Guard
helo	helicopter	USCGC	United States Coast Guard Cutter
HF	High Frequency	USS	United States Ship
HICOM	High Command	USB	Upper Side Band
ID	Identification	wpm	Words Per Minute
IFE	In Flight Emergency		
KCNA	Korean Central News Agency		

All frequencies in kilohertz (kHz), all times in UTC. All voice transmissions in English unless otherwise noted.

147.3 DDH47-Hamburg Meteo, Germany with coded RTTY weather broadcast at 1845. (Ary Boender-Netherlands)

277.0 ACE-Homer, AK NDB with FAA weather. (Timothy Coucke-Anchor Point, AK) *Welcome to Ute World Tim, nice to hear from Alaska-The Chief.*

317.0 CXO-Unid NDB with an S5 signal. (Coucke-AK) *I have a listing for a CMU on 316 but the location is unknown to this writer-The Chief.*

338.0 CMQ-Anchorage, AK NDB with FAA weather parallel to 277.0. (Coucke-AK)

368.0 DRF-Kenai, AK NDB with Morse ID. (Coucke-AK)

379.0 IWW-Kenai, AK NDB with FAA weather parallel others. (Coucke-AK)

394.0 RWO-Kodiak, AK NDB with FAA weather parallel others. (Coucke-AK)

400.0 AK-King Salmon, AK NDB with Morse ID. (Coucke-AK)

410.0 WIBK-M/V Cherry Valley using CW for DF activities at 1012. UEWE-M/V Gamal Abdul Nasser sending CW 'DE UEWE' at 2135. 3ERX3-M/V Magdang Ilog using CW for DF activites at 1917. (Boender-Netherlands)

418.0 GNF-North Foreland Radio, UK working unid ship with CW at 1922. (Boender-Netherlands)

421.0 PCH-Scheveningen Radio, Netherlands passing new maritime frequencies in CW at 2053. (Boender-Netherlands)

425.0 UFMA-M/V Volga sending a CW message at 0540. TFJX-M/V Saerun in CW at 1954 sailing to Rotterdam for bunkers. UKFG-Unid Soviet vessel calling DAN-Norddeich Radio in CW at 1853. (Boender-Netherlands)

429.0 3EJC5-M/V Star Miranda with CW messages at 1616. OXB-Blaavand Radio, Denmark working an unid ship in CW at 2147. (Boender-Netherlands)

444.0 ATGP-M/V Visdhva Ambar calling DAN in CW at 2050. 3EGG3-M/V Esmeralda 1 working Norddeich Radio in CW at 2108. UJBT-M/V Neva with a message to MORFLOT Copenhagen in CW at 1943. DAN-Norddeich Radio, Germany with a CW nav warning at 2025. (Boender-Netherlands)

447.0 OXJ-Thorshavn Radio, Denmark (Faroer) with a CW traffic list at 0700. (Boender-Netherlands)

450.0 FFB-Boulogne-Sur-Mer Radio in CW with nav warnings at 1925. (Boender-Netherlands)

454.0 UYOQ-M/V Rostov to pilot Hoek v. Holland in CW at 2000. JHRE-M/V Fuyoh Maru calling FFB in CW at 2012. SZVP-M/V Kavo Yerakas calling PCH in CW at 0638. ESRE-M/V Kazis Preikshas requesting a pilot in CW at 1852. UNXR-M/T Kaliningradneft calling PCH in CW at 1155. SVST-M/V Aetos calling PCH in CW at 1900. LLSW3-M/V Berge Duke heard sending CW at 1800. UACU-M/V Varne Miounde requesting a pilot in CW for Flushing at 0752. (Boender-Netherlands)

468.0 SZNA-M/V World Argus sending ETA in CW at Antwerp at 0850. (Boender-Netherlands)

474.0 DAN-Norddeich Radio, Germany with a nav CW warning at 2052. (Boender-Netherlands)

482.0 WSC-Tuckerton Radio, NJ with a CW traffic list at 0225. (Boender-Netherlands)

484.0 ELAX9-M/V Product Trader working Cullercoat Radio in CW at 0525. (Boender-Netherlands)

500.0 ATVA-M/V Vishva Pallav calling GNF in CW at 2020. (Boender-Netherlands)

512.0 UFEE-M/V Vassia Stabrovskii sending messages in CW at 2105. (Boender-Netherlands)

2614.0 DAN-Norddeich Radio, Germany sending a traffic list in USB at 2050. (Boender-Netherlands)

2716.0 USS Reuben James calling Army Star control at 1150 in USB. (Scott Burke-Tucson, AZ)

3121.0 NMN-USCG COMSTA Portsmouth, VA testing here with CG helo 6002 (HH-60). Also heard on 8984 and 5696, stated that helo was to test HF radio all that evening. (Bill Battles-E. Kingston, NH)

3684.0 FMV-French Naval Station Lyon with an ARQ-E message to RFFIC (Marineyems Paris) at 1956. (Boender, Netherland)

3814.0 FDC-French Air Force Metz with V CW marker at 1928. (Boender-Netherlands)

4185.0 ELAD2-M/V Ira with a CW message to Stratandre London regarding the spum pilot at 2220. (Boender-Netherlands)

4369.0 WLC-Rodgers City Radio, MI working ship "Buckeye" in USB at 0556. WLO-Mobile Radio, AL with Caribbean marine weather in USB at 0500. ('Ranger' Rick Dettmann-Buffalo Grove, IL)

4399.0 Two fishing boats in comms about fishing ops and the weather. One was just in sight of Nantucket., MA and the other off Chatham, MA. In USB at 0105. (Bill Fernandez-MA)

4420.0 WOO-Oceangate Radio, NJ with phone patches in USB to Queen Elizabeth II at 0128. (Dettmann-IL)

5240.0 The now famous "Foghorn" heard at 0219. (Fernandez-MA)

5547.0 Various aircraft working San Francisco Aeradio in USB at 0854 in USB. (Bill Burghardt-Denville, NJ)

5629.0 Yankee November number station heard in AM at 0235. (Fernandez-MA)

5680.0 USCGC Campbell and CANFORCE Rescue 106 with a SAR case comms at 0238 in USB. (Battles-NH)

5690.0 RCAF Lahr, Germany with male operator giving terminal weather forecast/conditions at bases across the UK and west Europe at 0317 in USB. (Fernandez-MA)

5696.0 Papa 33 working COMSTA Miami at 0202 in USB. Requested that Slingshot come up on 5696 due to no-joy on VF & YC channels. Said they know our destination (drug ops). (Battles-NH)

5940.0 Spanish female 4-digit number station in AM at 0400 (Wednesday UTC). (Thomas Mazanec-Maple Heights, OH) *Welcome to Ute World Tom, Hope to see some more of your numbers logs in the future-The Chief.*

6263.0 CBRB-M/V Rubens with an SITOR RTTY message giving ETA at Helsinki at 2022. (Boender-Netherlands)

6510.0 WCM-Withamsville Radio, Ohio working a tug towing a barge in trouble in USB at 0152. (Fernandez-MA) Working various ships in USB around 1844. (Dettmann-IL)

6519.0 USCGC Thetis (WMEC-910) at 0200 with a phone patch via NMG-USCG COMSTA New Orleans, LA. in USB. (Mike Hardester-Jacksonville, NC)

6683.0 AF-1 working Andrews AFB in USB at 1630. (Chuck Snider-Brookline, MA)

6693.0 Merlin 22 working Halifax Military with HF radio check at 2213.(Battles-NH) Russian VOLMET with Russian weather in USB at 0200. Very strong. (Hosegood-UK)

6697.0 Various letter-number-letter stations working each other in USB at 0922. US Navy HICOM. (Burghardt-NJ)

6761.0 Numerous stations over a 2 hour period starting at 0407 in USB here on SAC Quebec/S-391 working each other. Main stations included Tricycle, Override, Sunshine, Pullover, Artbook. (Mike Elder, NSJNN-Highlands, TX) *Welcome to the column Mike, hope you report often-The Chief.* Coho 42 and Crystal discussing a bomb run and the fact that the aircraft had 'taken a hit' on the lower right side of the aircraft, unknown damage, no vibrations. Pilot declined to declare an IFE. In USB at 0231. (Judge Charley Horan-Los Angeles, CA)

6812.0 Air Force One working Andy (Andrews) departing Pease AFB enroute Andrews at 1506 in USB. SAM 29000 also heard up here as standby for 28000 then cleared to Andrews. (Battles-NH)

7445.0 KPA2-Israeli Mossad number station in AM at 0216. (Fernandez-MA) Heard at 0018. (Boender-Netherlands)

7475.0 Endowment and Marigold (EC-135) in comms at 0204 using USB. SAC frequency W-104. (Battles-NH)

7605.0 VLB2-Israeli Mossad station in AM at 0403 mixing with WWCR (7435). (Hardester-NC)

7635.0 Blue Chip 13 (Tennesse CAP) with a roll call of stations around the country at 1230 in USB. (Henry Brown-East Falmouth, MA)

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7703.0 Heard a station (Alabaster?) sending a 76 item EAM at 1947 and again at 2048 in USB. (Goff-Vienna, ME) *Interesting, Bill take note of this one also-The Chief.*

8063.0 German female 5-digit number station in AM at 0514. (Dettmann-IL)

8258.0 "KMI, KMI, KMI This is the Sky Princess, Station Golf Yankee Yankee Papa channel 822. How do you copy?" Heard at 0655 in USB. Who is this? (Kraig S. Black-El Toro, CA) *Kraig, that is GYYP, the cruise liner Sky Princess, calling shore station KMI in Point Reyes, CA for traffic. These channels are full duplex channels for radiotelephone phone patches between ships and shore stations (primarily AT&T in this country). Welcome to the column-The Chief.*

8355.0 LHFC3-M/V Hestia sending SITOR RTTY message about ETA off Falmouth at 1946. (Boender-Netherlands)

8638.5 DAM-Norddeich Radio, Germany with CW marker at 2228. (Fernandez-MA)

8679.0 IQX-Trieste Radio, Italy sending a CW V marker at 1938. (Boender-Netherlands)

8722.0 WOM-Ft. Lauderdale, Fl (AT&T Radio) working the ship Rosemary at 0518 in USB. (Dettmann-IL)

8758.0 WOM-Ft. Lauderdale (AT&T Radio) working "Marie Anne" in USB at 0236. (Dettmann-IL)

8776.0 Many letter-number-letter call signs including some tactical calls (i.e.-Overwork, Sierra Status, etc) at 0915 in USB. Close to Navy HICOM on 8778 but definitely 8776. Heard circuit designator Sierra-Sierra-102-Alpha. Who is this? (Brown-MA) *Henry this is definitely a Navy Hicom. This is the frequency they have apparently settled on after the July 1 Maritime band realignment-The Chief.*

8790.0 WLO-Mobile Radio, AL working Carnival Ecstacy in USB at 0432. WOM-Ft. Lauderdale working Carnival ship Holiday in USB at 0358. (Dettmann-IL)

9030.0 Two male spanish operators DXing Marijuana (oops?). Heard military terms and Washington mentioned several times. Mexican or South American army channel? Heard at 0930 in USB. (Burke-AZ) Wierd log Scott, you win this month's wierd log award-The Chief.

9251.0 English female 5-digit number station in AM at 2201. (Fernandez-MA)

9329.0 Spanish female 5-digit number station in AM at 0500 (Tuesday UTC). (Mazanec-OH)

9334.3 AFRTS broadcast feeder Croughton, UK with program ID then news at 2200. (Fernandez-MA)

10017.0 German female 3/2-digit number station in AM at 0108. (Burghardt-NJ)

10153.0 Unid station sending RTTY 5-figure coded messages at 2037. (Boender-Netherlands)

10322.0 Lab 3 talking to base about construction error. Also mentioned Lab 1 drilling at the summit in 1330. Sounds like Canada Oil/Mineral exploration. (Goff-ME) *Good question Ron, I don't list this one on any of my lists-The Chief.*

10601.0 Spanish female 4-digit number station in AM at 2200 and 2300 (Friday UTC). (Mazanec-OH)

10635.0 KKN50-State Dept radio, Warrenton, VA with a CW QRA marker at 0110. (Bob Pettengill-Blanchard, OK)

10648.0 In LSB at 0155 a female operator said, "Durant, Durant, this is Emery Board, do you copy?" After several tries (by female op) a male voice tried, "Come on Andrews AFB where are you? Durant, this is Emery Board, do you copy?" Female voice again, "Would you like to QSY your transmit to Alpha Juliet?" Eventually, Emery Board responded with, "Have you 3X, QSY your Alpha Juliet, our receive Charlie, Charlie." (Tom Miner-Concord, NH) *Interesting Tom, I don't think this was Mystic Star, I believe this is a new SAC channel; Bill Battles take note-The Chief.*

10665.0 Spanish female 4-digit number station in AM at 0033. (Neal Smith-Mannchester, MO)

10945.0 CFH-Canadian Forces, Halifax, NS Canada with a 15 wpm CW marker consisting of the stations operating frequencies - 3287 4158 6242 8318 12392 16576 22194 at 2353. Oddly, the frequency that I copied them on wasn't listed. (Bill, San Antonio, TX) *Welcome back Bill, not sure on the last logs, I think they were used-The Chief.*

11056.0 Executive Foxtrot One (1st Lady) working Andrews at 1710 in USB enroute to Washington, DC. (Battles-NH)

11104.0 Long comms from USCGC Tahoma, Cape Radio and King 1 regarding the rescue of a man in the water from 1934-1946. Tahoma launched a HH-65 helo per request of King 1, much confusion over the UHF frequencies they were going to use, in USB. (Battles-NH)

11201.0 CG 6008 testing HF radio with NMF-Boston (new helos) heard 1352 in USB (these UH-60 models are to replace the HH-3F helos in present CG service). (Battles-NH)

11229.0 AFRTS broadcast feeder with music in USB at 2148. (Goff-ME)

11246.0 MacDill AFB, FL GCCS working 40651 concerning aircraft RPM problems in USB at 1432 in USB. (Rick Moore-Versailles, KY)

11267.0 Y1V asking for a radio check at 2300 with no answer in USB. (Hosegood-UK)

11467.0 HMF52-KCNA Pyongyang, North Korea at 0014 with FAX pictures. (Donald Nyre-Newport Beach, CA)

11605.0 Unid station sending USMC MARSGRAMS from Camp Butler, Okinawa using SITOR-A at 2350. (Bill-TX)

11633.0 Unid station with 5-letter Morse groups at 15 wpm at 0006. (Bill-TX)

12260.0 English female 5-digit number station in AM at 0232. (Fernandez-MA)

12714.0 UUUA-M/V Styr with CW cyrillic messages at 1948. (Boender-Netherlands)

12984.0 4XZ-Israeli Naval Radio Haifa with CW comms at 0310. (Pettengill-OK)

12992.0 WLO-Mobile Radio, AL using SITOR-B at 0004 concerning WARC-87 marine frequencies. (Bill-TX)

13092.0 WOM-Ft. Lauderdale AT&T radio with offshore weather and phone patch traffic at 2100 in USB. (Scott Billingsley-Camden, AR) *Welcome to the column Scott, please report often-The Chief.* Heard at 0010 with traffic list. (Burghardt-NJ)

13205.0 SAM 203 requesting phone patch to Andrews AFB in regards to a C80C computer failure. 203 in Mexico City enroute to Peru, Venezuela and Brazil. Using USB at 1440. Anyone know what SAM flight number James Baker uses? (Burle-AZ) *Scott, normally SAM 972 is associated with the Secretary of State. having said that, a lot of times it depends on the Secretary (his preference) and aircraft available-The Chief.*

13312.0 Test Control 01 calling Boeing 681 asking why he is returning early. All tests completed earlier than expected. Went to 172.550 MHz (FM) to test radio. Heard every Friday in a.m. for several weeks in USB. (Burke-AZ)

13412.0 MAC 70166 working Andy in USB. MAC flight had no Mystic Star frequency list so Andy had to give clear voice frequencies when changed. This aircraft was traveling with AF-1. (Batteles-NH)

13416.5 CCS-Santiago, Chile with RTTY RY marker at 0010. (Bill-TX)

14069.0 Unid station with news stories in German using SITOR-A at 0056. (Bill-TX)

14358.6 Spanish female 4-digit number station in AM heard at 0121. (Judge Horan-CA) *Welcome to the column Judge, feel free to report often-The Chief.*

14840.0 NNN0CVX-USS El Paso (LKA-117) working NNN0NIK-Mayport, Fl with Navy MARS phone patch traffic in USB at 0229. (Pettengill-OK)

15000.0 WWV-Time Station Ft. Collins, CO with time signals and ID in AM at 0012. (Boender-Netherlands)

15920.0 CFH-Canadian Forces, Halifax, NS with the same CW marker (as on 10945) on another unlisted frequency at 0056. (Bill-TX)

16000.0 VNG-Time Station Lyndhurst, Australia with time signals at 0008 in AM. (Boender-Netherlands)

16180.0 NMN/NAM/NAR in CW at 23 wpm. Weather for NAVAREA IV and a list of USCG voice channels and their assigned frequencies, followed by a 16 wpm marker at 0151. (Bill-TX)

16928.4 LFX-Rogaland Radio, Norway with CW CQ marker at 1930. (Boender-Netherlands)

16950.0 6WW-French Forces, Dakar, Senegal with a 20 wpm CW V marker at 0030. (Bill-TX)

16976.0 NMN-USCG COMSTA Portsmouth, VA with a 23 wpm CQ CW marker at 0120. (Bill-TX)

17242.0 WOM-Ft. Lauderdale, FL (AT&T Radio) working a phone patch with "Charlie West" in USB at 1330. (Dettmann-IL)

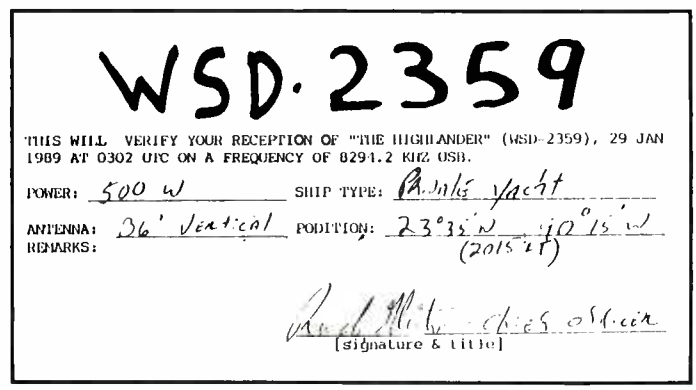
17245.0 Portishead Radio, England working a phone patch with MKWP7 in USB at 1748. (Dettmann-IL) *All I can say Rick is the ship call sign is from the UK-The Chief.*

18002.0 Sentry 61 (AWACS aircraft) working several stations in USB at 1530. (Robert Wilceynski-Indian Orchard, MA)

18009.0 Letter-number-letter call signs running in a net at 2248 in USB. (Chris Hulse-Eugene, OR)

18171.0 Swordfish 16 calling Miami Air via Atlas (*DEA in DC-Chief*) phone patch about airplane oil problems in USB at 2243. (Hulse-OR)

21751.0 English female 3/2-digit number station in AM at 2130. (Billingsley-AR)



This QSL verified Patrick O'Connor's, Hinsdale, New Hampshire, reception of a private yacht.

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The Scanning Report

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

Christmas Trains

The control panel contained an impressive array of switches and blinking lights. The section of railway that I controlled was represented on the panel by several thin, green lines. Suddenly, the dispatcher called out to me, "The 7 PM freight will be delayed by 5 minutes."

"Okay," I replied, "I'll be looking for him."

Looking over my shoulder, the regular switchman guided my actions. "You're going to have a collision, if you don't do something with that passenger train."

"What passenger train?" I asked.

The switchman slowly shook his gray head. "Look at your schedule. Isn't there a passenger train due at 7:05?"

A quick glance at the schedule confirmed that he was right. "What should I do?" I asked.

He nodded toward the tracks. "You got about three minutes to figure it out."

I checked the side track. It was clear. I decided to hold the freight on the side, and let the passenger train pass by. Reaching across the control panel, I confidently flipped the appropriate switches to align the track.

"Is that your solution to the problem?" He asked.

"That should do it," I said.

Without warning, Bob Parks, the switchman who had been helping me, quickly pressed the emergency stop button.

"What did I do wrong?" I asked.

Bob pointed to the main track switch. "It's in the wrong position. The passenger train would have collided with the freight."

Although I was only controlling HO scale model trains, the excitement was intense. The train club had a layout that measured 5 feet by 15 feet. The control of the trains was very similar to real life situations. And as I quickly learned, the switchman's job was the most difficult.

At first glance, it seemed rather comical: grown men, playing with model trains. But the club members were quick to point out that they were equally amazed by my hobby of spending hours sitting behind a "Police Scanner."

"You can hear a lot more than just your local police," I promptly retorted. To prove my point, I set my handheld to scan between the railroad frequencies of 160.00 and 162.00. Within seconds, the squelch opened, and the room was filled with the voice of the Philadelphia commuter train dispatcher.

"That sounds like Charlie's voice!" one of the club members said excitedly.

I pushed the "monitor" button and allowed everyone to listen.

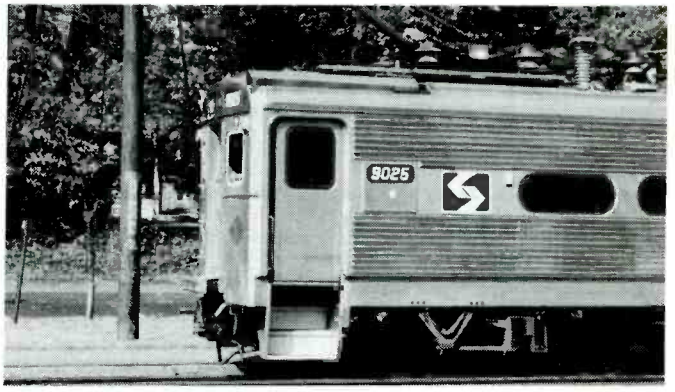
"That's him," someone shouted. "He's working 2nd shift."

A club member pointed to my old Pro-30. "How much does that thing cost?" he asked.

"You can buy a no frills, table top model for less than a hundred bucks," I said.

During the remainder of the evening, we discussed and listened to the train activity in the city. The club members were surprised to learn that there were dozens of train frequencies that could be monitored.

I was surprised to learn that the newer trains were radio controlled. It was possible to run a locomotive in the same manner as radio controlled cars and airplanes. The locomotive could draw its power from the track, or it could utilize an internal battery. Since radio frequencies were being utilized, I could see the need for a "frequency coordinator" in the near future.



Are you setting up the trains this Christmas? If so, read the Scanning Report to discover the frequencies used by real life trains in your area.

As I said good-bye to my new friends, they gave me a handmade built-from-scratch box car. To return the favor, I promised to help them set up and program the club's new scanner radio.

When I arrived home, my wife noticed the model train. "What are you doing with that?" she asked.

I was hesitant to tell her I was thinking about buying a train set. She still hadn't forgotten about the new scanner radio I had recently purchased. "I... was thinking about buying a set of trains?" I said with a degree of caution.

"That would be nice," she said smiling. "The kids love to play with trains at Christmas."

"You're right," I said with a big grin. "The 'kids' will love it!"

Treasure Hunt

This is your final chance to win the best tape saving device on the market. The ScanRecord by Capri Electronics is battery operated, completely portable, and it can easily capture a full day of scanning activity on a standard, 90 minute cassette. Here are the clues: All the answers can be found in the September 1991 issue of *MT*.

1. What is a Shinwa SR001?
2. On what page can you find the words: Silk Purse Scrapped?
3. If you order a CPL-63, from Grove, what will you get?
4. The longer the antenna, the lower the frequency. True or False?
5. Provide the transmission mode for aircraft communications.

The ScanRecord is a state-of-the-art unit that does not use mechanical relays. The convenient A/B switch allows the user to manipulate the tape recorder without having to disconnect the recording plugs. Best of all, the ScanRecord is modestly priced at $47.00 dollars. For further information, contact Capri Electronics, 1238 Hwy., 160-B, P.O. Box 589, Bayfield, CO 81122; (303) 884-9084.

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Frequency Exchange

All aboard! If you're looking for ***train frequencies***, here's a comprehensive list that will help you to locate the active frequencies in your area.

159.810	160.440	160.725	161.010	161.295
159.930	160.455	160.740	161.025	161.310
160.050	160.470	160.755	161.040	161.325
160.185	160.485	160.770	161.055	161.340
160.200	160.500	160.785	161.070	161.355
160.215	160.515	160.800	161.085	161.370
160.230	160.530	160.815	161.100	161.385
160.245	160.545	160.830	161.115	161.400
160.260	160.560	160.845	161.130	161.415
160.275	160.575	160.860	161.145	161.430
160.290	160.590	160.875	161.160	161.445
160.305	160.605	160.890	161.175	161.460
160.320	160.620	160.905	161.190	161.475
160.335	160.635	160.920	161.205	161.490
160.350	160.650	160.935	161.220	161.505
160.365	160.665	160.950	161.235	161.520
160.380	160.680	160.965	161.250	161.535
160.395	160.695	160.980	161.265	161.550
160.410	160.710	160.995	161.280	161.565
160.425				

The above list was provided by Bob Grove, publisher of *MT*. Our next scheduled stop is ***Marietta, Georgia.*** Here are the frequencies for the CSX railroad.

160.590	Channel #3
161.100	Channel #4
161.370	Channel #1
161.520	Channel #2

According to Joe Pilgrim, the Norfolk Southern Railroad can also be monitored from Marietta, on the following: 160.255, 160.830, and 160.550. Thanks Joe, for inviting us to visit.

For our next stop, we'll need to throw a few shovels of coal into the boiler. We're heading North, to the state of ***Minnesota.*** James Schnoor lives in the area, and here are his favorite railroad frequencies:

Burlington Northern

160.290	St. Paul	MPLS & St. Paul Yards
160.365	Northtown Humptower	Engine Crews
160.410	MPLS 35th Ave Tower	Fridley Northern Yard
160.50	Signal Dept.	Railroad Police
160.59	Car Dept.	St. Paul
160.65	MPLS Yards	Dispatcher
160.71	St. Paul Yards	St. Paul—Piggyback Ramp
160.83	MPLS Engineering	

If you want Jim's complete, two page listing of railroad frequencies, it's yours for a #10 SASE. Send your request to the Frequency Exchange, P.O. Box 98, Brasstown, NC 28902 Requests that are postmarked after December 31 should include $2.00 dollars to cover copying and handling charges.

NEW PUBLICATION

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Since it is getting close to Christmas, let's start heading toward my home state of Pennsylvania. As we pass through ***Cincinnati, Ohio***, let's stop to monitor a few frequencies that were sent in by Mark Meece.

160.260 Union RR
160.275 Conrail car inspectors
160.470 Conrail Channel #13 West Hump
160.485 Conrail Admin PBX
160.560 Conrail Police
160.680 Conrail Police
160.800 Conrail Channel #1
161.565 Conrail yard switching

Our last stop is my home town of Philadelphia. Here are the frequencies for ***Amtrack***.

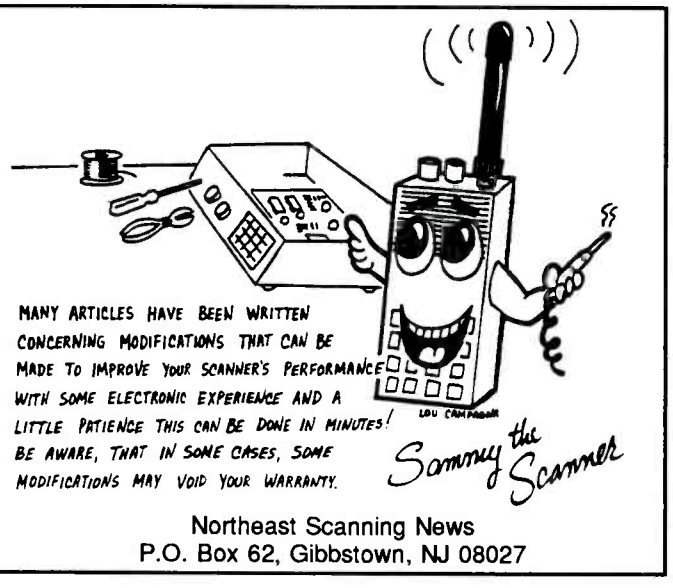
160.635 F-6 Maintenance
160.515 F-3 Maintenance
160.800 F-1 Road
161.070 F-2 Road
161.205 F-5 Police
161.295 F-4 Police
161.505 30th Street Yard
452.900 Station Admin

Inviting the Frequency Exchange to your home town is easy. Simply send a list of your favorite frequencies to the Frequency Exchange, P.O. Box 98, Brasstown, NC 28902.

Cordless Antenna

Did you know that winter is the time for building antennas? I know that sounds crazy, but that's what your letters indicate: the prime season for constructing antennas is during the colder months. If you've been thinking about building a scanning antenna, here's a neat, long wire cordless antenna, that can be constructed for pennies.

To determine the correct length for our antenna, we simply divide the frequency that we want to monitor into 468. The sum of the two is the correct antenna length required to operate on that frequency.



Dividing the cordless band of 46.0 into 468 gave me an antenna length of ten feet. I used copper braided wire from Radio Shack, and soldered the center feed from my coax directly to it. To the outside braid of the coax, I soldered a random length (about 15 feet) of the same copper wire.

A weatherproof housing for the soldered joints was provided by placing the exposed connections in a small, empty juice container, and then filling the same with auto body filler. After the filler hardened, (approximately 15 minutes) the plastic bottle was cut away to reveal an inexpensive antenna with a watertight connection.

The antenna's performance was excellent. On the cordless bands it outperformed my base antenna that is mounted above the surrounding tree tops. If you want additional information on this, and several other antennas that you can build, send an SASE to the Scanning Report, P.O. Box 98, Brasstown, NC 28902.

Cordless Scrambling

One of the hottest scanning bands can be found between 46.60 and 47.00 megahertz. As most of you know, that's the cordless phone band. But you probably didn't know that cordless monitoring has also caught the attention of cordless phone manufacturers. As a result, the "Phonemate" Corporation has begun to produce a digitalized cordless phone. The phone simply scrambles the air signal between the base and handset. Third party monitoring of the scrambled signal sounds like gibberish.

The cost of the new digital cordless phone is approximately $220.00 dollars. The new phones should be on the market for the Christmas holidays.

Bogus Traffic Reports

Have you monitored your local traffic reporting network? Here in Philadelphia, "Shadow Traffic" provides up to the minute traffic reports to local radio stations.

In Boston, Massachusetts, a traffic safety service allegedly monitored and rebroadcast the traffic reports of a rival agency. The agency being monitored radioed fake traffic reports between its road crews and main dispatcher. When the fake reports aired on the rival network, a law suit was filed.

Silencing Critter Control

A federal agent, using radio direction finding equipment, located an annoying radio signal that was blocking police calls. The agent arrested a 29 year old male living in a vacant garage. The man allegedly used a programmable hand held transmitter to harass Colorado Police.

According to the Federal Communications Commission in Denver, Colorado, the man broadcast under the name of "Critter Control." He would transmit cat calls, phantom responses, and would play taped recordings of police transmissions.

I don't know about you guys, but I'm a little confused. Why would a transient hide in a garage and use sophisticated equipment to jam police calls? There must be more to this story.

Next Month

A new year, new Treasure Hunt prizes and more scanning fun. See you in 1992!

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$259.99 *($7.00 shipping)*

Digital programmable 200 channel hand held scanner with raised button keyboard for easy programming of the following frequency ranges. 29-54 MHz, 118-174 MHz, 406-512 MHz, 806-956 MHZ.* Features include: Scan delay, memory backup, key pad lock, sidelit liquid crystal display, channel lockout, 10 twenty channel banks, direct channel access, automatic search, full one year factory warranty, 10 priority channels, Ni-Cad battery pack, AC adapter/charger, flexible rubber antenna carry case are all included. Size is 2-11/16"Wx1-3/8"Dx7-1/2" high. (Optional extended 2 yr. warranty $29.99, 3 yr. extended warranty $39.99.)
(*Excludes Cellular)

#CC-008 Heavy Duty Leather Carry Case **$27.99**

RADIO SCANNERS

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BEARCAT BC70XLT	129.99	(7.00)
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BEARCAT BC142XL	94.99	(7.00)
BEARCAT BC147XL	99.99	(7.00)
BEARCAT BC172XL	139.99	(7.00)
BEARCAT BC177XL	139.99	(7.00)
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BEARCAT BC205XLT	259.99	(7.00)
BEARCAT BC210XLT	169.99	(7.00)
BEARCAT BC310A	85.99	(7.00)
BEARCAT BC330A	109.99	(7.00)
BEARCAT BC400XLT	99.99	(7.00)
BEARCAT BC560XLT	109.99	(7.00)
BEARCAT BC600XLT	199.99	(7.00)
BEARCAT BC760XLT	269.99	(7.00)
BEARCAT BC800XLT	249.99	(7.00)
BEARCAT BC855XLT	199.99	(7.00)
BEARCAT BC950XLT	249.99	(7.00)
REGENCY R3020	96.99	(7.00)
COBRA SR901	74.99	(6.00)
REGENCY R4010	106.99	(7.00)
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COBRA CB Radios	*In Stock*	
UNIDEN CB Radios	*In Stock*	
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Scanner Antennas	*In Stock*	
Power Supplies	*In Stock*	
RELM RH606B	414.99	(9.00)
RELM UC202 (2 or more)	129.99	(6.00)

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BCAD70	14.99	BP55	16.99
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BCAD 580	16.99	MA501	14.99
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BC002	59.99	GRE8002	79.99
PS001	12.99	GRE-HH	54.99
UA502A	12.99	GRE9001	89.99
BP205/200	34.99	GRE 3001	62.99
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Air Scan Directory	14.99
Betty Bearcat	4.00
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Tomcat's Big CB	13.95
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Survival Directory	6.95
Rail Scan	7.95
Police Call	7.49
Scanner Modification	17.99

RELM RH-256NB
HIGH BAND TWO-WAY RADIO

SPECIAL PACKAGE DEAL

$339.99

(Plus $9.00 Shipping Each)

16 channel digital readout two-way radio. Covers high band frequency range of 148-162 MHz without retuning. Perfect two-way radio for ambulance, police, fire, tow trucks, taxis, commercial companies who use this band. Features include CTCSS tones built-in, priority, 25 watts output, channel scanning, back lighted keyboard, message light, time out timer, scan delay, external speaker jack. Size is 2¾"Hx6½"Wx10¾"D.

SPECIAL PACKAGE DEAL includes RH-256NB, mobile microphone, ¼ wave body mount antenna, mobile mounting bracket and mobile power cord all for the low price of $339.99

UNIDEN BEARCAT BC-400XLT

$99.99

($7.00 shipping)

Our best selling mobile scanner. 16 channel. AC DC programmable, digital, AC DC cords telescopic antenna, mobile mounting bracket weather search, priority, 29-54 MHz, 136-174 MHz, 406-512 MHz, external speaker and antenna jack.

BEARCAT BC-100XLT
100 Channel Digital Programmable Hand-Held Scanner

$189.99

($7.00 shipping)

Our best price ever on a full featured complete package hand-held scanner. Manufactured by Uniden. Features include 11 bands of weather, aircraft, public service, trains, marine, plus more (29-54 MHz, 118-174 MHz, 406-512 MHz), 10 channel banks, 10 priority channels, lighted LCD display, earphone jack, channel lockout, AC/DC operation, scans 15 channels per second, track tuning. Special package deal includes following accessories: AC adapter/charger, rechargeable Ni-Cad battery pack, flexible rubber antenna, carry case.

SANGEAN ATS-803A
SHORT WAVE RECEIVER

$168.99

($7.00 shipping)

AM/FM/LW and 12 shortwave bands plus FM stereo, BFO for SSB reception, clock radio. Includes AC adapter, telescopic antenna, stereo headphones, and shoulder strap.

—SHORT WAVE WORLD BAND RECEIVERS AVAILABLE—

Sangean ATS-800	$109.99	(7.00)
Grundig Yacht Boy 220	106.99	(5.00)
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Grundig Yacht Boy 230	149.99	(5.00)
World Radio & TV Handbook (1991)	18.99	(*)

SPECIAL!!
LOWEST PRICE EVER FOR A PROGRAMMABLE SCANNER

Cobra

SR-901

AVAILABLE ONLY FROM SCANNER WORLD

ONLY! **$74.99** Each

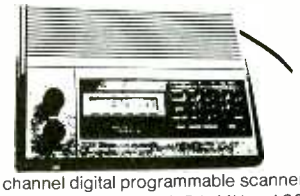
(Plus $6.00 Shipping Each)

$69.99 (2 or more)

Features include 10 programmable channels, one touch memory programming, external speaker jack, 29-54 MHz, 136-174 MHz, 400-512 MHz, squelch, lockout, full frequency digital readout, AC or DC operation, retains memory up to 3 days without power, scan button. Includes AC adapter, telescopic antenna, and complete operating instructions. Size: 7¼" W x 2" H x 7¼"D. One year factory warranty.
(Optional mobile cigarette lighter cord #901MPC $4.99)

Regency R3020

$96.99 *($7.00 Shipping)*



20 channel digital programmable scanner, frequency coverage 29-54 MHz, 108-136 MHz aircraft, 136-174 MHz, 406-512 MHz. Features: weather key, search, lockout, priority, squelch, AC only, delay button. Size 9½"x2⅜x7".

(Limited Quantity of R3020 Available)

UNIDEN BEARCAT BC-950 XLT

$249.99 *($7.00 shipping)*

Digital Programmable 100 Channel Scanner

BC-950 XLT covers the following frequencies: 29-54 MHz, 118-174 MHz, 406-512 MHz, 806-954 MHz (excludes cellular). Features compact size of 6-5/16"Wx1-5/8"Hx7-3/8", scan delay, priority, memory backup, channel lockout, bank scanning, key lock, AC/DC power cords, telescopic antenna, mounting bracket supplied, one year factory warranty, search, direct channel access, track tuning, service search including preprogrammed frequencies by pushing a single button for police fire/emergency, aircraft, weather, and marine services plus exclusive optional features never available on any scanner before. First is an RF receive amplifier for boosting weak signals for only $34.99 plus a CTCSS tone board is available for only $59.99 to make this the number one scanner available in the USA. Optional cigarette lighter plug #950 MPC $4.99.

REGENCY R-4010

$106.99

($7.00 shipping each)

10 channel hand-held scanner. (Same Scanner as Bearcat 55XLt). 29-54 MHz, 136-174 MHz, 406-512 MHz, digital programmable, keyboard lock switch, lockout, includes rubber flex antenna. (Optional accessory 5W-41, only $19.99 includes rechargeable Ni-Cad batteries, AC adapter/charger and cigarette lighter cord.)

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★ ALL MERCHANDISE NEW, IN FACTORY SEALED CARTONS

BEARCAT 70XLT
20 CHANNEL DIGITAL HAND-HELD SCANNER

SPECIAL PACKAGE DEAL ONLY **$129.99** *($7.00 Shipping)*

Small size 6" Hx1"Dx2¾"W. Full digital readout, priority, search, channel lockout, scan delay, key lock. Covers following frequencies: 29-54 MHz, 136-174 MHz, 406-512 MHz. Package includes rubber antenna, rechargeable Ni-Cad battery pack, AC adapter/charger and vinyl carry-case.

Optional Cigarette Lighter Cord #UA502	$12.99
Heavy-Duty Leather Carry Case #CC002	$22.99

BEARCAT BC-147XLT
16 CHANNEL BASE SCANNER

$99.99 *($7.00 Shipping)*

Programmable, digital, AC/DC operation. Frequency coverage 29-54 MHz, 136-174 MHz, 406-512 MHz. Weather button, priority, lockout button, squelch includes AC adapter, telescopic antenna.

GM-1™A GLASS MOUNT SCANNER ANTENNA
—ONLY AVAILABLE FROM SCANNER WORLD—

Frequency coverage 25-1200 MHz — only 22 inches tall. NEW REVISED DESIGN — no holes to drill — no glue needed. Complete with 17 foot cable, Motorola connector, and mounting hardware. Swivels to vertical position — performance unaffected by moisture on the window. Made in USA.

SPECIAL

$39.99

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what's new?

Larry Miller

Realistic PRO-37

The lead story in "What's New" this issue once again belongs to Radio Shack and their new PRO-37. A real nice 200 channel handheld, it features Hyperscan (scans at the top speed of 25/second; searches at 50/second) and covers from 30 to 54 MHz, 108 to 174 MHz, 380 to 512, 806 to 823, 851 to 858 and 896 to 960 MHz.

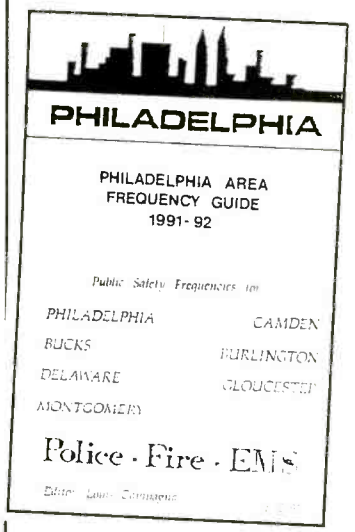
Retail price is $299.95. Bob Grove's hands-on review of the PRO-37 can be found on page 98 of this issue.

Scanner Battery Booster

Serious monitors who always have their handhelds handy sometimes complain that the radio's batteries quit before they do. An Illinois firm called MetroWest has designed a new product that extends listening for up to 40 hours beyond that provided by the scanner's own batteries.

The Booster Pack 3200 is an external, belt-hung unit that plugs into the recharge jack on the scanner via a coiled cord. The Booster Pack 3200 measures a mere 4-1/2 x 3-1/2 x 2" and is housed in a nice-looking soft nylon case. It weighs in at under two pounds and works with most 5 or 6 cell scanners.

The price is $59.00 plus $5.00 shipping. To get yours, contact MetroWest at 822 N. Spring, Dept. MT, LaGrange, Illinois 60525 or call 708-354-2124.



Philly Area Frequency Directory

Residents of the greater Philadelphia area, including Bucks, Delaware, Montgomery, Camden, Burlington and Gloucester counties, now have their own much-needed frequency directory. Produced by well-known monitor Louis Campagna (the man behind the "Sammy the Scanner" cartoons in *MT, National Scanning Report*, and *North East Scanning News*), the *Philadelphia Area Frequency Guide* covers police, fire, and EMS as well as local news media, marine, NOAA weather, transportation/Port Authority, PA State Police, air medical evacuation units and more.

Frequencies are indexed by county and are accompanied by maps indicating districts, zones and township locations. The compact, 40-page, 5-1/4 x 8-1/2" format is convenient for quick reference and great for travelers. There's even a section on PA and NJ scanner laws. Frequencies are indexed by county.

To get your copy of *Philadelphia Area Frequency Guide* send a check or money order for $12.95 (postpaid) to Louis Campagna, 8001 Castor Avenue, #143-L, Dept. MT, Philadelphia, PA 19152-2701.

Solar Radio

Here's an AM/FM radio that you can listen to and never have to worry about changing the batteries. It's solar-powered. During the day, the radio gets its juice from a small photovoltaic cell which also charges up the unit's NiCad battery. These same NiCads allow night time operation and, should the need arise, the unit can be charged through a DC jack.

The Solar Power Stereo Radio measures 2-3/8" x 3-1/2" x 3/4" thick and covers from 87.5 to 108 MHz (FM) and 525 to 1640 kHz (AM). You can get yours from KDK World Marketing, P.O. Box 931, Dept. MT, Upland, California 91785 for just $47.95 plus $2.00 shipping and handling.

Hooked on Code

Have you heard the radio ads for the tape, *Hooked on Phonics?* It's a series designed to help people learn to read by setting phonics to music. If the number of times a commercial is played over the air is any indicator, then by all indications, *Hooked on Phonics* is a smash hit.

Phillip Kawa, a musician and new ham radio operator, has taken the same concept and put together a tape where Morse code is set to music. It's called (no, not "hooked on Morse") *The Rhythm of the Code*. Harry Baughn, an aspiring ham and husband of *Monitoring Times* editor Rachel Baughn, took the tape home and returned with the comments that "I think [Kawa] is on to something."

According to Harry, the author goes through the tape once with voice, then again without voice, then backwards with voice. The second side of the tape is identical. *The Rhythm of the Code* is available for $5.95 postpaid from KAWA Records, P.O. Box 319, Dept. MT, Weymouth, MA 02188.

National 800/900 Telephone Service Code Book

Did you know that the first three numbers following the "800" in toll-free and "900" toll phone numbers are actually hidden codes that identify the specific long-distance carrier handling the call?

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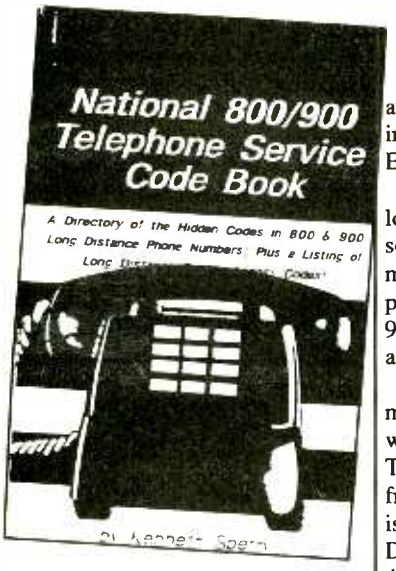
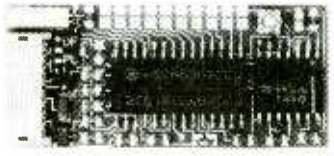


In addition to these hidden codes, there are 3-digit Carrier Identification Codes (CICs) for directly accessing the telephone services and facilities of all long-distance carriers in the U.S., Canada and West Indies. These include many "private" CICs held by states, federal agencies, military switchboards, banks, data and computer services, emergency networks, credit card companies and so forth.

National 800/900 Telephone Service Code Book has all 1,600 of these hidden codes plus an explanation of 800 and 900 services and CICs. You can obtain a copy of this book from CRB Research, P.O. Box 56, Dept. MT, Commack, NY 11725. The price is $9.95 plus $3.50 shipping.



CTCSS Encoder/ Decoder

Communications Specialists has introduced a new CTCSS (Continuous Tone Coded Squelch System) encoder/decoder, the TS-64. The TS-64, at .78" x 1.7" x .25", is small enough to fit inside most handheld transceivers and scanners. The unit is jumper programmable to any of 64 sub-audible tone frequencies, including the 32 commonly used EIA tones.

Time-out timer, busy channel lockout, and reverse burst sending capability are programmable options in every unit. Low power consumption (6-20vdc @ 9ma) makes it ideal for handheld applications.

Installation is done via a microminiature plug and socket with color-coded wires attached. The TS-64 is priced at $64.95 from Communications Specialists, Inc., 426 W. Taft Avenue, Dept. MT, Orange, CA 92665-4296 or call 800-854-0547.

Bottle Brush Shakes Off Lightning

If you have antennas mounted on a tower, you know that you're a sitting duck during lightning season. If you're unlucky enough to get hit, your radio room, even with proper protection, can make your receiver look like it spent an hour in the microwave.

Say the folks at Electron Processing, "reducing the probability of a strike to your tower is a wise move." According to the manufacturer, the Lightning Reducer prevents the buildup of high cloud to tower voltages responsible for lightning strikes. Static charges are discharged into the air via hundreds of pointed discharge spikes before they can build up enough voltage to produce lightning.

In fact, says EP owner John Martin, "installation of an appropriate number" of his lightning reducers and proper grounding of your tower can lead to "an almost total elimination of the chance of lightning striking your tower." Each of his model LRU-1 Lightning Reducers has a six-inch discharge head mounted on a 12" long bracket with a U-bolt for mast mounting.

The LRU is priced at $40.00 for a "three pack," a normal configuration for towers ranging in height from 30 to 100 feet. For more information, contact Electron Processing at P.O. Box 68, Dept. MT, Cedar, MI 49621 or call 616-228-7020.

GUIDE TO UTILITY STATIONS 1992

10th edition • 534 pages • $ 48 or DEM 70

7500 new coastal and fixed station frequencies!

Our bestseller covers the complete frequency range between 0 and 30 MHz. We are the very first to publish ***all*** new maritime frequencies worldwide in use since the gigantic global frequency transfer in July 1991 - ***now*** and not five years later! Latest military and political events such as the impacts of the Gulf War and of the recent and current revolutions in Eastern Europe are covered exclusively by our UTILITY GUIDE. Sophisticated operating methods and regular overseas monitoring missions (1991 for months in India, Malaysia, Mauritius, Reunion, Rodrigues, Surinam and Venezuela) complete this unique book.

The completely revised new edition includes a frequency list with 19136 frequencies, and a call sign list with 3514 call signs. Up-to-date schedules of FAX meteo stations and RTTY press services are listed both alphabetically and chronologically. Abbreviations, addresses, codes, definitions, explanations, frequency band plans, international regulations, modulation types, NAVTEX schedules, Q and Z codes, station classes, telex codes, etc. - this reference book lists everything. Thus, it is the ideal addition to the World Radio TV Handbook for the "special" stations on SW!

Further publications available are ***Guide to Facsimile Stations***, ***Radioteletype Code Manual*** (11th ed.) and ***Air and Meteo Code Manual*** (new 12th ed.). We have published our international radio books for 23 years. They are in daily use with equipment manufacturers, monitoring services, radio amateurs, shortwave listeners and telecommunication administrations worldwide. Please ask for our free catalogue, including recommendations from all over the world. For recent *MT* book reviews see Jack Albert in 5/91 and Larry Van Hoorn in 9/91. All manuals are published in the handy 17 × 24 cm format, and of course written in English.

Do you want to get the ***total information*** immediately? For the special price of $ 165 / DEM 245 (you save $ 32 / DEM 40) you will receive all our manuals and supplements (altogether more than 1700 pages!) plus our ***Cassette Tape Recording of Modulation Types***.

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U.S.S.R. Merchant Ship List

The Soviets have the largest merchant fleet in the world and their ships cruise every ocean. Monitoring the fleet, says Jason Berri, is "surprisingly easy" although it must be understood that Soviet maritime vessels transmit on shortwave in Morse code (CW), radioteletype (RTTY) and Telex (SITOR A or B).

For those who are interested in this fascinating aspect of radio monitoring, Universal Radio's *The U.S.S.R. Merchant Ship List* by Berri is a "must have." This is the 4th edition of *U.M.S.L.* and it covers some 1,110 active (meaning that the ship has been logged at least once in the last five years) Soviet merchant ships.

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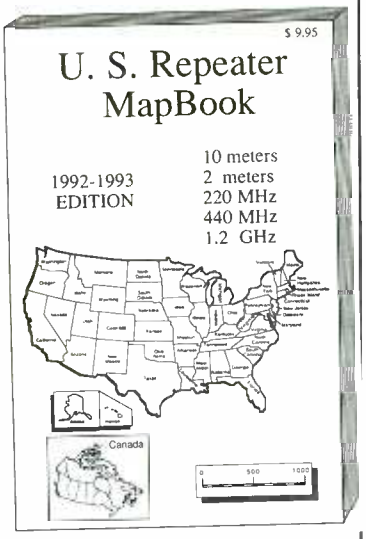
A description of ship transmissions is followed by ship lists arranged by call sign and ship name and cross-referenced by serial number.

The U.S.S.R. Merchant Ship List is available from Universal Radio, 1280 Aida Drive, Dept. MT, Reynoldsburg, Ohio 43068. You can order toll-free by calling 800-431-3939. The price is $10.95 plus $1.00 shipping.



U.S. Repeater Mapbook 1992-1993

If you've ever seen a copy of Dr. Bruce Elving's pioneering *FM Atlas*, then you've got an idea of how the *U.S. Repeater MapBook* is set up. The bulk of the book is arranged alphabetically, by state. Each state gets a two-page spread. On one side is a map of the United States showing the location of the state, a list of amateur radio stores in that state, the speed limit in that state, and the number of the local tourism authority.

On the other side of the page is a map of the state, some main highways and the location of various repeaters, indicated by their frequencies. Canadian provinces are treated in a similar manner.

This clever 144 page book also contains a log sheet, various tid-bits of information and 19 pages of ads. The *U.S. Repeater MapBook* (published by Artsci, Inc.) is available for $9.95 at your favorite ham radio store.

Canadian Military

Robert Ing has announced that the third edition of his book, *The Canadian Military Radio Frequency Guide*, has been published. According to the author, the book, which covers 50 kHz to 500 MHz, "lists and identifies frequencies currently in use by Canada's Military worldwide..."

Unfortunately, we did not have the opportunity to see a copy of the book itself and must rely on Mr. Ing's good reputation for our recommendation.

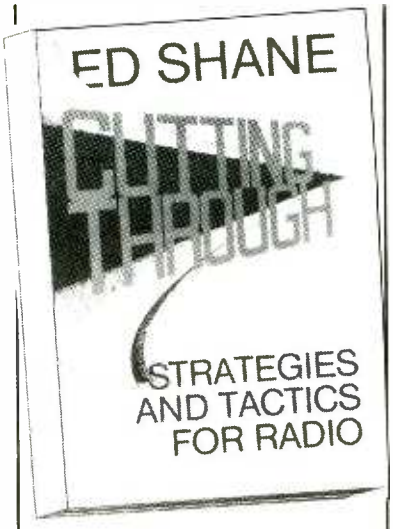
If you'd like more information on the book, write to Robert Ing, P.O. Box 378, Dept. MT, Postal Station O, Toronto, Ontario M4A 2N9.

Cutting Through Radio

Ed Shane's *Cutting Through: Strategies and Tactics for Radio* is a professional-level book that offers broadcasters "specific steps to cut through the clutter."

Mr. Shane describes the book in a brochure, extracting some of his own quotes. These include fundamental concepts like "The basic radio mission is `to make money.'" Shane poses evocative questions: "What would happen if listeners had to pay [to hear your station]?"

He makes scary predictions: "Radio's biggest ally will be



database marketing. Not just a list of addresses, but complete profiles of...listeners [including] buying habits, purchase potential, and psychographic values."

And he says puzzling things that sound like they were lifted from a bad translation of Chairman Mao's *Little Red Book*: "Finding a radio station is most often the same as adjusting a rheostat to soften the light. Once the adjustment is made, there's not much more to be done, including (as I take this analogy further) noticing what brand the light bulb is."

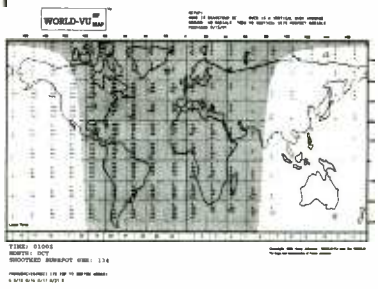
If you'd like more information on the book, you can write to Shane Media Services at 2500 Fondren, Suite 222, Dept. MT, Houston, Texas 77063, and ask for their brochure.

Cellular Violence

Tired of parking your car only to find that a group of young thugs, enraged by the apparent wealth that your cellular telephone represents, has viciously ripped the antenna from your Beemer?

It's a scenario that's being played out again and again in cities across America. Now comes relief from the aggravation in the form of an "inside-the-car" cellular antenna by Terk. The "CEO Inside Cellular Antenna" is a palm-size, square antenna that mounts to the inside of your rear window.

According to the manufacturers, the antenna is omnidirectional and actually works better than an outside-the-car antenna. To get yours, send $79.95 plus $7.95 shipping to Herrington, 3 Symmes Drive, Dept. MT, Londonderry, New Hampshire 03053 or call 800-622-5221.



World-Vu HF Propagation Maps

Harry Johnson has produced an innovative tool for the ultimate, competitive DXer. Forty five dollars brings a portfolio of 32 maps providing detailed seasonal predictions for 12 months at various seasons and times of the day for five frequencies.

There are even special event contest portfolios for specific periods at a cost of $30. An antenna comparison map set to tell you what to expect from your antennas is also available for $20.

The various map sets are custom printed for your location at a cost ranging from $20 to $45 per set. If you'd like a complete description and custom order form, write to World-Vu HF Map, P.O. Box 946, Dept. MT, Portsmouth, RI 02871.

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To have your new product or book considered for review in Monitoring Times, send it to: What's New? Monitoring Times, P.O. Box 98, 140 Dog Branch Road, Brasstown, NC 28902-0098.

Review

Grove FCC Database

For years the only way radio monitoring enthusuasts could get possession of the official FCC computer files of licensees was either by ordering the microfiche from Washington or by purchasing an expensive service from a contractor. Now, a low cost alternative for the home or business computer is available.

The Grove database is a proprietary format of the FCC's state index which may be sorted by city, frequency, agency or licensee. You can add your own files, edit those that are there, and delete what you don't want.

Services include public safety, mobile phones, experimental, private, cable, land mobile, industrial, business, land transportation, specialized mobile radio, aviation ground and marine coastal stations. And if you get too tired of seeing all those listings, hit Alt-F and bring up a calculator, notepad and even a puzzle!

As powerful as the program is, its down side is the disk space and time required for installation. If you live in a place like Rhode Island, no problem — only about 4 megabytes and 5-10 minutes. If you want to load California, Florida, or Texas, however, over 40 megabytes and an hour of installation time may be required! Not fun for those of us who have the patience of a drill sergeant.

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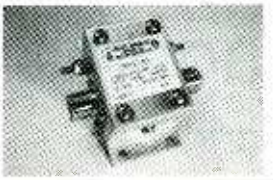
IT'S NICE TO FOOL MOTHER NATURE!



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Discharge Inductor	Toroidal, insulated.
Back-EMF GDU	600-1000V, ceramic body construction, G.I. Clare
VSWR	Less than 1.1:1 over rated spectrum
Insertion loss	Less than .1db
Impedance	50-75 ohms
Hardware	18-8 stainless hardware 8-32 stainless steel ground lug, 1/8" thick 5032-H32 case, 6-32 mounting hardware
Finish	Natural aluminum
DC resistance across	47K to 250K ohms, resistive
Capacitive effects	Less than 1pf
GDU specs.	Meets REA PE-80 IEEE 587 CCITT K12
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"Uncle Skip" Arey, WB2GHA

Crisis Management for Monitors

The Shortwave World

Well, we come once again to December. Winter's chill is upon us. The DX is starting to roll in. Number One and Two Sons want every toy advertised on TV under the tree or they threaten to grow up to be outlaw bikers or insurance salesmen. Come to think of it, isn't it time to start kissing up to the Significant Other in a vain attempt to get a laser printer?

Remember tradition, Uncle Skip

Oh yeah, right you are Boss. December is when Old Uncle Skip is supposed to throw another log on the fire, strike a pensive pose, and wax philosophic about the DX tradition.

What a year it has been! We started out with a serious war and ended up with the dissolution of "The Evil Empire," leading to the formation of so many countries that the map makers are issuing monthly updates. Toss in the odd hurricane and typhoon along with the "Stand Down" of the Strategic Air Command (SAC) and you have got what may have been the most exciting year in monitoring history.

Looking back on my log book and reflecting on conversations at the annual Monitoring Times Convention remind me that radio monitoring gave us a special leg up on understanding these exciting events as they unfolded all around us in 1991. The events also led many new folks into the radio hobby. My mailbox was full of letters from beginners trying to come in on the middle of all this excitement. And there certainly was plenty to listen to, if the loggings in *MT* are any indicator.

While I can't guarantee that 1992 will pack as much radio excitement into one year, you don't have to be Nostradamus to know that there is going to be some excitement somewhere on the globe. Radio monitoring will again serve to give each of us insight into our wild and wonderful world.

The key for all listeners, especially beginners, is learning to listen smart: Learn to track a crisis. So pour the Wassail, top the tree and come out from under the mistletoe for a few minutes as I present a present to you...

UNCLE SKIP'S GUIDE TO CRISIS MANAGEMENT

You will find that radio will provide exciting listening through essentially three routes: the

unexpected, the educated guess, and the announced. Some gems drop in your lap unexpectedly during regular listening. For example, tuning across familiar territory one evening in 1978, I found somber music playing on Vatican Radio when there should have been a regularly scheduled news program. This shift in programming signaled the passing of Pope Paul VI.

On the other hand, you can reasonably expect interesting monitoring from the world's hot spots. The January 1975 armored assault across the 17th parallel into South Vietnam led many radio hobbyists to monitor South East Asian radio services to track the eventual fall of Saigon in April of that same year. Similar world trends allowed folks to tune into the collapse of the regimes in countries such as Uganda, Iran and Haiti. Needless to say, the Middle East got a good listening during Operation Desert Storm and the restructuring of Eastern Europe is opening many exciting radio monitoring opportunities even as you read this article.

Another less frequent but equally fruitful path is something announced. During the British battle with Argentina over the Falkland/Malvinas Islands in 1982, the world was treated to "Argentine Annie" who broadcast Tokyo Rose type propaganda broadcasts to British troops as they steamed toward the conflict. History points out that the Brits dug the music but ignored the rhetoric. Many news services reported this event thereby guiding listeners to this historical series of broadcasts.

All these examples point to the simple fact that "YA GOTTA PLAY TO WIN!" There are three words that lead to success in this hobby LISTEN, LISTEN, LISTEN and DOCUMENT, DOCUMENT, DOCUMENT. Did I say three? Make that six.

Training

You don't have to wait for a crisis to strike to get your crisis management skills in order. Your routine listening and DXing serves to prepare you in the same manner that an athlete trains for an event or a soldier trains for war. The more listening and documenting you do, the better you are going to get at listening and documenting. The real key to listening to a world event "as it happens" is having a good working knowledge of all the radio bands and all the radio services.

This knowledge will lead you down less traveled paths of listening that might not be important while monitoring the Annual Boot Polish Production Statistics on Radio Freedonia. But when Freedonia's leader is finally caught in a scandal with the lady he met at the opera one night and Freedonian Freedom Fighters attempt a coup, wider radio knowledge will guide your listening to the clandestine Freedonian Liberation Front program coming out of the mountains in neighboring Klutzistan.

Get the picture? Know the bands and any world event will become your monitoring playground. So put on your jogging suit, don your sneakers and hit those dials. Train up to improve your listening.

Knowledge is Power

And don't forget RESEARCH, RESEARCH, and MORE RESEARCH! (Is that nine or ten words now? Nevermind.) Get to know the world around you so you can figure out when excitement might strike.

Follow the press! Radio, TV and newspapers are all sources of the basics on world events. Everything from the headlines and lead stories to the weather report can give the dedicated monitor fodder for frequency following. If you weren't locked onto the Cable News Network (CNN) during Operation Desert Storm you were either living in a cave or, worse yet, living in a cave that did not have cable or a satellite dish. When a crisis happens, things start to move fast. One eye on the Boob Tube while tuning the dials is *de rigueur* in the modern world of crisis monitoring.

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Don't forget the added information available to you as a radio hobbyist! The world news services of the many international shortwave broadcasters can give you information that even CNN might have missed. Regularly scheduled DX and Radio Hobby programs can even give you up to the minute frequency information for currently important world events. The "Shortwave Guide" in the pages of *MT* will point you in the right direction.

Maps

An important form of research is the study of LOCATIONS, LOCATIONS, LOCA...(*Stop that!!!*) Find the best maps and atlases (atlae?) that you can. This can get expensive, so don't forget your public library. Study the layout around your crisis area extra carefully. Get to know the bordering countries and, of course, their radio services.

In the case of the present changes in Eastern Europe and what can now best be called the USSR et al., stay alert. Does that new Republic have an old Radio Moscow relay transmitter in its back forty? You might be the first to log a new station. This is a real possibility with today's fast changing cartography.

Check Frequencies Frequently

Part of that "training up" listening and all that research and documentation stuff will include getting to know frequencies that will provide fruitful listening. I am always amazed by folks who can reel off a list of a few dozen frequencies without so much as a sidelong glance. I don't think I could keep my kid's birthdays straight if I didn't own a calendar.

For us folks without a filebox in our heads, monitoring hobby publishers have provided excellent frequency resources for almost every occasion. Obvious choices such as *Passport To Worldband Radio*, the *World Radio TV Handbook*, and the Grove *Shortwave Directory* are books that eventually find their way onto most listener's shelves. If you peruse the catalogs of many of the advertisers found within the pages of *MT*, you will come to discover that there are dozens of books that outline frequencies for all types of listening.

If your budget is tight, start out with one good resource for shortwave broadcast and a second that covers utility station frequencies. The reason for this is that the two forms of listening, SWBC and UTE, are essential for full coverage of most crisis situations. The broadcast stations are going to give you the news and commentary; but the utility frequencies will point you (often literally) to the "Front Line" listening opportunities. Even in this world of scrambling and encoding, some military communications are out there waiting to be monitored in the clear.

Making a List and Checking it Twice

If you are in a situation where a crisis is unfolding, a few short lists of frequencies will help anticipate further events. Let's look again at the Freedonia fiasco. Your list will include Radio Freedonia, the services of surrounding countries such as The World Service of The Empire of Klutzistan, the previously mentioned clandestine and several major world broadcasters. These might all be known to you from your general listening and following of events, frequency lists on DX programs and, of course, the pages of *MT*. Now how do we build upon this short list?

First we check the maps and our shortwave broadcast frequency guide, and we discover that the island nation of Nibi Nibi, to the South of Freedonia, also has a powerful shortwave broadcast service. We then look at our utility frequency guide to get the likely frequencies for Freedonian military operations. We might also discover that there are United States military forces based on Nibi Nibi. Monitoring the US frequencies may give an idea of their state of alert and readiness.

A quick glance at the world weather report in the evening newspaper indicates that Hurricane Irving is scheduled to hit the island of Nibi Nibi and move up the Freedonian coastline, further complicating matters at hand. Again, the utility frequency guide might supply you with places to listen to hurricane trackers and possible relief agencies after the storm.

Commentary on several major shortwave stations indicate that the destabilization in Freedonia could affect exports of lampwicks to The Federal Republic of Dunkenfield. Adding Dunkenfield's shortwave service to your list now becomes essential for full understanding of the crisis as it unfolds.

And, of course, who could forget amateur radio? With communications breaking down due to coup and storm, hams are likely to be supplying links with the outside world through various emergency service nets and individual contacts. Now you have generated quite a list of frequencies to keep you busy through the crisis.

When the crisis has passsed, save your frequency list. Areas that are in various sorts of trouble are often in trouble more than once. That old list on file will speed up operations in the future. Also, don't forget to share your frequencies and findings with your fellow DXers through the pages of *MT*.

We all wish for a safer and more sane world in 1992. But if events move in a more troublesome direction, good listening skills will find you at the head of the pack when it comes to understanding the world around you.

Scanner folks, have no fear! Next month we will take a look at how to cover those crises that occur closer to home.

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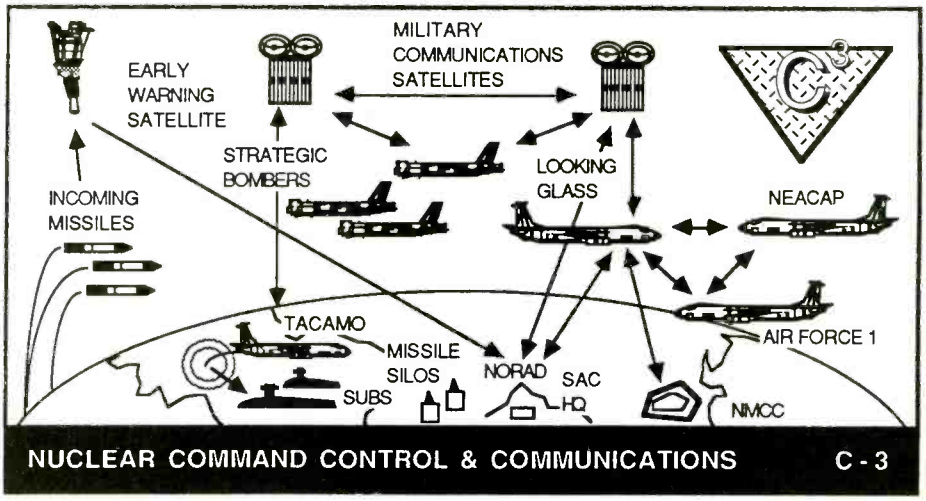
Rod Pearson

In the Event of a Strike

Great changes have taken place in the world's strategic arms posture since we were last together. B-52 bombers that have stood on alert for the last 40 years sit idle, their engines turned off. Whole classifications of nuclear missiles have been slated for the scrap yard. Aircrews who practically lived in bunkers in close proximity to their B-1B bombers, now spend their alert duty in the comfort of their homes. It seems the world has finally had the sense to pull back a step from the brink of nuclear destruction.

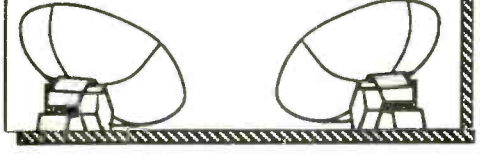
Many military monitors, including yours truly, wondered what effects the changes would have on the military airwaves. So far, it seems little if any change has taken place. Listening in on the HF and UHF bands, one can still hear the booming EAMs (Emergency Action Messages) familiar to all military monitors. The military bands are still buzzing with activity. Exercises, trans-oceanic deployments to the Middle East, and aerial refueling missions are keeping the frequencies hopping with activity. The only difference seems to be that the activity is shifting from nuclear to conventional war preparedness.



MILITARY UHF SATELLITE FREQUENCIES

Frequency	Satellite mode
248.900	MARISAT (NBFM)
260.475	FLTSATCOM (WBFM)
260.600	FLTSATCOM (WBFM)
260.975	FLTSATCOM (WBFM)
261.475	AFSATCOM (NBFM)
261.600	AFSATCOM (NBFM)
261.675	AFSATCOM (NBFM)
261.700	FLTSATCOM (NBFM)
261.900	AFSATCOM (NBFM)
262.150	FLTSATCOM (NBFM)
262.550	FLTSATCOM (NBFM
262.950	FLTSATCOM (NBFM)
264.900	MARISAT (NBFM)
269.850	FLTSATCOM (NBFM)
269.075	AFSATCOM (WBFM)
269.550	FLTSATCOM (NBFM)
269.475	FLTSATCOM (NBFM)
288.000	AFSATCOM (NBFM)
295.075	AFSATCOM (NBFM)

(NBFM) Narrow Band FM mode
(WBFM) Wide Band FM mode



Nuclear Command Part 2

Although it may seem that the world is dismantling its nuclear arms, it remains clear that we will continue to live in a world that has to deal with the threat of nuclear war. Unfortunately, we can't un-invent the bomb, and as long as nations disagree and have at their control weapons of mass destruction, there will be those who command and control them.

Last month we took a look at how the U.S. nuclear chain of command works. We examined who has control of the nuclear button. This month we will look at the high tech satellite networks that provide the reins of command.

The View From Above

In the event of an attack on the U.S. or its allies, satellites will play a key role in getting the warning out and issuing the command to strike. The first word of an impending attack would come from early warning satellites such as the U.S. DSP (Defense Support Program) early warning satellites. DSP senses the tell-tale heat signatures of missile launches.

DSP was recently used to detect the launchings of SCUD missiles against Saudi Arabia and Israel during the Persian Gulf War, giving Patriot missiles time to react. DSP satellites radio missile launch warnings to SAC/NORAD command centers via SHF (3-25 GHz) and EHF (25-300 GHz) frequencies. Sometimes the DSP satellites have been fooled by space rocket launches, volcanic activity, and large forest fires. If the attack is confirmed as real, then commands scramble bombers via telephone, HF, VHF, UHF, and EHF radio. The modes used to get the bombers off the ground are voice, teletype and encrypted data.

The bulk of military satellite traffic is handled by the Air Force's AFSATCOM and the Navy's FLTSATCOM orbiting birds. Both types are nuclear hardened against the electromagnetic pulse effects (EMP) that follow nuclear detonations, as are the ground and air-based terminals that control them. AFSATCOM and FLTSATCOM operate on the UHF bands and many monitors listen in. (See Table 1 for a list of frequencies.)

Other military satellites would be pressed into service as well, such as DSCSII and DSCSIII (Defense Satellite Communications System). DSCS satellites were pressed into service during Desert Storm when tactical communications overwhelmed FLTSATCOM and AFSATCOM terminals. DSCS carries a special single-channel transponder for relaying Emergency Action Messages. It receives the nuclear go-codes on either SHF or UHF, then rebroadcasts them to all AFSATCOM terminals. DSCS satellites use the SHF band for communications.

Alerting the Submarines

The Navy would get the attack word out via FLTSATCOM or by VLF (Very Low Frequency) radio. It is rumored that Navy has satellites and aircraft that communicate via blue-green laser. Blue-green laser can penetrate the ocean depths and is an ideal, secure way to communicate with deep diving subs without risking their exposure. Navy go-codes to subs could be routed from land-based command centers via lasers aimed at satellite/mirrors in geosynchronous orbit. The space mirror reflects the lasers down to nuclear submarines on patrol.

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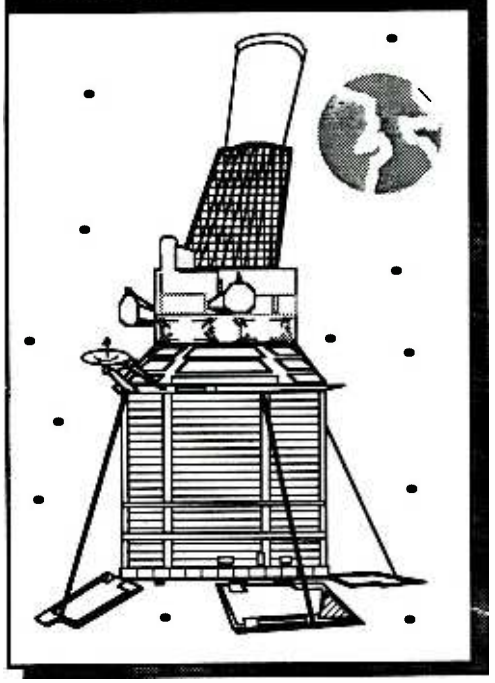

VLF radio also penetrates oceans but the frequencies used require massive power. Natural and manmade interference on VLF can be heavy at times, and using VLF has many drawbacks. Because of interference on VLF, messages have to be repeated over and over again to ensure a good copy. Land based Navy TACAMO aircraft also broadcast messages to subs via VLF, but the method is dangerous and not very reliable. The TACAMO planes deploy a two-mile long trailing wire antenna behind them. Accidents from the antenna back-lashing and wrapping around the plane have been reported.

Sending coded data by VLF transmissions is also very slow. To send the letters "ABC," one would have to send "AAAAAAAAAA . . . , BBBBBBBBBB . . . , CCCCCCCCC . . . ," etc, to ensure a good copy. In the event of nuclear war, time is of the essence, so VLF would not work well. To broadcast a simple message might take hours.

According to Pentagon sources, most VLF messages are the same. The Navy broadcasts a "We are still here and all right" message, that lets subs know that peace prevails. If the messages stop, then submarines either launch an attack after a set period of time without any contact or surface to get orders via satellite, VLF or TACAMO-based laser.

Next month we will conclude our look at the Chain of Command by examining what happens after the go-codes are sent.

MAILBAG

It seems that the anonymous letter containing strange goings on out at McCarran Airport in Las Vegas, Nevada, struck a few cords among Fed File readers. According to the letter, mysterious airliners (callsign Janet) are being flown out of the airport on secret missions. Last month, *MT* contributing writer Steve Douglass reported that Janets may be used to ferry TR-3A Black Manta spyplane pilots and technicians to their secret base in west-central Nevada. Since then other opinions and observations have come to the Federal File's attention.

A letter sent in by another anonymous writer states the Janets are used by the Department of Energy to fly employees to Groom Lake, Nevada (top secret USAF test area 51). The letter says that Department of Energy (DOE) employees are transported in buses, with blacked-out windows, to an area 10 miles south of Groom Lake, adjacent to Papoose (dry) Lake in Emigrant Valley.

What goes on there is not disclosed but rumors have been circulating for years about a mysterious hypersonic spyplane called Aurora based in the vicinity of Groom Lake. The Auroras are said to be flying out of Watertown Strip just south of Groom Lake.

Another Federal File reader, Joseph Cejka, says he thinks the aircraft at McCarran are used by NEST (Nuclear Emergency Search Teams). NEST has been active lately in the Persian Gulf.

Joseph says if you check the flight plans of the Janets, you will find out the destinations are Albuquerque, New Mexico, home of Sandia National Laboratories; Los Alamos, New Mexico, nuclear weapons and Star Wars development; Amarillo, Texas, Pantex nuclear weapons assembly plant; and Oak Ridge, Tennessee, nuclear research and weapons manufacture.

If this is the case, it looks like the Janets are being used for DOE work, more than NEST work. Not many people know what really goes on inside of NEST, but it seems they wouldn't need to visit these nuclear installations on a regular basis. Steve Douglass, who lives near the Pantex plant in Amarillo and monitors the area airwaves religiously, has never heard the callsign Janet used in conjunction with DOE flights.

DOE flights into Amarillo use commercial call signs such as WEST AIR 1129. Steve says most Pantex/DOE flights are military transports, either C-141s or C-5B Galaxies. However, Steve does relate one instance when a commercial 727 with no markings arrived at Amarillo International Airport and parked at the designated DOE pad. The aircraft was immediately surrounded by armed security forces. Many people wearing coveralls with DOE inscribed on back boarded a Pantex bus.

Steve went on to say, the fierce-looking security police armed with automatic weapons guarded and helped unload many mysterious-looking crates, all bearing "danger, radioactive" stickers. Checking the flight plan, Steve noted that the aircraft listed as its place of origin, McCarran Airport, Las Vegas.

Whatever the mystery 727s are used for, they seem to have made for some exciting monitoring. If anyone else out there has any information on the subject, please send it on to the Federal File.

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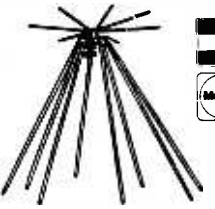

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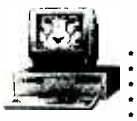

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Jean Baker, KIN9DD

DELTA Bound

Delta radio operator and communications equipment.

Welcome aboard. Can you believe it's December already? I enjoyed meeting everyone who attended the convention this year and know it was a good learning experience and enjoyable interlude for all of us.

Continuing with our look at airlines and their air/ground communications, come along with us to Delta Air Line's corporate offices in Atlanta, Georgia. We'll visit the radio communications room and talk with 24-year veteran employee George Ketner, supervisor of radio operations. Our visit to Delta's company headquarters in Atlanta was arranged by Dean Breest, coordinator of public relations.

Before 1956, Delta's air/ground radio communications system was staffed by radio operators located at all of the stations (airports) that Delta served. In 1956, however, the company started making up radio networks consisting of several stations on a communications link of frequencies, closing down all of the remote stations and moving the whole operation to Atlanta. By 1964, the move was complete.

Today, there are 88 radio sites distributed around the United States, making up 13 networks connected by landlines (telephones) and microwave. The radio room equipment is comprised of Collins receivers/transmitters with some Wulfsberg units also in use.

Presently, there is a total of 17 radio operators who staff Delta's a/g communications center, providing service to their pilots 24 hours a day, 365 days a year.

"One of the most important skills for a new operator to have is the ability to type 45 words per minute at the very minimum. The ultimate goal is to be able to work up to 75 or 80 words per minute," George Ketner told *MT*.

LDOC Station Frequencies

Long Distance Operational Control used by Delta as well as many other airlines worldwide:

Dragon Air Radio, Communications Center, Hong Kong: 3007, 6637, 8921, 13330, 17940, 21970.

Berne (pronounced Bern-a) Radio, Communications Center, Berne, Switzerland: 4654, 6643, 7605, 8936, 9211, 10069, 13205, 17931, 18023, 18480

Speedbird Radio, Communications Center, London, England: 5535, 8921, 10072, 13333

ARINC LDOC Frequencies, Communications Center, New York, N.Y.; San Francisco, Calif.; Honolulu, Hi.: 3013, 3494, 6640, 11342, 13330, 13348, 17940, 17925, 21964

It was easy to see why this is necessary as I watched and listened to the operators. Their fingers flew over the console keyboards as they handled call-ups from Delta's pilots on flights nationwide. George added that usually new operators weren't required to have previous technical training, but experience with aeradio and/or other radio operations was preferred. Most of the older operators who've been with Delta for a while have a second class radio/telephone license because it was mandatory until a few years ago.

When asked about the number of contacts the radio room handled, he checked through a logbook and said, "We've had as many as 42,000 a/g contacts a month. The heaviest time periods for call-ups seem to be during the afternoon and evening shifts, between 2 and 11 p.m." George related, "Good weather usually means less contacts. Bad weather increases them. If we have bad weather at one of our hub stations, communications can get very heavy. If there are storms at two hubs, things get even busier."

We asked what were the most common requests received by the operators from Delta pilots. Without hesitation, George said, "Here again, weather plays a major role. We receive a lot of queries and reports regarding conditions both en route and for destinations. The rest of the time it's a mixed bag of maintenance reports, miscellaneous requests, Selcal (Selective Calling) checks, etc. As an example, occasionally a pilot will report an inflight passenger emergency requiring a diversion of that flight into the nearest station where the passenger is off-loaded for medical attention."

Routine in-flight reports, such as OOOI (Out, Off, On, In) reports are usually transmitted by ACARS (data link) unless the unit is inoperative. Then they're relayed by the pilot.

Since Delta's communications center only handles VHF transmissions, overseas flights, such as to Hawaii, Europe and Asia are worked by ARINC on their HF LDOC frequencies, as well as Berne Radio, Speedbird Radio and Hong Kong's Dragon Radio (see insert for frequencies). Transmission reports are relayed back to Atlanta.

One final question concerned what the immediate future held for Delta's radio network. George Katner grinned and said, "New state-of-the-art equipment. We're in the process of changing over to a new type of "touch-screen" console, which will replace the turret equipment we have now. Everything will be on one screen with touch menus. It should be much more efficient than our present equipment and we're looking forward to their installation."

We thank George Ketner and Dean Breest for their time and for the tour of Delta's Radio Communications Center. It certainly made for a fascinating day in Atlanta.

Monitoring Navaids

Laura Quarantiello, California, contributed the following "Primer On Where To Listen For Aeronautical Aids To Navigation."

Nondirectional Radio Beacons (NDB):

190-535 kHz. Used to determine bearing and to "home" on a station. Transmits a continuous three-letter VHF ID.

Omni-directional Range (VOR):

108.0-117.95 MHz—subject to line-of-sight restrictions. Most are equipped for voice transmissions, but all transmit Morse code identification which is indicated by the word "VOR" following the range's name (*i.e. "Shelbyville VOR"-jb*)

Distance Measuring Equipment (DME):

962-1213 MHz—Distance information—reliable to 199 nautical miles at line-of-sight altitude, Morse code ID. (*There's that Morse again. Even knowing a little Morse can be of assistance in the darndest places.-jb*)

Instrument Landing System (ILS):

108.10-111.95 MHz—Forty assigned channels within this frequency range are used to align the pilot with course guidance to the runway centerline. Localizer transmitter (*providing the pilot with horizontal course guidance-jb*) IDs in Morse with an "I" followed by a three-letter identification.

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Glide Slope/Glide Path:
329.15-335.0 MHz—Provides descent information for navigation on the ILS approach.

ILS Marker Beacons:
Used to give pilots Morse code and visual indications on flight deck instruments.

Compass Locator:
190-535 kHz—Operate at less than 25 watts, though some are used as outer marker compass locators and transmit at 400 watts. These generally carry Transcribed Weather Broadcast (TWEB) information. Compass locators transmit continuous two-letter ID groups.

Thanks, Laura. We'll look at some more of these in our February column.

Readers' Corner

• Does anyone have VHF company station frequencies for Virgin Air and Northeast Airlines, especially in the northeastern part of the country? Jim C. from New Hampshire, as well as several other folks who have written to me from that area, would like to know what they are.

• Chris T., an air traffic controller and *MT* subscriber, contributed the following aviation comms funnies:

One overcast day at Los Angeles International the following exchange took place between a pilot who was on final approach and a controller in the TRACON (Terminal Radar Approach Control):

Controller: "Uh, FriendshipAir three-three-three, say altitude please."
Pause
Controller: "FriendshipAir three-three-three, say altitude."
Silence
Controller: "FriendshipAir three-three-three, I say again, say altitude."
Friendship Air three-three-three: "Al-ti-tude."
Controller: "Good, FriendshipAir three-three-three, now can you say vi-o-la-tion?"

United Airlines is based in a Chicago suburb and because of the airline's vast number of flights in and out of O'Hare daily, other airlines have accused the controllers of giving United priority in just about everything. Chris swears the following story is true.

A United 727 and a Delta L-1011 had just been handed off from Chicago ARTCC and were ready to contact O'Hare Approach Control one day, when suddenly the Delta aircraft developed a major problem and the captain started to call Approach Control saying "O'Hare Approach Control, this is Delta 440. We've developed a major hydraulic failure on both systems and are declaring an emergency."

Simultaneously the United 727 pilot said, "Hello, Approach. This is United 23 with you. We're at 9,000 feet with information (on the ATIS) India."

The controller, sorting out the two voices, calmly said "Standby, Delta; go ahead, United."

Late at night, when air traffic is not as heavy as it is during the day's peak periods, controllers and pilots tend to loosen up a bit. This can act as a tension reliever for all concerned.

"Seattle Center, (calling) FaginAir 212."
"FaginAir 212, (to) Seattle Center, go ahead, sir."
Seattle Center: "FaginAir 212, say your present position."
"FaginAir 212, (to) Seattle Center, I'm seated, sir."
Seattle Center: "Thank you very much, FaginAir 212."

An aborted takeoff is anything but funny. However, this story is.

A Treetop Airlines flight was just about to attain flying speed departing Miami International when the aircraft, a, shall we say, "elderly" BAC 1-11, abruptly slowed down. Smoke poured out from its tires as the plane made a finally successful stop before rolling off the runway.

As the 1-11 turned onto the nearest taxiway and headed back to its gate, the tower controller anxiously asked if emergency equipment, or any other assistance was required. "Nope." said the first officer. "The captain just forgot to lock his seat in place and when we applied full power he was holding the wheel and his seat slid all the way back."

Company Frequencies

We promised to publish airline company frequencies when ever feasible, so here are several in use at Indianapolis International Airport:

USAIR	130.100
American Airlines	129.225
TWA	130.225
Continental	129.925
American Trans Air	131.525
Northwest	131.9
ComAir	130.5
United	129.975

That's it for this month. Next time, we'll have more aviation software reviews (there's a blue billion of them out there), navaid definitions, and other goodies. Have a warm and joyous holiday season. Until then, 73 and out.

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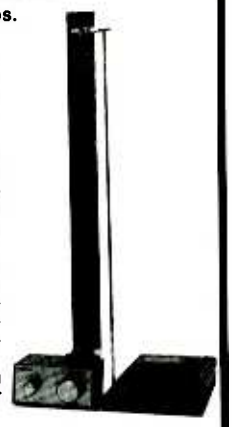

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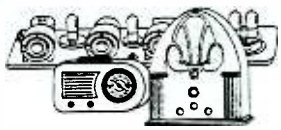

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The Station with No License

The United States Military Academy has a very specific image: Clean cut young men and women, stiff as a two-by-four, carrying flags and marching in formation. Rifles, perched on their shoulders, gleam in the bright sun.

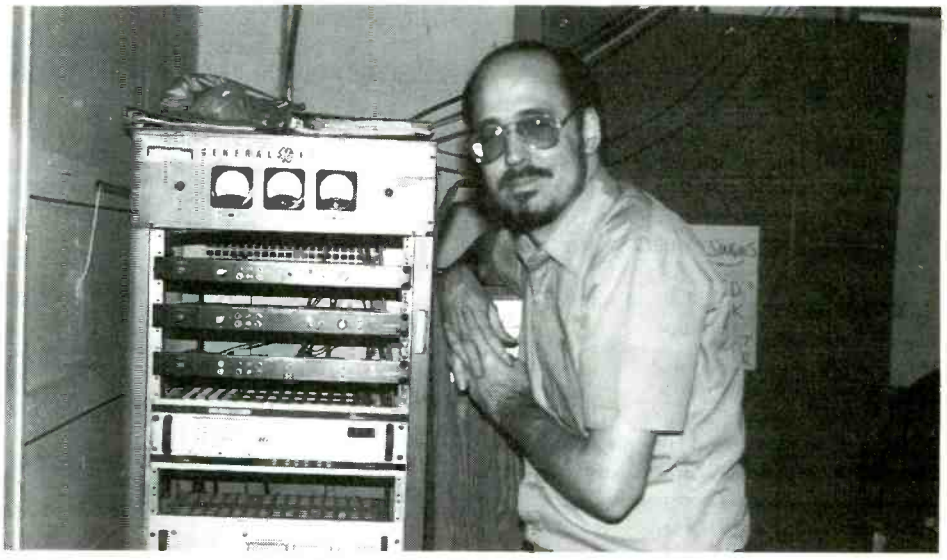
It's an image well-cultivated at West Point. The people who make up the 4400-member student body of West Point are, in fact, the *creme de la creme*. They are a deliberate cross section of the entire country. Two come from every Congressional District in the country. Others are Presidential appointments.

But these future leaders, the officers and gentlemen of the U.S. military, are also very much teenagers — perhaps a little more conservative than most but teens nonetheless. If you doubt for a moment, listen to WKDT, the student-run campus radio station.

"WKDT is designed to serve this institution, this student body, only," says Joe Cyr, the general manager of the station. "The fact that people outside of West Point can hear us is nice but if we lost you, it's not a problem."

It's not likely that many people outside of West Point will hear the station. It's located just north of Bear Mountain National State Park and is surrounded by rocky palisades that naturally limit the station's 100 watt signal. When a new station, WLPJ, came on the air recently, it made a further dent in the station's coverage, limiting 'KDT to a radius of about five miles.

"So long as we don't lose the five main buildings here and the homes of West Point, we're OK," says Cyr. "We've been going merrily along since 1972."



Station manager Joe Cyr with WKDT's 100 watt transmitter.

'KDT goes perhaps a little merrier than most broadcast stations in the United States. It has no license. "We have an `understanding' between the DOD [Department of Defense] and the FCC," says one station official.

Competition is not one of the station's big problems, either. There are no TVs allowed in cadets' rooms. Seniors and juniors are allowed in the company game room to watch television. Yearlings (sophomores) can watch TV on weekends. Freshmen, however, are never allowed to watch television anywhere.

Radio is on strict rations, too, albeit for a different reason. Very few stations penetrate the campus — just two, to be exact, and one of them is a beautiful music station. As a result, the station bills itself, somewhat humorously, as "The Only Alternative."

WKDT is, quite literally, the only alternative for some students. When the freshman class arrives at West Point in July, they are not allowed to have a radio until the following January. As a result, many plebes are drawn to participate in WKDT as their only access to music. Those who stick with WKDT through their years at "The Point" come away with a solid grounding in the principles of radio.

"In February or March of your senior year," says Cyr, "you draw the branch that you are going to serve in the military: artillery, armor, infantry, signal corp. A couple of weeks after that, you draw your post assignment -- Germany, Korea — then you go. But most will never touch the radio again."

Won't we hear these young broadcasters someday as the voices behind Armed Forces Radio? "No," says Cyr, "that's for enlisted people. These young men and women are officers when they come out. They could, of course, end up in a supervisory or administrative position."

"But that's why I get such a charge out of this job," says the station GM. "These guys aren't working at 'KDT because they want to land a job in radio after they leave here. They're doing because it's fun. And it sounds like it."

Cadets at WKDT.

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Breaking the Rules

Even though Halloween is long over, people are still asking Steven Humphries about "magic formulas." Humphries is no conjuror, though. He's vice president and general manager of KXTN/KZVE in San Antonio, Texas. During the last couple of months, Humphries has been able to do something, well, almost magical.

His KXTN has become the top-rated Spanish-language radio station in the city, knocking KCOR from its traditional spot. How has he done it? KXTN breaks one of the major rules of Spanish-language broadcasting — the disc jockeys don't speak in Spanish.

Targeting the "partially assimilated Hispanic," Humphries features only Tejano music, which is a blending of Anglo and Mexican-American cultures. Speaking of his audience, the San Antonio native says that "Culturally and emotionally, [the target audience uses] Spanish as the language of emotion. But they gain a good deal of their news and information needs in English and Spanish." All music played on the station is in Spanish.

Calling Their Buff

Doing a radio show "in the nude" has become something of a cliche. It's easily accomplished while fully clothed. All that's necessary is the right words and radio's "theatre of the mind" does the rest.

In Brisbane, Australia, B105's morning duo of Jamie Dunn and Ian Skippen also claimed to be doing their show in the nude. But when photographers for the "Down Under" version of *People* magazine showed up to call their bluff, they got an X-rated eyeful. And so did the rest of Australia when the magazine published the pictures. There, in a two-page spread, are the two jocks, wearing only what God gave them on their birthday.

Not all station employees were amused, though. Said DJ Skippen, "Some of the more prudish members of the staff decided to turn the heating off to make a point." The two responded by clothing themselves in station bumper stickers, putting them on — you guessed it — their bumpers.

Station Grants

Here's what's new on the air near you. Hartselle, AL 106.1; Trussville, AL 105.9; Warner Robins, GA 102.5; Zebulon, GA 92.5; Champaign, IL 100.3; Norris City, IL 90.1; Olney, IL 90.3; Russell Springs, KY 92.7; Ocean Springs, MS 92.5; Blue Mountain Lake, NY 89.9; Port Matilda, PA 107.9 and Greer, SC 103.3.

For Sale

Isn't it about time you bought yourself that radio station you've always been wanting? After all, it is Christmas and you *do* owe it to yourself...

How about a 25,000 watt FM in the Coastal Carolinas? It's a single station city with 6.6 million visitors annually. By fall, sales were already ahead of last year by more than 36 percent. Asking price is $850,000. Call 919-355-0327 and ask for Tom Snowden.

There's a 50,000 watt full-time AM in Huntsville, Alabama, that's on the block. M.D. Smith is asking $175,000 for the facility. If it sounds interesting, call 205-533-3131 during business hours.

In "deep, sunny, southeast Georgia," lives an AM/FM combo that comes with 11 acres of real estate plus studios and offices. The AM is full-time at 1,000 watts; the FM is 3,000 watts but upgradable to 6,000. All you need is $80,000 and the willingness to assume a $315,000 note over the next 14 years. For more info, call Rob Williams at 919-633-9799.

British DX Club

The 1991 edition of *Radio Stations in the United Kingdom* has just been released by the British DX Club. The booklet lists all British medium wave (AM) and FM stations in frequency order — both BBC and independent — including their location and transmitter power. Each frequency is cross referenced to show possible parallel channels.

You can get your copy for US $4.00 postpaid (check or money order) from the British DX Club, 54 Birkhall Rd, Catford, London, England SE6 1TE.

Credits

Thanks to *Broadcasting Magazine*, the *M Street Journal*, *People* magazine, *The San Antonio Express-News*, M. L. Cauthon III, Ed Catworthy and Timothy Hinton. Until next month, happy trails.

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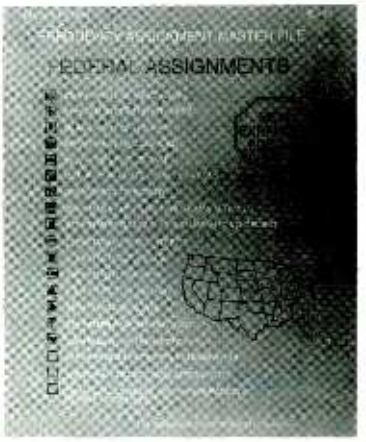

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Peering Into the Future

Poised on the eve of the new year, it's a good time to assess the current status of the satellite industry and speculate about the future.

Among the 25 or so C and Ku band satellites, there are over 150 active video channels, several hundred FM audio subcarriers and hundreds more SCPC (single channel per carrier) channels of additional audio. To add to that there are several one-of-a-kind services such as Electra, X*Press X*Change and Digital Music Express offering unique satellite-delivered information and entertainment.

In the Beginning

The mission of the cable TV industry in the beginning was a simple one: Bring distant over-the-air television signals to areas which had no television reception. This mission remained intact for nearly 20 years. With the launch of the first satellite-delivered, intended-for-cable pay TV service in 1975 (Time Inc.'s Home Box Office) a new era in cable began.

This also signaled the beginning of the satellite television industry. Each year new, more sophisticated satellites were launched. The broadcast industry awakened to the concept of using these satellites to distribute their signals to affiliates, telephone companies were using them for long distance lines, industry and commerce were finding them very useful for transmission of data without the use of expensive land lines. The more these "workhorses in the sky" were looked at, the more uses were found for them.

Cable is becoming a dinosaur, It's time satellites cut the cord... if only they could!

Cutting the Cord

The time is rapidly approaching when the rationale for utilizing a wire physically strung through city streets, buildings and rooms, becomes irrational. Like the great tail-finned, heavyweight, gas-guzzling cars of the '50s, cable is a dinosaur. It is meant for an era before satellites.

Albeit with much hesitation, the concept of DBS (Direct Broadcast Satellite) service is inevitably lurching its way into our future. DBS is generally depicted as high powered (over 100 watts) Ku band satellites which deliver their signal to small 18 to 24 inch dishes.

The first such attempt was made in the mid-'80s by a company named USCI which leased a Canadian Ku bird, retrained the spot beam on the Eastern U.S. and fed five existing cable channels. These signals were picked up on a three-foot one-piece fiberglass off-set fed, unsteerable single polarity dish. The plan called for Radio Shack to market the hardware and USCI to market the programming. It was a financial disaster.

The reason for the flop was simple: At a time before scrambling, 10 times the number of channels offered by USCI on Ku for a monthly fee were available on C band for free. Rule number one: Don't charge people for something they can get elsewhere for free.

Cutting the Cord: Take Two

The next effort at DBS came just two years ago with a very different twist. Taking advantage of the entrenchment of scrambling, TVN (formerly TouchTone Video Network) launched a C band DBS service aimed primarily at the existing home dish market. Discarding cable programming which is already available to the market, TVN has concentrated its efforts on the Impulse Pay-Per-View (PPV) market. The theory is that people in the home dish market will be eager to pay each time they want to watch a movie.

TVN is not exactly a prairie fire but it helps that AT&T, which owns the Telstar bird on which TVN is located, is also a major part of its financial configuration. Rule number 2: have a backer with deep pockets.

At the same time that TVN was hatching its plan, no fewer than 11 other companies and organizations were putting forward schemes to mine the thus-far mythical gold mine of DBS. Out of all those candidates only two entities actually made it to the satellite.

Cutting the Cord: Take Three

The two horses still limping to the finish line are SkyPix and PrimeStar, but it's not clear which, if either, will win. Each service is taking a different approach. SkyPix is trying its 8 to 1 digital compression transmission approach to the market while PrimeStar is beginning with the old analog one channel at a time method. Both will have to overcome the same handicap in a very sluggish economy. Rule number 3: Don't launch a multi-million dollar business venture at a time when the whole economy is flat on its back.

To indicate the state of confusion these two are in, PrimeStar had originally planned to launch this year with 50 to 100,000 subscribers. A report in MultiChannel news from September '91 indicates they will be closer to 7,000. In addition, PrimeStar may end up abandoning its analog transmissions for an as yet undeveloped digital compression system. Meanwhile SkyPix is said to be having trouble finding financial partners and has yet to announce an official launch date.

As of this writing SkyPix has one video compression channel on SBS 6 (99 degrees west) in operation while PrimeStar has 11 BMAC encrypted channels on GE's K1 (85 degrees west).

But Wait, There's More

Still lurking around the launch pad are the real DBS players. These are the high-powered Ku band satellites that really will make the 18-inch dish a reality. Unfortunately, they are a long time from take-off. This leaves us right back were we started.

But what's the future for C band? It turns out that it is quite good. Also hanging around the launch pad are a new generation of C-band birds nearly twice as powerful as the ones we are currently viewing. These satellites, once launched, will likely have a life-span of 12 years making it possible that your current C-band equipment investment will be good until 2014.

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A Question of Degree

Within the next six months the FCC will likely have ruled on the question of spacing in the sky. For years there were so few satellites with such distances between them that spacing was not a concern. Five years ago it was the commission's intention to leave only two degrees between satellites as seen from the earth. This spacing would allow extra satellites to be squeezed in.

However, the rapid expansion of the home dish market and the desire of dish manufacturers to reduce the size of the backyard dish has created a conflict with the two degree spacing scheme. With higher powered C-band satellites a smaller 4 or 5 foot C-band dish could be used.

The smaller dishes would obviously expand the market. The problem, however, is that positioning these more powerful satellites so close together would make it hard for the receiver to tune in the proper satellite. Without the extra degree between them, the dish would "see" both.

Understandably, the home satellite industry is very much interested in the commission's reviewing the spacing policy. However, the satellite industry, which is composed of heavyweights such as Hughes, GE, Ford, etc. do not care to see the change. More space between birds means fewer birds. Given the advantage of weight, reach, height and money, it will be a surprise if the FCC goes to the three degree spacing.

Notes from the MT Convention

In my annual informal poll of those attending the seminar on satellites I noted a dramatic increase not only in attendance but in the number of those who said they had home satellite systems and those who intended to get them.

Many informal but earnest conversations took place during the rest of the convention to exchange information and ideas about monitoring satellites.

Among the satellite luminaries were Tom Harrington, author of *The Hidden Signals On Satellite TV*, Donald Dickerson, Satellite View editor for *Popular Communications*, and a surprising number of satellite enthusiasts who have been monitoring the Clarke Belt since the late `70s. Numerous stories of intrigue and savvy hamfest shopping were told. One of the best tips was for those who have Electra teletext decoders or Infocipher 1500R data receivers to scan each channel on each satellite in search of heretofore undiscovered data transmissions. You may be surprised at what you find.

One of the more interesting stories was from James Latham, station manager for Radio For Peace International in Costa Rica. According to James, a communications network for educational institutions in such far flung places as Rarotonga, Hawaii, Alaska, and Costa Rica, to name a few, was set up years ago under U.S. government auspices and managed by NASA. Utilizing a voice-only geosynchronous satellite launched in 1963 (and by this time wobbling a good bit), the network made for reliable daily communications among the institutions.

Uplinks used seven-element Yagi antennas powered by 150 watt transceivers. Transmissions were split using frequencies just above and below the two-meter ham band. While it has been a year or more since he last checked into the net, James speculated that it was still active. If any *MT* readers have more on this or other lesser known satellite nets, I'd appreciate hearing from you. One wonders what other kinds of low-technology opportunities are possibly being missed by not utilizing all of our "space junk."

MAILBAG

• Zack Schindler, Ferndale, Mich., writes that others who are cable TV subscribers might be able to convince their local cable company to carry the NASA Select channel (F2,13). The channel features daily programming in four-hour blocks repeated every four hours. Zack notes that the material "consists of educational and historical NASA material."

He suggests writing, not phoning, the local cable company's manager or programming director with information from NASA Select, Public Affairs Office, NASA Headquarters, Washington, D.C. 20546, Phone: 202-453-8425. He also suggests emphasizing the educational aspects of the service.

• Clarke Rennie, Los Angeles, writes: "The signal on SBS 2 fades in and out and disappears completely at times. Is SBS 2 in an elliptical orbit rather than a geosynchronous orbit?"

Clark, according to the Westsat Communications Satellite Channel Chart, COMSAT SBS 2 (Ku 97 degrees west) is an "inclined orbit satellite." This means the satellite, while still in a geosynchronous orbit, has difficulty staying there. The result is that it drifts in and out of its allocated position.

An excellent article on the subject is entitled "Tracking Eccentric Orbits" by Mark Long and is in the August issue of *TVRO Dealer*. There is a chance that back copies exist. Write Tech Editor Karl Finke at Fortuna Communications Corp., 140 South Fortuna Blvd., Fortuna, Calif., 95540 or call 707-725-1185. A subscription to *TVRO Dealer* is well worth the $12 a year fee.

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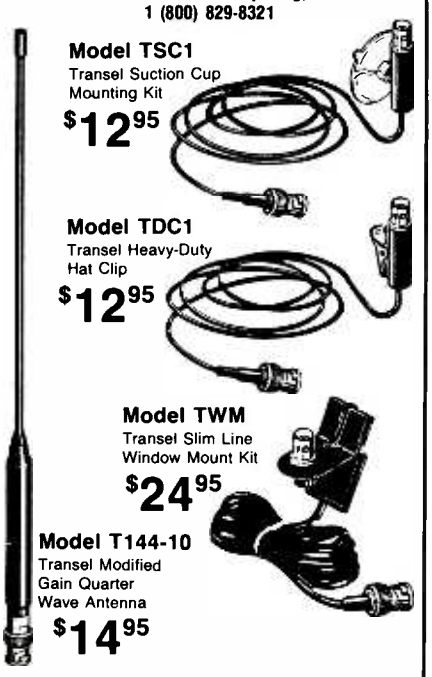

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Ike Kerschner, N3IK

Going Lower

Wow, here it is December, time for ho ho ho, snow and DXing on the low bands.

To be sure there is still plenty of DX to be worked on the bands above 40 meters, but the long winter nights and low noise levels allow us to work DX on our three lowest ham bands (160, 80 and 40 meters) with greater ease. What a thrill it is to chat with a fellow ham half a world away on 80 or 160 meters! In general I have found operators on the lower bands to be more willing to chat and spend some time getting to know you. The competition factor is not as strong among low banders, maybe due to the fact that operators on the lower bands are rag chewers, more accustomed to friendly chatting.

Why is Winter Better?

Low band DX is normally limited by two factors, the first is daylight, the second is atmospheric noise as generated by electrical storms.

During the daylight hours, a heavily ionized layer called the D layer (nearest to the surface of the earth) absorbs signals in the 160, 80 and 40 meter bands; generally, limiting daytime communications to just a few hundred miles.

The D layer forms shortly after sunrise and dissipates rapidly as the sun sets. Low band signals follow this path between sunrise and sunset giving rise to the famous "gray line DX" phenomena. The gray line is the terminator of the earth, that point where sunrise meets sunset as the earth rotates on its axis. Consequently, it is, at times, possible for stations located on the terminator to be able to communicate with great ease. Normally conditions are optimal from about one half hour before and after sunset or sunrise on 160 and 80 meters and perhaps up to an hour before and after on 40 meters.

As you might expect, stations common to your grayline will vary from day to day. Several computer programs are available that will generate a list of areas of the world common to your gray line; one of the most popular is called the DX EDGE, and is available from ham dealers. The ARRL (225 Main St., Newington CT 06111) also has an excellent low band DX plotting program configured for a wide variety of computers.

Is that the Only Time?

Not at all; most quiet winter nights will see DX to many parts of the earth on these bands, and communications to the antipodes (the points directly across the globe from you) is possible anytime after sunset. Expect communications from the eastern US to Europe and Africa anytime after sunset, and possibly to any other place on earth in the same hemisphere, when night time is common to both points.

What About Sunspots?

During periods of high solar flux (sunspots), DX on the higher bands is better because the ionosphere is more densely ionized and the shorter wavelengths are easier to refract back to earth. When solar flux numbers are low, the low bands still refract easily back to earth because their longer wavelengths impact (if you will) a greater amount of ionization while the shorter wavelengths pass through the ionosphere and are not returned to earth.

What this all means is that very often during periods of low solar activity 80 meters will rival 20 meters as the DX band!

Noise!

The most limiting factor to DXing on the low bands is atmospheric noise as generated by electrical storms. Of course any electrical noise (yes, I know all about mom's hair dryer, mixer and sewing machine) can mask weak DX signals.

Summer time is without doubt the most difficult time to work DX on the low bands. To be sure the signals are there, but noise hides them most of the time. As a result, the best time to work stations in the opposite hemisphere is during the early spring and fall of the year just as seasons change and electrical storms are not as frequent in either hemisphere.

Where Do I Find DX?

In CW on the 80 and 40 meter bands, DX is normally found on the lower 35 kHz of the band; 160 meters is a different story. There are several DX windows depending on the area of the world you are looking for. It is best to check the band and talk to the various ops to see where a particular country or group of countries hang out looking for DX QSO's.

SSB DX on 75 meters can crop up anywhere, but will usually be found between 3700 and 3800, 40 meter ops check the lowest edges of the phone band. Due to the fact that different parts of the world are assigned different frequencies on all of the low bands, it is a good idea to pick up a copy of ON4UN's book *Low Band DXing;* the book is available from most ham dealers and the ARRL Book Store.

What About Power and Antennas?

An average 100 watt rig attached to a good vertical antenna will do the job most of the time. No, the antenna does not need to be vertical; many ops work the world with low horizontal dipoles or long wires. Don't let lack of acres of antennas keep you from getting on and having fun! Try it; you'll be sure to like it.

Remember the Ham Hubble?

In the October column I discussed the possibilities of putting a telescope in an OSCAR. Well AMSAT was ahead of me on this one, and at this time Oscar 22 is sending photos back to earth. To date, there appear to be only photos of Earth, but perhaps in the future the bird will look at other objects in space.

So far, there has been little fan fare on this bird, perhaps because it is still in the testing stages. France also has a small telescope in space; more on this as details become available.

New Ham Organization/Magazine

The National Amateur Radio Association, 16541 Redmond Way, Suite 232 Redmond, WA 98052 is publishing a magazine called COMMUNICATOR. The organization's stated objective is to encourage more people to become involved in amateur radio. The one issue of the magazine I have seen is not too bad.

Most of the staff are well known names in ham radio: for example, Don Stoner, W6TNS, Fred Maia, W5YI and Gordon West, WB6NOA.

One article, "All about Frequency," introduces the newcomer to the concept of frequency. Still another informs the reader about the history

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Rob Sarduis

Ham DX Tips

You say you've asked Santa for a chance to log some of the rare ones? Well, he got your letter, and here's some tips that might help:

BOTSWANA Here's some DX for you codeless technician class licensees! A22BW is looking for packet contacts via the satellites! Since most of these frequencies are 2 meter ones, or 432 MHz, this is a great way for newly licensed codeless techs to make a DX contact, especially if your local packet node is linked to a satellite or to a node that is. If you contact A22BW, you may QSL to his QSL manager: Wolfgang Daub, Solinger 79, D4018 Langenfeld, Germany.

CANADA Licensed hams can check into and SWLs should check out the nightly get together of the Ontario DX Assn. with their club station VE3ODX as net control station on 3740 kHz starting at 0230 UTC. If you log VE3ODX, you may send your report to Box 717, Station Q, Toronto 7, Ontario, M4T 2N5. Many of the members on the net discuss their latest DX catches, which include SWBC stations!

DX NET INFO The 40 meter DX net moved from 7159 kHz nightly at 0600 to 7179 kHz to avoid SWBC QRM.

FRANZ JOSEPH LAND 4K2MAL is the new station active from here on: 21020 kHz at 2330 UTC, 10103 to 10105 kHz at 0030 UTC, 7005-710 kHz at 0130 UTC. QSL UA4RC Victor Gorokhow, Box 252, 423400 Almetevsk, USSR.

HONG KONG Active till after first week of December GU4XGG/VS6 using the freqs of: 14210, 2120, 28570 kHz. QSL route will be advised during the operation.
LAOS XW8KPL has been on 21270 kHz at at 1530 UTC daily. QSL route is now: Phuthong, B.P. 3770, Vientiane, Laos.

MALAWI 7Q7BX (Christine Shaw) has been showing up on 14227 kHz in the Pacific DX net that operates here as early as 1000 UTC till 1300 UTC. Her husband Paul, 7Q7BW, has been on 28555 kHz at 1700 UTC. QSL both to: P.O. Box 30667, Llongue 3, Malawi. Be sure to include return postage.

MIDWAY KH4AE (Arthur H. Edmonds, P.O. Box 19 NAF, FPO San Francisco, CA 96614) is a newly licensed technician, that is one with HF privileges, and keeps regular schedules on: CW 21150 to 21200 MHz Fridays at 0330 UTC and 28300-28500 kHz SSB starting at 0000 UTC daily.

NEPAL Father Morgan, 9N1MM, has been appearing rather regularly on 14247 kHz at 0030 UTC nightly. QSL to N7EB, his QSL manager, Edward M. Blaszcyk, 12802 Sun Valley Dr., Sun City, AZ 85351.

Well, that's it for another month. Have a Merry Christmas and remember while DXing is fun, I hope that you'll take some time to be with those who are close to you, family and friends, during this time period; and may Santa bring you that new receiver you wanted!

73 de Rob

of amateur radio regulation. And a fictional offering, "Dan and Burke," harks back to the 1950's Popular Electronics Carl and Jerry stories (a series of stories about two teenagers who use electronics/ham radio to solve all sorts of problems).

My only objection to the magazine is an editorial that bangs away at the faults in our educational system and does not offer reasonable solutions; at least nothing that came through to this reader.

The magazine is aimed at the beginner and those interested in getting folks involved in ham radio. At a cost of ten bucks a year, it is worth giving it a try.

The FCC

... has recently announced a notice of proposed rule making which will allow amateurs to conduct a limited amount of personal business on the air. "At last I can order pizza via the autopatch!"

didahdidahdit

Hope you all have a happy and joyous holiday season

73 de
Ike, N3IK

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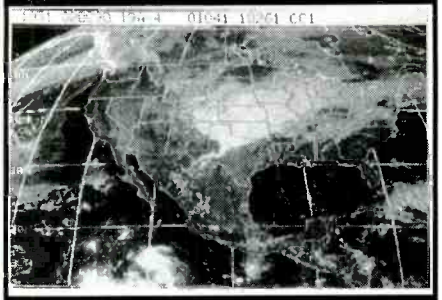

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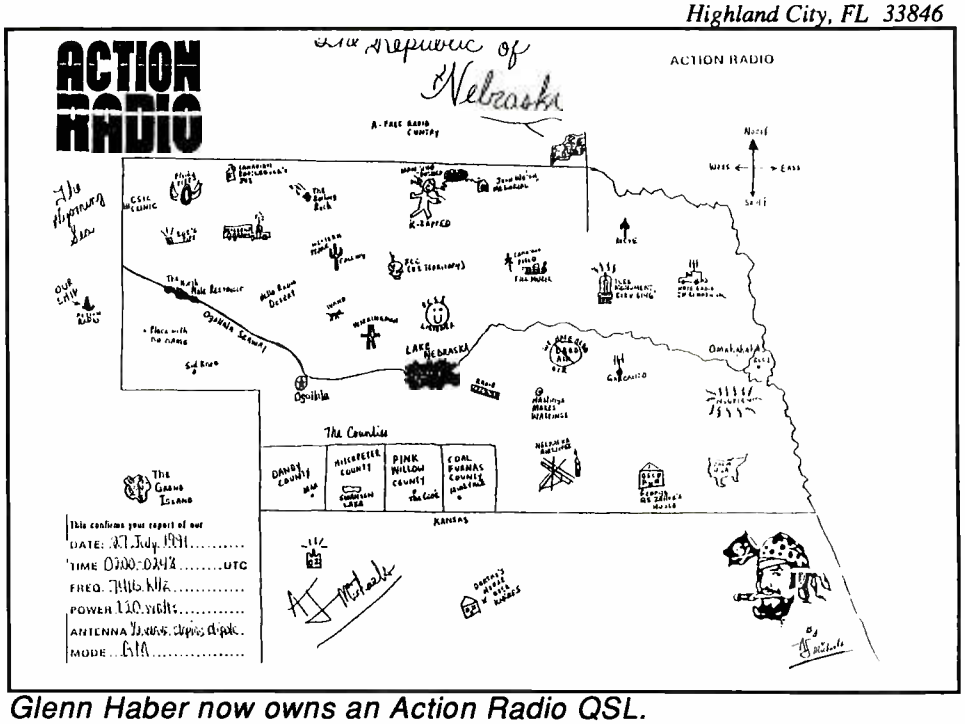
Here Comes Radio Tower: This editor was pleasantly surprised recently to receive a phone call from Paul Peters of the Dutch pirate Radio Tower. Paul said to tell all "Outer Limits" readers Radio Tower will definitely be broadcasting again to North America this DX season.

The station received such a huge number of replies for their transmissions last spring that they are going to remain on the highly successful frequency of 15050 in upper sideband. Most likely time to hear them, based on the previous broadcasts, is probably UTC Sundays between 0100 and 0500. If you have never heard a Europirate, this is an excellent opportunity to grab that first one. All broadcasts are in English.

Radio Tower is a good verifier. I would suggest sending either a dollar or several IRCs for return postage. Reports can be sent to the station in care of P.O. Box 19074, 3501 DB Utrecht, The Netherlands. By the way, Gregg Allinson: Paul says he has been trying unsuccessfully to contact you.



Glenn Haber now owns an Action Radio QSL.

Radio Harmony might be another Euro catch. In Florida Terry Krueger reports hearing this one frequently after 0100 on 6304.94. The station appears to be relatively new and features music from the 1940s through 1960s. Most likely, transmissions originate in Ireland, but this is not certain.

You can send your reception report to Radio Harmony quite easily. They have a USA post office box. Enclose a dollar for return postage and send that report to Box 7, Venus, TX 76084.

• Glenn Waber, who usually sends us reports on the pirate activity he hears in Wisconsin, writes this time to tell us what he discovered on a recent trip to Ireland. Radio Fax (6205 and 12255) was in daily. Radio Fax on one occasion announced that Radio Stella International was transmitting from UTC Saturday 2300 to 1015 Sunday on both 6291 and 7446. Undoubtedly Stella is a lot easier to log in Ireland, but this is another Irish pirate that with some persistence you can grab on this side of the Atlantic as well.

Some Help From the BeeB: The BBC Monitoring Service always does a super job of keeping us up to date on the changing clandestine situation. They note the Colombian clandestine Radio Patria Libre, operated by the Camilist Union Army of National Liberation, has turned up on the new frequency of 4695 at 0035. The station continues to announce a schedule of 0030 and 1130 on a frequency of 6300 kHz.

Meanwhile clandestine Radio of the Republic of Iraq, the Voice of the Iraqi Opposition, has added an additional transmission in addition to the one starting at 1100 UTC. The BBC has monitored it on 17950, 15600, and 9570 from 0256 to 0519 UTC. The station is believed to be a CIA operation transmitting from both Egypt and Saudi Arabia.

Your editor came across another Iraqi clandestine. This one, the Voice of the Mojahed, is sponsored by the Iraqi government and directed against Iran. It was engaging a losing battle with a bubble jammer on 4740 at 0140. The station also uses 6540 and according to the BBC has also been found on 6130 and 7120 as well as medium wave.

• A really fantastic reference work for those interested in clandestine radio is *The CCN File*. It is a complete set of all issues of the "Clandestine Confidential" newsletter from 1984 to the present. The "File" comes in a handy three-ring binder and is $25 plus $2 shipping and handling from Tiare Publications, Box 493, Lake Geneva, WI 53147. It should definitely help you bag those fascinating and sometimes elusive clandestines.

Let's Open the Mailbag: "Outer Limits" readers have been hearing quite a lot these days.

• Loyal contributor Skip Harwood once again tells us what he is monitoring out in California. **Voice of Free America** had a USB signal on 7415 at 0300. **Radio Animal** was hosting a show on **Alliance for Free Radio's** 7415 transmission at 0320.

• Glenn Waber does all right on the road and at home. From his Wisconsin post he found among others **Radio USA** at 0206 on 7414 with a mail bag show. The Canadian pirate **Radio Beaver** made it south of the border on 7415 USB at 0133. Radio Beaver noted CBC had broadcast an item about the station. **Voice of Gilligan** showed up on 7415 at 0405 in LSB and mentioned most of the folks in the old "Gilligan's Island" TV series.

Glenn also did superbly in the QSL department. Cards arrived from **Action Radio, Revolutionary Voice of Plainville, Tube Radio** and **Radio USA**.

• Once again we are pleased to hear from William Schmitz in Washington D.C. He found **Radio Cowabunga** on 7415 at 0211 in a QSO with **Radio USA. Radio DC**, "Your alternative voice from the Beltway," showed up at 2310 on 7415. **WGNK, Radio Free New England,** also made an appearance on 7415 at 2320. Finally, **WNOT** took over 7415 on one occasion at 0023. In the QSL department, William got a nice blue logo card from **Radio Tower.**

New Zealand: Bob Thomas says to be on the watch for test transmissions to North America from New Zealand pirate Radio Kiwi. Try 5850 from 0600 to 0730 UTC. Reports go to Free Radio South Pacific, Box 1437, Hastings, New Zealand.

The Grim Reaper: It seems almost every month we hear of several closings. This month is no exception. Gary McGee sent us a report from the *Miami Herald*. Fun Radio in Hialeah got a visit from the FCC. It had been operating on 91.7 and its 50-year-old operator played everything from polkas to Russian army

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William Schmitz QSLed WKND.

marches. Fun Radio only ran a quarter of a watt, but that did not deter the FCC from silencing it.

• Andy Lange provided us with another report from the Odessa, Texas, *American*. Two West Odessa FM pirates, KROX on 95.1 and KFRE on 107.7, got quite a few visitors. They included agents from the U.S. Marshals' Service, U.S. Border Patrol, Odessa Police Department, and the Ector County sheriff's department. Both are now silent.

And Some Final Words: Our congratulations to Kristin Kaye and Christopher King for their outstanding new show "Signals." If you haven't come across this yet, be sure to tune in WWCR at 0435 UTC on 7435. It's the perfect show for "radio junkies" and covers virtually all aspects of the listening hobby, including pirates. You can also catch "Signals" on the Let's Talk Radio Satellite over Space Net 3, Transponder 21, 6.2 wideband audio. The show airs Fridays and Saturdays at 2330 UTC and Sundays at 1600.

• Bob Thomas has brought to our attention the disappearance of the Voice of Turkey's transmissions to North America. Because of repairs and replacement of aged equipment, these broadcasts probably will be gone until at least February. However, you can catch the English European Service at 2000 on 9445 and 2200 on 7185 and 11710.

Want something really exotic? Bob says tune in the Burma amateur operating between 13645 and 13800 kHz.

• If you are following the current troubles in Yugoslavia, you can get the Croatian side of the story on the WHRI relay of Croatian Radio Zagreb on 7315. Look for a brief English newscast shortly after 0000 and at other times as well. You can get the Serbian version on Radio Yugoslavia's North American Service at 0000 UTC on 9620 and 11735.

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Kevin Carey, WB2QMY

Negative Keying Deciphered

The question comes up from time to time as to what negative keying is, how to identify it and what can be done about it. With the DXing season in full swing, it seems like a good time to take a look at this sometimes baffling condition.

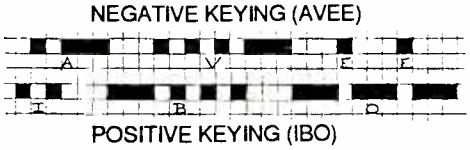
Usually you won't have any trouble recognizing negative keying. It is a rare transmitter defect where the beacon ID is sent out as an "upside-down" image of the true ID. Wherever there's a space in the true ID, there will be a tone in negative keying and vice-versa. Because of this inversion, the ID you hear will likely be a random series of dits and dahs that make no sense at all. For example, the negative keying of beacon FDR would be "IAUEE," a sure tip-off that something's wrong.

Another clue to negative keying is that there will be a dash after the ID (DAID) on US beacons. Normal US beacons don't have a DAID. Conversely, Canadian beacons, which usually do have a DAID, will have a long space instead.

Negative keying is more noticeable at close range to the transmitter site and seems to be even more apparent when you're a bit off the actual frequency. Often the condition disappears as you approach the exact frequency of the beacon. There have been some severe cases, however, where only negative keying was heard. Beacon OVO (374 kHz) for example, was logged with only negative keying a couple of years ago.

If you come across a negative keyed signal, there's an easy way to translate it back into plain Morse. Plot the negative keyed sounds on a sheet of graph paper so that single blocks represent dits and three blocks represent dahs. Allow one block to the space between individual dits and dahs and three blocks to the spaces between complete letters.

Now, right below your plot simply fill in the blocks where there is white space above and read the true ID. Many thanks to Gardner Smith, former Loggings editor of *The Lowdown* for this excellent suggestion.



A quick way to decipher negative keying.

Another keying variation worth mentioning occurs when an extra character is sent following the beacon ID, such as "E." This is often mistaken for negative keying or some other type of keying error but is actually intentional. Its presence alerts maintenance personnel that a back-up transmitter has been activated and that the primary unit needs repair.

A Voice from the Past

These days it's getting harder to find voice signals on the longwaves with many beacons scrapping their Transcribed Weather Broadcast (TWEB) service. But this wasn't always so. A couple of months ago, I asked if anyone remembered the voice station that used to operate below 180 kHz a few years back. If you were among those who guessed WGU20 (179 kHz), you got it right.

WGU20 was sporadically active from Chase, Maryland, with AM voice testing well into the mid '80s. It was to be the flagship station of a FEMA network designed for last ditch communications in the event of a widespread disaster. Funding cuts and the loss of frequency allocations eventually spelled the end for this powerhouse.

At roughly 45 thousand watts, its familiar time-tick transmissions could be heard throughout the northeast US. Every 10 seconds you could hear the friendly recorded announcement -- "Good morning. This is station WGU20. Eastern Daylight Time xx hours, xx minutes, xx seconds."

It was exciting to hear a new signal on the band, but many veteran listeners will recall the concerns about WGU20 interfering with experimental work in the 160-190 kHz lowfer band. None of this ever materialized, and at last word WGU20 remains in mothball status with no plans for reactivation.

Mailbag

• One of the most rewarding things about writing this column is getting to hear from so many of you by your cards and letters. I enjoy hearing about your loggings, equipment and other listening activities. I try to share as many letters as I can in the column. Send your news and notes to me at *MT* in care of this column. An SASE guarantees a response.

Judging from the letters I get, I don't think a wider variety of receivers can be found anywhere else in the spectrum than on the low frequencies. I hear from people using Selective RF Voltmeters, Audio Meters, homebrew units, converters and, of course, lots of government surplus.

• Terry Krey (N5THR) of Austin, Texas, wrote in to describe his unique setup. He uses a military receiver (Model R-1401 A/G) that he purchased from Fair Radio Sales. Terry writes: "This unit is a spectacular performer in every respect with a range right down to 999.5 Hz (that's right, Hertz) and up to the low end of the BC band." He makes a daily practice of sifting through this range in search of new signals using a variety of antennas. His favorite antennas include a rooftop loop, an indoor tuned loop and a Grove Skywire. His Skywire also pulls double duty as a ham band transmitting antenna.

• If you're a catalog collector, you'll want to write for a copy of the new Fair Radio Sales catalog to add to your shelf. It contains lots of interesting surplus radio/electronics items and is a great resource for LF enthusiasts. Terry passed along their mailing address: P.O. Box 1105, Lima, Ohio 45802

Loggings

This month I've put together a mix of reader loggings which includes beacons from several states and provinces. The dial spinners: Neal Smith, Missouri; Jim Keller, New York; Dennis Moriarty, Ohio; Robert Stone, New York; and Bob Polhamus, California.

BEACON LOGGINGS

Freq.	ID	Location	Contributor
175*	KRY	Chardon, OH	J.K. (NY)
185*	PLI	Burbank, CA	B.P. (CA)
236	OW	Ottawa, ONT	R.S. (NY)
269	FES	Festlus, MO	N.S. (MO)
310	H	Egmont Key, FL	J.K. (NY)
338	LM	St. Charles, MO	N.S. (MO)
362	AKR	Akron, OH	D.M. (OH)
362	BL	Belleville, IL	N.S. (MO)
375	CPS	Cahokia, IL	N.S. (MO)
385	NA	Natashquan, QUE	R.S. (NY)
391	CMH	Summit Station, OH	D.M. (OH)
404	ST	St. Louis, MO	N.S. (MO)
404	YSL	St. Leonard, NB	R.S. (NY)
408	HBD	Hubbard, OH	D.M. (OH)
426	IZS	Montezuma, GA	J.K. (NY)
513	PP	Omaha, NE	J.K. (NY)

*Experimental Lowfer Beacon

The very best holiday wishes from my family to yours, and I'll see you in '92.

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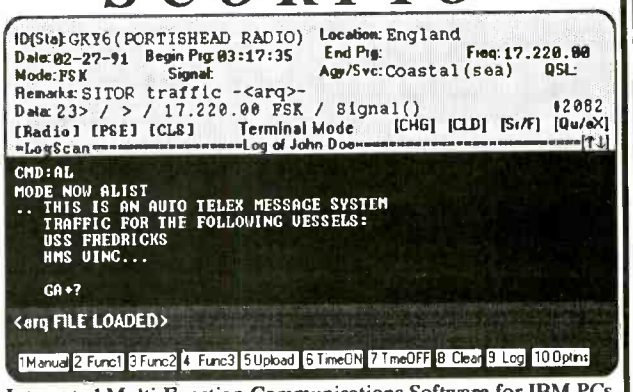

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Jack Albert

The Book Store

With Christmas a few weeks away, you are probably rushing to purchase the perfect gift for your loved one. The question is, what will he or she purchase for you? There's still time to drop a hint or two like an M1000 or a new receiver, but if your budget can't afford it, how about a new book?

The fifth edition *World Press Services Frequencies* by Thomas Harrington has been available now for several months from Universal Electronics, 4555 Groves Rd., Suite 13, Columbus, OH 43232. I just received my copy about a month ago and so far it's been very useful. The problem I always have with frequency lists is that whenever I look up something and then go to the radio, the signal isn't there. This raises the question, how was the list generated and at what time did the contributor copy the message? Many frequency lists are generated by contributors who send in the loggings. Even if the listing shows the time, how do I know if the signal will propagate to my part of the world?

You have to rely on the experts and the resources of the editor. I can say that Tom Harrington is one expert you can trust. I purchased the *WPSF* third edition in 1982 and I found listings that are still in use today like SUW 289 on 15845.0 kHz in Cairo, Egypt. I noticed that the fifth edition is about the same thickness as the third; however, the new book has fewer listings. The lettering is larger. It's inevitable that this would happen. With the satellites dominating terrestrial communications, only third world countries are using HF for RTTY press frequencies, and that number dwindles each year.

On occasion you can catch UPI or AP transmitting on random frequencies, but who knows where it's coming from? Maybe they're firing up the old transmitter for old time's sake or maybe the transmit signal is still being maintained for backup communications. The Voice of America still transmits RTTY news on 10233, 10234, and 18215 kHz to name a few frequencies.

WPSF gives a brief discussion on antennas and equipment, such as receivers and modems, and it has a chart to convert the four U.S. time zones to GMT.

One other note on RTTY press frequencies: For many years I have been able to copy news from TASS, the Soviet news agency, which has been retransmitted out of Cuba on 14901 kHz. With the fall of communism and the breaking away of their satellite countries, it will be interesting to see what happens to Cuba and CLN451.

The *USSR Merchant Ship List* is another book. No, you won't find it in a marine store. This one, also from Universal Electronics, talks about monitoring RTTY signals from Soviet merchant ships. It describes the organization of the Soviet merchant fleet and shows a detailed explanation of the ship's listing format. It also describes the message format that you can copy using your RTTY equipment. You will, however, need a decoder that can copy the Third Shift Cyrillic. Decoders like the M600, M1000, M7000, or the SWL text cartridge (now discontinued) from AEA for the Commodore 64 can handle it. You also need the skill to identify this type of transmission, because if you copy it using normal RTTY, the text will appear cryptic.

```
IN FINSKIJ ZALIV KLO/NRKH 30-.5 68 14/3 0500 ZH
PADIO 3 PUNKTA 9 ADRESOV
FAL ININGRAD KHOLOD KOMMER4ESKIJ FINANSOVYJ MATERIAL'NAYA BUKHGALETERIYA
FAL ININGRAD TSPKTB VOKTOR
KHLJNINGRAD RYBSBYT PRSB KOZAKEVI4
TALLIN ESTRVBPROM KOMME4ESKIJ FINANSOVJ MATERIAT'NAYA BUKHGALTERIYA
RIGA SKAT -

201.'023310102 202/3404 203/1303 204/048940023 205/023310102 206/1
207/12130-191303 211/120 213/8953200 214/190 221/352807 MUKA
PYBNAYA KOROOVAYA 222/400 223/40 224/56000 231/9156000
2V'TIIPP 241/5141400 251/ OTPRAVITEL' BMRT 0489 /50; YUKHAN LIJV
ESTRVBPROM OB'EKT 91 PORAMN ZUKOM KOZHEEDOM VOZMOZHNYE UBYTKI
VMESTI S4ET IZGOTOVITELYA ESTRVBPROM
201.'0233 PIVOVAROV  262/0489 PAVLYUK -
```

Figure 1

Copying cyrillic using normal TSC decoding is cryptic enough if you can't read Russian. Figure 1 is a printout of a Russian ship I copied several years ago using a Commodore and the SWL text cartridge. It's printed using a format known as transliteration. It replaces the Russian character that can't normally be printed on a printer using English text with the English phonetic spelling. A good example is the Russian that looks like the number 4. It has the CH sound. Get the book. It lists the full alphabet.

One problem with the M7000 is it can show the actual Cyrillic characters on the monitor but it can't send them to the printer. The printer doesn't even display the transliterated form. There is software for the IBM PC or compatible called "M" that can print the transliterated characters but it isn't available on the commercial or public domain market. I received a copy from the creator a few years ago.

Last, but not least, there's *Ferrell's Confidential Frequency List* by A.G. Halligey. It has a very good RTTY list including ship, embassy, military and Interpol. I highly recommend this one because it always shows an up-to-date listing and has a primer on RTTY and other data modes. This one is available from Grove Enterprises.

I would like to wish you and yours a Merry Christmas and a Happy New Year, and may you have good DXing in '92.

Figure 2 contains a few RTTY/FAX loggings from Richard Crisp crisp@netcom.com

Date	Start GMT	End GMT	Freq	User	Location
911005	0144	0459	8079.90	fax Norfolk	USN Norfolk, VA
911005	1110	1110	8399.39	850/50bd	Russian RTTY?
911005	0215	0531	8440.00	VCS, CW	Halifax, NS, CAN
911005	1130	1130	8535.36	WLO SITOR B	New Orleans, LA
911005	1131	2046	8535.36	WLO SITOR B	New Orleans, LA
911005	1143	1143	10220.00	FAX RDW76	Khab. USSR
911005	1204	1324	10520.92	Pyongyang 425/50	Pyongyang NXinFF North Korea
911005	1339	1339	10864.80	fax Norfolk	NAM, Norfolk, VA
911005	1018	1036	10895.22	LRB39 850/50bd	Buenos Aires, ARG
911005	1418	1418	10962.63	Voice of Free China 850/50 RTTY	Taiwan
911005	1442	1442	11189.83	coded 850/50	RTTY?
911002	2334	2334	11241.71	SITOR A	

Figure 2

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AIRCRAFT TRAFFIC

Eagle Air Inc., 12.740 MHz (Cessna 172M). Full data prepared QSL card. Received in two days for an English utility report and mint postage. Aircraft address: P.O. Box 1951, Hagerstown, Md. 21740. (Hank Holbrook, Dunkirk, MD)

Hapag-Lloyd 601, D-AHLA 12.4525 MHz (Airbus 310-300). Full data prepared QSL card verified by chief inspector, Avionics. Received in 92 days for an English utility report and one IRC. Aircraft address: Hapag-Lloyd Flug, Pruforganisation, Postfach 42 02 40, D-3000 Hanover, Germany. (Patrick O'Connor, Hinsdale, NH)

Olympic 421, SX-OAE 13.2300 MHz (Boeing 747). Full data prepared QSL card verified by Captain G. Kokkinis, chief pilot, B-747. Received in 53 days for an English utility report and one IRC. Aircraft traffic: Olympic Airways, 100 Syngrou Ave., Athinai 404, Greece. (O'Connor, NH)

Air India 111, VT-EGB (Boeing 747-200). Full data prepared QSL card and photo with illegible verification signature. Received in 30 days for an English utility report and one IRC. Aircraft address: 218 Backbay Reclamation, Nariman Point, Bombay 40000, India. (O'Connor, NH)

AUSTRALIA

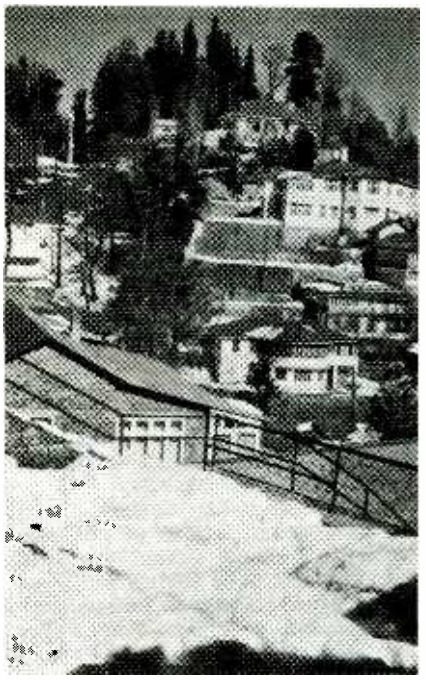
VNG-Time station, 16.000 kHz. Full data QSL paper folder, photo, and station information sheet, verified by Marion Leiba. Received in 21 days for an English utility report and one U.S. dollar. Station address: GPO Box 1090, Canberra, ACT, Australia 2601. (Robert Landau, Secaucus, NJ)

CHINA

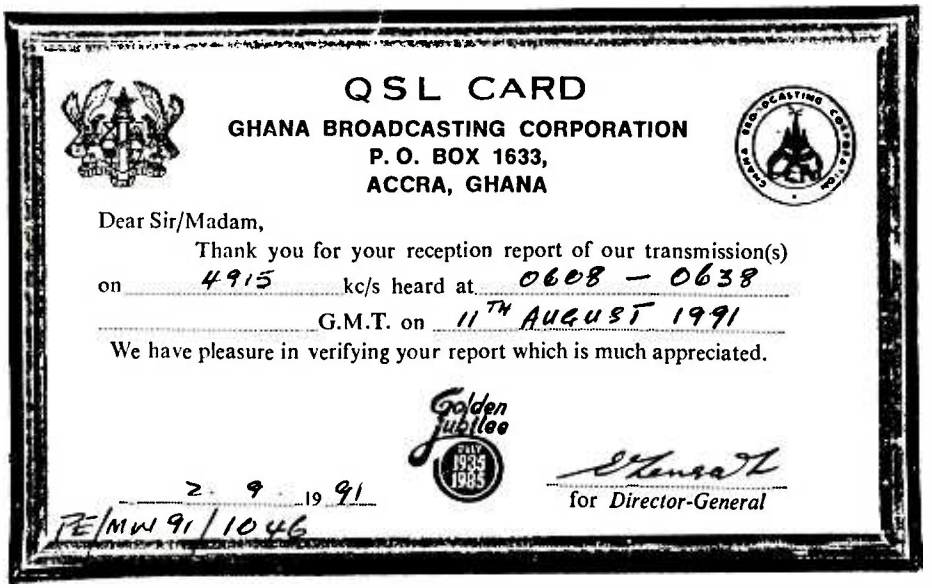
Radio Beijing, 11.755 kHz. Full data QSL card, station souvenirs, without verification signer. Received in 28 days for an English report. Station address: English Dept., Beijing, People's Republic of China. (Landau, NJ)

COSTA RICA

Radio for Peace International, 7.375 kHz/USB. Full data QSL card and station souvenirs, verified by James Latham. Received in 54 days for an English report. Station address: Apartado 88, Santa Ana, Costa Rica. (M. McFerrin, Fair Haven, MI)



This QSL was received by John Miller of Thomasville, Georgia, verifying his reception of Radio Pakistan's Slow Speed Bulletin.



QSL CARD

GHANA BROADCASTING CORPORATION
P. O. BOX 1633,
ACCRA, GHANA

Dear Sir/Madam,

Thank you for your reception report of our transmission(s) on 4915 kc/s heard at 0608 – 0638 G.M.T. on 11TH AUGUST 1991

We have pleasure in verifying your report which is much appreciated.

Golden Jubilee 1935 1985

2 . 9 . 1991

for Director-General

RE/MW 91/1046

Scott Krauss of Cleveland, Ohio, received this QSL card from the Ghana Broadcasting Corporation.

ECUADOR

HCJB, 15.155 kHz. Full data 1983 issue card and 60th anniversary card, verified by Roger Stubb. Received in 35 days for an English report. Station address: Casilla 691, Quito, Ecuador. (John Carson, Norman, OK)

FRENCH GUIANA

Radio Japan via Montsinery, Guiana, 15.325 kHz. No data Japanese festival card, without verification signer. Received in 21 days for an English report. Station address: N.H.K., Tokyo, 150-01 Japan. (Nicolas Adams, Newark, NJ)

NEW ZEALAND

Radio New Zealand, 17.770 kHz. Full data QSL card, schedule and New Zealand map, verified by Lloyd Y. Received in 22/32 days for an English report and 3/4 IRCs. Station address: P.O. 2092, Wellington, New Zealand. (Stephen Hunter, Drexel Hill, Pa) (Carson, OK)

NONDIRECTIONAL BEACONS

TIS, Woodenhawk, Delaware, 530 kHz. Full data QSL letter, verified by Carl Hulak. Received in 12 days for an English utility report and mint postage. Station address: Dept. of Transportation, P.O. Box 778, Dover, Delaware 19903. (Holbrook, MD)

PAPUA NEW GUINEA

NBC-Radio Eastern Highlands, 3.395 kHz. Form letter on NBC network letterhead and full data card, verified by Paia Ottawa, station technician. Received in 42 days for an English report and two IRCs. Station address: P.O. Box 311, Goroka, EHP, Papua New Guinea. (Thomas Risher, Whittier, CA)

SHIP TRAFFIC

Indiana Harbor-WXN3191, 156.500 MHz (bulk carrier). Full data prepared QSL card, stamped with ship's seal, verified by Capt. H. Peter Gronwall. Received in 15 days for an English utility report. Ship address: c/o Soo Locks Post Office, Saulte Ste. Marie, MI 49783. (Russ Hill, Ferndale, MI)

James R. Barker-WYP8657, 156.600 MHz (bulk carrier). Full data prepared QSL card, stamped with ship's seal, verified by Mitchell B. Hallin, master. Received in 12 days for an English utility report. Ship address: c/o Soo Locks Post Office, Saulte Ste. Marie, Michigan 49783. (Hill, MI)

Mesabi Miner-WYQ4356, 156.300 MHz (bulk carrier). Full data prepared QSL card, stamped with ship's seal, verified by Capt. Michael J. Elson. Received in 12 days for an English utility report. Ship address: c/o Soo Locks Post Office, Saulte Ste. Marie, MI 49783. (Hill, MI)

Overseas Arctic-KLEZ, 16.587.1 kHz (tanker). Full data prepared QSL card verified and stamped with ship's seal, signed by radio officer. Received in 33 days for a follow-up utility report. Ship address: c/o Maritime Overseas Corp., 511 Fifth Ave., New York, N.Y. 10017. (Hill, MI)

New York Sun-WSKD, 500 kHz (oil tanker). Full data prepared QSL card verified. Received in seven days for an English utility report and mint postage. Ship address: Sun Transport Inc., Box 2224, Aston, Pa. 19104. (Holbrook, MD)

Nickolaus-C6CO3, 500 kHz (oil tanker). Full data prepared QSL card verified. Received in 96 days for an English utility report. Ship address: c/o Peninsular Electronics, 13-17 Long Lane, London EC1A 9PN United Kingdom. (Holbrook, MD)

Hoegh Duke-VRPZ 500 kHz (general cargo/container). Full data prepared QSL card verified by radio officer. Received in 118 days for an English utility report and one U.S. dollar. Ship address: Hoegh, Leif & Co. A/S, Wergelandsvein 7, Postboks 2596 Solli N-0203 Oslo 2, Norway. (Holbrook, MD)

Nestefox-OIHL 500 kHz (LPG/C DWT 6870). Full data prepared QSL card verified. Received in 63 days for an English utility report and one U.S. dollar. Ship address: Neste O/Y, Kerilaniemi, SF-02150 Espoo, Finland. (Holbrook, MD)

SWAZILAND

Trans World Radio, 7.200 kHz. Full data color card, verified by L. Stauropoulos. Received in 52 days for an English report and three IRCs. Station address: Box 64, Manzini, Swaziland. (Risher, CA)

UNITED STATES

KGEI, 15.280 kHz. Full data QSL, station souvenirs and schedules, verified by Jesus C. Elizondo. Received in 75 days for an English report. Station address: Box 15, San Francisco, CA 94101. (Ed Mayberry, Cedar Park, TX)

WDIH-90.3 FM (380 watts). Full data personal letter signed by Rev. George A. Copeland. Received in 30 days for a follow-up FM report. Station address: P.O. Box 186, Jersey Rd. and Hearn Land, Salisbury, Maryland 21801. (Holbrook, MD)

WXPZ-101.3 FM. Full data personal letter, signed by Bill Sammons Jr., general manager. Received in 14 days for an FM report. Station address: P.O. Box 555, Milford, Delaware 19963. (Holbrook, MD)

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English language

shortwave guide

How to Use the Shortwave Guide

1: Convert your time to UTC.

Eastern and Pacific Times are already converted to Coordinated Universal Time (UTC) at the top of each page. The rule is: convert your local time to 24-hour format; add (during Standard Time) 5,6,7, or 8 hours for Eastern, Central, Mountain, or Pacific Time, respectively.

Note that all dates, as well as times, are in UTC: for example, the BBC's "Ken Bruce Show" (0030 UTC Sunday) will be heard on Saturday evening (7:30 PM Eastern, 4:30 PM Pacific) in North America, not on Sunday.

2: Choose a program or station you want to hear.

Some selected programs appear on the lower half of the page for prime listening hours. If it's news you're interested in, check out the complete "Newsline" listing, which begins on the next page.

Occasionally program listings will be followed by "See X 0000." This information indicates that the program is a re-run, and refers to a previous summary of the program's content. The letter stands for a day of the week, as indicated below, and the four digits represent a time in UTC.

S: Sunday
M: Monday
T: Tuesday
W: Wednesday
H: THursday
F: Friday
A: SAturday

3: Find the frequencies for the program or station you want to hear.

Look at the page which corresponds to the time you will be listening. Comprehensive frequency information for English broadcasts can be found at the top half of the page.

The frequency listing uses the same day codes as the program listings; if a broadcast is not daily, those day codes will appear before the station name.

4: Choose the most promising frequencies for the time, location, and conditions.

Of course, every station can't be heard all the time. To help you find the right frequency, we've included information on the target area of each broadcast. Frequencies beamed toward your area will generally be easier to hear than those beamed elsewhere, even though the latter will often still be audible. Every frequency is followed by one of these target codes:

am:	The Americas	me:	Middle East
na:	North America	as:	Asia
ca:	Central America	au:	Australia
sa:	South America	pa:	Pacific
eu:	Europe	va:	various
af:	Africa	do:	domestic broadcast
me:	Middle East	om:	omnidirectional

Consult the propagation charts. To help you further find the right frequency, we've included propagation charts at the back of this section, which take into account conditions affecting the audibility of shortwave broadcasts. Simply pick out the region in which you live and find the chart for the region in which the station you want to hear is located. The chart indicates the optimum frequencies for a given time in UTC.

Programs for Shortwave Listeners

This section lists programs with news and information about shortwave radio for listeners. (RR) denotes reruns of programs broadcast earlier in the week. For brevity, only programs at certain peak listening times are included.

Sundays
0025 Spanish Foreign Radio: DX Spot
0030 WRNO: World Of Radio
0035 Radio Havana Cuba: DX'ers Unlimited
0039 HCJB: DX Party Line
0110 Voice of America (Americas, Caribbean): Comm. World
0125 Spanish Foreign Radio: DX Spot (RR)
0130 Radio For Peace Int'l: World Of Radio
0218 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round
0230 KSDA, Guam: DX Asiawaves
0235 Radio Budapest: DX World
0235 Radio Havana Cuba: DX'ers Unlimited (RR)
0239 HCJB: DX Party Line (RR)
0330 Radio Japan: DX Corner
0330 TWR, Bonaire: Bonaire Wavelengths
0330 Voice of Turkey: DX Corner (biweekly)
0405 WWCR: World Of Radio
0418 Swiss Radio Int'l: Swiss SW Merry-Go-Round (RR)
0435 Radio Havana Cuba: DX'ers Unlimited (RR)
0509 HCJB: DX Party Line (RR)
0525 Spanish Foreign Radio: DX Spot (RR)
0635 Radio Havana Cuba: DX'ers Unlimited (RR)
1130 Radio Austria Int'l: Austrian Shortwave Panorama
1430 Radio Australia: Communicator
1430 Radio Austria Int'l: Austrian SW Panorama (RR)
1530 Radio Japan: DX Corner (RR)

Mondays
0130 Radio Japan: DX Corner (RR)
0430 Radio For Peace Int'l: World Of Radio (RR)
0430 Radio New Zealand Int'l: Mailbox (biweekly)
0530 BBC: Waveguide
0600 WWCR: World Of Radio (RR)
0637 BRT, Brussels: Radio World
1307 BRT, Brussels: Radio World (RR)
1630 WRNO: World Of Radio (RR)
2320 Radio Vilnius: Feature For DX'ers

Tuesdays
1313 Radio Sweden: Sweden Calling DX'ers (biweekly)
1543 Radio Sweden: Sweden Calling DX'ers (biweekly) (RR)
1610 Radio Polonia: DX Program
2315 Radio Polonia: DX Program (RR)
2343 Radio Sweden: Sweden Calling DX'ers (biweekly) (RR)

Wednesdays
0113 Radio Sweden: Sweden Calling DX'ers (biweekly) (RR)
0213 Radio Sweden: Sweden Calling DX'ers (biweekly) (RR)
0230 Radio For Peace Int'l: World Of Radio (RR)
0235 Radio Budapest: DX News
0640 Radio Polonia: DX Program (RR)
1440 Radio Polonia: DX Program (RR)

Thursdays
0100 HCJB: Ham Radio Today
0130 BBC: Waveguide (RR)
0235 Radio Budapest: DX World (RR)
0300 HCJB: Ham Radio Today (RR)
0340 Radio Sofia: Calling Amateurs And DX'ers
0530 HCJB: Ham Radio Today (RR)
1152 Radio Netherlands: Media Network
1452 Radio Netherlands: Media Network (RR)
1652 Radio Netherlands: Media Network (RR)

Fridays
0016 Radio Prague Int'l: DX Special
0052 Radio Netherlands: Media Network (RR)
0116 Radio Prague Int'l: DX Special (RR)
0316 Radio Prague Int'l: DX Special (RR)
0352 Radio Netherlands: Media Network (RR)
0416 Radio Prague Int'l: DX Special (RR)
0430 Radio Australia: Communicator (RR)
1611 Radio Portugal: DX Program (monthly)

Saturdays
0230 WWCR: World Of Radio
0235 Radio Budapest: DX News (RR)
0241 Radio Portugal: DX Program (monthly) (RR)
0300 Radio For Peace Int'l: World Of Radio (RR)
0635 BRT, Brussels: Radio World (RR)
0648 Swiss Radio Int'l: Swiss SW Merry-Go-Round (RR)
1118 Swiss Radio Int'l: Swiss SW Merry-Go-Round (RR)
1210 Voice of America: Communications World (RR)
1305 BRT, Brussels: Radio World (RR)
1318 Swiss Radio Int'l: Swiss SW Merry-Go-Round (RR)
1348 Swiss Radio Int'l: Swiss SW Merry-Go-Round (RR)
1548 Swiss Radio Int'l: Swiss SW Merry-Go-Round (RR)
1630 KSDA, Guam: DX Asiawaves (RR)
2330 KSDA, Guam: DX Asiawaves (RR)
2335 BRT, Brussels: Radio World (RR)

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English language

shortwave guide

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newsline

"Newsline" is your guide to news broadcasts on the air. ■ All broadcasts are world news reports unless followed by an asterisk, which means the broadcast is primarily national news. ■ All broadcasts are daily unless otherwise noted by the day codes.

0000 UTC
(7:00 PM EST, 4:00 PM PST)

BBC
CBC, Northern Quebec [A]
Christian Science Monitor
Radio Australia
Radio Beijing
Radio Canada Int'l [S-M]
Radio Finland [M-F]
Radio Havana Cuba [T-S]
Radio Korea
Radio Luxembourg
Radio Moscow
Radio New Zealand Int'l [M-A]
Radio Prague Int'l
Radio Thailand
Radio Vilnius
Spanish Foreign Radio
Voice of America
0005
Radio Pyongyang
0010
Radio Beijing*
0030
BRT, Brussels
Christian Science Monitor (Asia) [M]
Christian Science Monitor [T-F]
HCJB
Radio Havana Cuba [T-S]
Radio Netherlands [T-S]
Radio New Zealand Int'l [M-F]
Voice of America (Americas, East Asia) (Special English) [T-S]
Voice of America (East Asia) (Special English) [M]
0045
Radio Korea (News Service)
0055
WRNO [W, F]

0100 UTC
(8:00 PM EST, 5:00 PM PST)

All India Radio
BBC
CBC, Northern Quebec
Christian Science Monitor
Deutsche Welle
FEBC Radio Int'l, Philippines
Radio Australia
Radio Belize
Radio Canada Int'l [S-M]
Radio Havana Cuba [T-S]
Radio Japan
Radio Kiev
Radio Luxembourg
Radio Moscow
Radio New Zealand Int'l [M-A]
Radio Prague Int'l
Radio Thailand
Radiotelevisione Italiana
RAE, Buenos Aires [T-A]
Spanish Foreign Radio
Voice of America
Voice of Indonesia
WWCR [T-A]
0115
Radio Havana Cuba* [T-S]
0130
Christian Science Monitor (Asia) [M]
Christian Science Monitor [T-F]
Radio Austria Int'l
Radio Havana Cuba [T-S]
Voice of Greece [M-A]
0155
Voice of Indonesia
WRNO [W, A]

0200 UTC
(9:00 PM EST, 6:00 PM PST)

BBC
CBC, Northern Quebec [S-M]
Christian Science Monitor
Deutsche Welle
FEBC Radio Int'l, Philippines
Radio Australia
Radio Canada Int'l [T-A]
Radio Havana Cuba [T-S]
Radio Luxembourg
Radio Moscow
Radio New Zealand Int'l [M-F]
Radio Romania Int'l
Radio Thailand
Swiss Radio Int'l
Voice of America
Voice of Free China
Voice of Myanmar
WWCR [T-A]
0215
Radio Cairo
Radio Nepal
0230
Christian Science Monitor (Africa, Europe) [M]
Christian Science Monitor [T-F]
HCJB
Radio Havana Cuba [T-S]
Radio Moscow
Radio Pakistan (Special English)
Radio Portugal [T-A]
Radio Tirana, Albania
Radio Yugoslavia
0245
Radio Korea (News Service)

0300 UTC
(10:00 PM EST, 7:00 PM PST)

BBC
CBC, Northern Quebec [T-S]
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize
Radio Budapest
Radio Havana Cuba [T-S]
Radio Japan
Radio Moscow
Radio New Zealand Int'l [M-F]
Radio Prague Int'l
Radio Thailand
Voice of America
Voice of Free China
WWCR [T-A]
0309
BBC*
0310
Radio Beijing*
0315
Radio Cairo
Radio Havana Cuba* [T-S]
0330
BBC (Africa)*
Christian Science Monitor (Africa, Europe) [M]
Christian Science Monitor [T-F]
Radio Bahrain
Radio Havana Cuba [T-S]
Radio Netherlands [T-S]
Radio Tirana, Albania
UAE Radio, Dubai
0340
Voice of Greece [M-A]
0350
Radio For Peace Int'l [T-A]
Radio Yerevan
Radiotelevisione Italiana
0355
Radio Japan [M-F]

0400 UTC
(11:00 PM EST, 8:00 PM PST)

BBC
CBC, Northern Quebec
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Beijing
Radio Canada Int'l
Radio Havana Cuba [T-S]
Radio Moscow
Radio New Zealand Int'l [M-F]
Radio Prague Int'l
Radio Romania Int'l
Radio RSA
Radio Sofia
Radio Tanzania
Radio Thailand
Swiss Radio Int'l
Voice of America
Voice of Turkey
WRNO [F]
WWCR [T-S]
0405
Radio Pyongyang
0410
Radio Beijing*
0425
Radiotelevisione Italiana
0430
Christian Science Monitor (Africa, Europe, NE Asia) [M]
Christian Science Monitor [T-F]
Radio Bahrain
Radio Botswana
Radio Havana Cuba [T-S]
0450
Radio RSA
0455
WYFR (Network) [T-A]

0500 UTC
(12:00 AM EST, 9:00 PM PST)

BBC
CBC, Northern Quebec [T-S]
Christian Science Monitor
Deutsche Welle
HCJB
Radio Australia
Radio Bahrain
Radio Beijing
Radio Havana Cuba [T-S]
Radio Japan
Radio Lesotho

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English language **shortwave guide**

newsline

Radio Moscow
Radio New Zealand Int'l [M-F]
Radio Thailand
Spanish Foreign Radio
Voice of America
0510
Radio Beijing*
Radio Botswana
0515
Radio Canada Int'l [M-F]
Radio Havana Cuba* [T-S]
0530
BBC (Africa)*
Christian Science Monitor (Africa, Europe, NE Asia) [M]
Christian Science Monitor [T-F]
Radio Austria Int'l
Radio Havana Cuba [T-S]
Radio Moscow (World Service)
Radio Romania Int'l
Radio Thailand
UAE Radio, Dubai
Voice of Nigeria
0550
Radio For Peace Int'l [T-A]

0600 UTC
(1:00 AM EST, 10:00 PM PST)

BBC
CBC, Northern Quebec
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Havana Cuba [T-S]
Radio Korea
Radio Moscow
Radio New Zealand Int'l [M-A]
Voice of America
0605
Radio Pyongyang
0610
Voice of Malaysia
0615
Radio Korea (News Service)
0630
BBC (Africa)*
Christian Science Monitor [M-F]
Radio Havana Cuba [T-S]
Radio Moscow (World Service)
Radio Polonia
RTV Congolaise, Brazzaville [M-F]
Swiss Radio Int'l
Voice of Nigeria
0640
Radio Prague Int'l
0645
Radio Romania Int'l

0700 UTC
(2:00 AM EST, 11:00 PM PST)

BBC
Christian Science Monitor
Radio Australia
Radio Havana Cuba [T-S]
Radio Japan
Radio Moscow
Radio New Zealand Int'l [M-F]
SLBS, Freetown, Sierra Leone
Voice of Free China
Voice of Myanmar
0705
Radio Pyongyang
0715
Radio Havana Cuba* [T-S]
0730
BBC (Africa)* [M-A]
BRT, Brussels
Christian Science Monitor [M-F]
HCJB
Radio Austria Int'l
Radio Finland [M-A]
Radio Havana Cuba [T-S]
Radio Moscow (World Service)
Radio Netherlands [M-A]
Radio Prague Int'l
Swiss Radio Int'l
0755
Radio Japan [M-F]

0800 UTC
(3:00 AM EST, 12:00 AM PST)

BBC
Christian Science Monitor
Radio Australia
Radio Bahrain
Radio Korea
Radio Moscow
Radio New Zealand Int'l
Radio Pakistan
SLBS, Freetown, Sierra Leone
Voice of Indonesia
0805
Radio Pyongyang
0810
Voice of Malaysia
0830
Christian Science Monitor [M-F]
Radio Moscow (World Service)
Radio Netherlands [M-A]
Swiss Radio Int'l
0840
Voice of Greece [M-A]
0855
Voice of Indonesia

0900 UTC
(4:00 AM EST, 1:00 AM PST)

BBC
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Beijing
Radio Finland [M-F]
Radio Japan
Radio Moscow
Radio New Zealand Int'l [S-F]
Voice of Nigeria
0910
Radio Beijing*
0915
Radio Korea (News Service)
0930
Christian Science Monitor [M-F]
Deutsche Welle (Africa)* [M-F]
Radio Finland [T-A]
Radio Moscow
0950
Radio For Peace Int'l [T-A]
0955
Radio Finland [M-F]
Radio Japan [M-F]

1000 UTC
(5:00 AM EST, 2:00 AM PST)

All India Radio
BBC
BRT, Brussels [M-A]
Christian Science Monitor
HCJB
Radio Australia
Radio Bahrain
Radio Beijing
Radio Moscow
Radio New Zealand Int'l
Radio Tanzania
Swiss Radio Int'l
Voice of America
1010
Radio Beijing*
1030
Christian Science Monitor [M-F]
Radio Austria Int'l [M-F]
Radio Korea
Radio Moscow
Radio Netherlands [M-A]
UAE Radio, Dubai
Voice of Nigeria
1040
Voice of Greece [M-A]
1055
All India Radio

1100 UTC
(6:00 AM EST, 3:00 AM PST)

BBC
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Beijing
Radio Japan
Radio Korea
Radio Moscow
Radio New Zealand Int'l
Radio Pakistan
Radio RSA
Swiss Radio Int'l
TWR, Bonaire [M-F]
Voice of America
1105
Radio Pakistan (Special English)
Radio Pyongyang
1109
BBC*
1110
Radio Beijing*
Radio Belize [T-A]
Radio Botswana [M-F]
1115
Radio Korea (News Service)
Radio Nepal
1125
Radio Belize [M]
Radio Botswana [A-S]
1130
Christian Science Monitor [M-F]
Deutsche Welle* [M-F]
Radio Austria Int'l [M-F]
Radio Lesotho
Radio Moscow
Radio Netherlands [M-A]
1135
Radio Thailand
1150
Radio For Peace Int'l [T-A]
Radio RSA
1155
Radio Japan [M-F]

1200 UTC
(7:00 AM EST, 4:00 AM PST)

BBC
CBC, Northern Quebec [A-S]
Christian Science Monitor
Radio Australia
Radio Bahrain
Radio Beijing
Radio Bras, Brasilia [M-A]
Radio Canada Int'l [M-F]
Radio Jordan
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Polonia
Radio Romania Int'l
Radio Tashkent
Radio Thailand
Voice of America
WWCR [M-F]
1210
Radio Beijing*
1215
Radio Korea
1230
BRT, Brussels [S]
Christian Science Monitor [M-F]
Radio Cairo
Radio Finland [T-F]
Radio France Int'l
Radio Moscow
Radio Yugoslavia
TWR, Bonaire [A]
1235
Voice of Greece

1300 UTC
(8:00 AM EST, 5:00 AM PST)

BBC ("Newshour")
CBC, Northern Quebec [A-S]
Christian Science Monitor
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize
Radio Canada Int'l [S]
Radio Moscow
Radio Romania Int'l
Radio Tanzania [A-S]
Swiss Radio Int'l
TWR, Bonaire [S-F]
Voice of America
WWCR [M-F]
1305
Radio Pyongyang
1310
Radio Beijing*
1325
HCJB [M-F]
1328
Radio Cairo
1330
All India Radio
Christian Science Monitor [M-F]
FEBC Radio Int'l, Philippines
Radio Austria int'l
Radio Canada Int'l
Radio Finland [M-F]
Radio Korea (News Service)
Radio Moscow
Radio Tashkent
Swiss Radio Int'l
UAE Radio, Dubai
Voice of America (Special English)
Voice of Turkey
1346
All India Radio (UN News) [A]
1355
WYFR (Network) [M-F]

1400 UTC
(9:00 AM EST, 6:00 AM PST)

BBC
BRT, Brussels [M-A]
CBC, Northern Quebec
Christian Science Monitor
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-F]
Radio Canada Int'l
Radio Finland [A]
Radio France Int'l
Radio Japan
Radio Jordan
Radio Korea
Radio Moscow
Voice of America
WWCR [M-F]
1410
Radio Beijing*
1415
Radio Nepal
1425
HCJB [M-F]
1430
Christian Science Monitor [M-F]
FEBC Radio Int'l, Philippines
Kol Israel
Radio Austria Int'l [M-F]
Radio Finland [S-F]
Radio Moscow
Radio Netherlands [M-A]
Radio Polonia
1445
BBC (East Asia) (Special English) [M-F]
Voice of Myanmar
1455
All India Radio

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Tel.: (212) 355-1180 FAX: (212) 319-5227 Telex: 961114 JAPAN RADIO NYK

CIRCLE 123 ON READER SERVICE CARD

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newsline

1500 UTC
(10:00 AM EST, 7:00 AM PST)

BBC
CBC, Northern Quebec [A-S]
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-A]
Radio Canada Int'l
Radio Japan
Radio Moscow
Radio Romania Int'l
Radio RSA
Voice of America
WWCR [M-F]
1505
Radio Finland
Radio Pyongyang
1510
Radio Beijing*
1530
Christian Science Monitor [M-F]
Deutsche Welle* [M-F]
FEBA, Seychelles
FEBC Radio Int'l, Philippines
Radio Moscow
Radio Tirana, Albania
Swiss Radio Int'l
Voice of Greece [M-A]
Voice of Nigeria
1545
Radio Korea (News Service)

1600 UTC
(11:00 AM EST, 8:00 AM PST)

BBC
CBC, Northern Quebec [A-S]
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Beijing
Radio Canada Int'l
Radio France Int'l
Radio ordan
Radio Korea
Radio Lesotho
Radio Moscow
Radio Pakistan
Radio Polonia
Radio Portugal [M-F]
Radio RSA
Radio Tanzania
Voice of America
Yemen Radio
1609
BBC*
1610
Radio Beijing*
Radio Botswana [M-F]
1615
Radio Pakistan (Special English)
1630
Christian Science Monitor [M-F]
Radio Austria Int'l
Radio Moscow
Radio Netherlands [M-A]
Radio Polonia
UAE Radio, Dubai
Voice of America (except Africa) (Special English)

1700 UTC
(12:00 PM EST, 9:00 AM PST)

BBC
CBC, Northern Quebec [A]
Christian Science Monitor
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-F]
Radio Canada Int'l
Radio Japan
Radio Jordan
Radio Moscow
Radio RSA
Voice of America
WWCR [M-F]
1705
Radio Pyongyang
1709
BBC (Africa)* [A-S]
1710
Radio Beijing*
1715
Radio Korea (News Service)
1725
Radio Surinam Int'l [M-F]
1730
Christian Science Monitor [M-F]
Radio Moscow
Radio Romania Int'l
WYFR (Network) [A]
1735
WYFR (Network) [M-F]
1740
BBC (Africa)* [M-F]
1750
Radio RSA

1800 UTC
(1:00 PM EST, 10:00 AM PST)

All India Radio
BBC
CBC, Northern Quebec [A]
Christian Science Monitor
Kol Israel
KVOH
Radio Australia
Radio Bahrain
Radio Belize [M-F]
Radio Bras, Brasilia [M-A]
Radio Canada Int'l
Radio Korea
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Prague Int'l
Radio Tanzania
RAE, Buenos Aires [M-F]
Voice of America
1803
Radio Cote d' Ivoire, Abidjan [M-A]
1815
Radio Cote d' Ivoire, Abidjan [M-A]
1825
WYFR (Network) [A]
1830
BRT, Brussels
Christian Science Monitor [M-F]
Radio Belize
Radio Moscow
Radio Netherlands [M-A]
Radio Polonia
Radio Sofia
Radio Tirana, Albania
Swiss Radio Int'l
Voice of America (Special English)
1840
SLBC, Sri Lanka
Voice of Greece
1855
BBC (Africa)* [M-F]

1900 UTC
(2:00 PM EST, 11:00 AM PST)

All India Radio
BBC
CBC, Northern Quebec [M-F]
Christian Science Monitor [M-A]
Deutsche Welle
HCJB
KVOH
Radio Australia
Radio Beijing
Radio Canada Int'l
Radio Havana Cuba [M-A]
Radio Japan
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Tanzania
SLBS, Freetown, Sierra Leone
Spanish Foreign Radio
Voice of America
WWCR [A]
1910
Radio Beijing*
Radio Botswana
1920
Voice of Greece
1930
Christian Science Monitor [M-F]
Deutsche Welle* [M-F]
Radio Austria Int'l
Radio Finland
Radio Havana Cuba [M-A]
Radio Moscow
Radio Prague Int'l
Radio Romania Int'l
Radio Yugoslavia
Voice of Nigeria
1935
Radiotelevisione Italiana
1945
Radio Korea (News Service)
1955
WYFR (Network) [M-A]

2000 UTC
(3:00 PM EST, 12:00 PM PST)

BBC
Christian Science Monitor
Kol Israel
KVOH
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-F]
Radio Havana Cuba [M-A]
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Polonia
SLBS, Freetown, Sierra Leone
Swiss Radio Int'l
Voice of America
Voice of Indonesia
Voice of Nigeria
2005
Radio Pyongyang
2010
Radio Beijing*
2025
Radio Havana Cuba* [M-A]
Radiotelevisione Italiana
2030
Christian Science Monitor [M-F]
Radio Havana Cuba [M-A]
Radio Korea
Radio Moscow
Radio Netherlands [M-A]
2045
Radio Korea (News Service)
Radio Sofia
2055
Radio Finland
Voice of Indonesia

2100 UTC
(4:00 PM EST, 1:00 PM PST)

All India Radio
BBC ("Newshour")
CBC, Northern Quebec [S-F]
Christian Science Monitor [M-A]
Deutsche Welle
KVOH
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-F]
Radio Canada Int'l
Radio Japan
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Portugal [M-F]
Radio Prague Int'l
Radio Romania Int'l
SLBS, Freetown, Sierra Leone
Spanish Foreign Radio
Swiss Radio Int'l
Voice of America
Voice of Turkey
2110
Radio Beijing*
2125
WYFR (Network) [M-F]
2130
Christian Science Monitor [M-F]
Radio Cairo
Radio Canada Int'l
Radio Moscow
WYFR (Network) [A]
2150
Radio For Peace Int'l [M-F]

2200 UTC
(5:00 PM EST, 2:00 PM PST)

All India Radio
BBC
BRT, Brussels
CBC, Northern Quebec [S-F]
Christian Science Monitor
Radio Australia
Radio Beijing
Radio Budapest
Radio Canada Int'l
Radio Havana Cuba [M-A]
Radio Kiev
Radio Moscow
Radio New Zealand Int'l
Radio Polonia
Radio Portugal [M-F]
Radio Prague Int'l
Radio Yugoslavia
Radiotelevisione Italiana
SLBS, Freetown, Sierra Leone
Voice of America
Voice of Free China
WWCR [M-F]
2208
Voice of America (Caribbean)* [M-F]
2210
Radio Beijing*
2225
Radio Havana Cuba* [M-A]
2230
Christian Science Monitor [M-F]
Kol Israel
Radio Finland
Radio Havana Cuba [M-A]
Radio Moscow
Radio Tirana, Albania
Swiss Radio Int'l
Voice of America (Special English)
WYFR (Network) [M-F]
2245
Radio Sofia
Voice of Greece
2255
WYFR (Network) [M-A]

2300 UTC
(6:00 PM EST, 3:00 PM PST)

BBC
CBC, Northern Quebec [M-F]
Christian Science Monitor [M-A]
Radio Australia
Radio Belize [M-F]
Radio Canada Int'l
Radio Japan
Radio Moscow
Radio New Zealand Int'l
Voice of America
Voice of Turkey
2305
Radio Pyongyang
2315
All India Radio
2320
Radio Thailand
2330
Christian Science Monitor [M-F]
Radio Moscow
Radio Vilnius
2350
Radio For Peace Int'l [M-F]
2355
Radio Japan [M-F]

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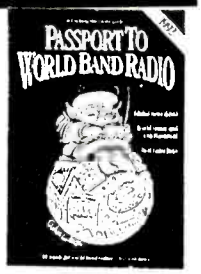

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Super Amplifier

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English language

shortwave guide

0000 UTC [7:00 PM EST/4:00 PM PST]

FREQUENCIES

0000-0100	ABC Brisbane	4920do	9660do		
0000-0100	ABC Perth	9610do			
0000-0100	All India Radio, Delhi	9535as	9910as	11715as	11745as
		15110as			
0000-0100	AWR Costa Rica	9725ca	11870ca		
0000-0030	BBC London	5965as	5975na	6005sa	6175na
		6195as	7145as	7325na	9580as
		9590na	9915na	11750sa	11945as
		11955as	12095na	15070na	15260sa
		15360pa	17830as		
0000-0100	CFCX Montreal	6005do			
0000-0100	CFRX Toronto	6070do			
0000-0100 twhfas	Croatian Radio, Zagreb	7315eu	9495eu		
0000-0100	CSM World Svc, Boston	7395na	9850na	13760na	17555na
0000-0100	FEBC Manila	15480as			
0000-0100	KTBN Salt Lake City	15590am			
0000-0100	R. for Peace Int'l	7375na	13630na	15030na	21465na
0000-0100	Radio Australia	11880va	11930va	13605va	15160va
		15240va	15320va	15365va	17630va
		17750va	17795va	21740va	
0000-0100	Radio Beijing	11705am	15110am	15285am	
0000-0100	Radio Havana Cuba	11950am			
0000-0100	Radio Korea	15575na			
0000-0100	Radio Luxembourg	6090om	15350om		
0000-0100	Radio Moscow NAS	9480na	11690na	11710na	11730na
		11780na	11850na	11985na	12005na
		12050na	13605na	13775na	15140na
		15290na	15355na	15410na	15425na
		15480na	15550na	15570na	15580na
		15590na	15595na	16190na	17600na
		17620na	17675na	17730na	17850na
		17860na	17890na	21690na	21710na
		21790na	21845na		
0000-0100 smtwhf	Radio New Zealand Int'l	17770pa			
0000-0030 sm	Radio Norway	9645am	11925am		
0000-0030 stwhfa	Radio Prague	7345na	11685na	11990na	
0000-0050	Radio Pyongyang	11335na	13760na	15115na	
0000-0100	Radio Sofia, Bulgaria	9700am	11660am	15110eu	15310na
		15370eu	17825na		
0000-0100	Radio Thailand	4830as	9655as	11905as	
0000-0030	Radio Vilnius, Lithuania	7400na	9710na	15180na	17605na
		17690na			
0000-0100 sm	RCI Montreal	5960am	9755am		
0000-0100 twhfa	RCI Montreal	5960am	9755am		
0000-0100 sm	RCI Montreal	9535sa	11845sa	11940sa	13720sa
0000-0100	RTM Malaysia	7295do			
0000-0100	SBC Radio 1, Singapore	5010do	5052do	11940do	
0000-0100	SLBS, Sierra Leone	3316do			
0000-0100	Spanish Foreign Radio	9630na			
0000-0030	VOA	5995sa	7405sa	9775sa	11580sa
		15120sa	15205sa		
		6130ca	9455ca	11695ca	
		7120as	9770as	11760as	15185as
		15290as	17735as	17820as	
0000-0100	WHRI Noblesville	7315am	9495am		
0000-0100	WINB Red Lion, Penn.	15145eu			
0000-0100	WRNO New Orleans	7355am			
0000-0100	WWCR Nashville	7520na			
0000-0100	WYFR Okeechobee	5985am			
0030-0100	BBC London	5965as	5975na	6005sa	6175na
		7135as	7325na	9580as	9590na
		9915na	11750sa	11955as	12095na
		15260sa	15360pa		
0030-0100	BRT Brussels	13655na	13710na		
0030-0100	HCJB Quito Ecuador	9745am	15155am	21455am	25950am
0030-0100	Hunan PBS Changs ha China	4990do			
0030-0100	Radio Netherlands	6020am	6165am	11835am	
0030-0100	Sri Lanka B'casting Corp.	6005as	9720as	15425as	
0030-0100	VOA	5995sa	7405sa	9775sa	11580sa
		15120sa	15205sa		
0030-0100	VOIRI Teheran	9022na	9765na	15260na	
0040-0050 twhfas	R Nacional de Venezuela	9540om			

SELECTED PROGRAMS

Sundays

0015 Radio Beijing: Press Clippings. A review of the Chinese press.
0020 Radio Beijing: Travel Talk. An armchair tour of scenic spots in Chinese provinces.
0028 Radio Beijing: Cooking Show. The Beijing Frugal Gourmet.
0030 BBC: The Ken Bruce Show. Ken Bruce plays pop music, past and present.
0035 Radio Beijing: Music from China. Chinese music, from traditional to pop.

Mondays

0015 Radio Beijing: China Anthology. See S 1115.
0025 Radio Beijing: Music Album. See S 1125.
0030 BBC: In Praise Of God. Christian religious services and meditations.
0040 Radio Beijing: Listeners' Letterbox. See S 1140.

Tuesdays

0015 Radio Beijing: Current Affairs. See M 1115.
0030 BBC: Panel Game. "Where In The World?" is a global geography quiz, featuring guests like the beloved Beeb presenter Margaret Howard (except 24th, 31st: Screenplay, see M 0330).
0040 Radio Beijing: Learn to Speak Chinese. See M 1140.

Ben Bradshaw, the BBC's Berlin correspondent.

Wednesdays

0015 Radio Beijing: Current Affairs. See M 1115.
0030 BBC: Omnibus. Topical features on almost any topic, from Dracula to drugs.
0040 Radio Beijing: Listeners' Letterbox. See S 1140.

Thursdays

0015 Radio Beijing: Current Affairs. See M 1115.
0030 BBC: Comedy Show. See W 1530.
0040 Radio Beijing: Learn to Speak Chinese. See M 1140.

Fridays

0015 Radio Beijing: Current Affairs. See M 1115.
0030 BBC: Music Feature. Was "Mozart: Prodigy Of Nature?" Dr. Stanley Sadie goes back to the 18th century to find out.
0040 Radio Beijing: Culture in China. See H 1140.

Saturdays

0015 Radio Beijing: Current Affairs or The Business Show. See F 1115.
0030 BBC: From The Weeklies. A review of the British weekly press.
0040 Radio Beijing: In the Third World. See F 1140.
0045 BBC: Recording Of The Week. See M 0545.

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0100 UTC [8:00 PM EST/5:00 PM PST]

FREQUENCIES

0100-0200	ABC Brisbane	4920do	9660do		
0100-0200	ABC Perth	9610do			
0100-0115	All India Radio, Delhi	9535as	9910as	11715as	11745as
		15110as			
0100-0200	BBC London	5965as	5975na	6005sa	6175na
		7135as	7325na	9580as	9590na
		9915na	11750sa	11955as	12095na
		15260sa	15280as	15360pa	21715as
0100-0200	CFCX Montreal	6005do			
0100-0200	CFRX Toronto	6070do			
0100-0200	CKZU Vancouver	6160do			
0100-0200 m	Croatian Radio, Zagreb	7315eu	9495eu		
0100-0200	CSM World Svc, Boston	7395na	9850na	13760na	17555na
0100-0150	Deutsche Welle	6040na	6085na	6145na	11865na
		11890na	13610na	13770na	15105na
		15425na			
0100-0200	FEBC Manila	15480as			
0100-0200	HCJB Quito Ecuador	9745am	15155am	21455am	25950am
0100-0200	KTBN Salt Lake City	7510na			
0100-0130	Nat'l Radio of Laos	7112as			
0100-0200	R. for Peace Int'l	7375na	13630na	15030na	21465na
0100-0200	Radio Australia	11880va	11930va	15160va	15240va
		15320va	15365va	17630va	17750va
		17795va	21525va	21740va	21775va
0100-0200	Radio Havana Cuba	11950am			
0100-0200	Radio Japan	5960na	11840am	15195am	17810as
		17835am	17845as		
0100-0200	Radio Kiev	11675na	11790na	12005na	15180na
		17665na	17690na		
0100-0200	Radio Moscow	9480va	11690va	11710na	11780va
		11850na	11920va	11980va	12005va
		12050va	13605va	13775va	15140va
		15290va	15315va	15410va	15425va
		15480va	15550va	15580va	15590va
		9600na	9685na	9720na	11730na
		11750na	15595va	16190va	17600va
		17605na	17620va	17730va	17850va
		17860va	17890va	21635va	21690va
		21790va	21845va		
0100-0125	Radio Netherlands	6020am	6165am	11835am	
0100-0200	Radio New Zealand Int'l	17770pa			
0100-0130 sm	Radio Norway	9605na			
0100-0130	Radio Prague	5930na	7345na	11685na	
0100-0130	Radio Sweden	9695as	9795na	11705na	
0100-0200	Radio Thailand	4830as	9655as	11905as	
0100-0120	RAI, Rome	9575am	11800am		
0100-010 twhfa	RCI Montreal	5960am	9755am		
0100-0200 sm	RCI Montreal	5960am	9755am		
0100-0200 smtwh	RTM Malaysia	7295do			
0100-0200	SBC Radio 1, Singapore	5010do	5052do	11940do	
0100-0200	SLBS, Sierra Leone	3316do			
0100-0200	Spanish Foreign Radio	9630na			
0100-0200	Sri Lanka B'casting Corp.	6005as	9720as	15425as	
0100-0200	VOA	5995am	6130am	7405am	9455am
		9775am	11580am	15120am	15205am
		7205as	9740as	11705as	15250as
		17735as	21550as		
0100-0200	Voice of Indonesia	7125as	9675as	11752as	11785as
0100-0130	VOIRI Teheran	9022na	9765na	15260na	
0100-0200	WHRI Noblesville	7435am			
0100-0200	WINB Red Lion, Penn.	15145na			
0100-0200	WRNO New Orleans	7355na			
0100-0200	WWCR Nashville	7520na			
0100-0200	WYFR Okeechobee	6065na	9505na	11855na	15440na
0130-0200 mwf	Alma Alta Radio, Khazak.	5035do	5915do	6135do	
0130-0200	Radio Tashkent	7335na			
0130-0200	RAI Vienna	9870sa	9875na	13730na	
0130-0200	UAE Radio, Dubai	11795na	13695eu	15320eu	15435eu
0130-0150 mtwhfa	Voice of Greece	9395na	9420na	11645na	
0145-0200	Vatican Radio	7125do	9650as		

SELECTED PROGRAMS

Sundays

0101 BBC: Play Of The Week. This month's drama: "Damaged Goods" (1st); "Amadeus" (8th, starts at 0030 UTC); "The Incredible Samuel Pepys" (15th); "Charley's Aunt" (29th).
0109 Deutsche Welle: Commentary. Opinion on current issues.
0115 Radio Japan: This Week. The major events of the week, and current affairs topics in Japan.
0117 Deutsche Welle: Mailbag or Nickelodeon. Listener letters, or listener requests for German music.
0134 Deutsche Welle: German by Radio. An advanced German language course for English speakers.

Mondays

0101 BBC: Feature/Drama. The world's big political crises are examined on "Conflicting Opinions" (2nd/9th/16th); fragrance is the subject of "Heaven Scent" (23rd); the month ends with "The River Young" (from 30th).
0109 Deutsche Welle: Commentary. See S 0109.
0115 Radio Japan: Let's Learn Japanese. See S 0315.
0116 Deutsche Welle: Living in Germany. A weekly look at the social scene in Germany.
0130 Radio Japan: DX Corner. See S 0330.
0134 Deutsche Welle: Larry's Random Selection. Larry Wayne takes a look at Germany from the lighter side.
0145 BBC: Classical Music. The month opens with "Cole Porter Among Friends" (2nd); "The Mozart Phenomenon" looks at the artist's amazing success (through February 1st).
0155 Radio Japan: Viewpoint. See S 0355.

Tuesdays

0105 BBC: Outlook. See M 1405.
0109 Deutsche Welle: European Journal. See M 0209.
0115 Radio Japan: In Conversation. See M 0315.
0130 BBC: Folk In Britain. Ian Anderson is the host, folk music is the fare.
0134 Deutsche Welle: Transatlantic Diary. Cultural, science, and economic developments between the U and Germany.
0140 Radio Japan: Let's Practice Japanese. See M 0320.
0145 BBC: Health Matters. New medical developments and methods of keeping fit.
0150 Radio Japan: Commentary. See M 0350.
0155 Radio Japan: Tokyo Pop-In. See M 0555.

Wednesdays

0105 BBC: Outlook. See M 1405.
0109 Deutsche Welle: European Journal. See M 0209.
0115 Radio Japan: Japan Focus. See T 0315.
0130 BBC: Talks. This month, "That's The Way It Was" profiles not Walter Cronkite, but pop groups that have fallen out of favor (through January 1st).
0130 Radio Japan: Into Japan. See T 0330.
0134 Deutsche Welle: Transatlantic Diary. See T 0134.
0145 BBC: Country Style. David Allan profiles the country music scene on both sides of the pond.
0150 Radio Japan: Commentary. See M 0350.
0155 Radio Japan: Tokyo Pop-In. See M 0555.

Thursdays

0105 BBC: Outlook. See M 1405.
0109 Deutsche Welle: European Journal. See M 0209.
0115 Radio Japan: Asia Hotline. See W 0315.
0130 BBC: Waveguide. See M 0530.
0130 Radio Japan: Asian Plaza. See W 0330.
0134 Deutsche Welle: Transatlantic Diary. See T 0134.
0140 BBC: Book Choice. A short review of a recently released book.
0145 BBC: The Farming World. Agricultural news and technological innovations for farmers.
0150 Radio Japan: Commentary. See M 0350.
0155 Radio Japan: Tokyo Pop-In. See M 0555.

Fridays

0105 BBC: Outlook. See M 1405.
0109 Deutsche Welle: European Journal. See M 0209.
0115 Radio Japan: Business Today. See H 0315.
0130 BBC: Seven Seas. Malcolm Billings presents news about ships and the sea.
0130 Radio Japan: Economy Update. See H 0330.
0134 Deutsche Welle: Transatlantic Diary. See T 0134.
0145 BBC: Global Concerns. An update on environmental issues.
0150 Radio Japan: Commentary. See M 0350.
0155 Radio Japan: Tokyo Pop-In. See M 0555.

Saturdays

0105 BBC: Outlook. See M 1405.
0109 Deutsche Welle: European Journal. See M 0209.
0115 Radio Japan: Music Mix. See F 0315.
0130 BBC: Short Story. Drama written by BBC listeners; this month, selections by African listeners.
0134 Deutsche Welle: Through German Eyes. See S 1513.
0145 BBC: Jazz Now And Then. George Reid presents a weekly mix of new releases, old tracks, and interviews.
0150 Radio Japan: Commentary. See M 0350.
0155 Radio Japan: Tokyo Pop-In. See M 0555.

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English language

shortwave guide

0200 UTC [9:00 PM EST/6:00 PM PST]

FREQUENCIES

0200-0300	ABC Brisbane	4920do	9660do		
0200-0300	ABC Perth	200	6070do	9610do	
0200-0230	BBC London	5975na	6005sa	6175na	6195eu
		7135as	7325na	9410eu	9580as
		9590na	9670me	9915na	11750sa
		11955as	12095va	15260sa	15280as
		15360pa	15380as	21715as	
0200-0300	CKZU Vancouver	6160do			
0200-0300	CSM World Svc, Boston	9455na	9850na	13760eu	
0200-0250	Deutsche Welle	7285as	9615as	9690as	11945as
		11965as	15235as		
0200-0230	FEBC Manila	15480as			
0200-0300	HCJB Quito	9745na	15155na	17875sa	
0200-0300 AS	KSDA Guam	13720as			
0200-0300	KTBN Salt Lake City	7510am			
0200-0300	R. for Peace Int'l	7375na	13630na	15030na	21465na
0200-0300	Radio Australia	11880va	11930va	15160va	15240va
		15320va	15365va	17630va	17750va
		17795va	21525va	21740va	21775va
0200-0300	Radio Cairo	9475na	9675na		
0200-0300	Radio Cultura,Guatemala	3300do			
0200-0300	Radio Havana Cuba	11950am	15140na		
0200-0300	Radio Luxembourg	15350om			
0200-0300	Radio Moscow NAS	4895na	11690va	11710na	11780va
		11835va	11850na	11980va	12005va
		12050va	13605va	15140va	15290va
		15315va	15320va	15410va	15415va
		15425va	15480va	15540va	15550va
		9530na	9600na	9685na	9720na
		11730na	11750na	15580va	15590va
		15595va	16190va	17600va	17620va
		17730va	17850va	17860va	17890va
		21635va	21690va	21790va	21845va
0200-0300	Radio New Zealand Int'l	17770pa			
0200-0230 sm	Radio Norway	9605na			
0200-0300	Radio Romania Int'l	5990am	6155am	9570am	11830am
		11940am	15380am		
0200-0230	Radio Sweden	9695na	11705na		
0200-0300	Radio Thailand	4830as	9655as	11905as	
0200-0300 TWHFA	RAE Buenos Aires	11710na			
0200-0300 twhfa	RCI Montreal	9535sa	9755sa	11845sa	11940sa
		13720sa			
0200-0300 smtwh	RTM Malaysia	7295do			
0200-0300	SBC Radio 1, Singapore	5010do	5052do	11940do	
0200-0300	SLBS, Sierra Leone	3316do			
0200-0230	Sri Lanka B'casting Corp.	6005as	9720as	15425as	
0200-0230	Swiss Radio Int'l	6135am	9650am	9885am	
		12035am	17730am		
0200-0300	V. of Free China, Taiwan	5950na	9680na	9765pa	11740ca
		11860as	15345as		
0200-0230	VOA	5995am	7405am	9775am	11580am
		15120am	15205am		
		7205as	9740as	11705as	15250as
		17735as	21550as		
0200-0230 mtwhfa	Voice of Kenya	4935do			
0200-0300	WHRI Noblesville	7435na	9495sa		
0200-0300	WINB Red Lion, Penn.	15145eu			
0200-0300	WRNO New Orleans	7355am			
0200-0300	WWCR Nashville	7520na			
0200-0300	WYFR Okeechobee	6065na	9505am	15440na	
0230-0300	BBC London	5975na	6005sa	6175na	6195eu
		7135me	7325na	9410eu	9670me
		9915na	11750sa	11955me	12095va
		15260sa	15280as	15360pa	21715as
0230-0300	Radio Federal Yugoslavia	9555am	11735na		
0230-0250	Radio Finland	9560na	11755na		
0230-0300	Radio Kiev, Ukraine	9785eu			
0230-0245	Radio Pakistan	9515as	15115as	17640as	17725as
		21730as			
0230-0300	Radio Pilipinas, Manila	17760pa	17840pa	21580pa	
0230-0300	Sri Lanka B'casting Corp.	9720as	15425as		
0230-0300 s	Voice of Kenya	4935do			
0240-0300	Radio 2, Zambia	6165do	7235do		
0245-0300	Radio Korea	9640am	11805am	15575am	
0249-0300	Radio Yerevan, Armenia	11675na	11790na	15180na	15455na
		15485na			
0250-0300	Vatican Radio	6150na	7305na		

SELECTED PROGRAMS

Sundays

0209 Deutsche Welle: Commentary. See S 0109.
0213 Deutsche Welle: Sports Report. The latest news from the world of sports.
0219 Deutsche Welle: Mailbag Asia. Musical requests and answers to listener questions.
0230 BBC: Feature. This month, the battle of the sexes is joined in "Men By Women" (1st) and "Women By Men" (8th); then travel to New Orleans, Kansas City, and the like in "The Birth Of The Big Bands" (through Jan. 5th).

Mondays

0209 Deutsche Welle: European Journal. A review of major events in Europe, with interviews and analyses.
0230 BBC: Composer Of The Month. Profiles of famous composers; this month, the Soviet Sergei Rachmaninov.
0234 Deutsche Welle: Science and Technology. New scientific and technological developments.

Tuesdays

0209 Deutsche Welle: European Journal. See M 0209.
0230 BBC: Quiz. See M 1215.
0234 Deutsche Welle: Man and Environment. A program on all topics relating to the environment in industrial and developing countries.

Dang Bing and Zhang Jianxin of Radio Beijing broadcast from the booth on top of the Tian An Men Gatetower.

Wednesdays

0209 Deutsche Welle: European Journal. See M 0209.
0230 BBC: Development '91. Aid and development issues for developing nations.
0234 Deutsche Welle: Insight. See T 1534.

Thursdays

0209 Deutsche Welle: European Journal. See M 0209.
0230 BBC: Sports International. Live play-by-play, interviews, features, and discussions from the sports world.
0234 Deutsche Welle: Living in Germany. See M 0116.

Fridays

0209 Deutsche Welle: European Journal. See M 0209.
0230 BBC: Drama. See H 1130.
0234 Deutsche Welle: Spotlight on Sport. See W 1534.

Saturdays

0209 Deutsche Welle: Commentary. See S 0109.
0223 Deutsche Welle: Panorama. A review of the major news events of the week.
0230 BBC: People And Politics. The background to the British political scene.
0234 Deutsche Welle: Economic Notebook. See F 1534

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0300 UTC [10:00 PM EST/7:00 PM PST]

FREQUENCIES

0300-0400	ABC Brisbane	4920do	9660do		
0300-0400	ABC Perth	9610do			
0300-0330	BBC London	3255af	5975na	6005af	6180eu
		6190af	6195eu	7135me	9410eu
		9600af	9670me	11760me	11955me
		12095eu	15280as	15310as	15360pa
		15380as	15420af	15590af	21715as
		9915na	6175na	7325na	15260sa
		11750sa	6005sa		
0300-0400	BBS Bahrain	6010me			
0300-0400	CFCX Montreal	6005do			
0300-0400	CFRX Toronto	6070do			
0300-0400	CKZU Vancouver	6160do			
0300-0400	CSM World Svc, Boston	9455na	9850na	13760na	
0300-0350	Deutsche Welle	6085na	6145na	9545na	11810na
		11890na	13610na	13770na	15205na
		15425na			
0300-0400	HCJB Quito	9745na	15155na	21545na	
0300-0400	KTBN Salt Lake City	7510am			
0300-0400	KVOH Los Angeles	9785na			
0300-0400	R. for Peace Int'l	7375na	13630na	15030na	21465na
0300-0400	Radio Australia	11880va	11930va	15160va	15240va
		15320va	15365va	17630va	17750va
		17795va	21525va	21740va	21775va
0300-0400	Radio Beijing	9690am	11715am	11715am	15100am
		15110am	17705am		
0300-0400	Radio Budapest	6110na	9835na	11910na	
0300-0330	Radio Cairo	9475na	9675na		
0300-0400	Radio Cultura, Guatemala	3300do			
0300-0315	Radio Federal Yugoslavia	9555na	11735na		
0300-0400	Radio Havana Cuba	11950am	15140am		
0300-0400	Radio Japan	15195na	17810na		
0300-0330	Radio Japan, Tokyo	15325am	17825am	21610am	
0300-0400	Radio Moscow NAS	4895na	9530am	9600am	9685am
		9720va	11675va	11730am	11780va
		11800va	11850va	11980va	12035va
		12050va	13605va	15140va	15280va
		15315va	15320va	15410va	15415va
		15425va	15450va	15480va	15540va
		15550va	15580va	15590va	15595va
		16190va	17560va	17600va	17620va
		17710va	17730va	17850va	17860va
		17890va	21635va	21690va	21790va
0300-0400	Radio New Zealand Int'l	17770pa			
0300-0330 sm	Radio Norway	9645na			
0300-0330	Radio Pilipinas, Manila	17760pa	17840pa	21580pa	
0300-0330	Radio Prague	5930na	7345na	11685na	
0300-0400	Radio Tanzania	5985af	9685af	11765af	
0300-0400	Radio Thailand	4830as	9655as	11905as	
0300-0400 smtwh	RTM Malaysia	7295do			
0300-0400	SBC Radio 1, Singapore	5010do	5052do	11940do	
0300-0400	SLBS, Sierra Leone	3316do			
0300-0400	Sri Lanka B'casting Corp.	9720as	15425as		
0300-0400	TIFC Costa Rica	5055ca			
0300-0400	Trans World Radio Boniare	9535am	11930am		
0300-0400	V. of Free China, Taiwan	5950na	9680na		
0300-0315	Vatican Radio	6150na	7305na		
0300-0330	VOA	5965eu	11905me	15160me	17810eu
		17895me	6035af	7405af	9575af
		11835af	15115af	17715af	21600af
0300-0400	Voice of Kenya	4935do			
0300-0400	WHRI Noblesville	7435na	9495sa		
0300-0400	WRNO New Orleans	7355am			
0300-0400	WWCR Nashville	7520na			
0300-0400	WYFR Okeechobee	6065na	9505na		
0330-0400	BBC London	3255af	5975na	6005af	6180eu
		6190af	6195eu	9410eu	9600af
		9915na	11740af	11760me	11955me
		12095eu	15280as	15310as	15420af
		17885af	21715as		
0330-0400	Radio Netherlands	9590na	11720na		
0330-0400 twhfa	Radio Portugal	9600sa	9705na	9765na	11765sa
0330-0400	Radio Tirana	9760na	11825na		
0330-0400	RAI Vienna	9870ca	13730am		
0330-0400	UAE Radio, Dubai	11945na	13675na	15400na	15435na
0340-0350 twhfas	R National de Venezuela	9540om			
0340-0350 mtwhfa	Voice of Greece	9395na	9420na	11645na	
0350-0400	RAI, Rome	11905as	15330as	17795as	

SELECTED PROGRAMS

Sundays

0309 Deutsche Welle: Commentary. See S 0109.
0315 BBC: Sports Roundup. News from the world of sports.
0315 Radio Beijing: Press Clippings. See S 0015.
0315 Radio Japan: Let's Learn Japanese. Japanese language lessons for English speakers.
0317 Deutsche Welle: Mailbag or Nickelodeon. See S 0117.
0320 Radio Beijing: Travel Talk. See S 0020.
0328 Radio Beijing: Cooking Show. See S 0028.
0330 BBC: From Our Own Correspondent. Reporters comment on the background to the news.
0330 Radio Japan: DX Corner. Rika Kobayashi presents shortwave radio news, features, and reception reports.
0334 Deutsche Welle: German by Radio. See S 0134.
0335 Radio Beijing: Music from China. See S 0035.
0350 BBC: Write On. Listener letters, opinions, and questions.
0355 Radio Japan: Viewpoint. Japan's international role with regard to major issues at home and abroad.

Mondays

0309 Deutsche Welle: Commentary. See S 0109.
0315 BBC: Sports Roundup. See S 0315.
0315 Radio Beijing: China Anthology. See S 1115.
0315 Radio Japan (North America): Viewpoint. See S 0355.
0315 Radio Japan: In Conversation. Celebrities talk about themselves, in between musical selections.
0316 Deutsche Welle: Living in Germany. See M 0116.
0320 Radio Japan (North America): Let's Practice Japanese. A practice session for the week's language lesson.
0325 Radio Beijing: Music Album. See S 1125.
0330 BBC: Anything Goes. See S 1430 (except 30th: Screenplay, the drama game show).
0334 Deutsche Welle: Larry's Random Selection. See M 0134.
0340 Radio Beijing: Listeners' Letterbox. See S 1140.
0340 Radio Japan: Let's Practice Japanese. See M 0320.
0350 Radio Japan: Commentary. Opinions on current news events worldwide.

Tuesdays

0309 Deutsche Welle: European Journal. See M 0209.
0315 BBC: Sports Roundup. See S 0315.
0315 Radio Beijing: Current Affairs. See M 1115.
0315 Radio Japan: Japan Focus. Program details not available at press time.
0330 BBC: John Peel. Newly released albums and singles from the contemporary music scene.
0330 Radio Japan: Into Japan. Program details not available at press time.
0334 Deutsche Welle: Transatlantic Diary. See T 0134.
0340 Radio Beijing: Learn to Speak Chinese. See M 1140.
0350 Radio Japan: Commentary. See M 0350.

Wednesdays

0309 Deutsche Welle: European Journal. See M 0209.
0315 BBC: Sports Roundup. See S 0315.
0315 Radio Beijing: Current Affairs. See M 1115.
0315 Radio Japan: Asia Hotline. A look at the rapid changes in other Asian nations.
0330 BBC: Discovery. An in-depth look at scientific research.
0330 Radio Japan: Asian Plaza. Program details not available at press time.
0334 Deutsche Welle: Transatlantic Diary. See T 0134.
0340 Radio Beijing: Listeners' Letterbox. See S 1140.
0350 Radio Japan: Commentary. See M 0350.

Thursdays

0309 Deutsche Welle: European Journal. See M 0209.
0315 BBC: Sports Roundup. See 0315.
0315 Radio Beijing: Current Affairs. See M 1115.
0315 Radio Japan: Business Today. The latest trends in the Japanese economy.
0330 BBC: Assignment. A weekly examination of topical issues, from Batman to the Amazon.
0330 Radio Japan: Economy Update. Newly marketed products, consumer trends, and interviews.
0334 Deutsche Welle: Transatlantic Diary. See T 0134.
0340 Radio Beijing: Learn to Speak Chinese. See M 1140.
0350 Radio Japan: Commentary. See M 0350.

Fridays

0309 Deutsche Welle: European Journal. See M 0209.
0315 BBC: Sports Roundup. See S 0315.
0315 Radio Beijing: Current Affairs. See M 1115.
0315 Radio Japan: Music Mix. A program for young listeners, with Japanese pop music and discussion.
0330 BBC: Focus On Faith. Comment and discussion on major issues in various religions.
0334 Deutsche Welle: Transatlantic Diary. See T 0134.
0334 Deutsche Welle: Transatlantic Diary. See T 0134.
0340 Radio Beijing: Culture in China. See H 1140.
0350 Radio Japan: Commentary. See M 0350.

Saturdays

0309 Deutsche Welle: European Journal. See M 0209.
0315 BBC: Sports Roundup. See S 0315.
0315 Radio Beijing: Current Affairs or The Business Show. See F 1115.
0315 Radio Japan: This Week. See S 0115.
0330 BBC: The Vintage Chart Show. Paul Burnett with past Top 20 pop music hits.
0334 Deutsche Welle: Through German Eyes. See S 1513.
0340 Radio Beijing: In the Third World. See F 1140.

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English language

shortwave guide

0400 UTC [11:00 PM EST/8:00 PM PST]

FREQUENCIES

0400-0500	ABC Brisbane	4920do	9660do		
0400-0500	ABC Perth	9610do			
0400-0430	BBC London	3255af	3955eu	5975na	6180eu
		6190af	6195eu	7105af	7230eu
		9410eu	9600af	9610af	9915na
		11760me	15070va	15280as	15310as
		15420af	15590eu	17885af	21715as
		6005af	6175am	11750va	11955me
		12095va			
0400-0500	BBS Bahrain	6010me			
0400-0500	CFCX Montreal	6005do			
0400-0500	CFRX Toronto	6070do			
0400-0500	CKZU Vancouver	6160do			
0400-0415	Croatian Radio, Zagreb	7315am			
0400-0500	CSM World Svc, Boston	9455na	9840af	13760na	
		17780as			
0400-0450	Deutsche Welle	6145af	7150af	7225af	9565af
		9765af	11765af	11890af	13610af
		13770af	15425af		
0400-0500	HCJB Quito	9745na	15155na		
0400-0500	KTBN Salt Lake City	7510am			
0400-0500	KVOH Los Angeles	9785am			
0400-0500	R. for Peace Int'l	7375na	13630na	15030na	21465na
0400-0500	Radio 2, Zambia	6165do	7235do		
0400-0500	Radio Australia	11880va	11930va	15160va	15170va
		15240va	15320pa	15365va	17630va
		17795va	21525va	21740va	21775va
0400-0500	Radio Beijing	11685am	11840am		
0400-0425	Radio Cultura, Guatemala	3300do			
0400-0500	Radio Cultura, Guatemala	3300do			
0400-0450	Radio Havana Cuba	5965am	9505am	9750am	11760am
		11820am	11950am		
0400-0500	Radio Moscow	9530na	9600na	9685na	11675va
		11780va	11850va	11980va	11995va
		12055va	13775va	15140va	15210va
		15280va	15315va	15415va	15450va
		15480va	15525va	15535va	15540va
		15550va	15590va	17560va	17600va
		17620va	17635va	17640va	17710va
		17730va	17850va	17860va	17890va
		21472	21565va	21625va	21630va
		21690va	21725na	21790va	21845na
0400-0500	Radio Moscow NAS West Cst	9635na	12050na	13605na	13645na
		15180na	15410na	15425na	15455na
		15580na	15595na	16190na	
0400-0425	Radio Netherlands	9590am	11720am		
0400-0500 smtwhf	Radio New Zealand Int'l	17770pa			
0400-0430	Radio Prague	5930na	7345na	11685na	
0400-0450	Radio Pyongyang	15180as	15230as	17765as	
0400-0430	Radio Romania Int'l	5990am	6155am	9510am	9570am
		11830am	11940am		
0400-0500	Radio RSA, Johannesburg	7270af	11900af	15440af	
0400-0500	Radio Sofia, Bulgaria	11720eu	15100af	15160af	
0400-0430	Radio Tanzania	5985af	9685af	11765af	
0400-0430	Radio Thailand	4830as	9655as	11905as	
0400-0410	RAI, Rome	11905as	15330as	17795as	
0400-0425	RAI, Rome	5990me	7275me		
0400-0430	RCI Montreal	6150eu	9670eu	9505me	11925me
0400-0500 smtwh	RTM Malaysia	7295do			
0400-0500	SBC Radio 1, Singapore	5010do	5052do	11940do	
0400-0500	SLBS, Sierra Leone	3316do			
0400-0430	Sri Lanka B'casting Corp.	9720as	15425as		
0400-0430	Swiss Radio Int'l	6135am	9885am	12035am	13635me
0400-0430	Trans World Radio Bonaire	9535am	11930am		
0400-0430	VOA	5995eu	6040me	6140me	7170eu
		7200eu	9715eu		
		6035af	7405af	9575af	11780af
		11835af	15115af	17715af	21600af
0400-0500	Voice of Kenya	4935do			
0400-0500	WHRI Noblesville	7435na	9495sa		
0400-0500 smtwhf	WMLK Bethel	9465eu			
0400-0500	WRNO New Orleans	7355am			
0400-0500	WWCR Nashville	7520na			
0400-0500	WYFR Okeechobee	6065na	9505na		
0430-0500	BBC London	3255af	3955eu	5975na	6005af
		6180eu	6190af	6195eu	7230eu
		9410eu	9600af	11760me	12095va
		15070va	15280as	15310as	15400af
		15420af	15590eu	21470af	21715as
0430-0500	Georgian Radio, Tbilisi	11850me			
0430-0500 mtwhf	NBC Windhoek, Namibia	3270af	3290af		
0430-0500	Radio Nigeria	3326do	4990do		
0430-0500	Radio Tirana	9760na	11825na		
0430-0500 s	Radio Zambia Int'l	9505af	11880af	17895af	
0430-0500	TWR Swaziland	5055af	5965af	9655af	11750af
0430-0500	VOA	5995me	6040me	6140me	7170me
		7200me	9715me		
		6035af	7405af	9575af	15115af
		17715af	21600af		
0432-0500	FEBA Seychelles	17810me			
0450-0500	Radio Havana Cuba	9750am	11760am	11820am	

SELECTED PROGRAMS

Sundays

0409 Deutsche Welle: Commentary. See S 0109.
0413 Deutsche Welle: Sports Report. See S 0213.
0415 Radio Beijing: Press Clippings. See S 0015.
0419 Deutsche Welle: International Talking Point. A round-table discussion on major trends and events.
0420 Radio Beijing: Travel Talk. See S 0020.
0428 Radio Beijing: Cooking Show. See S 0028.
0430 BBC: Pop Music. "The Best of British" includes the likes of Sting, 10cc, Ian Dury, and Squeeze (through Jan. 5th).
0434 Deutsche Welle: People and Places. Interviews, stories, and music beamed to Africa.
0435 Radio Beijing: Music from China. See S 0035.
0445 BBC: Talks. This month, find out what happens in the theater world on a journey "Behind The Stage Door."

Mondays

0409 Deutsche Welle: European Journal. See M 0209.
0415 Radio Beijing: China Anthology. See S 1115.
0425 Radio Beijing: Music Album. See S 1125.
0430 BBC: Off The Shelf. This month's serialized readings include "Lord Jim" (2nd-13th); "Through The Looking Glass" (16th-24th); and James Bond in "Goldfinger" (30th through January 10th).
0434 Deutsche Welle: Africa in the German Press. A look at what German papers and weeklies have to say about Africa.
0440 Radio Beijing: Listeners' Letterbox. See S 1140.
0445 BBC: Andy Kershaw's World Of Music. Exotic music from the world over.

Tuesdays

0409 Deutsche Welle: European Journal. See M 0209.
0415 Radio Beijing: Current Affairs. See M 1115.
0430 BBC: Off The Shelf. See M 0430.
0434 Deutsche Welle: Africa Report. Reports and background to the news from correspondents.
0440 Radio Beijing: Learn to Speak Chinese. See M 1140.
0445 BBC: Europe's World. Life in Europe and its links with the rest of the world.

Wednesdays

0409 Deutsche Welle: European Journal. See M 0209.
0415 Radio Beijing: Current Affairs. See M 1115.
0430 BBC: Off The Shelf. See M 0430.
0434 Deutsche Welle: Africa Report. See T 0434.
0440 Radio Beijing: Listeners' Letterbox. See S 1140.
0445 BBC: Country Style. See W 0145.

Thursdays

0409 Deutsche Welle: European Journal. See M 0209.
0415 Radio Beijing: Current Affairs. See M 1115.
0430 BBC: Off The Shelf. See M 0430.
0434 Deutsche Welle: Africa Report. See T 0434.
0440 Radio Beijing: Learn to Speak Chinese. See M 1140.
0445 BBC: From Our Own Correspondent. See S 0330.

Fridays

0409 Deutsche Welle: European Journal. See M 0209.
0415 Radio Beijing: Current Affairs. See M 1115.
0430 BBC: Off The Shelf. See M 0430.
0434 Deutsche Welle: Africa Report. See T 0434.
0440 Radio Beijing: Culture in China. See H 1140.
0445 BBC: Folk In Britain. See T 0130.

Saturdays

0409 Deutsche Welle: Commentary. See S 0109.
0415 Radio Beijing: Current Affairs or The Business Show. See F 1115.
0423 Deutsche Welle: Panorama. See A 0223.
0430 BBC: Jazz Now And Then. See A 0145.
0434 Deutsche Welle: Man and Environment. See T 0234.
0440 Radio Beijing: In the Third World. See F 1140.
0445 BBC: Worldbrief. See F 2315.

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English language

shortwave guide

0500 UTC [12:00 AM EST/9:00 PM PST]

FREQUENCIES

0500-0600	ABC Brisbane	4920do	9660do		
0500-0600	ABC Perth	9610do			
0500-0530	BBC London	3255af	3955eu	6005af	6180as
		6190af	6195eu	7230eu	9410eu
		9600af	9640na	11760me	12095va
		15070as	15310as	15400af	15420af
		15590va	17885af	21470af	21715as
		5975na	15280as		
0500-0600	BBS Bahrain	6010me			
0500-0600	CFCX Montreal	6005do			
0500-0600	CFRX Toronto	6070do			
0500-0600	CKZU Vancouver	6160do			
0500-0530	CRTV Buea, Cameroon	3970do			
0500-0600	CSM World Svc, Boston	9455eu	9840eu	13760eu	
		17780va			
0500-0550	Deutsche Welle	5960na	6120na	9700na	9670na
		11705na	11890na	13610na	13790na
0500-0600	HCJB Quito	9745na	15155na		
0500-0515	Kol Israel	11588am			
0500-0600	KTBN Salt Lake City	7510am			
0500-0600	KVOH Los Angeles	9785am			
0500-0510 w	Malawi B'casting Corp.	3381do			
0500-0600 mtwhf	NBC Windhoek, Namibia	3270af	3290af		
0500-0600 sa	R. E. Africa, Eq Guinea	9585af			
0500-0600	R. for Peace Int'l	7375na	13630na	15030na	21465na
0500-0600	Radio 2, Zambia	6165do	7235do		
0500-0600	Radio Australia	11880va	11930va	15160va	15170va
		15240va	15320pa	15365va	17630va
		17795va	21525va	21740va	21775va
0500-0600	Radio Havana Cuba	9750am	11760am	11820am	
0500-0600	Radio Japan	15195na	17765na	17810na	17825na
		17890na	21610na		
0500-0510	Radio Lesotho	4800do			
0500-0600	Radio Moscow	9530na	9685na	11675va	11980va
		11995va	13775va	15140va	15210va
		15280va	15315va	15320va	15415va
		15450va	15525va	15535va	15540va
		15545va	15550va	15590va	17560va
		17600va	17620va	17625va	17635va
		17640va	17710va	17730va	17850va
		17860va	17890va	21475va	21625va
		21630va	21635va	21645va	21690va
		21725va	21740va	21790va	21845va
0500-0600	Radio Moscow NAS West Cst	9635na	12050na	13605na	13645na
		15180na	15410na	15425na	15455na
		15595na	16190na		
0500-0600	Radio New Zealand Int'l	17770pa			
0500-0600	Radio Nigeria	3326do	4990do		
0500-0600	Radio Sofia, Bulgaria	11720eu	15100af	15160af	
0500-0600	Radio Thailand	4830as	9655as	11905as	
0500-0600 s	Radio Zambia Int'l	9505af	11880af	17895af	
0500-0600	RTM Malaysia	7295do			
0500-0600	SBC Radio 1, Singapore	5052do	11940do		
0500-0600	SLBS, Sierra Leone	3316do			
0500-0600	Spanish Foreign Radio	9630na			
0500-0530	TWR Swaziland	5965af	9655af	11750af	
0500-0520	Vatican Radio	6245eu	7250eu		
0500-0530	Vatican Radio	9695af	11625af	15090af	
0500-0600	VOA	5995eu	6040me	6060eu	6140me
		7170me	7200me	9670me	9700eu
		9715me	11825me	15205me	17715af
		6035af	7405af	9575af	15115af
0500-0600	Voice of Kenya	4935do			
0500-0600	Voice of Nigeria	7255af			
0500-0600	WHRI Noblesville	7435na	9495sa		
0500-0600	WINB Red Lion, Penn.	15145eu			
0500-0600	WRNO New Orleans	7355am			
0500-0600	WWCR Nashville	7520na			
0500-0600	WYFR Okeechobee	5985na	11580am	15566eu	
0510-0515 w	Radio Botswana	5955af	7255af		
0524-0600 f	Radio 2, Accra, Ghana	3366do			
0526-0600	Radio 1, Accra, Ghana	4915do			
0530-0600	BBC London	3255af	3955eu	5975na	6005af
		6180as	6190af	6195eu	7230eu
		9410eu	9600af	9640na	11760me
		12095va	15070as	15310as	15400af
		15420af	15590va	17885af	21470af
		15280as	21715as		
0530-0600	Cameroon Radio-TV	4850do			
0530-0600	Guizhou PBS Guiyang China	3260do	7275do		
0530-0600	Radio Romania Int'l	15340af	15380af	17720af	17745af
		17790af	21665af		
0530-0600	RAI Vienna	6015na	6155eu	13730eu	21490me
0530-0600	TWR Swaziland	5965af	11750af		
0530-0600	UAE Radio, Dubai	15435as	17830as	21700as	
0545-0600	Radio Buea, Cameroon	3970do			

SELECTED PROGRAMS

0509 Every Day: BBC:Twenty-Four Hours. Analysis of the day's news.

Sundays

0509 Deutsche Welle: Commentary. See S 0109.
0515 Radio Beijing: Press Clippings. See S 0015.
0515 R Japan: Hello From Tokyo. Kiyoko Tanak-David Powers.
0517 Deutsche Welle: Mailbag or Nickelodeon. See S 0117.
0520 Radio Beijing: Travel Talk. See S 0020.
0528 Radio Beijing: Cooking Show. See S 0028.
0530 BBC: World Business Review. News and coming events.
0530 Radio Japan: Radio Japan Guide. Details not available.
0534 Deutsche Welle: German by Radio. See S 0134.
0535 Radio Beijing: Music from China. See S 0035.
0540 BBC: Words Of Faith. Speakers from various faiths.
0545 BBC: Letter From America. Alistair Cooke.
0555 Radio Japan: Viewpoint. See S 0355.

Mondays

0509 Deutsche Welle: Commentary. See S 0109.
0515 Radio Beijing: China Anthology. See S 1115.
0515 Radio Japan: People. Profiles of leading Japanese.
0516 Deutsche Welle: Living in Germany. See M 0116.
0525 Radio Beijing: Music Album. See S 1125.
0530 BBC: Waveguide. Tips on how to hear the BBC better.
0530 Radio Japan: Crosscurrents. A current affairs program.
0534 Deutsche Welle: Larry's Random Selection. See M 0134.
0540 BBC: Words Of Faith. See S 0540.
0540 Radio Beijing: Listeners' Letterbox. See S 1140.
0545 BBC: Recording Of The Week. Classical music.
0550 Radio Japan: Commentary. See M 0350.
0555 Radio Japan: Tokyo Pop-In. Popular song.

Tuesdays

0509 Deutsche Welle: European Journal. See M 0209.
0515 Radio Beijing: Current Affairs. See M 1115.
0515 Radio Japan: Japan Focus. See T 0315.
0530 BBC: World Business Report. See M 2305.
0530 Radio Japan: Into Japan. See T 0330.
0534 Deutsche Welle: Transatlantic Diary. See T 0134.
0540 BBC: Words Of Faith. See S 0540.
0540 Radio Beijing: Learn to Speak Chinese. See M 1140.
0545 BBC: The World Today. See M 1645.
0550 Radio Japan: Commentary. See M 0350.
0555 Radio Japan: Tokyo Pop-In. See M 0555.

Wednesdays

0509 Deutsche Welle: European Journal. See M 0209.
0515 Radio Beijing: Current Affairs. See M 1115.
0515 Radio Japan: Asia Hotline. See W 0315.
0530 BBC: World Business Report. See M 2305.
0530 Radio Japan: Asian Plaza. See W 0330.
0534 Deutsche Welle: Transatlantic Diary. See T 0134.
0540 BBC: Words Of Faith. See S 0540.
0540 Radio Beijing: Listeners' Letterbox. See S 1140.
0545 BBC: The World Today. See M 1645.
0550 Radio Japan: Commentary. See M 0350.
0555 Radio Japan: Tokyo Pop-In. See M 0555.

Thursdays

0509 Deutsche Welle: European Journal. See M 0209.
0515 Radio Beijing: Current Affairs. See M 1115.
0515 Radio Japan: Business Today. See H 0315.
0530 BBC: World Business Report. See M 2305.
0530 Radio Japan: Economy Update. See H 0330.
0534 Deutsche Welle: Transatlantic Diary. See T 0134.
0540 BBC: Words Of Faith. See S 0540.
0540 Radio Beijing: Learn to Speak Chinese. See M 1140.
0545 BBC: The World Today. See M 1645.
0550 Radio Japan: Commentary. See M 0350.
0555 Radio Japan: Tokyo Pop-In. See M 0555.

Fridays

0509 Deutsche Welle: European Journal. See M 0209.
0515 Radio Beijing: Current Affairs. See M 1115.
0515 Radio Japan: Music Mix. See F 0315.
0530 BBC: World Business Report. See M 2305.
0540 BBC: Words Of Faith. See S 0540.
0540 Radio Beijing: Culture in China. See H 1140.
0545 BBC: The World Today. See M 1645.
0550 Radio Japan: Commentary. See M 0350.
0555 Radio Japan: Tokyo Pop-In. See M 0555.

Saturdays

0509 Deutsche Welle: European Journal. See M 0209.
0515 R Beijing: Current Affairs or Business Show. See F 1115.
0515 Radio Japan: This Week. See S 0115.
0530 BBC: World Business Report. See M 2305.
0534 Deutsche Welle: Through German Eyes. See S 1513.
0540 BBC: Words Of Faith. See S 0540.
0540 Radio Beijing: In the Third World. See F 1140.
0545 BBC: The World Today. See M 645.

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0600 UTC [1:00 AM EST/10:00 PM PST]

FREQUENCIES

0600-0630	BBC London	3955eu	6180eu	6190af	6195eu
		7230eu	9410eu	9600af	11760me
		11940af	11955as	12095eu	15070va
		15310as	15400af	15420af	15590va
		17790as	17830as	17885af	21470af
		5975na	7150pa	9640va	15280as
		15360pa	21715as		
0600-0700	BBS Bahrain	6010me			
0600-0625	Cameroon Radio-TV	4850do			
0600-0700	CFCX Montreal	6005do			
0600-0700	CFRX Toronto	6070do			
0600-0700	CKZU Vancouver	6160do			
0600-0700	CSM World Svc, Boston	9455eu	9840eu	9870na	17555eu
		17780va			
0600-0650	Deutsche Welle	11765af	13610af	13790af	15185af
		15205af	17875af		
0600-0700 tent	ELBC Monrovia, Liberia	7275do			
0600-0700	HCJB Quito	9745na	15115na		
0600-0700	King of Hope, Lebanon	6280me			
0600-0700	KTBN Salt Lake City	7510na			
0600-0700	KVOH Los Angeles	9785na			
0600-0610 s	Malawi B'casting Corp.	3381do			
0600-0630	Nat'l Radio of Laos	7112as			
0600-0700 sa	R. E. Africa, Eq. Guinea	9585af			
0600-0700	R. for Peace Int'l	7375na	13630na	15030na	21566na
0600-0700	Radio 1, Accra, Ghana	4915do			
0600-0700 f	Radio 2, Accra, Ghana	3366do			
0600-0700	Radio 2, Zambia	6165do	7235do		
0600-0700	Radio Australia	11880va	11930va	15160va	15240va
		15320va	15365va	17630va	17750va
		17795va	21525va	21740va	21775va
0600-0645 s	Radio Douala, Cameroon	4795do			
0600-0700	Radio Georgia, Tbilisi	12070eu			
0600-0700	Radio Havana Cuba	11760am			
0600-0700	Radio Korea	7275om	11810na	15170na	
0600-0700	Radio Moscow	11675na	11775va	11980va	13775va
		15140va	15210va	15280va	15415va
		15425na	15535va	15545va	15550va
		15590va	17560va	17600va	17620va
		17625va	17635va	17640va	17710va
		17730va	17850va	17860va	21630va
		21645va	21690va	21725va	21740va
		21785va	21790va	21845va	
0600-0700	Radio Moscow NAS West Cst	9635na	12050na	13605na	13645na
		15180na	15410na	15425na	15455na
		15595na	16190na	17605na	
0600-0700	Radio New Zealand Int'l	17770pa			
0600-0700	Radio Nigeria	3326do	4990do		
0600-0650	Radio Pyongyang	15180as	15230as		
0600-0615	Radio Sofia, Bulgaria	11720eu	15100af	15160af	
0600-0700 sa	Radio Thailand	4830as	9655as	11905as	
0600-0630 s	Radio Zambia Int'l	9505af	11880af	17895af	
0600-0700 smtwha	RTM Malaysia	7295do			
0600-0700	SBC Radio 1, Singapore	5010do	5052do	11940do	
0600-0700	SLBS, Sierra Leone	3316do			
0600-0700	TWR Swaziland	5965af	7200af	11750af	
0600-0700	V. of the Mediterranean	9765eu			
0600-0700	VOA	3980eu	5995eu	040eu	6060me
		6110eu	6140eu	7170me	7325me
		11805me	11825me	15205me	
		6035af	6125af	7405af	9530af
		9575af	15115af	17715af	
0600-0625	Voice of Kenya	4935do			
0600-0700	Voice of Malaysia	6175as	9750as	15295as	
0600-0700	WHRI Noblesville	7435eu	9495sa		
0600-0700 smtwhf	WMLK Bethel	9465eu			
0600-0700	WWCR Nashville	7520na			
0600-0700	WYFR Okeechobee	5985na	7355eu	9660af	13760na
		15566eu			
0600-0630 s	ZLXA New Zealand	3935do			
0615-0630 s	Radio Bertoua, Cameroon	4750do			
0615-0700 mtwhf	RCI Montreal	6050eu	6150eu	7155eu	9760eu
		9740me	11905me		
0625-0700	Voice of Kenya	4935do			
0630-0700	BBC London	5975na	6180eu	6190af	6195eu
		7230eu	9410eu	9600af	9640pa
		11760me	11940af	11955as	12095eu
		15070va	15310as	15400af	15420af
		15590va	17830as	17885af	21470af
		7150pa	15280as	15360pa	17790as
		21715as			
0630-0700	RAI Vienna	6015na			
0630-0635 mtwhf	RTV Congolaise	7105do	9610do		
0630-0700	Swiss Radio Int'l	15430af	17565af	21770af	
0630-0700	Vatican Radio	9695af	11625af	15090af	
0630-0700 smtwhf	ZLXA New Zealand	3935do			
0645-0700	Ghana B'casting Corp.	6130af			
0645-0700	Radio Romania Int'l	11940au	15335au	17720au	17805au
		21665au			

SELECTED PROGRAMS

Sundays

0609 Deutsche Welle: Commentary. See S 0109.
0613 Deutsche Welle: Sports Report. See S 0213.
0619 Deutsche Welle: International Talking Point. See S 0419.
0630 BBC: Jazz For The Asking. Digby Fairweather plays listener requests.
0634 Deutsche Welle: People and Places. See S 0434.

Mondays

0609 Deutsche Welle: European Journal. See M 0209.
0630 BBC: Feature. See S 1401.
0634 Deutsche Welle: Africa in the German Press. See M 0434.

Tuesdays

0609 Deutsche Welle: European Journal. See M 0209.
0630 BBC: Rock/Pop Music. Tommy Vance presents an all-request edition of the always hard-rocking "Rock Salad" (3rd), followed by Peter Gabriel's "Real World Music," the singer's efforts to bring together a world of music (through 31st).

Radio Netherlands broadcaster.

0634 Deutsche Welle: Africa Report. See T 0434.

Wednesdays

0609 Deutsche Welle: European Journal. See M 0209.
0630 BBC: Meridian. Events in the world of the arts.
0634 Deutsche Welle: Africa Report. See T 0434.

Thursdays

0609 Deutsche Welle: European Journal. See M 0209.
0630 BBC: Sports International. See H 0230.
0634 Deutsche Welle: Africa Report. See T 0434.

Fridays

0609 Deutsche Welle: European Journal. See M 0209.
0630 BBC: Meridian. See W 0630.
0634 Deutsche Welle: Africa Report. See T 0434.

Saturdays

0609 Deutsche Welle: Commentary. See S 0109.
0623 Deutsche Welle: Panorama. See A 0223.
0630 BBC: Meridian. See W 0630.
0634 Deutsche Welle: Man and Environment. See T 0234.

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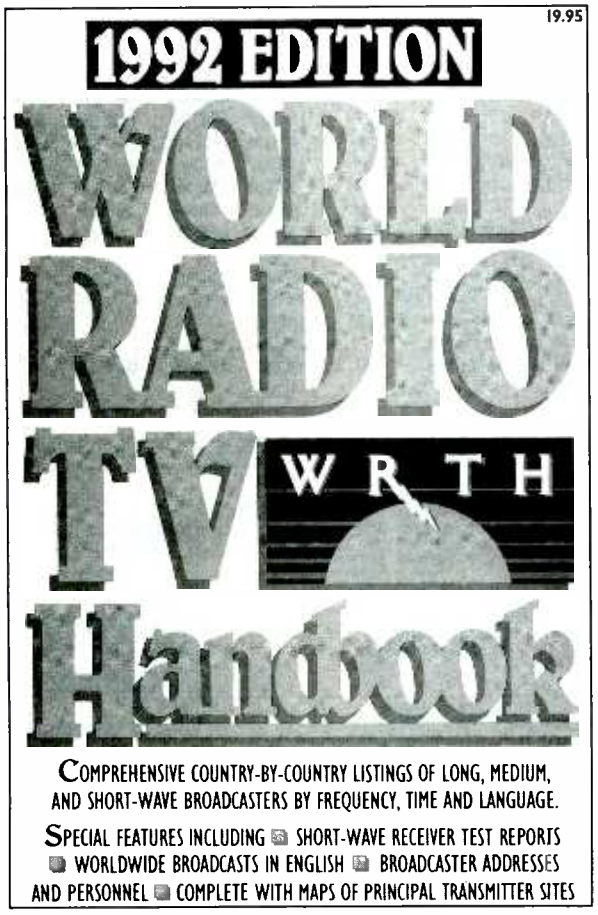

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46th Edition

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0700 UTC 2:00 AM EST/11:00 PM PST]

FREQUENCIES

0700-0730	BBC London	1780as	5975na	7150pa	9640va
		11955as	15280as	15360pa	21715as
		6180eu	6190af	6195eu	7230eu
		7325af	9410eu	9760eu	11760me
		11940af	12095eu	15070eu	15310as
		15400af	15420af	15590eu	17640va
		17790as	17885af	21470af	21660af
0700-0800	BBS Bahrain	6010me			
0700-0800	CFCX Montreal	6005do			
0700-0800	CFRX Toronto	6070do			
0700-0800	CKZU Vancouver	6160do			
0700-0800	CSM World Svc, Boston	9455eu	9840eu	9870pa	17555as
		17780va			
0700-0800 tent	ELBC Monrovia, Liberia	7275do			
0700-0730	Georgian Radio, Tbilisi	12050me	12070au		
0700-0800	Ghana B'casting Corp.	6130af			
0700-0800	HCJB Quito	11835eu	15270eu	17790eu	
0700-0800 mtwhf	Italian Radio Relay Svc	9815eu			
0700-0800	King of Hope, Lebanon	6280me			
0700-0800	KTBN Salt Lake City	7510na			
0700-0800	KVOH Los Angeles	9785na			
0700-0730 s	Latvian Radio, Riga	5935eu			
0700-0710 w	Malawi B'casting Corp.	3381do	5995do		
0700-0800 sa	R. E. Africa, Eq. Guinea	9585af			
0700-0800	R. for Peace Int'l	7375na	13630na	15030na	21465na
0700-0800	Radio 1, Accra, Ghana	4915do			
0700-0800 f	Radio 2, Accra, Ghana	3366do			
0700-0800	Radio 2, Zambia	6165do	7235do		
0700-0800	Radio Australia	11880va	11930va	15240va	15320va
		17630va	21525va	21740va	21775va
0700-0710	Radio Bafoussam, Cameroon	4000do			
0700-0800	Radio Havana Cuba	11835am			
0700-0800	Radio Japan	15250me	17765eu	17810as	17890as
		21575as			
0700-0800	Radio Moscow	17560va	17570va	17600va	
		17620va	17625va	17635va	17710va
		17730va	17765va	17835va	17850va
		17860va	17890va	21475va	21515va
		21625va	21630va	21645va	21655va
		7315va	11730va	11775va	11980va
		11995va	12010va	13775va	15140va
		15205va	15280va	15320va	15340va
		15350va	15375va	15415va	15450va
		15535va	15540va	15545va	15550va
		21690va	21725va	21740va	21785va
		21790va	21845va		
0700-0800	Radio Moscow NAS West Cst	9635na	12050na	13605na	13645na
		15180na	15410na	15425na	15595na
		16190na	17605		
0700-0730	Radio New Zealand Int'l	17770pa			
0700-0800	Radio Nigeria	3326do	4990do		
0700-0750	Radio Pyongyang	15340as	17765as		
0700-0715	Radio Romania Int'l	11940au	15335au	17720au	17805au
		21655au			
0700-0800 sa	Radio Thailand	4830as	9655as	11905as	
0700-0800 smtwha	RTM Malaysia	7295do			
0700-0800	SBC Radio 1, Singapore	5010do	5052do	11940do	
0700-0800	SLBS, Sierra Leone	3316do			
0700-0800	TWR Monte Carlo	9480na			
0700-0800	TWR Swaziland	7200af	11750af		
0700-0800	V. of Free China, Taiwan	5950na			
0700-0800	Voice of Kenya	4935do			
0700-0800	Voice of Malaysia	6175as	9750as	15295as	
0700-0800	WHRI Noblesville	7435eu	9495sa		
0700-0800	WWCR Nashville	7520am			
0700-0800	WYFR Okeechobee	7355na	13695na	13760eu	15566eu
0700-0800 smtwhf	ZXLA New Zealand	3935do			
0705-0800 a	Radio Douala, Cameroon	4795do			
0730-0800	AWR Foli, Italy	7230eu			
0730-0800	BBC London	6180eu	6190af	7325eu	9410eu
		9600af	9760eu	11760me	11880af
		11940af	12095va	15070eu	15105af
		15400af	15420af	15590af	17640va
		17830as	17885af	21470af	21660af
0730-0800	BBC London	7150pa	9640va	11955as	15280as
		15310as	15360pa	17790as	21715as
0730-0800	BRT Brussels	5910eu	11695eu	13675eu	
0730-0745 mtwhf	Icelandic National Radio	3295om	6100om	9265om	
0730-0800	R. New Zealand Int'l	9700pa			
0730-0745	Radio Finland	6120eu	9560af	11755eu	
0730-0800	Radio Netherlands	9630au	11895au		
0730-0800	Radio New Zealand Int'l	9700as			
0730-0800	Radio Prague	17840pa	21705as		
0730-0745 mtwhfa	Vatican Radio	6245do	7250do	9645na	15210na
0740-0800	TWR Monte Carlo	9480eu			

The C-Span Audio Networks bring english-language radio programs into more than 4 million cable television households around the country, and are also available to home satellite dish owners. C-SPAN Audio 1 airs the schedule shown at right. C-SPAN Audio 2 is a 24 hour retransmission of the BBC World Service via satellite from London. For more information about the availability of the Audio Networks, you can write: The C-SPAN Audio Networks, 400 North Capitol Street, N.W., Suite 650, Washington, DC 20001.

Audio 1's Daily Program Schedule

Eastern Times	Pacific Times	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
6:00 am	3:00 am	Radio Japan					Classical Music and Schedule Info.	
7:00 am	4:00 am	Classical Music and Schedule Information		Israel Press Review	Paris Rendezvous	Israel Magazine	Radio Korea	
8:00 am	5:00 am	Open House (Canada)	As It Happens				Classical Music and Schedule Information	
9:00 am	6:00 am	Canadian Broadcasting Corporation						
10:00am	7:00am	Classical Music, Schedule Information, or Historic Speeches Programs					Paris Rendezvous / Sunday Morning (Radio Canada International) / Israel Magazine / Classical Music	
11:00 am	8:00 am							
noon	9:00 am	Weekly Radio Journal					Classical Music and Schedule Information	
1:00 pm to 4:59 pm	10:00 am to 1:59 pm	Voice of America Worldwide English Service					Voice of America Worldwide English Service	
5:00 pm	2:00 pm	World Service of the Christian Science Monitor						
6:00 pm	3:00 pm	Voice of America Worldwide English Service						
7:00 pm	4:00 pm							
8:00 pm	5:00 pm	Radio Havana Cuba					Radio Havana Cuba	
9:00 pm	6:00 pm	Voice of Free China (Taiwan)					Voice of Free China (Taiwan)	
10:00 pm	7:00 pm	Deutsche Welle (Germany)					Radio Japan	
11:00 pm	8:00 pm	Radio Havana Cuba					Radio Havana Cuba	
Midnight	9:00 pm	Radio Beijing					Radio Beijing	
1:00 am	10:00 pm	Voice of America					Voice of America	
2:00 am	11:00 pm	Voice of Free China (Taiwan)					Voice of Free China (Taiwan)	
3:00 am-6:00 am	midnight-3:00 am	Classical Music and Schedule Information					Classical Music and Schedule Information	

Live Programs | Taped Programs

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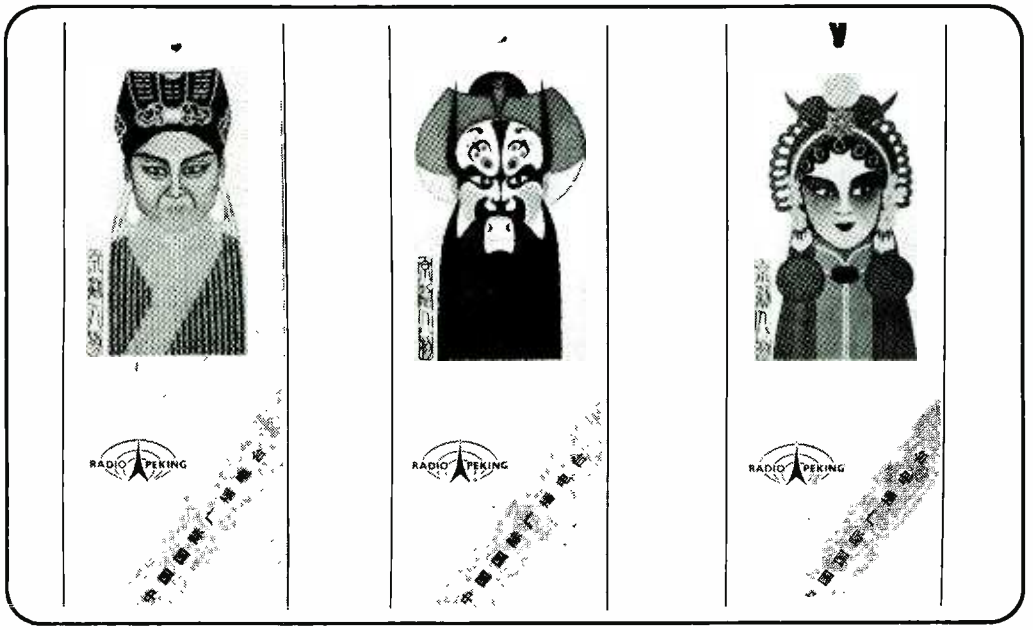
0800 UTC [3:00 AM EST/12:00 AM PST]

FREQUENCIES

0800-0830	BBC London	6180eu	6190af	7325eu	9410eu
		9600af	9760eu	11760me	11860af
		12095eu	15070eu	15310as	15360pa
		15400af	15420af	15590me	17790as
		17830as	17885af	21470af	21660af
		7150pa	9640pa	9660eu	11950af
		11955as	15105af	15280as	17640va
		21715as			
0800-0900	BBS Bahrain	6010me			
0800-0900	CFCX Montreal	6005do			
0800-0900	CFRX Toronto	6070do			
0800-0900	CSM World Svc, Boston	9455va	9840va	13710va	13760va
		17555va			
0800-0900	HCJB Quito	6205pa	9610pa	9745pa	11835pa
		11925pa			
0800-0900 mtwhf	Italian Radio Relay Svc	9815eu			
0800-0900	King of Hope, Lebanon	6280me			
0800-0900	KNLS Anchor Point, Alaska	11715as			
0800-0900	KTWR Guam	15200as			
0800-0810 w	Malawi B'casting Corp.	3381do			
0800-0900 sa	R. E. Africa, Eq. Guinea	9585af			
0800-0900	R. for Peace Int'l	7375na	13630na	15030na	21485na
0800-0900	Radio 1, Accra, Ghana	4915do			
0800-0900 f	Radio 2, Accra, Ghana	3366do			
0800-0900	Radio 2, Zambia	6165do	7235do		
0800-0900	Radio Australia	15160va	15240va	17630va	
		17750va	21775va		
0800-0810	Radio Bafoussam, Cameroon	4000do			
0800-0900 a	Radio Douala, Cameroon	4795do			
0800-0900	Radio Korea	7550eu	13670eu		
0800-0900	Radio Moscow	7315va	11980va	12010va	12030va
		15140va	15155va	15205va	15280va
		15375va	15450va	15540va	15545va
		15550va	15580va	15590va	17550va
		17560va	17570va	17600va	17615va
		17560va	17570va	17600va	17615va
		1765va	17680va	17690va	17710va
		17730va	17755va	17810va	17815va
		17830va	17850va	21625va	21630va
		21645va	21655va	21715va	21725va
		21740va	21785va	21790va	21845va
0800-0825	Radio Netherlands	9630au	11895au		
0800-0900	Radio New Zealand Int'l	9700pa			
0800-0900	Radio Nigeria	3326do	4990do		
0800-0845	Radio Pakistan	17902eu	21520eu		
0800-0850	Radio Pyongyang	15180as	15230as		
0800-0900 smtwha	RTM Malaysia	7295do			
0800-0900	SBC Radio 1, Singapore	5010do	5052do	11940do	
0800-0900	SLBS, Sierra Leone	3316do	5980do		
0800-0900	TWR Monte Carlo	9480eu			
0800-0825	TWR Swaziland	7200af	11750af		
0800-0830	V. of Islam, Bangladesh	15195as	17815as		
0800-0900	VOA	11735eu	15160eu	15195me	21455me
		21570me			
0800-0900	Voice of Indonesia	7125as	9675as	11752as	11785as
0800-0900	Voice of Kenya	4935do			
0800-0825	Voice of Malaysia	6175as	9750as	15295as	
0800-0900	Voice of Nigeria	7255af			
0800-0900	WHRI Noblesville	7435eu	9495sa		
0800-0900	WWCR Nashville	7520am			
0800-0900 smtwhf	ZXLA New Zealand	3935do			
0827-0900	KTWR Guam	11805as			
0830-0900	BBC London	6180eu	6190eu	7325eu	9410eu
		9660eu	9760eu	11860af	11940af
		11955as	12095eu	15070va	15280as
		15360pa	15400af	15420af	15590me
		17640va	17830as	21660af	21715as
0830-0900	BBC London	17885af			
0830-0900	Radio Netherlands	11895pa	17575as	21485as	
0830-0900	RAI Vienna	6155eu	13730eu	15450au	21490as
0830-0900	Swiss Radio Int'l	3985eu	6165eu	9535eu	
0835-0850 mtwhf	TWR Swaziland	7200af	11750af		
0840-0850 mtwhfa	Voice of Greece	15650au	17525au		



These three pendants were received by Frank Tamas of Madison, Wisconsin from Radio Peking. The figures highlighted are characters from the Peking Opera.

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English language

shortwave guide

0900 UTC [4:00 AM EST/1:00 AM PST]

FREQUENCIES

0900-0930	BBC London	1170as	5975eu	6045eu	6180u
		6190af	6195as	7325eu	9410eu
		9660eu	9740as	9750eu	9760eu
		11760me	11860af	11940af	12095eu
		15070va	15400af	17640va	21660af
		15190sa	15280as	15310as	15360as
		15420af	15575me	15590me	17705eu
		17790af	17830as	17885af	21470af
		21660af	21715as		
0900-1000	BBS Bahrain	6010me			
0900-1000 s	BBS, Bhutan	6035do			
0900-1000	CFCX Montreal	6005do			
0900-1000	CFRX Toronto	6070do			
0900-1000	CKZU Vancouver	6160do			
0900-1000	CSM World Svc, Boston	9455va	9840va	13710va	13760va
		17555va			
0900-0950	Deutsche Welle	6160as	11915as	17780as	17820as
		21465as	21650as	21680as	
0900-0950	Deutsche Welle	9565af	15410af	21600af	
0900-1000	FEBC Manila	9800as	11665as		
0900-1000	HCJB Quito	9745va			
0900-1000 mtwhf	Italian Radio Relay Svc	9815eu			
0900-1000	King of Hope, Lebanon	6280me			
0900-0927	KTWR Guam	15200as			
0900-1000	KTWR Guam	11805as			
0900-0910	Malawi B'casting Corp.	5995do			
0900-1000 sa	R. E. Africa, Eq. Guinea	9585af			
0900-0930	R. for Peace Int'l	7375na	13630na	15030na	21465na
0900-0905	Radio 1, Accra, Ghana	4915do			
0900-0905 f	Radio 2, Accra, Ghana	3366do			
0900-1000	Radio 2, Zambia	6165do	7235do		
0900-1000	Radio Australia	7140va	9580va	11800va	13605va
		15160va	15170va	15240va	25750va
0900-1000	Radio Beijing	11755au	15440au	17710au	
0900-0950	Radio Finland	15245as	17800pa		
0900-1000	Radio Japan	11840as	21610as		
0900-1000	Radio Japan, Tokyo	15270au	17890au		
0900-1000	Radio Moscow	7315va	11850va	12010va	12030va
		15140va	15155va	15205va	15320va
		15375va	15405va	15415va	15450va
		15500va	15580va	15590va	17550va
		17560va	17570va	17600va	17615va
		17625va	17635va	17680va	17690va
		17755va	17760va	17765va	17775va
		17810va	17815va	17850va	17875va
		17895va	17940va	17960va	21625va
		21630va	21645va	21655va	21690va
		21715va	21725va	21740va	21785va
		21790va	21800va	21845va	
0900-1000	Radio New Zealand Int'l	9700pa			
0900-1000	Radio Nigeria	3326do	4990do		
0900-1000	Radio Tanzania	5985af	9685af	11765af	
0900-0915	Radio Voice of Lebanon	6550me			
0900-1000	RTM Malaysia	7295do			
0900-1000	SBC Radio 1, Singapore	5010do	5052do	11940do	
0900-1000	SLBS, Sierra Leone	3316do			
0900-1000	TWR Monte Carlo	9480eu			
0900-1000	VOA	11735eu	15160eu	15195me	21455me
		21570eu			
0900-1000	Voice of Kenya	4935do			
0900-1000	Voice of Nigeria	7255af			
0900-1000	WWCR Nashville	7520am			
0900-0930 mtwhf	ZLXA New Zealand	3935do			
0905-1000	Cameroon Radio-TV	4850do			
0905-1000 mtwhf	R. 2 Schools Prg., Ghana	7295do			
0905-1000 sa	Radio 1, Accra, Ghana	4915do			
0905-1000 sa	Radio 2, Accra, Ghana	3366do			
0910-0940 smwha	Ulaanbaatar R., Mongolia	11850pa	12015pa		
0915-0939	Al-Quds Radio (cland.)	5900om	5990om		
0920-1000	BFBS British Forces	15245me	17830me	21745me	
0930-1000	BBC London	5975eu	6045eu	6180eu	6190af
		6195as	9410eu	9660eu	9740as
		9750eu	9760eu	11750as	11760me
		11940af	12095eu	15070va	15310as
		15400af	15420af	15575me	15590me
		15190sa	17640va	17705eu	
0930-1000	Radio Afghanistan	4940as	9635as	17655as	21600as
0930-1000	Radio Netherland	11895pa			
0930-0940	RTV Togo	7265do			

News Flash

Israel Radio restores all broadcasts to the US!

Too late to make it into the frequency guide, this news flash arrived from Kol Israel's London office:

At an early morning meeting on November 4, the senior management of Israel Radio were ordered by the Israel Government's Minister of Education and Culture (Mr. Zevulan Hammer) who has responsibility for broadcasting, to reinstate all the overseas broadcasts that were cut on August 4th. He also asked Israel Radio to improve transmission and audibility. This takes immediate effect and from tonight the following schedule will operate. However, the schedule may be subject to alteration as further services are added.

Kol Israel Overseas Services Winter Schedule

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VALID  4th November 1991 - 7th March 1992
All times GMT/UTC

ENGLISH

0500-0515  11588 KHz W. Europe & N.America

1100-1130  17545, 11588 KHz W.Europe & N.America

1430-1500  15640, 11588 KHz W. Europe & N.America
           17590, 11605 KHz E. Europe & Western USA

1800-1815  15640, 11588 KHz (19, 25 mb)
           11675 KHz E. Europe & Western USA
           17575 KHz Africa

2000-2030  11605, 11588, 9435, 7465 KHz
           11675 KHz E.Europe & Western USA
           17575 KHz Africa

2230-2300  11605, 11588, 7465 KHz W.Europe & North America
           11675 KHz E.Europe & Western USA
           9435 KHz Southern Europe & Central America
           17575 KHz South America & Africa
0000-0030
0100-0125
0200-0225  11605, 9435, 7465 KHz North America & Europe
```


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1000 UTC [5:00 AM EST/2:00 AM PST]

FREQUENCIES

1000-1100	All India Radio, Delhi	15050as	15335as	17387as	17865as
		21735as			
1000-1030	BBC London	5975eu	6045eu	6180eu	6190af
		6195as	9410eu	9660eu	9740as
		9750eu	9760eu	11750as	11760me
		11940af	12095eu	15070va	15190sa
		15310as	15400af	15420af	15575me
1000-1030	BBC London	17640eu	17705eu	17790af	17885af
		21470af	21660af	21715as	
1000-1100	BBS Bahrain	6010me			
1000-1025 mtwhf	BRT Brussels	9855eu	13675eu	21815af	
1000-1100	Cameroon Radio-TV	4850do			
1000-1100	CFCX Montreal	6005do			
1000-1100	CFRX Toronto	6070do			
1000-1100	CKZU Vancouver	6160do			
1000-1100	CSM World Svc, Boston	9455va	9495va	13625va	
		17555va			
1000-1100	FEBC Manila	9800as	11665as		
1000-1100	HCJB Quito	9745pa	11925pa		
1000-1100 mtwhf	Italian Radio Relay Svc	9815eu			
1000-1100	KSDA Guam	13720as			
1000-1100 mtwhf	R. 2 Schools Prg., Ghana	7295do			
1000-1100 sa	R. E. Africa, Eq. Guinea	9585af			
1000-1100 sa	Radio 1, Accra, Ghana	4915do			
1000-1100 sa	Radio 2, Accra, Ghana	3366do			
1000-1100	Radio 2, Zambia	6165do	7235do		
1000-1030	Radio Afghanistan	4940as	9635as	17655as	21600as
1000-1100	Radio Australia	9580pa	11800pa	15160va	15170va
		25750va			
1000-1100	Radio Beijing	11755au	15440au	17710au	
1000-1100	Radio Moscow	11840na	11850va	12010va	12030va
		15140va	15155va	15320va	15375va
		15405va	15415va	15450va	15500va
		15535va	15540va	15550va	15560va
		15580va	15590va	17560va	17600va
		17615va	17625va	17635va	17655va
		17680va	17690va	17755va	17760va
		17765va	17775va	17810va	17815va
		17850va	17890va	21630va	21645va
		21655va	21690va	21715va	21725va
		21735va	21740va	21785va	21790va
		21800va	21845va		
1000-1025	Radio Netherland	11895pa			
1000-1025	Radio Netherlands	11895pa	21485as		
1000-1100	Radio New Zealand Int'l	9700pa			
1000-1100	Radio Nigeria	4990do	7285do		
1000-1100	Radio RSA, Johannesburg	17835af			
1000-1030	Radio Tanzania	5985af	9685af	11765af	
1000-1100 mtwh	RTM Malaysia	7295do			
1000-1100	SBC Radio 1, Singapore	5010do	5052do	11940do	
1000-1100	SLBS, Sierra Leone	3316do			
1000-1100	TWR Costa Rica	9725ca			
1000-1015	TWR Monte Carlo	9480eu			
1000-1100	VOA	5985as	11720au	15425au	
		6095am	9590am	11915am	
		11735eu	15160af	15195eu	21455eu
		21570eu			
1000-1100	Voice of Kenya	4935do			
1000-1100	Voice of Nigeria	7255af			
1000-1030	Voice of Vietnam	9755as	12020as		
1000-1100	WWCR Nashville	7520na			
1000-1100	WYFR Okeechobee	1000	5985am	7510am	
1030-1100	AWR Foli, Italy	7230eu			
1030-1100	BBC London	5975eu	6045eu	6180eu	6190af
		6195as	9410eu	9660eu	9740as
		9750eu	9760eu	11750as	11760me
		11940af	12095eu	15070va	15190sa
		15310as	15400af	15420af	15575me
1030-1100	BBC London	17640va	17705eu	17790af	17885af
		21470af	21660af		
1030-1040 mtwhf	Malawi B'casting Corp.	5995do			
1030-1100	Radio Korea	11715na			
1030-1100 sa	Radio Tanzania	5985af	9685af	11765af	
1030-1100	Radio Zambia Int'l	9505af	11880af	17895af	
1030-1100	Sri Lanka B'casting Corp.	11835as	15120as	17850as	
1030-1100	UAE Radio, Dubai	13675eu	15320eu	15435as	21605as
1040-1050 mtwhfa	Voice of Greece	15650as	17525as		

VOA's Johannesburg correspondent Mallory Saleson (left) interviewing South African anti-apartheid activist Vumi Vilakazi.

www.americanradiohistory.com

English language

shortwave guide

1100 UTC [6:00 AM EST/3:00 AM PST]

FREQUENCIES

1100-1200	AWR Costa Rica	9725ca			
1100-1130	BBC London	5965na	6045eu	6180eu	6190af
		6195eu	9410eu	9515na	9660eu
		9740as	9750eu	9760eu	11750as
		11760me	11940af	12095eu	15070va
		15310as	15400af	15420af	15575me
		15220na	17640va	17705eu	17790af
		17885af	21470af	21660af	
1100-1200	BBS Bahrain	6010me			
1100-1200	CFCX Montreal	6005do			
1100-1200	CFRX Toronto	6070do			
1100-1200	CSM World Svc, Boston	9455eu	9495eu	13625pa	
		17555pa			
1100-1150	Deutsche Welle	11890af	15410af	17765af	17800af
		17860af	21600af		
1100-1200	HCJB Quito Ecuador	11925am	15115am	17890am	21455am
1100-1200 mtwhf	Italian Radio Relay Svc	9815eu			
1100-1130	Kol Israel	17545am			
1100-1200	KTBN Salt Lake City	7510na			
1100-1110 sa	Malawi B'casting Corp.	5995do			
1100-1110 mtwhf	R. 2 Schools Prg., Ghana	7295do			
1100-1200	Radio 1, Accra, Ghana	4915do			
1100-1200 sa	Radio 2, Accra, Ghana	3366do			
1100-1200	Radio Australia	6080va	7140va	7240va	9580va
		9710va	11930va	13605va	15170va
		21720va			
1100-1200	Radio Japan	6120na	11815sa	11840na	
1100-1200	Radio Jordan	13655na			
1100-1200	Radio Moscow	9600na	11850va	15140va	15155va
		15320va	15375va	15405va	15450va
		15480va	15500va	15535va	15540va
		15550va	15560va	15590va	17560va
		17570va	17600va	17615va	17680va
		17755va	17760va	17765va	17775va
		17805va	17810va	17815va	17830va
		17890va	21630va	21645va	21655va
		21690va	21715va	21740va	21785va
		21790va	21800va	21845va	
1100-1130	Radio Mozambique	9525af	11818af	11835af	
1100-1120	Radio Pakistan	17902eu	21520eu		
1100-1150	Radio Pyongyang	6576am	9977am	11335am	
1100-1200	Radio RSA, Johannesburg	9555af	11860af	11900af	
1100-1200	RTM Malaysia	7295do	7160do		
1100-1200	SBC 1, Singapore	5010do	5052do	11940do	
1100-1130	Sri Lanka B'casting Corp.	11835as	15120as	17850as	
1100-1130	Swiss Radio Int'l	13635as	15505as	17670as	21770as
1100-1200	TWR Bonaire	11815am	15345am		
1100-1200	VOA	5985as	6110au	9760as	11720au
		15155au	15425as		
		6095am	9590am	11915am	
1100-1130	Voice of Vietnam	7416as	9732as		
1100-1200	WHRI Noblesville	9465na			
1100-1200	WWCR Nashville	12160na			
1100-1200	WYFR Okeechobee	5950na	7355na	11580ca	
1115-1130	R. Korea World News Svc.	7275as	11740as		
1115-1145	Radio Nepal, Katmandu	3230as	5005as	7165as	
1120-1140	Hunan PBS Changs ha China	4892va			
1120-1130	Vatican Radio	6245do	7250eu	9645na	15210af
1125-1130 sa	Radio Botswana	5955af	7255af		
1130-1200	BBC London	5965na	6045eu	6180eu	6190af
		6195eu	9410eu	9515na	9660eu
		9740as	9750eu	9760eu	11750as
		11760me	11940af	12095eu	15070va
		15220na	15310as	15420af	15575me
		17640va	17705eu	17790af	17885af
		21470af			
1130-1200	Radio Beijing	8425as	11445as	12450as	15135as
1130-1140	Radio Lesotho, Masseru	4800do			
1130-1200	Radio Netherlands	5955eu	9715eu	17575eu	21480eu
		21520eu			
1130-1200	Radio Thailand	4830as	9655as	11905as	
1130-1200	RAI Vienna	6155eu	11780as	13730va	15450as
1130-1200	VOIRI, Teheran, Iran	7215me	9575as	9695me	11790as
		11930as			
1145-1200	Radiodiffusion du Burundi	6140af			

SELECTED PROGRAMS

Sundays

1109 Deutsche Welle: Arts on the Air. Reports and interviews on cultural events and developments.
1115 Radio Beijing: China Anthology. Episodes from China's past, with profiles of historical figures.
1115 Radio Japan: Hello From Tokyo. See S 0515.
1125 Radio Beijing: Music Album. A combination of traditional and Western musical selections.
1130 BBC: The Ken Bruce Show. See S 0030.
1130 Radio Japan: Radio Japan Guide. See S 0530.
1134 Deutsche Welle: German by Radio. See S 0134.
1140 Radio Beijing: Listeners' Letterbox. Listener letters and information about China.
1155 Radio Japan: Viewpoint. See S 0355.

Mondays

1109 Deutsche Welle: Newsline Cologne. A current affairs program with worldwide reports and a German press review.
1115 Radio Beijing: Current Affairs. An in-depth look at events and happenings in China.
1130 BBC: Composer Of The Month. See M 0230.
1130 Radio Japan: Crosscurrents. See M 0530.
1134 Deutsche Welle: Hello Africa. Musical requests and greetings to friends.
1140 Radio Beijing: Learn to Speak Chinese. Chinese language lessons for English speakers.
1150 Radio Japan: Commentary. See M 0350.

Tuesdays

1109 Deutsche Welle: Newsline Cologne. See M 1109.
1115 Radio Beijing: Current Affairs. See M 1115.
1130 BBC: Megamix. Music, sports, fashion, health, travel, news, and opinion for young people.
1130 Radio Japan: Into Japan. See T 0330.
1134 Deutsche Welle: Hello Africa. See M 1134.
1150 Radio Japan: Commentary. See M 0350.

Wednesdays

1109 Deutsche Welle: Newsline Cologne. See M 1109.
1115 Radio Beijing: Current Affairs. See M 1115.
1130 BBC: Meridian. See W 0630.
1130 Radio Japan: Asian Plaza. See W 0330.
1134 Deutsche Welle: Hello Africa. See M 1134.
1140 Radio Beijing: Learn to Speak Chinese. See M 1140.
1150 Radio Japan: Commentary. See M 0350.

Thursdays

1109 Deutsche Welle: Newsline Cologne. See M 1109.
1115 Radio Beijing: Current Affairs. See M 1115.
1130 BBC: Drama. This month, recreations of "Murder Most Foul."
1130 Radio Japan: Economy Update. See H 0330.
1134 Deutsche Welle: Hello Africa. See M 1134.
1140 Radio Beijing: Culture in China. The rich cultural heritage of China, as manifested in literature and art.
1150 Radio Japan: Commentary. See M 0350.

Fridays

1109 Deutsche Welle: Newsline Cologne. See M 1109.
1115 Radio Beijing: Current Affairs or The Business Show. An in-depth look at events and happenings in China, or news on Chinese trade and industry.
1130 BBC: Meridian. See W 0630.
1130 Radio Japan: A Glimpse of Japan. Japanese culture, lifestyles, and traditions.
1134 Deutsche Welle: Hello Africa. See M 1134.
1140 Radio Beijing: In the Third World. Reports and music from developing nations.
1150 Radio Japan: Commentary. See M 0350.

Saturdays

1109 Deutsche Welle: Africa This Week. A review of trends and events on the African continent.
1115 Radio Beijing: Press Clippings. ee S 0015.
1115 Radio Japan: This Week. See S 0115.
1120 Radio Beijing: Travel Talk. See S 0020.
1128 Radio Beijing: Cooking Show. See S 0028.
1130 BBC: Meridian. See W 0630.
1134 Deutsche Welle: Mailbag Africa. Listeners' questions, music requests, and the club corner.
1135 Radio Beijing: Music from China. See S 0035.

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1200 UTC [7:00 AM EST/4:00 AM PST]

FREQUENCIES

1200-1300	ABC Perth	9610na			
1200-1300	AWR Costa Rica	9725ca			
1200-1230	BBC London	6045eu	6180eu	6190af	6195eu
		9410eu	9515na	9660eu	9740na
		9750eu	9760eu	11750as	11760me
		11940af	12095eu	15070eu	15220na
		15310as	15420af	15575me	17640va
		17705eu	17790af	17685af	21470af
		21660af			
1200-1300	BBS Bahrain	6010me			
1200-1300	CFCX Montreal	6005do			
1200-1300	CFRX Toronto	6070do			
1200-1300	CKZU Vancouver	6160do			
1200-1300	CSM World Svc, Boston	9495am	13625am	13710am	13760eu
1200-1300	HCJB Quito	11925am	15115am	17890am	21455om
1200-1300 mtwhf	Italian Radio Relay Svc	9815eu			
1200-1300	KTBN Salt Lake City	7510am			
1200-1210 w	Malawi B'casting Corp.	3381do	5995do		
1200-1300 sa	R. E. Africa, Eq. Guinea	9585af			
1200-1300	Radio 1, Accra, Ghana	4915do			
1200-1225 sa	Radio 2, Accra, Ghana	3366do			
1200-1300	Radio Australia	5995va	6080va	7240va	9580va
		9710va	11720pa	21720va	
1200-1300	Radio Beijing	8425as	11600as	11660as	11855as
		15450as	17855na		
1200-1300 mtwhf	Radio Douala, Cameroon	4795do			
1200-1300	Radio Jordan	13655me			
1200-1230	Radio Mogadishu, Somalia	6095af			
1200-1300	Radio Moscow	9600na	11900na	11940va	12025va
		15110va	15140va	15155va	15205va
		15220na	15375va	15460na	15480va
		15500va	15540va	15550va	17610na
		17655va	17670na	17760va	17765va
		17805va	17810va	17815va	17830va
		21630va	21645va	21655va	21690va
		21715va	21740va	21785va	21790va
		21800va	21845va		
1200-1225	Radio Netherlands	5955eu	9715eu	17575eu	21480eu
		21520eu			
1200-1210	Radio New Zealand Int'l	9700pa			
1200-1300	Radio Nigeria	4990do	7285do		
1200-1230 as	Radio Norway	21695as	25730as		
1200-1255	Radio Polonia, Warsaw	9525eu	11815eu		
1200-1230	Radio Romania Int'l	15365as	15390as	17720as	
1200-1300 sa	Radio Tanzania	5985af	9684af	11765af	
1200-1230	Radio Tashkent	7325as	9715as	15460as	
1200-1230	Radio Thailand	4830as	9655as	11905as	
1200-1230 s	Radio Zambia Int'l	9505af	11880af	17895af	
1200-1300	RTM Malaysia	7295do			
1200-1300	SBC Radio 1, Singapore	5010do	5052do	11940do	
1200-1300	SLBS, Sierra Leone	3316do	5980do		
1200-1300	TWR Bonaire	11815am	15345am		
1200-1230 smwha	Ulaanbaatar R., Mongolia	11850as	12015as		
1200-1215	V. of Cambodia	9695as	11938as		
1200-1230	VOA	6110as	9760au	11715as	15155au
		15425			
1200-1300	Voice of Kenya	4935do			
1200-1300	Voice of Nigeria	7255af			
1200-1230	VOIRI, Teheran, Iran	7215me	9575as	9695me	11790as
		11930as			
1200-1300	WHRI Noblesville	9465am			
1200-1300	WWCR Nashville	12160am	15690am		
1200-1300	WWCR Nashville	15690na			
1200-1300	WYFR Okeechobee	5950am	6015am	11580am	17750am
1215-1230	Radio Bayrak, Cyprus	6150va			
1215-1300	Radio Cairo	17595as			
1215-1300	Radio Korea	9750am			
1226-1300	Radio 2, Accra, Ghana	7295do			
1230-1300	BBC London	6045eu	6180eu	6190af	6195ca
		9410eu	9515na	9660eu	9740na
		9750eu	9760eu	11760me	11940af
		12095eu	12170as	15070eu	15220na
		15310as	15420af	15575me	17640va
		17705eu	17790af	17885af	21470af
		21660af			
1230-1255 s	BRT Brussels	21810na			
1230-1300	Radio Bangladesh	15200as	15605as	15647as	17750as
1230-1300	Radio Federal Yugoslavia	17710as	17740am	21605pa	
1230-1300 mtwhf	Radio Finland	15400na			
1230-1300	Radio France Int'l	9805eu	11670eu	15155eu	15195eu
	21635na 21645na				
1230-1300	Sri Lanka B'casting Corp.	6075as	9720as		
1230-1300	VOA	6110as	9760au	11715au	15155as
		15425as			
1230-1300	Voice of Vietnam	9840as	12020as	15010as	
1235-1245	Voice of Greece	15550na	15650na	17525na	

SELECTED PROGRAMS

Sundays

1201 BBC: Play Of The Week. See S 0101.
1215 Radio Beijing: China Anthology. See S 1115.
1225 Radio Beijing: Music Album. See S 1125.
1240 Radio Beijing: Listeners' Letterbox. See S 1140.

Mondays

1215 BBC: Quiz. This month, hear "My Word" (2nd/9th/16th/23rd), followed by an experimental drama and theatre game show, "Break A Leg!" (30th).
1215 Radio Beijing: Current Affairs. See M 1115.
1240 Radio Beijing: Learn to Speak Chinese. See M 1140.
1245 BBC: Sports Roundup. See S 0315.

Tuesdays

1215 BBC: Multitrack 1: Top 20. See M 2330.
1215 Radio Beijing: Current Affairs. See M 1115.
1240 Radio Beijing: Listeners' Letterbox. See S 1140.
1240 Radio Beijing: Listeners' Letterbox. See S 1140.
1245 BBC: Sports Roundup. See S 0315.

Wednesdays

1215 BBC: New Ideas. See M 1615.
1215 Radio Beijing: Current Affairs. See M 1115.
1235 BBC: Talks. See M 1635.
1240 Radio Beijing: Learn to Speak Chinese. See M 1140.
1245 BBC: Sports Roundup. See S 0315.

Operation room at Radio Japan.

Thursdays

1215 BBC: Multitrack 2. See W 2330.
1215 Radio Beijing: Current Affairs. See M 1115.
1240 Radio Beijing: Culture in China. See H 1140.
1245 BBC: Sports Roundup. See S 0315.

Fridays

1215 BBC: Feature. A blind girl born in Iran doesn't have much of a future, unless she's "In Touch" (6th); "The Re-Making Of Russia" looks at the potential of the troubled republic (through January 17th).
1215 Radio Beijing: Current Affairs or The Business Show. See F 1115.
1240 Radio Beijing: In the Third World. See F 1140.
1245 BBC: Sports Roundup. See S 0315.

Saturdays

1215 BBC: Multitrack 3. See F 2330.
1215 Radio Beijing: Press Clippings. See S 0015.
1220 Radio Beijing: Travel Talk. See S 0020.
1228 Radio Beijing: Cooking Show. See S 0028.
1235 Radio Beijing: Music from China. See S 0035.
1245 BBC: Sports Roundup. See S 0315.

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English language **shortwave guide**

1300 UTC [8:00 AM EST/5:00 AM PST]

FREQUENCIES

1300-1400	ABC Perth	9610			
1300-1330	BBC London	5975eu	6045eu	6180eu	6190af
		6195ca	9410eu	9515na	9660eu
		9740as	9750eu	9760eu	11750as
		11760me	11820as	11940af	12095eu
		15070va	15310as	15420af	15575me
1300-1330	BBC London	7180as	15220na	17640va	17705eu
		17790af	17885af	21470af	21660af
1300-1400	BBS Bahrain	6010me			
1300-1400	CFCX Montreal	6005do			
1300-1400	CFRX Toronto	6070do			
1300-1400	CKZU Vancouver	6160do			
1300-1400	CSM World Svc, Boston	9495as	13625pa	13710pa	13760eu
1300-1400	FEBC Manila	11685pa			
1300-1400	FEBC Manila	11850as			
1300-1400	HCJB Quito	11925am	15115am	17890am	21455am
1300-1400 mtwhf	Italian Radio Relay Svc	9815eu			
1300-1400	KTBN Salt Lake City	7510			
1300-1400 sa	R. E. Africa, Eq. Guinea	9585af			
1300-1330	R.SPLA (Sudanese cland.)	11710om			
1300-1400	Radio 1, Accra, Ghana	4915do			
1300-1400	Radio 2, Accra, Ghana	7295do			
1300-1400	Radio Australia	5995va	6080va	7240va	9580va
		9710va	11720va	21720va	
1300-1400	Radio Beijing	9670as	11600as	11660na	11855na
1300-1330	Radio Cairo	17595as			
1300-1330 mtwhf	Radio Douala, Cameroon	4795do			
1300-1315	Radio Jordan	13655na			
1300-1400	Radio Jordan	13655na			
1300-1315	Radio Korea, Seoul	9750na			
1300-1400	Radio Moscow	7175va	7315va	7370va	9785va
		9885va	11685va	11840na	11900am
		12025va	12030va	12070va	15110va
		15155va	15205va	15375va	15405va
		15480va	15500va	15540va	15550va
		15590va	15595va	17560va	17595va
		17630va	17635va	17655va	17670va
		17760va	17805va	17810va	17815va
		17830va	17890va	17940va	21630va
		21645va	21690va	21715va	21740va
1300-1400	Radio Moscow	21785va	21790va	21845va	
1300-1400	Radio Nigeria	4990do	7285do		
1300-1330 as	Radio Norway	9590eu	25730eu		
1300-1350	Radio Pyongyang	9345eu	9640eu	13650as	15230as
1300-1400	Radio Romania Int'l	11940eu	15365eu	17720eu	17850eu
1300-1400 sa	Radio Tanzania	5985af	9684af	11765af	
1300-1400 mtwhf	RCI Montreal	9635am	11855am		
1300-1400	RTM Malaysia	7295do			
1300-1400	SBC Radio 1, Singapore	5010do	5052do	11940do	
1300-1400	SLBS, Sierra Leone	3316do	5980do		
1300-1400	Sri Lanka B'casting Corp.	6075as	9720as		
1300-1330	TWR Boniare	11815am	15345am		
1300-1330	VOA	6110as	9760au	11715as	15155au
		15425au			
1300-1325	Voice of Kenya	4935do			
1300-1400	Voice of Nigeria	7255af			
1300-1400	WHRI Noblesville	9465	11790		
1300-1400	WWCR Nashville	15690			
1300-1400	WYFR Okeechobee	5950am	6015am	11580am	17750af
1315-1330	Radio Voice of Lebanon	5me	6549.5		
1325-1400 mtwhf	Voice of Kenya	4935do			
1330-1400	All India Radio, Delhi	9565as	11760as	15335as	
1330-1400	BBC London	5975eu	6045eu	6180eu	6190af
		6195ca	9410eu	9515na	9660eu
		9740as	9750eu	9760eu	11750as
		11820as	11940af	12095eu	15070va
		15220na	15310as	15420af	15575me
1330-1400	BBC London	7180as	17640va	17705eu	17790af
	17885af 21470af 21660af				
1330-1400	Nat'l Radio of Laos	7112as			
1330-1400	Radio Douala, Cameroon	4795do			
1330-1350 mtwhf	Radio Finland	15400na	21550na		
1330-1400 a	Radio Republik Indonesia	3385do	6070do		
1330-1400	Radio Sweden	17740as	21570as		
1330-1400	Radio Tashkent	7325as	9715as	15460as	
1330-1400	RAI Vienna	11780as	15450as		
1330-1357	RCI Montreal	6095as	6150as	9535as	
1330-1400	Swiss Radio Int'l	7480as	11695as	13635as	15505as
		17830as	21695as		
1330-1400	UAE Radio, Dubai	13675eu	15320eu	15435as	21605as
1330-1400	VOA	6110as	9760as	15155au	15425au
1330-1400	Voice of Turkey	9675eu			
1330-1400	Voice of Vietnam	9840as	12020as	15010as	
1345-1400	Vatican Radio	9600as	15090au	17525as	

SELECTED PROGRAMS

Sundays
1315 Radio Beijing: China Anthology. See S 1115.
1325 Radio Beijing: Music Album. See S 1125.
1340 Radio Beijing: Listeners' Letterbox. See S 1140.

Mondays
1315 Radio Beijing: Current Affairs. See M 1115.
1340 Radio Beijing: Learn to Speak Chinese. See M 1140.

Tuesdays
1315 Radio Beijing: Current Affairs. See M 1115.
1340 Radio Beijing: Listeners' Letterbox. See S 1140.

Wednesdays
1315 Radio Beijing: Current Affairs. See M 1115.
1340 Radio Beijing: Learn to Speak Chinese. See M 1140.

Thursdays
1315 Radio Beijing: Current Affairs. See M 1115.
1340 Radio Beijing: Culture in China. See H 1140.

Fridays
1315 Radio Beijing: Current Affairs or The Business Show. See F 1115.
1340 Radio Beijing: In the Third World. See F 1140.

Saturdays
1315 Radio Beijing: Press Clippings. See S 0015.
1320 Radio Beijing: Travel Talk. See S 0020.
1328 Radio Beijing: Cooking Show. See S 0028.
1335 Radio Beijing: Music from China. See S 0035.

Richard Lane of Dawson, Illinois sends us this QSL card from REE, Spain.

www.americanradiohistory.com

English language **shortwave guide**

1400 UTC [9:00 AM EST/6:00 AM PST]

FREQUENCIES

1400-1500	All India Radio, Delhi	9565as	11760as	15335as	
1400-1430	BBC London	5975eu	6045eu	6180eu	6190af
		6195as	9410eu	9660eu	9740as
		9750eu	9760eu	11750as	11820as
		11940af	12095eu	15070eu	15310as
		15575me	17640va	17705eu	17790af
1400-1430	BBC London	7180as	17880af	21470af	21660af
1400-1500	BBS Bahrain	6010me			
1400-1425	BRT Brussels	21810na			
1400-1500	Cameroon Radio-TV	4850na			
1400-1500	CFCX Montreal	6005do			
1400-1500	CFRX Toronto	6070do			
1400-1500	CSM World Svc, Boston	9530pa	13625pa	13760pa	
		21670pa			
1400-1500	FEBC Manila	11885pa			
1400-1500	FEBC Manila	11850as			
1400-1500	HCJB Quito	11925na	15115na	17890na	21455na
1400-1500	King of Hope, Lebanon	6280me			
1400-1500	KTBN Salt Lake City	7510ww			
1400-1410	Malawi B'casting Corp.	3381do			
1400-1500	R. for Peace Int'l	7375am	13630am	15030am	21465am
1400-1500	Radio 1, Accra, Ghana	4915do			
1400-1500	Radio 2, Accra, Ghana	7295do			
1400-1500	Radio Australia	5995va	6080va	7240va	9580va
		9710va	9770va	9860va	11720va
		12000va	13755va		
1400-1500	Radio Beijing	4200as	11815as	11855na	15165na
1400-1430	Radio Douala, Cameroon	4795do			
1400-1430 as	Radio Finland	15400na	21550na		
1400-1500	Radio France Int'l	11910as	17650as	21770as	
1400-1500	Radio Japan	9505am	9535am	11815as	
1400-1410	Radio Juba, Sudan	9540do	9550do		
1400-1500	Radio Korea	9570as			
1400-1500	Radio Moscow	7370va	9785va	11765va	11840na
		11850va	11870va	11905va	12025va
		12030va	12050va	15140va	15180va
		15205va	15375va	15560va	17570va
		17635va	17655va	17670va	17810va
		17815va	17890va	21505va	21630va
		21645va	21690va	21740va	21785va
		21790va	21845va		
1400-1500	Radio Nigeria	4990do	7285do		
1400-1500 sa	Radio Tanzania	5985af	9684af	11765af	
1400-1500 s	RCI Montreal	11955am			
1400-1430	RTM Kuching, Malaysia	4950do			
1400-1500	RTM Malaysia	7295do			
1400-1500	SBC Radio 1, Singapore	5010do	5052do	11940do	
1400-1500	SLBS, Sierra Leone	3316do	5980do		
1400-1500	Sri Lanka B'casting Corp.	6075as	9720as		
1400-1430	Swiss Radio Int'l	6165eu	9535eu	12030eu	
1400-1415	Vatican Radio	9600as	15090au	17525as	
1400-1500	VLW6 Wanneroo, Australia	6140			
1400-1500	VOA	6110as	9760as	15160au	15425au
1400-1500 mtwhf	Voice of Kenya	4935do			
1400-1500	Voice of Nigeria	7255af			
1400-1500	WHRI Noblesville	9465na	15105na		
1400-1500	WRNO New Orleans	15420na			
1400-1500	WWCR Nashville	12160na	15690am		
1400-1500	WYFR Okeechobee	6015na	11580sa	17750af	
1415-1500	BBS, Bhutan	5023do			
1415-1425	RTV Mali, Kathmandu	3230do	5005do	7165do	
1420-1500	Radio Jordan	9560??			
1430-1500	BBC London	5975eu	6045eu	6180eu	6190af
		6195as	9410eu	9740as	9750eu
		9760eu	11750as	11820as	11940af
		12095eu	15070va	15310as	15575me
		17640va	17705eu	17790af	17880af
		7180as	21470af	21660af	
1430-1500	Guizhou PBS Guiyang China	3260do	7275do		
1430-1500	Kol Israel	11587am	11605eu	15640na	17590eu
1430-1500 mtwhfa	Radio Douala, Cameroon	4795do			
1430-1455	Radio Finland	15400am	21550am		
1430-1500	Radio Netherlands	5955eu	13770eu	15150eu	17575eu
		17605eu			
1430-1455	Radio Polonia, Warsaw	6095eu	6135eu	7285eu	9525eu
1430-1500	Voice of Myanmar	5990do			
1435-1450	Nei MongolPBS Hohot China	3970do	7105do		
1440-1450 mtwhfa	R Nacional de Venezuela	9540om			
1445-1500 smwha	Ulaanbaatar R., Mongolia	9575as	13780as		

SELECTED PROGRAMS

Sundays

1401 BBC: Feature. This month's topics include "Colors" (1st); the comic world in "Zap! Kerpow!" (15th); "Number Magic" (22nd).
1415 Radio Beijing: China Anthology. See S 1115.
1415 Radio Japan: Hello From Tokyo. See S 0515.
1425 Radio Beijing: Music Album. See S 1125.
1430 BBC: Anything Goes. Bob Holness presents a variety of music and other recordings (except 29th: Peter Gabriel's Box Set, the rock singer's efforts to bring together a world of music).
1430 Radio Japan: Radio Japan Guide. See S 0530.
1440 Radio Beijing: Listeners' Letterbox. See S 1140.
1455 Radio Japan: Viewpoint. See S 0355.

Mondays

1405 BBC: Outlook. Conversation, controversy, and color from the UK and the world.
1415 Radio Beijing: Current Affairs. See M 1115.
1415 Radio Japan: People. See M 0515.
1430 BBC: Off The Shelf. See M 0430.
1430 Radio Japan: Crosscurrents. See M 0530.
1440 Radio Beijing: Learn to Speak Chinese. See M 1140.
1445 BBC: Talks. Foreign journalists present personal "Images of Britain" (2nd/9th); "Ships From Seven Seas" looks at the development of seafaring (through January 27th).
1450 Radio Japan: Commentary. See M 0350.
1455 Radio Japan: Tokyo Pop-In. See M 0555.

Tuesdays

1405 BBC: Outlook. See M 1405.
1415 Radio Beijing: Current Affairs. See M 1115.
1415 Radio Japan: Japan Focus. See T 0315.
1430 BBC: Off The Shelf. See M 0430.
1430 Radio Japan: Into Japan. See T 0330.
1440 Radio Beijing: Listeners' Letterbox. See S 1140.
1445 BBC: Classical Music. See M 0145.
1450 Radio Japan: Commentary. See M 0350.
1455 Radio Japan: Tokyo Pop-In. See M 0555.

Wednesdays

1405 BBC: Outlook. See M 1405.
1415 Radio Beijing: Current Affairs. See M 1115.
1415 Radio Japan: Asia Hotline. See W 0315.
1430 BBC: Off The Shelf. See M 0430.
1430 Radio Japan: Asian Plaza. See W 0330.
1440 Radio Beijing: Learn to Speak Chinese. See M 1140.
1445 BBC: Good Books. Recommendations of books to read.
1450 Radio Japan: Commentary. See M 0350.
1455 Radio Japan: Tokyo Pop-In. See M 0555.

Thursdays

1405 BBC: Outlook. See M 1405.
1415 Radio Beijing: Current Affairs. See M 1115.
1415 Radio Japan: Business Today. See H 0315.
1430 BBC: Off The Shelf. See M 0430.
1430 Radio Japan: Economy Update. See H 0330.
1440 Radio Beijing: Culture in China. See H 1140.
1445 BBC: Recording Of The Week. See M 0545.
1450 Radio Japan: Commentary. See M 0350.
1455 Radio Japan: Tokyo Pop-In. See M 0555.

Fridays

1405 BBC: Outlook. See M 1405.
1415 Radio Beijing: Current Affairs or The Business Show. See F 1115.
1415 Radio Japan: Music Mix. See F 0315.
1430 BBC: Off The Shelf. See M 0430.
1440 Radio Beijing: In the Third World. See F 1140.
1445 BBC: Talks. See S 0445.
1450 Radio Japan: Commentary. See M 0350.
1455 Radio Japan: Tokyo Pop-In. See M 0555.

Saturdays

1401 BBC: John Peel. See T 0330.
1415 Radio Beijing: Press Clippings. See S 0015.
1415 Radio Japan: This Week. See S 0115.
1420 Radio Beijing: Travel Talk. See S 0020.
1428 Radio Beijing: Cooking Show. See S 0028.
1430 BBC: Sportsworld. Shortwave's "Wide World Of Sports" with Paddy Feeny.
1435 Radio Beijing: Music from China. See S 0035.

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English language

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1500 UTC [10:00 AM EST/7:00 AM PST]

FREQUENCIES

1500-1530	BBC London	3915as	5975eu	6045eu	6180eu
		6190af	6195eu	6195as	9410eu
		9740na	9750eu	9760eu	11750as
		11775na	11940af	12095eu	15070va
		15310as	15400af	15420af	15575me
		7180as	15260na	17640va	17705eu
		17790af	17860af	17880af	21470af
		21490af	21660af		
1500-1600	BBS Bahrain	6010me			
1500-1600	Cameroon Radio-TV	4850do			
1500-1600	CFCX Montreal	6005do			
1500-1600	CFRX Toronto	6070do			
1500-1600	CSM World Svc, Boston	9530pa	13625pa	13760pa	
		21670pa			
1500-1550	Deutsche Welle	9735af	11965af	13610af	17735af
		17765af	21600af		
1500-1555	FEBA Seychelles	11865af			
1500-1600	FEBA Seychelles	9590as	11865as	15330as	
1500-1600 whfa	FEBA Seychelles	9590as	15330af		
1500-1600	FEBC Manila	11685as			
1500-1600	HCJB Quito	11925na	15115na	17890na	21455na
1500-1600	KNLS Anchor Point, Alaska	9615as			
1500-1600	KTBN Salt Lake City	15590na			
1500-1600	KTWR Guam	11650as			
1500-1600	R. for Peace Int'l	7375am	13630am	15030am	21465am
1500-1600	Radio 1, Accra, Ghana	4915do			
1500-1600	Radio 2, Accra, Ghana	7295do			
1500-1600	Radio Australia	5995va	6080va	7240va	9580va
		9710va	9770va	9860va	11720va
		12000va	13755va		
1500-1600	Radio Bangladesh	4880do			
1500-1600	Radio Beijing	4200as	11815as	11855am	15165am
1500-1600	Radio Japan	9505am			
1500-1600	Radio Moscow	6065va	7315va	9865va	11695va
		11840na	11890va	11900va	11995va
		12005va	12015va	12025va	12030va
		12050va	12070va	15140va	15180va
		15205va	15375va	15465va	15480va
		15500va	15540va	15560va	15580va
		15595va	17560va	17600va	17610na
		17655va	17670va	17755va	17775va
		17795va	17810va	17815va	21615va
		21625va	21645va	21690va	21740va
1500-1525	Radio Netherlands	21785va	21790va	21845va	
		5955eu	13770eu	15150eu	17575ee
		17605eu			
1500-1600	Radio Nigeria	4990do	7285do		
1500-1530 as	Radio Norway	11870na			
1500-1550	Radio Pyongyang	9325va	9640va	9977va	11705va
1500-1530	Radio Romania Int'l	11940as	15250as	15335as	17720as
		17745as	17775as		
1500-1600	Radio RSA, Johannesburg	7230af	15270af		
1500-1530 sa	Radio Tanzania	5985af	9684af	11765af	
1500-1530	RCI Montreal	9555eu	11915eu	11935eu	13650eu
		15315eu	15325eu	17820eu	21545eu
1500-1600 s	RCI Montreal	11955am			
1500-1600	RTM Malaysia	7295do			
1500-1600	SBC Radio 1, Singapore	5010do	5052do	11940do	
1500-1600	SLBS, Sierra Leone	3316do	5980do		
1500-1600	Sri Lanka B'casting Corp.	6075as	9720as		
1500-1515 smwha	Ulaanbaatar R., Mongolia	9575as	13780as		
1500-1600	VOA	6110as	7125as	9645as	9760as
		15395as	9700eu	15205me	
1500-1600	Voice of Ethiopia	7165af			
1500-1600 mtwhf	Voice of Kenya	4935do			
1500-1600	Voice of Myanmar	5990do			
1500-1600	Voice of Nigeria	7255af			
1500-1600	WHRI Noblesville	15105na	21840sa		
1500-1600	WRNO New Orleans	15420na			
1500-1600	WWCR Nashville	15690am	17525am		
1500-1600	WYFR Okeechobee	11580na	11830na	17750af	
1505-1530	Radio Finland	6120eu	9730af	11755eu	15440me
		21550eu			
1523-1530	R. Veritas Asia, Manila	15140as			
1530-1600	BBC London	6190af	6195eu	6195as	7180as
		9410eu	9740na	9750eu	11750as
		11775na	11940af	12095eu	15070va
		15260as	15310as	15400af	17640va
		17705eu	17880af	21470af	21660af
1530-1600	Radio Sweden	17870na	21500na		
1530-1600	Radio Tanzania	5985af	9684af	11765af	
1530-1600	Radio Zambia Int'l	9505af	11880af	17895af	
1530-1600	RAI Vienna	6155eu	11780as	13730eu	21490va
1530-1600	Sudan Nat'l B'casting Cor	9540do	9550do	11635do	
1530-1600	Swiss Radio Int'l	13685af	15430af	17830af	21630af
1530-1540 mtwhfa	Voice of Greece	11645eu	15550na	17525na	
1545-1600	Vatican Radio	15090as	17865as		

SELECTED PROGRAMS

Sundays

1509 Deutsche Welle: Religion and Society. Religious news.
1513 Deutsche Welle: Through German Eyes. German journalists provide a perspective on world events.
1515 BBC: Concert Hall. Classical music.
1515 Radio Beijing: China Anthology. See S 1115.
1515 Radio Japan: Let's Learn Japanese. See S 0315.
1525 Radio Beijing: Music Album. See S 1125.
1530 Radio Japan: DX Corner. See S 0330.
1534 Deutsche Welle: Pop from Germany. German pop music.
1540 Radio Beijing: Listeners' Letterbox. See S 1140.
1555 Radio Japan: Viewpoint. See S 0355.

Mondays

1509 Deutsche Welle: Newsline Cologne. See M 1109.
1515 BBC: Feature/Drama. See M 0101.
1515 Radio Beijing: Current Affairs. See M 1115.
1515 Radio Japan: In Conversation. See M 0315.
1534 Deutsche Welle: Monday Special. An interview or report on an event or development with special relevance for Africa.
1540 Radio Beijing: Learn to Speak Chinese. See M 1140.
1540 Radio Japan: Let's Practice Japanese. See M 0320.
1550 Radio Japan: Commentary. See M 0350.
1555 Radio Japan: Tokyo Pop-In. See M 0555.

Tuesdays

1509 Deutsche Welle: Newsline Cologne. See M 1109.
1515 BBC: A Jolly Good Show. Rock music requests.
1515 Radio Beijing: Current Affairs. See M 1115.
1515 Radio Japan: Japan Focus. See T 0315.
1530 Radio Japan: Into Japan. See T 0330.
1534 Deutsche Welle: Insight. An in-depth feature, giving the background to political events and int'll developments.
1540 Radio Beijing: Listeners' Letterbox. See S 1140.
1550 Radio Japan: Commentary. See M 0350.
1555 Radio Japan: Tokyo Pop-In. See M 0555.

Wednesdays

1509 Deutsche Welle: Newsline Cologne. See M 1109.
1515 BBC: Talks. See M 2315.
1515 Radio Beijing: Current Affairs. See M 1115.
1515 Radio Japan: Asia Hotline. See W 0315.
1530 BBC: Comedy Show. Hear the oft-humorous "Two Cheers for November" (4th); in a seasonal tradition, the BBC goes way back in time with the vintage comedy classic, "The Men From The Ministry" (11th/18th/25th).
1530 Radio Japan: Asian Plaza. See W 0330.
1534 Deutsche Welle: Living in Germany. See M 0116.
1540 Radio Beijing: Learn to Speak Chinese. See M 1140.
1550 Radio Japan: Commentary. See M 0350.
1555 Radio Japan: Tokyo Pop-In. See M 0555.

Thursdays

1509 Deutsche Welle: Newsline Cologne. See M 1109.
1515 BBC: Music With Matthew. Brian Matthew with classical music selections.
1515 Radio Beijing: Current Affairs. See M 1115.
1515 Radio Japan: Business Today. See H 0315.
1530 Radio Japan: Economy Update. See H 0330.
1534 Deutsche Welle: Spotlight on Sport. Background stories and coverage of important sporting events.
1540 Radio Beijing: Culture in China. See H 1140.
1550 Radio Japan: Commentary. See M 0350.
1555 Radio Japan: Tokyo Pop-In. See M 0555.

Fridays

1509 Deutsche Welle: Newsline Cologne. See M 1109.
1515 BBC: Music Review. See H 2315.
1515 RBeijing: Current Affairs or The Business Show. See F 1115.
1515 Radio Japan: Music Mix. See F 0315.
1534 Deutsche Welle: Economic Notebook. A look at the economic scene in Germany and around the world.
1540 Radio Beijing: In the Third World. See F 1140.
1550 Radio Japan: Commentary. See M 0350.
1555 Radio Japan: Tokyo Pop-In. See M 0555.

Saturdays

1509 Deutsche Welle: Africa Highlight. A weekly feature on an important topic concerning Africa.
1513 Deutsche Welle: Development Forum. Reports and interviews on projects and progress in Africa and Asia.
1515 BBC: Sportsworld. See A 1430.
1515 Radio Beijing: Press Clippings. See S 0015.
1515 Radio Japan: This Week. See S 0115.
1520 Radio Beijing: Travel Talk. See S 0020.
1528 Radio Beijing: Cooking Show. See S 0028.
1534 Deutsche Welle: Science and Technology. See M 0234.
1535 Radio Beijing: Music from China. See S 0035.

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English language

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1600 UTC [11:00 AM E2T/8:00 AM P2T]

FREQUENCIES

1600-1630	BBC London	1540af	3915as	5975as	6190af
		6195eu	9410eu	9630af	9740me
		9750eu	11750as	11775na	11940af
		12095eu	15070eu	15400af	17640va
		17695eu	17705eu	17860af	17880af
1600-1630	BBC London	7180as	15260na	15310as	21470af
		21660af			
1600-1700	BBS Bahrain	6010me			
1600-1700	BSKSA Saudi Arabia	9705eu	9720eu		
1600-1700	CFCX Montreal	6005do			
1600-1700	CFRX Toronto	6070do			
1600-1700	CSM World Svc, Boston	11580as	13625as	21640af	
1600-1650	Deutsche Welle	6170as	7225as	15105as	15415as
		15595as	17810as	21680as	
1600-1630	HCJB Quito	11925am	15115am	17890am	21455am
1600-1700	KSDA Guam	11980as			
1600-1700	KTBN Salt Lake City	15590am			
1600-1635	KTWR Guam	11650as			
1600-1610	Malawi B'casting Corp.	3381do			
1600-1700	Radio 1, Accra, Ghana	4915do			
1600-1700	Radio 2, Accra, Ghana	7295do			
1600-1700	Radio Australia	5995va	6060va	6080va	7240va
		9580va	9860va	11910va	12000va
		13605va	13755va		
1600-1700	Radio Beijing	4130af	11575af	15110af	15130af
1600-1700	Radio France Int'l	6175eu	11705af	12015af	15530me
		17620af	17795af	17850af	
1600-1700	Radio Korea	5975om	9870af		
1600-1610	Radio Lesotho	4800do			
1600-1700	Radio Moscow	6065va	7305va	7330va	7370va
		9480va	9885va	11630va	11730va
		11765va	11840na	11890va	11900va
		11940va	11995va	12005va	12015va
		12035va	12050va	15185va	15375va
		15480va	15500va	15505va	15525va
		15555va	15560va	17570am	17610am
		17655va	17670va	17765va	17765va
		17775va	17775va	17785va	17810am
		17850va	21475va	21480va	21490va
		21615na	21645na	21690va	21740va
		21790va	21845va		
1600-1700	Radio Nigeria	4990do			
1600-1630 as	Radio Norway	15230me	21730me		
1600-1630	Radio Pakistan	11570me	13665me	15560me	17555af
		17725af	21480me		
1600-1700	Radio RSA, Johannesburg	7230af	15270af	17840af	
1600-1700	Radio Tanzania	5985af	9684af	11765af	
1600-1700	Radio Zambia Int'l	9505af	11880af	17895af	
1600-1630	RCI Montreal	9555eu	11935eu	13650eu	15325eu
		17820eu	21545eu		
1600-1700 s	RCI Montreal	11955am			
1600-1605	SBC Radio 1, Singapore	5010do	5052do	11940do	
1600-1700	SLBS, Sierra Leone	3316do	5980do		
1600-1700	Sri Lanka B'casting Corp.	6075as	9720as		
1600-1700	TWR Swaziland	9600af			
1600-1640	UAE Radio, Dubai	11795af	13675eu	15320eu	15400af
		21605eu			
1600-1630	VOA	9700eu	15205me		
		6110as	7125as	9645as	9760as
		15395as			
		9575af	11920af	15410af	15580af
		17600af	21625af		
1600-1700 mtwhf	Voice of Kenya	4935do			
1600-1700	Voice of Nigeria	7255af			
1600-1700	Voice of the Somali Peopl	6320do			
1600-1630	Voice of Vietnam	9840eu	12020eu	15010eu	
1600-1700	WHRI Noblesville	15105am	17830am		
1600-1700	WRNO New Orleans	15420			
1600-1700	WWCR Nashville	15690am			
1600-1700	WYFR Okeechobee	11580am	11830am	15355am	17750af
		21525eu	21615af		
1610-1615 mtwhf	Radio Botswana	5955af	7255af		
1615-1630	Vatican Radio	6245do	7250eu		
1630-1700 mwf	Alma Ata R., Khazakhstan	5035do	5915do	6135do	
1630-1700	BBC London	3915as	5975as	6190af	6196eu
		9410eu	9630af	9740me	11750as
		11775na	11940af	12095eu	15070eu
		15260na	15310as	15400af	15420af
		17640va	17695eu	17860af	17880af
1630-1700	BBC London	21470af	21660af		
1630-1700	Radio Cairo	15255af			
1630-1700 mtwhfa	Radio Netherlands	6020af	15570af		
1630-1700	Radio Tirana	9730af	11835af		
1630-1657	RCI Montreal	7150as	9555as		
1630-1700 mtwhf	RTV Morocco	15335af	15360af	17595af	
1630-1700	RTV Rwandiase	3330	6055		
1630-1700	VOA	6180eu	9700eu	9760me	11710me
		15205me	15245me		

SELECTED PROGRAMS

Sundays

1609 Deutsche Welle: Arts on the Air. See S 1109.
1615 BBC: Feature. See S 0230.
1615 Radio Beijing: China Anthology. See S 1115.
1625 Radio Beijing: Music Album. See S 1125.
1634 Deutsche Welle: German by Radio. See S 0134.
1640 Radio Beijing: Listeners' Letterbox. See S 1140.
1645 BBC: Letter From America. See S 0545.

Mondays

1609 Deutsche Welle: Newsline Cologne. See M 1109.
1615 BBC: New Ideas. Innovative developments in technology and new products.
1615 Radio Beijing: Current Affairs. See M 1115.
1634 Deutsche Welle: Asia-Pacific Report. Correspondents' reports, interviews, and background news from the Asia-Pacific region.
1635 BBC: Talks. "A Small Matter Of Taste" looks at English cuisine (2nd); next, we ask "What Makes A Poem?" (through January 13th).
1640 Radio Beijing: Learn to Speak Chinese. See M 1140.
1645 BBC: The World Today. A look at a topical aspect of the international scene.

Tuesdays

1609 Deutsche Welle: Newsline Cologne. See M 1109.
1615 BBC: Megamix. See T 1130.
1615 Radio Beijing: Current Affairs. See M 1115.
1634 Deutsche Welle: Asia-Pacific Report. See M 1634.
1640 Radio Beijing: Listeners' Letterbox. See S 1140.
1645 BBC: The World Today. See M 1645.

Wednesdays

1609 Deutsche Welle: Newsline Cologne. See M 1109.
1615 BBC: Rock/Pop Music. See T 0630.
1615 Radio Beijing: Current Affairs. See M 1115.
1634 Deutsche Welle: Asia-Pacific Report. See M 1634.
1640 Radio Beijing: Learn to Speak Chinese. See M 1140.
1645 BBC: The World Today. See M 1645.

Thursdays

1609 Deutsche Welle: Newsline Cologne. See M 1109.
1615 BBC: Network UK. Issues and events affecting people across the UK.
1615 Radio Beijing: Current Affairs. See M 1115.
1634 Deutsche Welle: Asia-Pacific Report. See M 1634.
1640 Radio Beijing: Culture in China. See H 1140.
1645 BBC: The World Today. See M 1645.

Fridays

1609 Deutsche Welle: Newsline Cologne. See M 1109.
1615 BBC: Science In Action. The latest news about scientific innovations.
1615 Radio Beijing: Current Affairs or The Business Show. See F 1115.
1634 Deutsche Welle: Asia-Pacific Report. See M 1634.
1640 Radio Beijing: In the Third World. See F 1140.
1645 BBC: The World Today. See M 1645.

Saturdays

1609 Deutsche Welle: International Talking Point. See S 0419.
1615 BBC: Sportsworld. See A 1430.
1615 Radio Beijing: Press Clippings. See S 0015.
1620 Radio Beijing: Travel Talk. See S 0020.
1623 Deutsche Welle: Development Forum. See A 1513.
1628 Radio Beijing: Cooking Show. See S 0028.
1634 Deutsche Welle: Religion and Society. See S 1509.
1635 Radio Beijing: Music from China. See S 0035.

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English language

shortwave guide

1700 UTC [12:00 PM EST/9:00 AM PST]

FREQUENCIES

1700-1730	BBC London	3255af	7160me	15260na	21470af
		21660af			
		3915as	5975as	6005af	6180eu
		6190af	6195eu	9410eu	9630af
		9740eu	11750as	11775na	12095eu
		15070eu	15310as	15400af	15420af
		17640va	17695eu	17860af	17880af
1700-1800	BBS Bahrain	6010me			
1700-1800	BSKSA Saudi Arabia	9705eu	9720eu		
1700-1800	CFCX Montreal	6005do			
1700-1800	CFRX Toronto	6070do			
1700-1800	CSM World Svc, Boston	11580as	13625as	21640af	
1700-1800	HCJB Quito	21455am	21480am	25950na	
1700-1800	KSDA Guam	13720as			
1700-1800	KTBN Salt Lake City	15590			
1700-1745	R Surinam Intl via Brazil	17835eu			
1700-1800	R. E. Africa, Eq. Guinea	7190af			
1700-1800	Radio 1, Accra, Ghana	4915do			
1700-1705	Radio 2, Accra, Ghana	7295do			
1700-1800	Radio Australia	5995va	6060va	6080va	7240va
		9580va	9860va	11910va	12000va
		13605va	13755va		
1700-1710	Radio Bafoussam, Cameroon	4000do			
1700-1800	Radio Beijing	4130af	9570af	11575af	15225af
1700-1800	Radio Cairo	15255af			
1700-1730	Radio Georgia, Tbilisi	12070eu			
1700-1800	Radio Japan	7140as	9505am	11815na	15345me
1700-1800	Radio Moscow	7305va	11630va	11840na	11890va
		11940va	11960va	11995va	12005va
		12015va	12030va	12035va	12050va
		15185va	15375va	15500va	15540va
		17600va	17655va	15500va	15540va
		17600va	17655va	17670va	17710va
		17720va	17775va	17785va	17650va
		21645va	21690va	21740va	21790va
		21845va			
1700-1725	Radio Netherlands	6020af	15570af		
1700-1800	Radio Nigeria	3326do	4990do		
1700-1730 as	Radio Norway	9655eu			
1700-1800	Radio Pakistan	11570eu	15550eu		
1700-1730 mtwhf	Radio Portugal	15425me			
1700-1750	Radio Pyongyang	9325va	9640va	9977va	11705va
1700-1800	Radio RSA, Johannesburg	7230af	15270af	17840af	
1700-1800	Radio Tanzania	5985af	9684af	11765af	
1700-1800	Radio Zambia Int'l	9505af	11880af	17895af	
1700-1730	RCI Montreal	5995eu	7235eu	13650eu	15325eu
		17820eu	21545eu		
1700-1800 mtwhfa	RTV Morocco	15335af	17595af	17815af	
1700-1728	SLBS, Sierra Leone	3316do	5980do		
1700-1730	Sri Lanka B'casting Corp.	6075as	9720as		
1700-1730	TWR Swaziland	3200af	9520af		
1700-1730	VOA	3980eu	6040me	9700eu	9760me
		15205me			
		9575af	11920af	15410af	15580af
		17800af	21625af		
		6110as	7125as	9645as	15395as
1700-1800 mtwhf	Voice of Kenya	4935do			
1700-1800	Voice of Nigeria	7255af			
1700-1800	WHRI Noblesville	15105	17830		
1700-1800	WMLK Bethel	9465eu			
1700-1800	WRNO New Orleans	15420			
1700-1800	WWCR Nashville	15690			
1700-1800	WYFR Okeechobee	13760am	21500eu		
1706-1800	Radio 2, Accra, Ghana	3366do			
1715-1745	BBC London	9560ca	21660ca		
1715-1730	Radio Buea, Cameroon	3970do			
1715-1800	Swiss Radio Int'l	9885eu			
1728-1800	SLBS, Sierra Leone	3316do			
1730-1800	BBC London	3255af	7160me	21470af	21660af
1730-1800	BBC London	3915as	5975as	6005af	6180eu
		6190af	6195eu	9410eu	9630af
		9740me	11775na	12095eu	15070eu
		15260na	15310as	15400af	15420af
		17640va	17695eu	17860af	17880af
1730-1745	Radio Bayrak, Cyprus	6150va			
1730-1745 a	Radio Douala, Cameroon	4795do			
1730-1800	Radio Romania Int'l	11940af	15340af	15365af	17745
		17805			
1730-1800	TWR Swaziland	3200af			
1730-1800	Vatican Radio	11625af	15090af	17730af	
1730-1800	VOA	6040eu	9700eu	9760eu	15205eu
		9575af	11920af	15410af	15580af
		17800af	21625af		
1740-1800	Cameroon Radio-TV	4850do			
1745-1800 mtwhfa	Radio Douala, Cameroon	4795do			
1745-1800	RTV Madagascar	3232do	3286do	5005do	

Deutsche Welle's Larry Wayne

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English language

shortwave guide

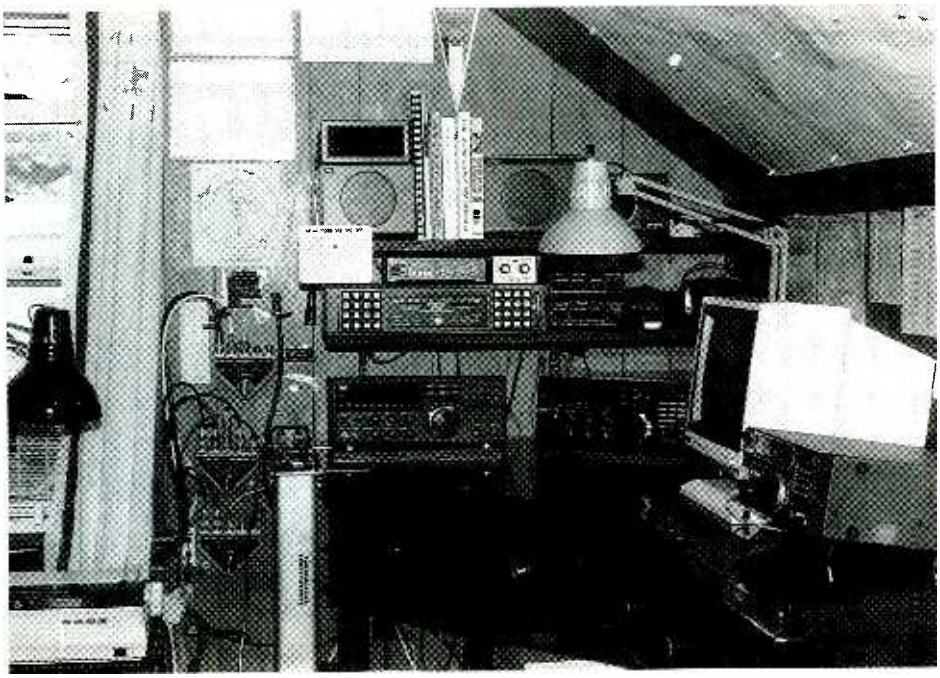
1800 UTC [1:00 PM EST/10:00 AM PST]

FREQUENCIES

1800-1900	All India Radio, Delhi	11935af			
1800-1830	BBC London	3255af	3955eu	5975as	6180eu
		6190af	6195eu	7160me	7325af
		9410eu	9600af	9740me	11750as
		12095eu	15070eu	15310as	15400af
		17640eu	17880af		
1800-1900	BBS Bahrain	6010me			
1800-1900	BSKSA Saudi Arabia	9705eu	9720eu		
1800-1900	Cameroon Radio-TV	4850do			
1800-1900	CFCX Montreal	6005do			
1800-1900	CFRX Toronto	6070do			
1800-1900	CSM World Svc, Boston	13625as	15665am	21640af	
1800-1830	Georgian Radio, Tbilisi	12070me			
1800-1815	Kol Israel	11587na	11675na	15640na	17575af
1800-1900	KTBN Salt Lake City	15590			
1800-1810	Malawi B'casting Corp.	3381do			
1800-1900	R. E. Africa, Eq. Guinea	7190af			
1800-1900	R. for Peace Int'l	13660 2	21566 2	25945am	
1800-1900	Radio 1, Accra, Ghana	4915do			
1800-1900	Radio 2, Accra, Ghana	7295do			
1800-1900	Radio Australia	5995va	6060va	6080va	7240va
		9580va	9860va	11910va	12000va
		13605va	13755va		
1800-1840 w	Radio Bertoua, Cameroon	4750do			
1800-1830	Radio Cairo	15255af			
1800-1845 mtwhfa	Radio Douala, Cameroon	4795do			
1800-1900	Radio Ivory Coast, Abidjn	11920af			
1800-1900	Radio Korea	15575eu			
1800-1900	Radio Moscow	6065va	11655va	11765va	11840na
		11850va	11900va	11995va	12050va
		15230va	15330va	15335va	15375va
		15415va	15520va	15535va	15540va
		15595va	17600va	17655va	17670va
		21585va	21740va	21750va	21845va
1800-1900	Radio Mozambique	3265af	4855af	9618af	
1800-1900	Radio New Zealand Int'l	15120pa			
1800-1900	Radio Nigeria	3326do	4990do		
1800-1900	Radio Tanzania	5985af	9684af	11765af	
1800-1900	Radio Zambia Int'l	9505af	11880af	17895af	
1800-1900	Radiobras, Brasilia	15265eu			
1800-1830	RCI Montreal	5995eu	7235eu	11945eu	15325eu
		17875eu	13670me	15260me	17820me
1800-1900 as	RCI Montreal	13670me	15260me	17820me	
1800-1830	RTV Congolaise	3265af	4765af		
1800-1900	SLBS, Sierra Leone	3316do			
1800-1845	TWR Swaziland	3200af	9600af		
1800-1900	VOA	6040eu	9700eu	9760me	15205me
		9575af	11920af	15410af	15580af
		17800af	21625af		
1800-1900	Voice of Ethiopia	9662af			
1800-1900 mtwhf	Voice of Kenya	4935do			
1800-1830	Voice of Vietnam	9840eu	12020eu	15010eu	
1800-1900	WHRI Noblesville	13760na	15105sa		
1800-1900	WMLK Bethel	9465eu			
1800-1900	WRNO New Orleans	15420na			
1800-1900	WWCR Nashville	15690na			
1800-1900	WYFR Okeechobee	21500na			
1815-1900	Radio Bangladesh	12030as	15255as		
1815-1830	Radio Voice of Lebanon	5me	6549.5		
1830-1900	BBC London	3255af	3955eu	6005af	6180eu
		6190af	6195eu	7325eu	9410eu
		9600af	11750as	12095eu	15070eu
		15400af	17880af		
1830-1900 a	Lativan Radio, Riga	5935eu			
1830-1900	Radio Afghanistan	7310eu	9635eu		
1830-1900	Radio Netherlands	6020af	15570af	17605af	21685af
1830-1900	Radio Sofia, Bulgaria	9700eu	11720eu	11765af	15330eu
		17780af	17825af		
1830-1900	RAI Vienna	5945eu	6155eu	12010me	13730af
1830-1900	Sri Lanka B'casting Corp.	9720eu	15120eu		
1830-1900	Swiss Radio Int'l	9885af	11955af		
1840-1850 mtwhfa	R National de Venezuela	9540om			
1840-1850 mtwhfa	Voice of Greece	11645af	12105af	15650af	
1845-1900	Ghana B'casting Corp.	6130af			
1845-1900	RTV Guinea	4900af	7125af		
1845-1900 s	RTV Mali	4783do	4835do	5995do	7285do
1845-1900	TWR Swaziland	3200af			

Monitoring Post Pin-Up

Bob Babin, a communications officer for the Shrewsbury, Massachusetts Department of Defense, sent in this photo of his listening post. An NRD 535D, NRD 525, ICOM R7000, and Universal M7000 Decoder are just some of the equipment he uses.



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English language

shortwave guide

1900 UTC [2:00 PM EST/11:00 AM PST]

FREQUENCIES

1900-2000	All India Radio, Delhi	11935af			
1900-1930	BBC London	3255af	3955eu	6005af	6180eu
		6190af	6195eu	7160me	7325eu
		9410eu	9600af	9630af	11750pa
		12095eu	15070eu	15400af	17880af
1900-2000	BBS Bahrain	6010me			
1900-1930	BRT Brussels	5910eu	9905eu	15515af	
1900-2000	BSKSA Saudi Arabia	9705eu	9720eu		
1900-1945	Cameroon Radio-TV	4850na			
1900-2000	CFCX Montreal	6005do			
1900-2000	CFRX Toronto	6070do			
1900-2000	CSM World Svc, Boston	13625as	15665am	21640af	
1900-1950	Deutsche Welle	9760af	11785af	11810af	13790af
		15350af	15390af	17810af	
1900-2000	Ghana B'casting Corp.	6130af			
1900-2000	HCJB Quito	15270eu	17790eu	21455eu	21480eu
		29590eu			
1900-2000	KTBN Salt Lake City	15590			
1900-2000	R. E. Africa, Eq. Guinea	7190af			
1900-2000	R. for Peace Int'l	13660 2	21566 2	25945am	
1900-2000	Radio 1, Accra, Ghana	4915do			
1900-2000	Radio 2, Accra, Ghana	7295do			
1900-2000	Radio Algiers	9510me	9535me		
1900-2000	Radio Australia	5995va	6060va	6080va	7240va
		9580va	9860va	11910va	12000va
		13605va	13755va		
1900-2000	Radio Beijing	9440af	11515af		
1900-2000	Radio Havana Cuba	17705eu			
1900-1930	Radio Japan, Tokyo	9505am	9640am	9645au	11850af
1900-2000	Radio Moscow	7305va	11630va	11765va	11840na
		11890va	13605va	15185va	15330va
		15375va	15540va	15560va	15580va
		1555va	17670va	17695va	
1900-1925	Radio Netherlands	6020af	15570af	17605af	21685af
1900-2000 smtwhf	Radio New Zealand Int'l	15120pa			
1900-2000	Radio Nigeria	3326do	4990do		
1900-2000	Radio Sofia, Bulgaria	9700eu	11720eu	11765af	15330eu
		17780af	17825af		
1900-1915	Radio Tanzania	5985af	9684af	11765af	
1900-2000	Radio Zambia Int'l	9505af	11880af	17895af	
1900-2000	RAE Buenos Aires	15345eu			
1900-1930 mtwhf	RCI Montreal	13670me	15260me	17820me	
1900-2000 s	RTV Morocco	15335af			
1900-2000	SLBS, Sierra Leone	3316do			
1900-2000	Spanish Foreign Radio	9875eu	11790eu	15375af	15395eu
1900-2000	Sri Lanka B'casting Corp.	9720eu	15120eu		
1900-2000	TWR Swaziland	3200af	3240af		
1900-2000	VOA	6040eu	9700eu	9760eu	11710eu
		15205eu			
		9525as	11870as	15180au	
		9575af	11920af	15410af	15580af
		17800af	21825af		
1900-2000	VOA Europe	21705			
1900-2000 mtwhf	Voice of Kenya	4935do			
1900-2000	Voice of Nigeria	7255af			
1900-1930	Voice of Vietnam	9840eu	12020eu	15010eu	
1900-2000	WHRI Noblesville	13760	17830		
1900-2000	WMLK Bethel	9465eu			
1900-2000	WRNO New Orleans	15420			
1900-2000	WWCR Nashville	15690			
1900-2000	WYFR Okeechobee	15355af	21615eu		
1910-1915	Radio Botswana	3356af			
1920-1930	Radio Buea, Cameroon	3970do			
1920-1930 mtwhfa	Voice of Greece	9395eu	11645eu		
1930-2000	BBC London	3255af	3955eu	6005af	6180eu
		6190af	6195eu	7160me	7325eu
		9410eu	9600af	9630af	11750pa
		12095eu	15070eu	15400af	17880af
1930-2000 tes	KFBS Saipan	9475af			
1930-1940 irr	Radio Burkina Faso	4815af	7230af		
1930-2000	Radio Federal Yugoslavia	6100eu	15140af		
1930-2000	Radio Finland	6120eu	9730af	11755af	
1930-2000	Radio Prague	6055eu	7345eu		
1930-2000	Radio Romania Int'l	7145eu	9690eu	9750eu	11940eu
1930-2000	Radio Sweden	6065va	9655va	15270va	
1930-2000	Radio Sweden	6065eu	9655eu	15270eu	
1930-2000	Radio Tirana	7120eu	9480eu		
1930-2000	VOIRI, Teheran, Iran	6140eu	9022eu		
1935-1955	RAI, Rome	7275eu	9710eu	11800eu	
1935-1945	RTV Togo	5047af			
1940-2000 smwha	Ulaanbaatar R., Mongolia	11850eu	12015eu		
1950-2000	Sudan Nat'l B'casting Cor	9540do	9550do	11635do	
1950-2000	Vatican Radio	5895do	7250eu		

Kol Israel staff

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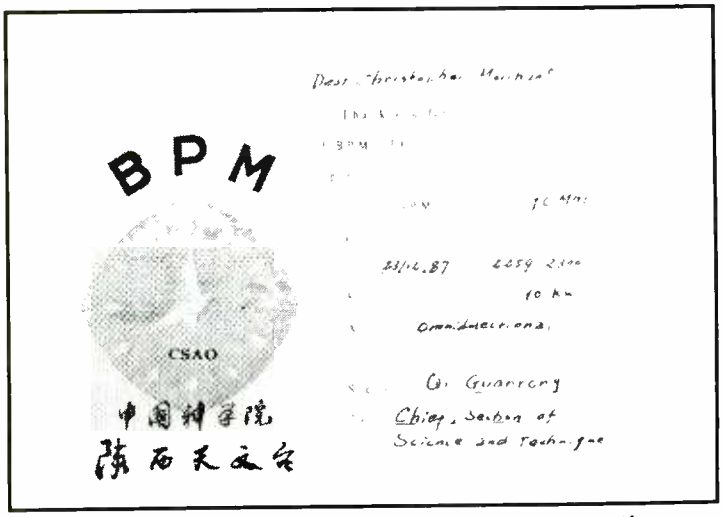
2000 UTC [3:00 PM EST/12:00 PM PST]

FREQUENCIES

2000-2030	BBC London	3255af	3955eu	5975eu	6005af
		6180eu	6190af	6195eu	7160me
		7180pa	7325eu	9410eu	9600as
		9630af	11750pa	12095eu	15070eu
		15260sa	15340pa	15400af	17880af
2000-2100	BBS Bahrain	6010me			
2000-2100	BSKSA Saudi Arabia	9705eu	9720eu		
2000-2100	CFCX Montreal	6005do			
2000-2100	CFRX Toronto	6070do			
2000-2100	CSM World Svc, Boston	9455as	13625pa	13770am	15665eu
		17555eu			
2000-2100	Georgian Radio, Tbilisi	12015me			
2000-2100 tes	KFBS Saipan	9475af			
2000-2100	King of Hope, Lebanon	6280me			
2000-2030	Kol Israel	7465am	9435am	11587am	11605am
		11675eu	17575af		
2000-2100	KTBN Salt Lake City	15590			
2000-2100	KVOH Los Angeles	17775am			
2000-2010 w	Malawi B'casting Corp.	3381do			
2000-2100	R. E. Africa, Eq. Guinea	7190af			
2000-2100	R. for Peace Int'l	7375na	13630na	15030na	21465na
2000-2100	Radio 1, Accra, Ghana	4915do			
2000-2100	Radio 2 Accra, Ghana	7295do			
2000-2100	Radio Australia	5995va	6060va	6080va	7240va
		9580va	9860va	11910va	11930va
		12000va	13605va	13755va	
2000-2100	Radio Beijing	4130eu	9920eu	11500eu	
2000-2100	Radio Beijing	9440af	11715af	15110af	
2000-2030	Radio Georgia, Tbilisi	11760eu			
2000-2100	Radio Havana Cuba	17705eu			
2000-2100	Radio Moscow	1143eu	6000va	7330va	11520va
		11630va	11765va	11840na	11890va
		11960va	12050va	12060va	13605va
		15185va	15330va	15500va	15540va
		15560va	15580va	15595va	17695va
		21740va			
2000-2100 smtwhf	Radio New Zealand Int'l	15120pa			
2000-2100	Radio Nigeria	3326do	4990do		
2000-2030 as	Radio Norway	17730af	17730sa		
2000-2055	Radio Polonia, Warsaw	6135eu	7270eu	9525eu	
2000-2030 mtwhf	Radio Portugal	11740eu			
2000-2050	Radio Pyongyang	6576me	9345eu	9640eu	9977af
2000-2030	Radio Romania Int'l	7145eu	9690eu	9750eu	11940eu
2000-2030	Radio Sweden	6065eu	9655eu	15270eu	
2000-2030	Radio Sweden, Stockholm	6065eu	9655eu	15270eu	
2000-2100 s	Radio Zambia Int'l	9505af	11880af	17895af	
2000-2030	RCI Montreal	5995eu	7235eu	11945eu	13650eu
		15140eu	15325eu	17875eu	
2000-2100	SLBS, Sierra Leone	3316do			
2000-2100	TWR Swaziland	3200af	3240af		
2000-2010 smwha	Ulaanbaatar R., Mongolia	11850eu	12015eu		
2000-2010	Vatican Radio	5895do	7250eu		
2000-2030	Vatican Radio	9645af	11625af	15090af	
2000-2100	VOA	6040eu	9700eu	9760eu	11710eu
		15205eu			
2000-2100	Voice of Indonesia	7125as	9675as	11752as	11785as
2000-2010 mtwhf	Voice of Kenya	4935do			
2000-2030	Voice of Nigeria	7255af			
2000-2030	VOIRI, Teheran, Iran	6140eu	9022eu		
2000-2100	WHRI Noblesville	13760af	15105sa		
2000-2100	WRNO New Orleans	15420			
2000-2100	WWCR Nashville	15690			
2000-2100	WYFR Okeechobee	15566eu	17612af	21525eu	21615eu
2005-2100	Radio Damascus	12085na	15095na		
2010-2100 sa	Voice of Kenya	4935do			
2015-2030	V. de la Rev., Benin	4870af	5025af		
2015-2045 sth	V. of the Black Cockerel	9700af			
2025-2045	RAI, Rome	7235me	9575me	11800me	
2030-2100	BBC London	3255af	3955eu	5975ca	6005af
		6180eu	6190af	6195eu	7180pa
		7325eu	9410eu	11750pa	12095eu
		15070eu	15260sa	15340pa	15400af
2030-2100	Radio Cairo	15375af			
2030-2100	Radio Korea	6480eu	7550af	15575eu	
2030-2100	Radio Netherlands	7285af	9860af	9895af	11660af
		13700af			
2030-2100	RCI Montreal	6010eu	7230eu	11945eu	13650eu
		15140eu	15325eu	17875eu	
2030-2100	RCI Montreal	9650as			
2030-2100	Voice of Vietnam	9840eu	12020eu	15010eu	
2045-2100	All India Radio, Delhi	7412eu	9665eu	9910eu	11620eu
		11715eu	15265eu		
2045-2100	Radio Sofia, Bulgaria	11765eu	17780af	17825af	

Do you have special QSLs, pennants, or logos from radio stations? Send them to us and we'll use them as space permits. We'll copy them and return them to you within the month. Send them to:

QSLs,
c/o Monitoring Times
P.O. Box 98
Brasstown, NC 28902.



BPM verified Christopher Merchant's reception report with this QSL card.

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English language

shortwave guide

2100 UTC [4:00 PM EST/1:00 PM PST]

FREQUENCIES

2100-2130	BBC London	6195as	5975ca	6005af	3255af
		3955eu	6180eu	15340pa	11750pa
		12095eu	15070na	15260sa	15400af
		9590na	9410eu	7325eu	
2100-2106	BBS Bahrain	6010me			
2100-2200	CFCX Montreal	6005do			
2100-2200	CFRX Toronto	6070do			
2100-2200	CSM World Svc, Boston	9455as	13625pa	13770am	
		15665eu	17555sa		
2100-2150	Deutsche Welle	9760as	9765as	11785as	13780as
		15350as	15360as		
2100-2130	Georgian Radio, Tbilisi	11760eu			
2100-2130	King of Hope, Lebanon	6280me			
2100-2200	KTBN Salt Lake City	15590			
2100-2200	KVOH Los Angeles	17775			
2100-2110	Malawi B'casting Corp.	3381do			
2100-2200	R. E. Africa, Eq. Guinea	7190af			
2100-2200	R. for Peace Int'l	7375na	13630na	15030na	21465na
2100-2200	R. Nacional de Angola	3355af	9535af		
2100-2200	Radio 1, Accra, Ghana	4915do			
2100-2200	Radio 2, Accra, Ghana	7295do			
2100-2200	Radio Australia	6060va	11880va	11930va	13605va
		13705va	15320va	17795va	21740va
2100-2200	Radio Beijing	4130eu	9920eu	11500eu	3985eu
2100-2200	Radio Cairo	15375af			
2100-2105	Radio Damascus	12085na	15095na		
2100-2200	Radio Japan	11815me	11840eu	15430eu	17810as
		17890as			
2100-2130	Radio Korea	6480eu	7550af	15575eu	
2100-2200	Radio Moscow	1143eu	1494eu	7300va	7330va
		9740va	9800va	11520va	11630va
		11675va	11685va	11745va	11840na
		11850va	11890va	12050va	12060va
		15130va	15355va	15385va	15455va
		15500va	15535va	15560va	15580va
		15595va	17655va	17735va	21565va
		21630va			
2100-2125	Radio Netherlands	7285af	9860af	9895af	11660af
		13700af			
2100-2200	Radio New Zealand Int'l	15120pa			
2100-2200	Radio Nigeria	3326do	4990do		
2100-2130 as	Radio Norway	9590eu	17750pa		
2100-2130 mtwhf	Radio Portugal	15250eu			
2100-2130	Radio Prague	5930eu	6055eu	7345eu	9605eu
2100-2130	Radio Romania Int'l	7145eu	9690eu	9750eu	11810eu
		11940eu			
2100-2130	Radio Sofia, Bulgaria	11765eu	17780af	17825af	
2100-2200	Radio Zambia Int'l	9505af	11880af	17895af	
2100-2200	SLBS, Sierra Leone	3316do			
2100-2200	Spanish Foreign Radio	9875af			
2100-2200	Sri Lanka B'casting Corp.	15120as			
2100-2130	Swiss Radio Int'l	3985eu	6165eu	9535eu	
2100-2130	Swiss Radio Int'l	9885af	12035af	13635af	15525af
2100-2115	TWR Swaziland	3240af			
2100-2200	VOA	6040eu	9700eu	9760me	11710me
		11870pa	11960me	15185pa	15205me
		15410af	15580af	17735pa	17800af
		21485af	21625af		
2100-2200	Voice of Turkey	9445eu			
2100-2200	WHRI Noblesville	13760	17830		
2100-2200	WRNO New Orleans	15420			
2100-2200	WWCR Nashville	15690			
2100-2200	WYFR Okeechobee	15566af	17612af	21525eu	21615eu
2110-2200	Radio Damascus	12085na	15095na		
2115-2130 mtwhf	BBC London Caribbean Rpt.	17715ca			
2115-2130 s	R. Republik Indonesia	6070do			
2115-2200	Radio Cairo	9900eu			
2130-2200	Alma Ata R., Khazakhstan	3955as	4400as	5035as	5260as
		5960as	5970as	9505as	15215as
		15315as	15385as	17605as	17715as
		17730as			
2130-2200	BBC London	3255af	3955eu	5975ca	6005af
		6180eu	6195as	7325eu	9410eu
		9590na	11750pa	12095eu	15070na
		15260sa	15340pa	15400af	
2130-2200	BBC London Falkland Is Sv	13660sa			
2130-2200	HCJB Quito	17790eu	21455eu	21480eu	25950eu
2130-2200 smtwhf	King of Hope, Lebanon	6280me			
2130-2145	Radio Buea, Cameroon	3970do			
2130-2200 m	Radio Estonia, Tallinn	5925eu	9560eu		
2130-2200	Radio Sweden	6065eu			
2130-2200	RAI Vienna	5945eu	6155eu	9870eu	
2130-2200	RCI Montreal	11880me	15150me	17820me	
2140-2150 mtwhfa	R Nacional de Venezuela	9540			
2145-2200	Cameroon Radio-TV	4850na			

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2200 UTC [5:00 PM EST/2:00 PM PST]

FREQUENCIES

2200-2230	All India Radio, Delhi	7412eu	9665eu	9910eu	11620eu
		11715eu	15265eu		
2200-2300	BBC London	5975na	6195as	9410eu	9570pa
		9590na	9915ca	11750sa	11945as
		11955as	12095na	15070na	15260sa
		15340as	15400af	17830as	
2200-2230	BRT Brussels	5910eu	9905eu	15515af	
2200-2215	Cameroon Radio-TV	4850na			
2200-2300	CFCX Montreal	6005do			
2200-2300	CFRX Toronto	6070do			
2200-2300	CSM World Svc, Boston	9465na	13625as	13770af	15405as
		17555af			
2200-2230	Georgian Radio, Tbilisi	11760eu			
2200-2230 s	KGEI San Fransisco	15280sa			
2200-2300	KTBN Salt Lake City	15590			
2200-2300 sa	R. E. Africa, Eq. Guinea	7190af			
2200-2300	R. for Peace Int'l	13630ca	21465ca	15030am	
2200-2300	Radio 1, Accra, Ghana	4915do			
2200-2300	Radio 2, Accra, Ghana	7295do			
2200-2300	Radio Australia	11880va	11930va	13605va	13705va
		15160va	15320va	15365va	17795va
		21740va			
2200-2210	Radio Bafoussam, Cameroon	4000do			
2200-2300	Radio Beijing	11990eu			
2200-2300	Radio Budapest	6110eu	9835eu	11910eu	
2200-2245	Radio Cairo	9900eu			
2200-2210	Radio Damascus	12085na	15095na		
2200-2245	Radio Federal Yugoslavia	6100eu	9505eu		
2200-2300	Radio Havana Cuba	7215eu			
2200-2300	Radio Kiev	5960eu			
2200-2300	Radio Moscow	11985va	12050va	12060va	15355va
		15425va	15560va	15580va	15595va
		17605eu	17655va	17720va	17750va
		17840va	21690va		
2200-2300	Radio New Zealand Int'l	17770pa			
2200-2300	Radio Nigeria	3326do	4990do		
2200-2255	Radio Polonia, Warsaw	5995eu	6135eu	7270eu	
2200-2230	Radio Prague	5930eu	6055eu	7345eu	9605eu
2200-2230 a	Radio Republik Indonesia	3385do	4805do		
2200-2230	Radio Sweden	6065eu			
2200-2215	Radio Zambia Int'l	9505af	11880af	17895af	
2200-2225	RAI, Rome	5990as	9710as	11800as	
2200-2230	RCI Montreal	5995eu	7180eu	11705as	13650eu
2200-2300	RCI Montreal	9760eu	11945eu	15325eu	
2200-2300 smtwha	RTM Malaysia	7295do			
2200-2218	RTV Congolaise	4765do	5985do		
2200-2300	SBC Radio 1, Singapore	5010do	5052do	11940do	
2200-2300	SLBS, Sierra Leone	3316do			
2200-2300	UAE Radio Abu Dhabi	9600na	11965na	13605na	
2200-2300	V. of Free China, Taiwan	17750eu	21720eu		
2200-2230	VOA	9530eu	11905me	11960me	15225me
		15445me	17885eu		
		7120as	9770as	11760as	15185au
		15290au	15305au	17735au	17820au
2200-2300	WHRI Noblesville	13760na	17830sa		
2200-2300	WRNO New Orleans	13720na			
2200-2300	WWCR Nashville	15690na			
2200-2300	WYFR Okeechobee	17612af	21525eu		
2230-2300	Kol Israel	7465am	9435am	11585am	11605am
		17575sa	11675eu		
2230-2300	Radio Finland	6120eu	9730af	11755as	
2230-2300	Radio Vilnius, Lithuania	9675eu	9710eu		
2230-2300 mtwhf	RTV Congolaise	4765do			
2230-2300	VOA	9530eu	11905me	11960me	17885me
2240-2250 smtwhf	Voice of Greece	11645au			
2245-2300	Radio Sofia, Bulgaria	9700am	11660na	15110eu	15310na
		15370eu	17825na		
2245-2300	Vatican Radio	7305as	9600as	11830au	

The Radio New Zealand International team en route to Rangataiki with a backdrop of Mt. Ruapehu.

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English language

shortwave guide

2300 UTC [6:00 PM EST/3:00 PM PST]

FREQUENCIES

2300-0000	AWR Costa Rica	9725ca	11825ca		
2300-2330	BBC London	5975na	6175na	6195as	7145as
		9410eu	9570pa	9590na	9915sa
		11750sa	11945as	11955as	12095na
		15070na	15260sa	15340pa	15400af
2300-0000	CFCX Montreal	6005na			
2300-0000	CFRX Toronto	6070do			
2300-0000	CSM World Svc, Boston	9465na	13625as	13770as	15405af
		17555af			
2300-0000	KSDA Guam	15610as			
2300-0000	KTBN Salt Lake City	15590na			
2300-0000	R. for Peace Int'l	7375na	13630na	15030na	21465na
2300-2305	Radio 1, Accra, Ghana	4915do			
2300-2305	Radio 2, Accra, Ghana	7295do			
2300-0000	Radio Australia	11880va	11930va	13605va	15160va
		15320va	15365va	17795va	21740va
2300-0000	Radio Japan	11735eu	11815am	15195as	15430am
		17810pa			
2300-0000	Radio Moscow NAS	11690na	11710na	11780na	11985na
		12050na	13605na	15140na	15355na
		15425na	15480na	15550na	15560na
		15580na	15590na	15595na	16190na
		17655na	17735na	17850na	17890na
2300-0000	Radio Moscow NAS	21690na			
2300-0000	Radio New Zealand Int'l	17770pa			
2300-2330 as	Radio Norway	11925na			
2300-0000	Radio Orion, South Africa	4810af			
2300-2350	Radio Pyongyang	11700na	13650na		
2300-0000	Radio Sofia, Bulgaria	9700am	11660am	15110eu	15310na
		15370eu	17825na		
2300-0000	Radio Thailand	4830as	9655as	11905as	
2300-0000 as	RCI Montreal	9535sa	11940sa		
2300-2330 mtwhf	RCI Montreal	9755sa	11730sa		
2300-0000 smtwha	RTM Malaysia	7295do			
2300-0000	SBC Radio 1, Singapore	5010do	5052do	11940do	
2300-0000	SLBS, Sierra Leone	3316do			
2300-0000	UAE Radio Abu Dhabi	9600na	11965na	13605na	
2300-0000	VOA	7120as	9530me	9770as	11760au
		11905me	11960eu	15185au	15290au
		15305as	17735as	17820as	17885me
2300-0000	Voice of Turkey	7185me	11710eu		
2300-0000	WHRI Noblesville	9495na	13760sa		
2300-0000	WRNO New Orleans	13720na			
2300-0000	WWCR Nashville	15690na			
2300-0000	WYFR Okeechobee	5985na	11915na		
2315-0000	All India Radio, Delhi	9535as	9910as	11715as	11745as
		15110as			
2330-0000	BBC London	5975na	6175na	6195as	7145as
		9570pa	9590na	9915sa	11750sa
		11945as	11955as	12095na	15070na
		15260sa	17830as		
2330-0000	Radio Sweden	9695ca	11705ca		
2330-0000	Radio Tirana	7215eu	9725eu		
2330-0000	Swiss Radio Int'l	6035eu	6190eu	9680eu	
2330-0000	Voice of Vietnam	9840as	12020as	15010as	
2335-2345 smtwhfm	Voice of Greece	9425sa	11645sa	12105sa	

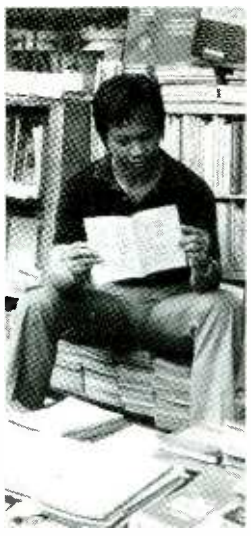
SELECTED PROGRAMS

Sundays
2305 BBC: World Business Review. See S 0530.
2315 BBC: Letter From America. See S 0545.
2315 Radio Japan: Hello From Tokyo. See S 0515.
2330 BBC: Feature. See S 1401.
2330 Radio Japan: Radio Japan Guide. See S 0530.
2355 Radio Japan: Viewpoint. See S 0355.

Mondays
2305 BBC: World Business Report. The latest news from the markets worldwide.
2315 BBC: Talks. This month only, Keith Hindell and "Mediawatch" sample the media and communications field.
2315 Radio Japan: People. See M 0515.
2330 BBC: Multitrack 1: Top 20. Tim Smith presents the smash singles on the UK pop music charts.
2330 Radio Japan: Crosscurrents. See M 0530.
2350 Radio Japan: Commentary. See M 0350.

Tuesdays
2305 BBC: World Business Report. See M 2305.
2315 BBC: Concert Hall. See S 1515.
2315 Radio Japan: Japan Focus. See T 0315.
2330 Radio Japan: Into Japan. See T 0330.
2350 Radio Japan: Commentary. See M 0350.

Wednesdays
2305 BBC: World Business Report. See M 2305.
2315 BBC: Good Books. See W 1445.
2315 Radio Japan: Asia Hotline. See W 0315.



An employee of Radio Australia's Japanese service looks over material.

2330 BBC: Multitrack 2. Graham Bannerman presents new pop records, interviews, news, and contests.
2330 Radio Japan: Asian Plaza. See W 0330.
2350 Radio Japan: Commentary. See M 0350.

Thursdays
2305 BBC: World Business Report. See M 2305.
2315 BBC: Music Review. News and views from the world of classical music.
2315 Radio Japan: Business Today. See H 0315.
2330 Radio Japan: Economy Update. See H 0330.
2350 Radio Japan: Commentary. See M 0350.

Fridays
2305 BBC: World Business Report. See M 2305.
2315 BBC: Worldbrief. A roundup of the week's news headlines and developments.
2315 Radio Japan: Music Mix. See F 0315.
2330 BBC: Multitrack 3. News and releases from the British alternative music scene.
2350 Radio Japan: Commentary. See M 0350.

Saturdays
2305 BBC: Words Of Faith. See S 0540.
2310 BBC: Book Choice. See H 0140.
2315 BBC: A Jolly Good Show. See T 1515.
2315 Radio Japan: This Week. See S 0115.

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shortwave guide

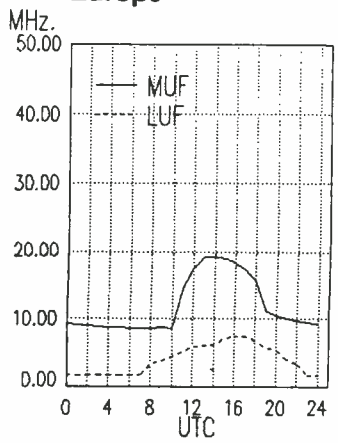
How to use the propagation charts

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.

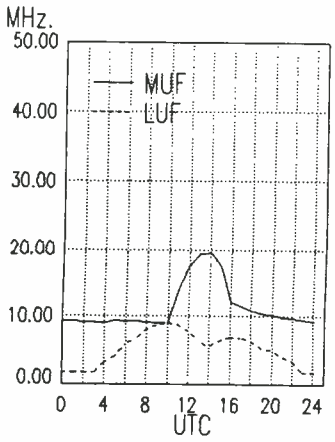
Then look for the one most closely describing the geographic location of the station you want to hear.

Conditions for areas EAST of the Mississippi and ...

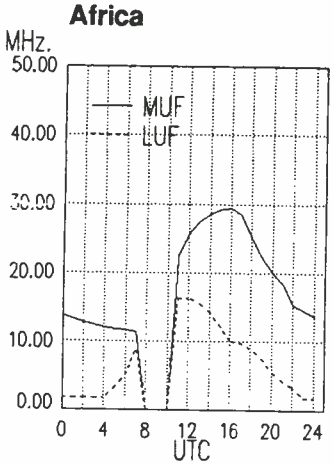
Europe



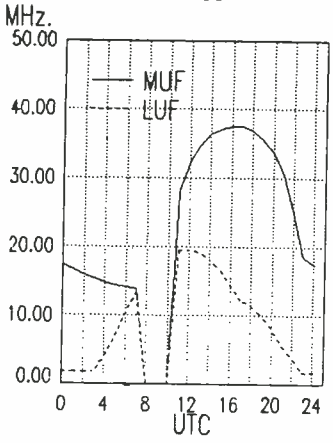
Middle East



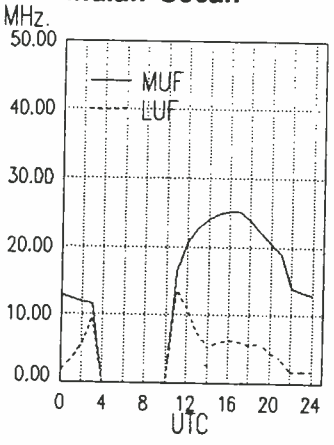
Africa



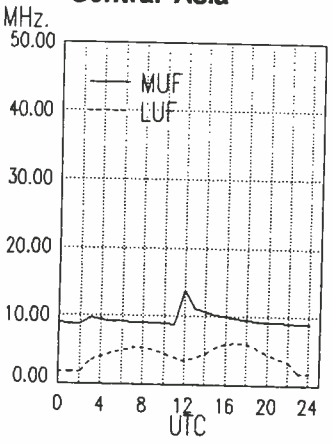
South Africa



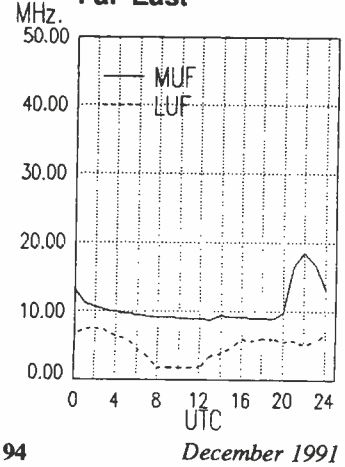
Indian Ocean



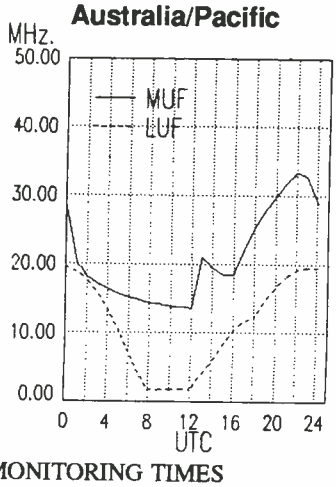
Central Asia



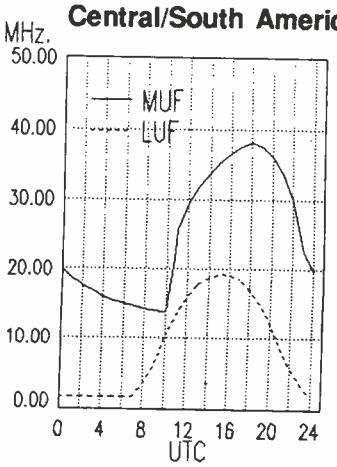
Far East



Australia/Pacific



Central/South America



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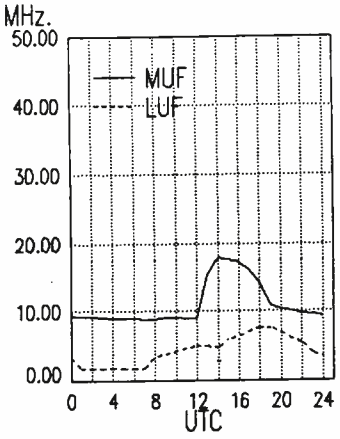
Once you've located the correct charts, look along the horizontal axis of the graph for the time that you are listening. The top line of the graph shows the Maximum Usable Frequency (MUF) and the lower line the Lowest Usable Frequency (LUF) as indicated on the vertical axis of the graph. The strongest signals will be near the MUF.

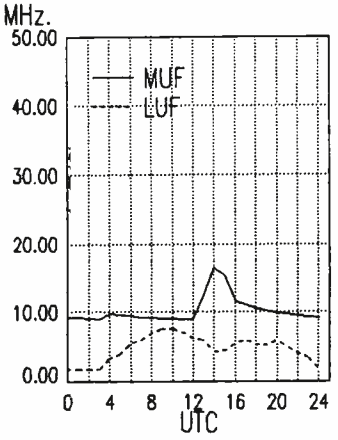
While there are exceptions to every rule (especially those regarding shortwave listening), you should find the charts helpful in determining the best times to listen for particular regions of the world. Good Luck!

Conditions for areas WEST of the Mississippi and ...

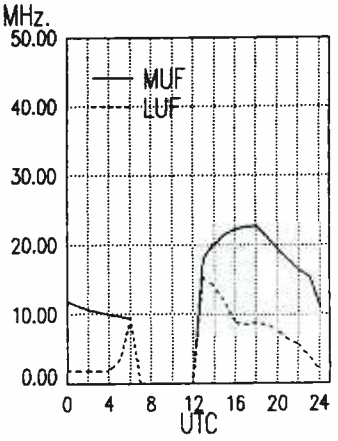
Europe



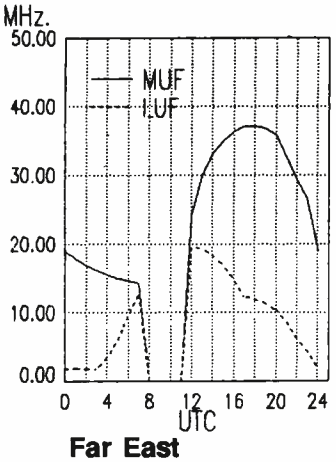
Middle East



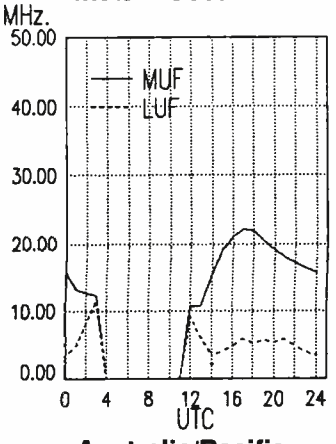
Africa



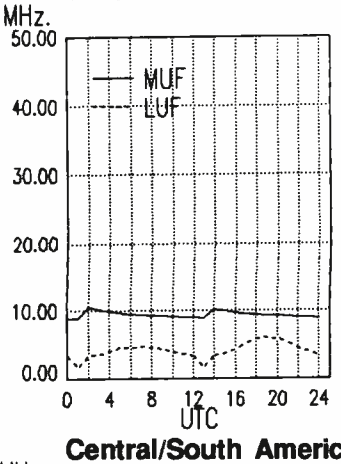
South Africa



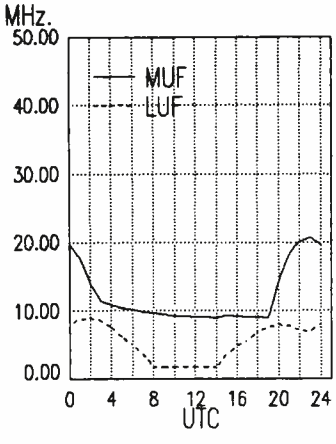
Indian Ocean



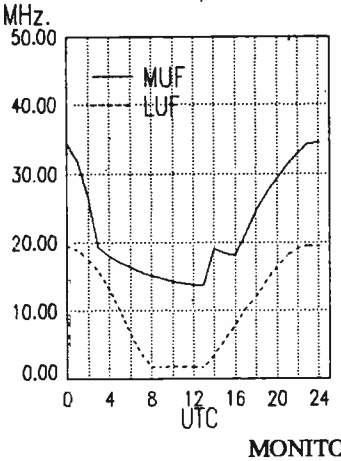
Central Asia



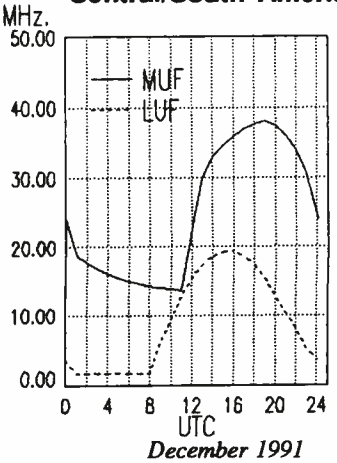
Far East



Australia/Pacific



Central/South America



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Lawrence Magne
Editor-in-Chief
Passport to World Band Radio

Sangean ATS-818CS World Band Cassette Recorder

Nearly every TV viewer has one: a video cassette recorder (VCR) to capture TV transmissions. But to record shortwave broadcasts automatically, the current choices have been mediocre and pricey for what they do. At best, you can buy certain models of shortwave radios that interface with selected models of cassette recorders to record automatically. Or, more simply, you can now buy a receiver that does it all.

First with Digital Frequency Circuitry

Problem is, until now those all-in-one receivers have been poor substitutes for the sorts of devices exacting listeners usually consider acceptable. Too, until now world band cassette recorders (WCRs), only came with analog frequency readout. This makes it nigh impossible to adjust the set in advance to the desired frequency for recording.

Now, Sangean has well and truly come to the rescue with its just-released ATS-818CS WCR. It's a one-event device, which means you can't record more than one time automatically. That's unlike most VCRs, which can record at least four events automatically. It is also a one-day event. So if, say, it's Friday, you can't set it to record on a Sunday.

Another difference is that while you can set the radio's recording "on" time, the only way it shuts off automatically is when the tape runs out.

ATS-818 with a Difference

The ATS-818CS is essentially the new ATS-818 — also sold as the Realistic DX-390 — but with a cassette deck added and smaller speaker cavity. It falls into the large-midsize category, being similar in size and appearance to the Grundig Satellit 500 and weighing 4.5 pounds with batteries. It not only operates from batteries, but also 120V current from the supplied outboard transformer.

This makes the '818CS a bit unwieldy for taking on airplane trips, but it's ideal for use around the house, backyard or on car trips.

Fairly Advanced Operation

The '818CS tunes the usual FM band, in stereo (via earphones only, although earphones aren't supplied), plus longwave, AM and the entire shortwave spectrum through 29999 kHz. Tuning increments are 1 kHz, and the large LCD's frequency counter reads out to that same degree of resolution. Tuning is by knob (in 1 or 5 kHz increments on shortwave), keypad, up/down slewing (in 5 kHz increments on shortwave) and rudimentary but effective scanning.

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That keypad, alas, is not in the conventional telephone-pad format, nor is it backlit, but it has excellent "feel." Additionally, 45 presets are included, of which 18 function on shortwave. Those presets are activated via the keypad, not via separate buttons as on, say, the Sony ICF-2010, which requires only one push of a button to bring up a desired station.

Single sideband is demodulated via a BFO switch wedded to a variable-pitch potentiometer. There are no separate LSB or USB controls, and although the set is fairly stable, the potentiometer tunes so broadly that it requires a safecracker's touch to fine tune properly. The end result, however, sounds fine, especially if the "narrow" bandwidth is used.

Signal strength is displayed by a five-level indicator on the LCD, which is backlit. That same indicator automatically transforms into a six-second battery-strength readout when the radio is switched off. Additionally, there's a power lock switch, useful for traveling to keep the batteries from running down accidentally. Tone is adjusted by a lone control, a step backwards from the separate bass and treble controls found on the sibling ATS-803A portable.

Dual Bandwidths Helpful

Other features include dual bandwidths, an RF gain control, sleep off and a 24-hour clock/timer with two time zones. Thankfully, UTC is displayed at all times, regardless of whether the radio is on or off.

The '818CS is a typical performer for within its price class. Sensitivity, an important variable in the central and western reaches of North America, is good, but not outstanding. Audio quality is only fair, thanks largely to the set's small speaker mandated by the cassette deck, which takes up much of the space set aside for the speaker in the ATS-818. Audio also sounds somewhat hissy.

Again comparing it to the Sony ICF-2010, the Sony is a bit better at pulling in weak stations and has more pleasant audio quality.

Selectivity in the wide position is rather broader than is ideal for shortwave, but adequate for receiving a good many signals without undue interference. The narrow position fares much better — it's a well-chosen width for when adjacent-channel interference rears its head.

No-Frills Tape Deck

Sangean indicated to us some time back that it would be using a Japanese cassette deck, as those made in Taiwan were not yet of suitable quality. Indeed, we found the deck's motor marked as "Mabuchi Motor," which Toshimichi Ohtake of *Passport to World Band Radio's* Tokyo office reports is the largest micro-mini motor company in Japan.

Recording works just about as you would expect, with some exceptions. Recording facilities are Spartan — no level indicator, no counter, no stereo. The fast-forward and rewind controls are reversed from the customary positions, and the indicator arrows are backwards — fast forward points left, rewind points right. Too, the owner's manual cautions, and our experience confirms, that when going from one control setting to another it's best to press the stop button first, a minor annoyance. Yet, recording quality is acceptable, and the timing facility works properly.

To reduce interference to broadcasts from the recorder, there is a "Beat Cut" control. According to the owner's manual, the Beat Cut control should be set to "on" which is in the number two position.

As with most cassette recorders, that of the '818CS comes with a condenser mic. Our tests indicate it works well, with level controlled, as it is when recording via the radio, by automatic level control circuitry, which makes a level indicator unnecessary.

Best WCR Available, Despite Modest Price

Overall, the impression one gets with the '818 is great care to keep the price down. Its radio technology is advanced, but neither the latest nor the most exalted, and recording facilities are downright bare-bones. At $329.00 before discounting, the results show: This set is reasonably priced for all it does.

Although the Sangean ATS-818CS doesn't stir the blood as do some of the top-priced recorder-less portables, it is clearly the best WCR on the market today. No other model even comes close. And it doesn't require putting a second mortgage on the house.

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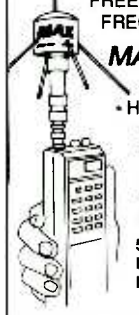

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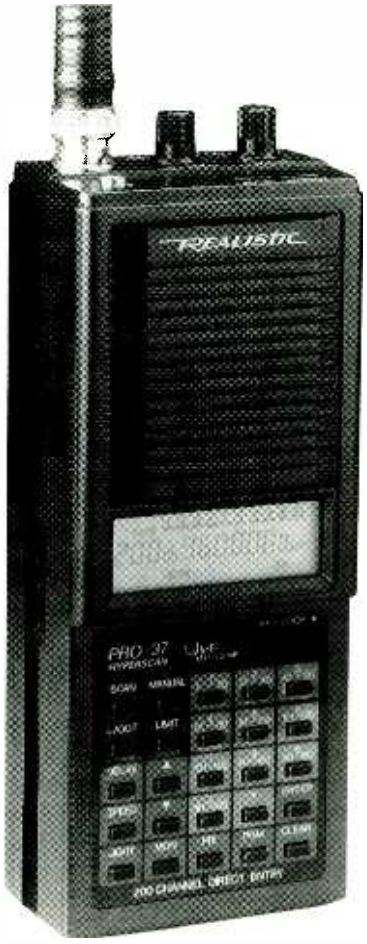
Bob Grove, WA4PYQ

Realistic PRO-37 Handheld Scanner



For years, Radio Shack and Uniden have jockeyed for position in the scanner market. The Uniden BC200XLT has enjoyed the reputation as the leading hand-held, although the now-discontinued Realistic PRO34 was a contendable competitor.

Now Radio Shack has introduced the PRO-37; and it looks good. At $299.95, this new scanner offers quite a handful of features. But the prospective buyer should be aware that he will need to buy batteries (rechargeable or throw-away) and possibly a charger, making the total investment about $60-70 more than the Bearcat which comes with nicads, charger, and a carrying case.

Specsmanship

The PRO-37 frequency range is 30-54, 108-174, 380-512, and 806-960 MHz (less cellular), covering the low, high, UHF, and 800 MHz land mobile services and civilian aircraft band as well.

The 380-406 MHz range won't offer much; 380-400 MHz is the top of the 225-400 MHz AM military aircraft band, but the scanner's FM default there prevents good reception, and there's no two-way communications to be heard between 400 and 406 MHz.

Two hundred memory channels may be memorized in ten banks of 20 channels each, scannable in any combination of banks. An additional ten memory locations are provided in a "monitor bank" to store search-discovered frequencies.

Can the PRO-37 have its cellular frequencies restored? Yes, in almost the same way its predecessor, the PRO-34, could. A reprint of that technique is available from *Monitoring Times* for $2 plus a self-addressed stamped envelope.

Scan speed is much faster than specified, approximately 35 channels per second (50 on search). These can be slowed to 8 if, for any reason not readily apparent to us, anyone wished to do so.

Although the speaker is only 1-3/4" diameter, it delivers full sound with good bass presence, assisted by a 200 mW amplifier, not characteristically shrill as with many other handheld radios.

Individual channels may be temporarily locked out to prevent stopping the scanning sequence, and the two-second rescan delay function is also programmed individually by channel. Channel one may be sampled every two seconds in the priority mode.

While the previously-released PRO-35 is a thinly veiled Uniden BC100XLT, the PRO-37 is not a BC200XLT; it is in a class by itself.

The LCD is top-lit when a specified key is pressed, switching off upon release; a front-panel slide button locks the display to prevent accidental key presses. The BNC-base rubber ducky antenna may be removed so that an external antenna may be attached.

When the scanner is being worn (it comes with a belt clip), the user can look down and conveniently press the manual or scan key on the top, duplicating that same function found on the front panel.

The ability to replace the six AA cells is a strong plus for the PRO-37; rechargeables may be used for routine daily applications, while alkalines permit long-term storage away from power sources.

Current drain is typically 40 mA quiescent (squelched; no signal received), while audio raises that to about 160 mA. Used conservatively, many hours of reception can be expected from a fresh rack of AA cells.

Two power jacks are provided, one to charge optional internal nicads, the other to power the radio from an optional AC wall adaptor (which may be the same device as the charger).

A jack is provided for attachment for an external speaker or earphone.

Sensitivity

We measured weak signal response of our sample at about 0.6 microvolts on low band, 0.3 uV high band, 0.9 uV UHF and 0.75 uV at 800 MHz, quite acceptable for most applications.

This response would be very close to the Bearcat, with the Realistic 0.2 uV better on aircraft and the Bearcat 0.2 uV better on UHF.

Images

With a 10.7 MHz FM IF (455 kHz AM), strong aircraft signals can be overheard on the high band, but no worse than encountered on competitive Bearcats; in fact, somewhat less.

We compared the image rejection of the Realistic to the Bearcat: The image on high band was reduced about 30 dB on the PRO-37 and about 20 dB on the BC220XLT.

At UHF and 800 MHz, however, the two competitors were about the same: images were just as strong as the primary signals!

Selectivity

Adjacent channel rejection was also about the same, about 50 dB down 15 kHz away from the desired frequency.

Radio Shack doesn't mind publishing their specifications; in fact, they are conservative—very refreshing. IF rejection for the 10.7 MHz stage at 154 MHz is reportedly 50 dB; selectivity (-6/-50 dB) is 20 kHz with a 2:1 shape factor.

Spurious signal rejection is published as 50 dB down on low, high and aircraft bands.

With batteries, the PRO-37 weighs 18 ounces; it measures 2-3/4"W x 6-1/2"H x 1-13/16"D. A nice radio, easy to operate and loaded with features.

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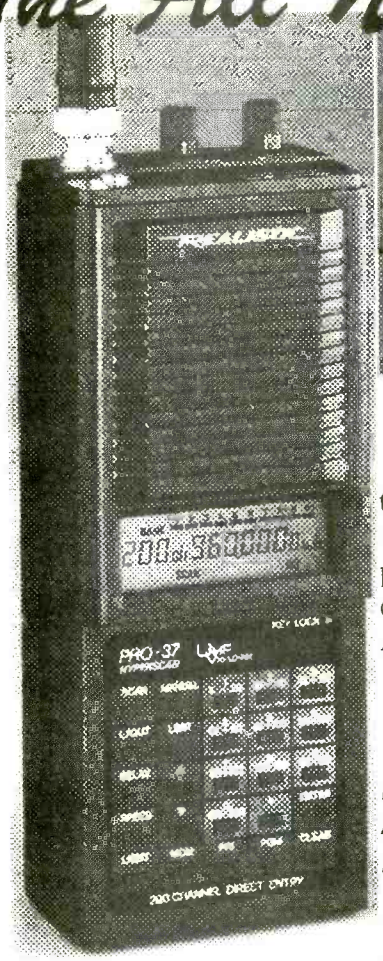
The All New Realistic PRO-37 HANDHELD SCANNER



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Doug Demaw, W1FB

Mobiling with your SW Receiver

Have you wanted to use your shortwave receiver while traveling in your vehicle? Or have you planned to operate the unit from the 12-volt electrical system in your car, only to find your radio is designed for +6, +9 or +10 volts dc? These objectives may be achieved easily at minimum expense by constructing a simple voltage regulator that you can plug into the cigar lighter socket on your car's dashboard.

Ideally, we should run a separate power-supply line directly to the battery terminals of the car. This method helps to minimize electrical noise that can be transmitted into a shortwave receiver. The battery acts like a large capacitor, and this bypasses a substantial amount of electrical pulse energy that could otherwise show up as QRN in the receiver.

However, it is more convenient to utilize the cigar lighter circuit when borrowing power in a vehicle. You may want to try the cigar lighter outlet first. If reception is quiet, no change will be needed.

Voltage Regulator Circuit

Figure 1 shows the circuit for an adjustable regulator that you can build in a couple of hours. A low-cost LM317 adjustable regulator is used for U1. Other types of adjustable positive regulators may be substituted, provided you pay attention to the pin arrangement of the substitute part. A small TO-220 type of heat sink should be used to keep U1 cool if your receiver draws more than, say, 200 mA of current. The addition of a heat sink is prudent as a general precaution. Small heat sinks are inexpensive. Be sure to apply a thin coating of heat-sink compound on the mating surfaces of the heat sink and U1 before attaching U1 to the sink. This helps to ensure efficient heat transfer.

Diode D1 in Figure 1A protects U1 from damage if your receiver contains a large electrolytic capacitor that can hold a dc voltage charge. High reverse dc voltage can destroy the regulator. D1 allows this charge to bypass U1, back to the regulator input terminal.

DS1 is merely an on-off indicator (LED) for the regulator circuit. It illuminates when S1 is placed in the ON position.

The regulator output voltage is variable from approximately 1.5 to 14 volts. The upper voltage range is dependent upon the ignition voltage that is developed in your particular vehicle. A voltage of 14 at peak battery charge is not uncommon. You can set the voltage by adjusting R1 and monitoring the regulator output by means of a dc voltmeter. The established output voltage will remain constant even though the automobile's voltage will vary as the engine speed changes. C1 helps to assure the U1 output voltage is filtered. This minimizes ignition noise which might otherwise be passed along to your receiver.

You may elect to use a fixed-voltage, three-terminal regulator for U1 if you plan to use only one receiver in the car. Select a regulator that provides the required output voltage. Again, be sure to check the pin arrangement of U1 if this

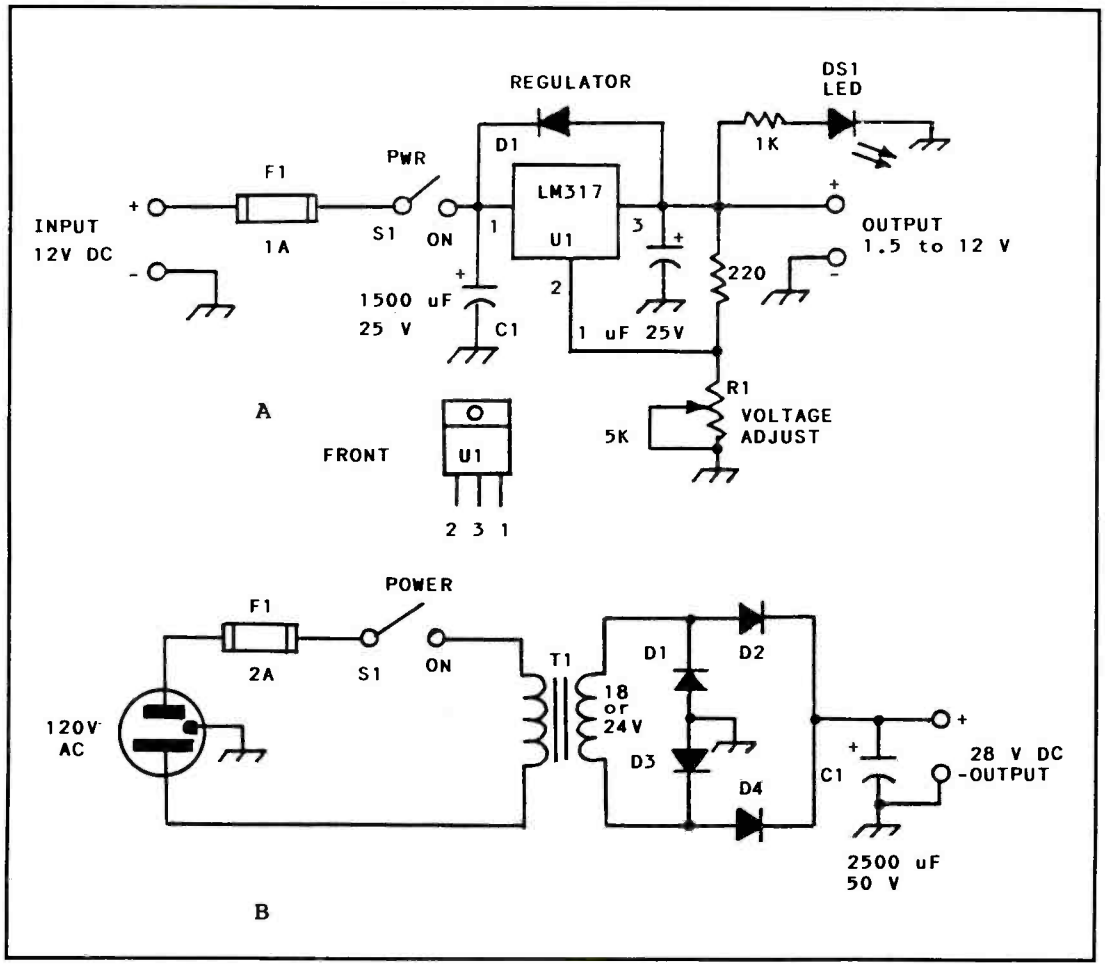

Figure 1: The schematic diagram at A shows the circuit for a simple adjustable voltage regulator which can be operated from a 12-volt dc source. Circuit B is for an ac-operated dc source for the regulator circuit (see text). D1, D2, D3 and D4 are 1-A, 50- or 100-PRV rectifier diodes (1N4001 or equivalent). DS1 is an LED of your choice (red). R1 is a 5000-ohm potentiometer, 1/2 watt or greater. U1 is an adjustable, three-terminal voltage regulator. T1 at B is a 1-A transformer, such as those sold at Radio Shack. Transformers with a higher current rating may be used.

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change is made. R1 is not used for a fixed-voltage regulator. It and the 220-ohm resistor may be eliminated. The voltage-adjust pin (no. 2 in Figure 1A) must be grounded when using a fixed regulator.

Your voltage regulator can be housed in a small metal box and installed under the dashboard of your car. One of the small project boxes found at Radio Shack stores can be used for this purpose. Most of the parts specified in Figure 1A should be available at Radio Shack.

An AC Operated Battery Eliminator

Figure 1B shows a circuit you can use in combination with the basic regulator in Figure 1A. C1 is changed to a larger value to provide good filtering of the 120-Hz energy from the rectifier diodes, D1 through D4. F1 is changed to a 2-A unit. A heat sink is mandatory for U1 if you use the circuit at B of Figure 1. This is because the higher input voltage (approximately 28-V dc) will cause greater power dissipation in U1, and this causes the regulator to run quite warm.

Output voltage from U1 will be as great as 25 when you use the ac-operated circuit of Figure 1B. Therefore, the voltage-adjust range will be from 1.5 to 25 volts dc.

A WORD OF CAUTION: The metal mounting tab on U1 is common to pin 3. This means dc voltage is present on the tab. The heat sink must, therefore, be insulated from ground. Alternatively, you may insulate U1 from the heat sink by using a TO-220 mica insulator and nylon mounting screws and nuts. Also, U1 is rated for a load current of 1 ampere (maximum). Do not attempt to use this circuit with equipment that draws high current.

Antennas for Mobile Operation

It is important to recognize the need for a proper mobile antenna when using your SW receiver in the car. Ideally, the antenna should be external on the car and it should be a resonant whip for the frequency of interest. Most CB mobile antennas can be modified for other frequencies by changing the loading coils to provide resonance elsewhere in the HF spectrum. It isn't essential to have an SWR (standing wave ratio) of 1:1 for SW listening, so don't worry about obtaining a perfect match at 50 ohms. You can adjust the turns on the antenna loading coil for maximum signal response at the chosen monitoring frequency.

Some SW receivers will provide acceptable performance if they are placed near the windshield of the car. But, an external whip antenna is by far the better choice for mobile SW reception.

Spark Plug and Alternator Noise

It is likely that you will encounter ignition noise during mobile operation. It may appear only while listening to certain parts of the HF spectrum. Eliminating ignition noise is done in the same manner as described in *The Radio Amateur's Handbook* which is published by the ARRL, Inc., 225 Main St., Newington, CT 06111. If you do not own a *Handbook*, you should be able to find a copy at your local library, or perhaps you can borrow a copy from a friend.

In Summary

You may not contemplate operating mobile with your SW receiver. If not, the regulator in Figure 1 is useful for camping trips if you intend to do a lot of SWLing. Certainly, using the car battery will enable you to eliminate the replacement cost of dry batteries. Some portable radios tend to "eat" batteries quickly, especially at high audio volume levels.

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- Comprehensive manual includes step by step instructions, screen displays, and reference information.
- Extends receiver capabilities including autolog recording facilities, 1000 channel capacity per file, and much more.
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Datametrics, Inc

- Computer Aided Scanning system $ 349
- PRO2006 receiver w/interface installed and CAS system $ 749
- Manual and demo disk $15

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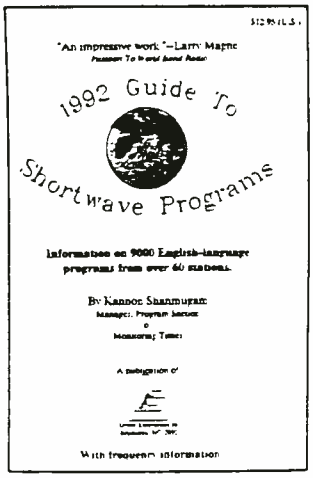
Send check or money order to Datametrics, Inc., 2575 South Bayshore Dr. Suite 8A, Coconut Grove, FL 33133. 30 day return privileges apply.



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Bill Cheek

An All-Purpose S-Meter for any Receiver

Something old, something new: Received Signal Level meters for shortwave, ham and CB radios are as old as the hills. S-meters for scanners and just about any other radios are unheard of. This article presents a powerhouse, versatile S-meter circuit which will work in most any ham, CB, scanner, shortwave, broadcast, pocket, portable or handy-talkie around. Merry Christmas!

First, a little theory on what we're about to do. An S-meter gives a visual indication of the relative strength of incoming RF signals. The receiver develops a special signal from incoming RF signals and processes it for 0-volts at no RF signal to 1-volt or more on extremely strong RF signals. S-metering gives a relative indication of signal strength which is comparable to the scale of miles on a map. The distance between two cities on paper might be a couple of inches, but a scale of miles conveys a relative sense of reality. An S-meter does something similar.

Cost and space limitations prohibit the special S-meter circuitry from being included in scanners, portables, and budget-priced broadcast and shortwave receivers. That special circuitry includes Automatic Gain Control (AGC) which controls the amplification of the receiver's RF and IF circuits to prevent overload and certain kinds of interference. This control signal varies proportionally with the strength of incoming RF signals. When a few extra parts are thrown in, AGC can be metered for a visual indication of RF signal strength; in other words, it becomes an S-meter, a valuable tool for the radio monitoring enthusiast. We can't readily add AGC to receivers that aren't designed with it, but we can use a different method to fit an S-meter into just about any kind of radio ever made, regardless of cost and quality.

The predominant criteria are that the receiver have enough space to install a mini-phone jack or two, and a DX power source of at least +8V to +14V. If the receiver doesn't have 8-14 volts, the circuit can work from an external DC source.

If the receiver is large enough, both the circuit and the meter should be installed completely inside the radio, self-contained. If size or preference are limiting factors, then the circuit can be installed inside the radio with the output signal for the meter routed to a small phone jack at a convenient place on the rear of the receiver. An external meter can be plugged into the phone jack.

If the receiver is too small, then the necessary internal modifications involve only a wire from a signal point to the jack, and another wire from 8-14V DC power to the jack. The circuit and meter can then be accommodated outside the receiver. Versatility and flexibility are keynotes of this new S-meter circuit.

Build the circuit on perfboard, about 1.5 by 1.5 inches. Physical layout is not critical, but follow the general schematic layout of Figure 1. Make the board as small as possible and, unless your receiver is very small, the board should be installed as close to the signal tap as possible, even if the meter will be placed outside the receiver. The reason for this is that the IF signal point has to be tapped for the board and can pick up or radiate noise if the connection is lengthy.

For a hand-held receiver, mount the jack as close to the signal tap as possible and use a very short hookup wire from the signal source to the ring lug of a one-eighth inch stereo jack. DC power should go to the TIP lug of the jack and the radio's ground to the shell of the jack. From the jack on out to the board, use a short length of mini-coax cable such as RG-177 or RG-58 to carry the IF signal to the board. The shield of the coax will be the ground conductor and an insulated wire can be run along with the coax for DX power to the board.

For a base receiver, where the meter is to be external, the board should still be installed in the scanner as close to the signal tap as possible and only two wires need exit the scanner: ground and S-meter signal. Coax is required between the signal tap and the board only if more than a couple of inches separate them.

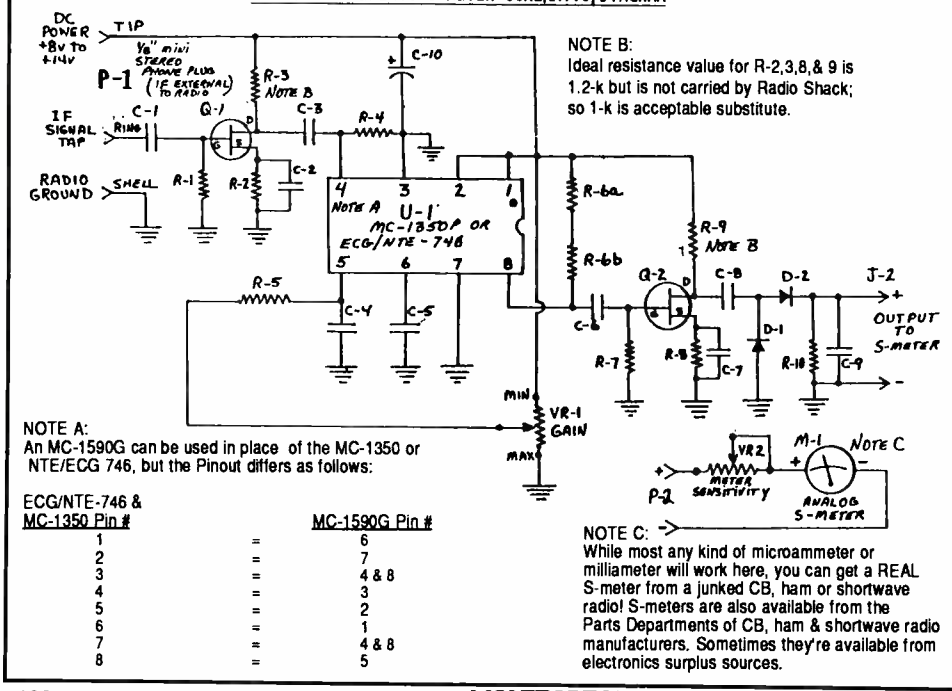
Locating the proper signal tap for the S-meter board can be tricky, but a service manual or at least a schematic diagram for the receiver will help identify the proper pickoff point. As a general rule, the S-meter circuit should tap into the receiver's last IF section before any amplifiers (or limiters) in that section. Most modern receivers have a 455 kHz final IF section, so the proper pickoff point is right after where the first or second IF section is mixed and down-converted to 455 kHz.

The majority of applications for my new S-meter circuit will probably be for VHF-UHF receivers, so the proper signal taps for scanners are given in Figure 3. It's easy to S-meter a scanner, because a certain type of IC chip is used in virtually all scanners, and we can tap that chip for our circuit.

The integrated circuit, the NFM/AM chip, comes in several styles, numbers and pin counts, but its function is the same in all scanners. Check the sidebar for your scanner, next to which is given a circuit symbol, chip number and the essential signal tap pin for the S-meter circuit connection. If your scanner isn't listed, no problem. Only a few chips are used among all scanners, so review the sidebar and scrutinize the innards of your scanner for one of the listed NFM/AM chips.

This NFM/AM chip can be recognized by the presence of a ceramic IF filter connected between its pins 3 and 5 or 4 and 6. An IF filter can be described as a small cube-shaped plastic device

FIGURE 1: GENERIC S-METER SCHEMATIC DIAGRAM



NOTE A:
An MC-1590G can be used in place of the MC-1350 or NTE/ECG 746, but the Pinout differs as follows:

ECG/NTE-746 & MC-1350 Pin #		MC-1590G Pin #
1	=	6
2	=	7
3	=	4 & 8
4	=	3
5	=	2
6	=	1
7	=	4 & 8
8	=	5

NOTE B:
Ideal resistance value for R-2,3,8,& 9 is 1.2-k but is not carried by Radio Shack; so 1-k is acceptable substitute.

NOTE C:
While most any kind of microammeter or milliameter will work here, you can get a REAL S-meter from a junked CB, ham or shortwave radio! S-meters are also available from the Parts Departments of CB, ham & shortwave radio manufacturers. Sometimes they're available from electronics surplus sources.

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of varying colors, often blue, with markings similar to CFU-455 or K F455R. Find the IF filter first and then the chip that it feeds will be the one for which you're looking. The signal tap for the S-meter will be the output pin of this filter, which connects to pin 5 of most NFM/AM chips or pin 6 of virtually all the rest.

It's impossible to give installation instructions for specific scanners and other radios. But if you run into trouble with this project, and if you have the service manual for the radio, I can be available to render written assistance to steer you back on the narrow and righteous path to success. Include an SASE with your request. If I don't have the service manual for your radio, I will ask for a copy of yours.

Explanation and Adjustment of the S-Meter Circuit

C-1 taps a sample of the receiver's low-level final IF signal into Q-1, a JFET which puts a high impedance isolation between the scanner and the S-meter circuit. Q-1 drives U-1, a high-gain integrated RF/IF amplifier. VR-1 sets the gain of U-1, a high gain integrated RF/IF amplifier. VR-1 sets the gain of U-1.

The highly amplified signal is fed from U-1, pin 8 to Q-2, which isolates the output circuit and meter from U-1. D-1, D-2, R-10 and C-9 rectify and filter the amplified IF into a DC signal to drive an S-meter for relative indications of incoming RF signals. The DC output signal can be fed to an LED S-meter for the same results.

Depending on the block gain set by VR-1, the DC output from D-2 will be about 0-volts when no signals come in and can be as high as 5 volts+ when extremely strong signals are received. VR-1 must be set so that the DC output from D-2 with no RF signal coming in is less than 0.2 volts, or so that the S-meter reads nearly zero.

Then tune the receiver to a very strong signal. A nearby handy-talkie, cordless telephone, ham or CB radio can be used to generate this strong signal, if needed. Adjust VR-2 so that the S-meter reads just at its maximum point—no more, no less.

This S-meter probably will not function in the wideband (WFM) mode if your receiver is so equipped, but NFM and AM will always work great.

There could be other uses for this circuit besides S-metering. The chip and the circuit are extremely versatile, so use your imagination.

Figure 2: Generic S-meter parts list

Symbol	Description	Radio Shack #
C1-9	Capacitor, 0.1 uF	272-109
C10	Capacitor, 22-uF/16v	272-1437
J1	1/8" stereo phone jack, mini	274-249, 274-333
J2	RCA phono jack	274-346
P1	1/8" stereo phone plug, mini	274-284, 274 1547
P2	RCA phono plug	274-319, 274-451
R1, 7	Resistor, 1-Meg @ .25-watt	271-1356
R2,3,8,9	Resistor, 1.2-k @ .25-watt	n/a
R4	Resistor, 2.2-k @ .25-watt\	271-1325
R5	Resistor, 4.7-k @ .25-watt	271-1330
R6a(1)	Resistor, 1-k @ .25-watt	271-1321
R6b(1)	Resistor, 330-ohm @ .25-watt	271-1315
R10	Resistor, 47-k @ .25-watt	271-1342
D1, 2	Diode, germanium: 1N34A	276-1123
VR1	Variable resistor, trimmer, 10-k	272-282
U1(2)	IC: MC-1350P or ECG/NTE-746	n/a
Q1, 2	JFET, N-channel, MPF-102	276-2062
VR-2	Variable resistor, trimmer, 10-k	272-282
M-1	Analog S-meter, salvaged from junked CB radio or purchased from repair parts department of various radio manufacturers.	
Misc	Hookup wire, solder, mounting hdwe.	Various
Misc	Jacks or connectors to connect external S-meter to scanner, stereo phone jack required for handheld scanners.	Various
Notes:	(1) R-6 should be 1.3-k, but R/S doesn't carry it. (2) U-1 can also be an MC-1590G, but the pinout differs from the MC-1350P. See Figure1.	

Figure 3: Signal Taps

Scanner	NFM/AM Chip Ckt SYM	NFM/AM Chip type	Signal Tap Pin #
PRO-2006	IC-2	TK-10420	5
PRO-2005	IC-2	TK-10420	5
PRO-2004	IC-2	TK-10420	5
PRO-2003	IC-104	MC-3357P	5
PRO-2002	IC-101	MC-3357P	5
PRO-2024	IC-2	MC-3361N	5
PRO-2022	IC-1	MC-3361N	5
PRO-2021	IC-2	TK-10420	5
PRO-2020	IC-101	MC-3357P	5
PRO-2011	IC-1	TK-10420	5
PRO-35	IC-401	TK-10421M-2	6
PRO-34	IC-101	TK-10420	5
PRO-32	IC-101	TK-10420	5
PRO-31	IC-1	TK-10420	5
AR-800	IC-200	MC-3361N	5
AR-900	IC-201	MC-3361N	5
AR-950	IC-201	MC-3361N	5
AR-1000	IC-4	TA-7787AF	13
AR-2002	IC-4	MC-3357P	5
BC-100XL	IC-1	MC-3359P	5
BC-100XLT	IC-401	TK-10421M-2	6
BC-200/205	IC-401	TK-10421M-2	6
BC-250	IC-3	?	5
BC-400/560	IC-1	NJM-3359D-A	5
BC-760/950	IC-2	NJM-3359D-A	5
BC-800XLT	IC-1	MC-3359P	5
BC-855XLT	IC-401	TK-10421M-2	6
TurboScan 2	U-201	3130-6056-502	5
HX-1000	U-201	TK-10420	5
MX-7000	IC-4	MC-3357P	5
MX-5000	IC-4	MC-3357P	5
SR-15	IC-1	TK-10421D-2	5

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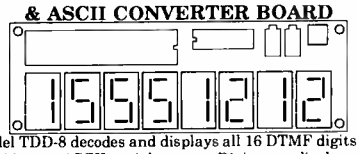

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W. Clem Small, KR6A, CET

Feeding Your Receiver a Line

For the radio monitoring enthusiast, the antenna is an interface with the world. To maximize the fun which comes to us through that interface, we usually try to get the best antenna we feel the situation and our pocketbooks warrant. Getting a good antenna and putting it into the air is one thing: getting the signal from that antenna on down to the receiver is another. This month we'll discuss how to get that signal where you want it without losing any more of the signal than is necessary and without adding any unnecessary noise.

As you will see, the basic concepts involved are few and relatively simple, but if we ignore them we may find that a good antenna performs poorly due to excess signal loss and/or unnecessary noise interference in some situations.

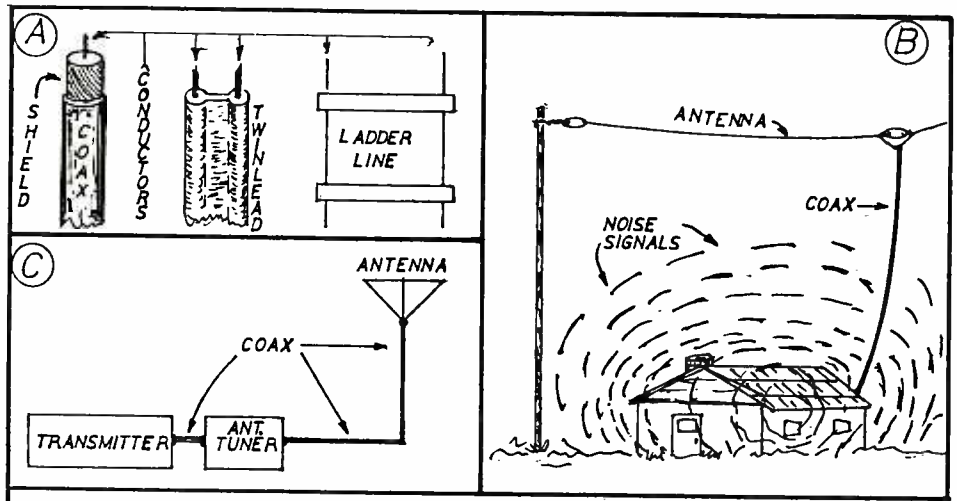

FIG.1. COMMON FEEDLINE TYPES (A), GETTING THE ANTENNA OUT OF THE NOISE(B), TUNER HOOK-UP (C).

Born to Lose?

A major factor in feedline performance is the degree of loss which a signal will undergo in traversing the line. If you must run your feeder for a long run between antenna and receiver, then you will have more feedline loss: a very short run of feedline will have relatively low loss. But what constitutes a long or short run is subjective. Sixty to 100 feet or more might be considered a long run on the HF bands (3-30 MHz). For the VHF or UHF bands a run of 20 to 40 feet can be considered long, especially at UHF.

If you are concerned about feedline loss, as you might be in monitoring very weak signals, the lowest-loss choice is generally a decent grade of twinlead (Figure 1). Or, better yet, its big brother, ladder-line, an open-wire two-conductor feeder. But even though it may be the lowest loss line available to you, twinlead may still not be your best choice due to other factors. For instance, twinlead may not work at all well if it must be run through a metal duct, underground, or too close to a metal building or roof.

Coaxial cable (Figure 1A) is not affected by such environmental factors as nearby metal objects or being run through a metal duct. It can even be run underground or under water and still function perfectly if its outer waterproof jacket is intact. So for many long lines you may want to use a very good grade of foam coax to reduce the amount of signal loss.

What Noise Annoys a Monitor?

Have you ever been monitoring some interesting DX station and noticed a loud burst of interference which seemed to happen just when an automobile or truck would drive by? Such interference is caused by sparks in the ignition system of the auto or truck. This kind of electrical noise is just one example of the sort of electrical noise that can interfere with our monitoring pleasure and success.

Unfortunately electrical noise abounds in many homes or monitoring locations due to sparking from the operation of electrical motors, appliances with relays, various kinds of lighting, certain kinds of solid-state circuitry, and other electrical devices. In other words, we live immersed in a veritable cloud of waves which can cause electrical radio interference. And, more to the point, our radio receivers live in this cloud also (see Figure 1B).

Luckily both of the commonly used antenna feedlines are resistant to some degree to this interference: coaxial cable being a great deal more resistant to it than twinlead. Thus, if we put our antenna away from the noise sources, somewhere outside the house, like on the roof, it will often pick up less noise than if it were in the house. And if we then feed the signals from the antenna to the receiver through coaxial cable, the coaxial feedline will pick up very little of the electrical noise which is generated in your house, even though the feedline passes through the area of strong noise in the house.

In this way we can often reduce noise levels at the receiver, as compared to just running a long wire — which essentially acts as an extension of the antenna — from the antenna, through the house and its noise field to the receiver.

The Perfect Match

If you are interested only in radio reception, not in transmitting, you can ignore this "perfect match" section. But if, in addition to your monitoring interests, you are a ham or a CB operator, you will be concerned with the amount of signal which traverses the feedline from your transmitter to the antenna.

When your transmitter produces a signal, this signal must get from the transmitter onto the feedline, and then after traversing the feedline it must get off the feedline and onto your antenna. In this case, you will want to make sure that your feedline "matches" both your transmitter and your antenna. Luckily we can do this fairly easily by getting a feedline with the same impedance as our antenna. For example, a halfwave dipole is 75 ohms impedance which matches 75 ohm coaxial cable or 75 ohm twinlead. Then, a so-called "antenna tuner" between the transmitter and the feedline (Figure 1C), actually "matches" the whole antenna system, i.e. antenna-plus-feedline to your transmitter's output.

But, if you are interested only in monitoring, you can usually forget the matching problem because reception limits are generally determined by how high the signal is above the noise that accompanies that signal, not on how well the antenna system is matched. Most often the quality of the coax is more important than the impedance, and 50, 75, or 92 ohm coax all often work essentially the same with an antenna in a receiving situation.

In a receive-only situation, an antenna tuner may seem to help, because you can tune it and hear the signals peak. However, without the tuner in the feedline, it is likely that the signals would be just as readable across the band with no peaking needed. In low-noise situations, an antenna tuner may occasionally help on very weak signals.

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And So

So the things the monitoring enthusiast should especially remember about feedlines are:

1. If you are working very weak signals or using long runs of feedline, use a low-loss feedline such as twinlead or low-loss foam coaxial cable.

2. If you are bothered by locally generated noise, you may be able to get far enough away from it by moving your antenna farther away or higher and then using a coaxial cable to get the signal safely through the cloud of noise waves around your monitoring post.

3. If your feedline must run through regions likely to degrade a radio signal through a metal conduit, very close to a metal wall, through a damp environment, or underground, then coax is your best choice.

4. If you are concerned with transmitting from your antenna, then become familiar with the basics of matching antennas and feedlines, and of matching your transmitter to your antenna system.

RADIO RIDDLES

Last Month's:

Last month I asked: "What led Hertz to look for radio waves and thus develop the world's first transmitter, receiver and antenna?"

Well, the waves which Hertz found had been predicted through a mathematical treatment of known physical data on electrical and magnetic phenomena. Using this theoretical base, Hertz produced electromagnetic waves with a spark-coil and spark-gap. The rods which held the spark gap actually acted as antennas. He used other similar rods as a receiving antenna, and a minute sparkgap as a receiver (detector).

This work by Maxwell and Hertz laid the foundations for wireless and radio theory and is still vitally important today to physicists and engineers concerned with electromagnetic waves.

This Month's:

Can you tell me just what is "short" about a shortwave or "long" about a longwave?

Well, that's it for now. Get the answer to this month's radio riddle and much more in the next issue of Monitoring Times. Till then, Peace, DX, and 73.

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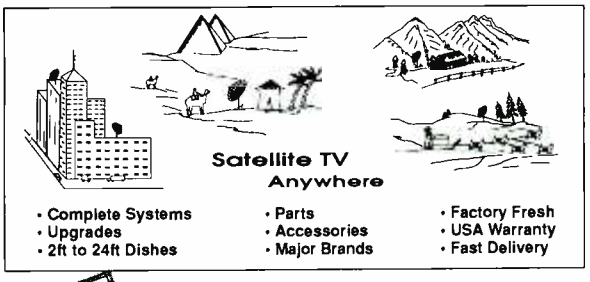

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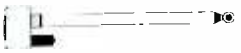

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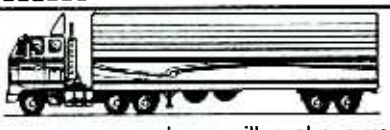

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Q. How can I add an alert tone to my CB radio so that I can know when I am receiving a call without having the radio turned on all the time? (Ricardo Moliner, Fort Lee, NJ)

A. While this may seem simple at first, there are a number of details you probably haven't thought of. The transmitting station that you are listening for would have to send a coded signal (tone or digital burst) that your receiver is equipped to detect.

Your receiver would have to be equipped with a digital or analog decoder which would sense that signal, then deliver a pulse to an audio oscillator which would be connected to your radio's amplifier and speaker.

Such equipment could be added externally; the encoder would go on the microphone cable and the decoder could be on an accessory speaker. I am unaware of such aftermarket accessories for CB radios.

Professional two-way radios use tone- (or digitally-) encoded squelch which allows your receiver to remain quiet until the appropriate signal is heard, thus tripping the squelch. This avoids the unnecessary extra step having to manually switch the radio on after you hear the tone.

Q. Are modern TV sets more or less sensitive than older sets? (William Bovard, Grove City, PA)

A. Good question. For the answer, I called a long-time TV service technician who claims that there has been a substantial improvement in weak-signal sensitivity on newer sets, and that old sets had a tendency to be considerably noisier. We'll defer to his judgment!

Q. Can an Optoelectronics frequency counter be connected to an attic scanner antenna so that I can tell if anyone wearing a body bug enters the premises? (John Tillman, Lexington, KY)

A. Possibly. A frequency counter will respond to any radio frequency signals strong enough to trigger its input circuitry. If that is random noise from a fluorescent light fixture, or a 50,000 watt TV transmitter down the road, it will cause the display to read.

If there are sources of strong radio frequency interference near the antenna, whether it's on the frequency counter or remotely located in the attic, you will probably see that rather than a low-powered body transmitter 30-40 feet away.

If you are out in the country with no sources of RF interference around, it may work fine. Try it with a low-cost wireless microphone or cordless telephone; if that works, chances are you will see the bug frequency at the same distance.

Q. Adding a coax-fed dipole to my Sony ICF2010 portable shortwave receiver results in a bad mismatch because the external antenna jack was designed for a random wire which is high impedance. What to do? (Jim Hossack, Redmond, WA)

Which is appropriate for shortwave receivers, an antenna tuner or preselector? (Robert Stone, NY, NY)

A. Impedance mismatch is rarely a problem for modern, sensitive shortwave receivers. True, the signal may seem slightly weaker than it should, but so will the background noise. Assuming you have at least 25-75 feet of antenna length connected the radio, slightly increasing the volume will accomplish the same thing as matching the impedance.

A frequency preselector, on the other hand, narrows the spectrum of incoming signals to a sharp swath centered on your frequency of interest; this may dramatically reduce intermodulation (intermod) and image response from strong, off-frequency signals.

Q. How important is height for a scanner antenna? (William Bovard, Grove City, PA)

A. Scanner-band signals travel pretty much line of sight; thus, the higher the antenna, the more distant that antenna can "see." But once the antenna is high enough to clear nearby obstacles, its height would have to be doubled or even quadrupled to provide noticeable improvement.

Q. Why don't scanner manufacturers include a battery test button so that the user knows how much time is left? (Ken Greenberg, Skokie, IL)

A. The additional cost, space requirements, and the fact that NiCd batteries won't show a linear voltage change with discharge time makes such a provision impractical.

Q. I recently tuned in a RTTY station, but all it was sending was a string of RYs. How long do they send these before they identify? (John Jager, Whitby, Ont.)

A. Indefinitely. RY was chosen initially because it "exercised" every significant bit of the five-level Baudot code, forcing all the parts in the old mechanical teleprinters to respond. It survivies in today's electronic environment just because there's no reason to change.

Transmissions of this type are used for a variety of purposes including testing the transmitting and receiving equipment, determining the propagation path at that frequency and time, and holding the frequency open so that no one else uses it.

Q. Is there any advantage to putting a second preamplifier in line with one already there? (William Bovard, Grove City, PA)

A. No. The added gain is likely to overload the receiver or second preamplifier, producing interference products. The primary purpose of a preamp is to use a very-low-noise transistor to provide better signal-to-noise ratio for weak signal reception. Added gain is of minimal benefit.

Q. What type of antenna is best suited for tropical band DXing? (Louis Metzman, Cupertino, CA)

A. The tropical broadcast band, 3200-3400 kHz, is best heard with an elevated dipole (the higher the better) approximately 142 feet in length and fed at the center with coaxial cable.

To determine the proper orientation of the wire, acquire a world globe and stretch a thread between the center of interest and your location. The antenna wire should be strung at right angles to this thread for best reception (so that the signal arrives broadside to the wire, not off the ends).

In other words, an antenna wire strung north to south hears best from east and west, from signals arriving perpendicular to the wire's axis.

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***Q.** How can I determine whether there is too much metal nearby to successfully install a shortwave listening antenna in my attic? I will soon be installing a full-house attic fan; will its metallic mass interfere? (Lorie Call, Santa Clara, CA)*

A. The area of a large metallic mass, the length of a thin conductor, and their relative separation are all considerations for avoiding a nearby metal obstacle.

Ideally, any sizable (or long and parallel) conductor should be at least 1/2 wavelength away from the antenna at the lowest frequency of interest. At shortwave frequencies, this is impossible in an attic since we are talking about 50-150 feet!

Fortunately, the fan represents only a few square feet of area, and its cross-sectional length is short; it will have very little influence on a nearby wire dipole at shortwave frequencies. House wiring, ducting, plumbing and electrical wiring will have far more effect.

Any indoor antenna is always a compromise; only an actual test will reveal the degree of its success. If, after you listen for a few evenings, you suffer from massive electrical noise, or signals of interest are always very weak, you will know that you will have to select another antenna configuration.

***Q.** Can I increase signal strengths on my Sony AN-1 active antenna (or my portable radio) by using a longer whip? (Daryl Young, Jr., Natchez, MS)*

A. Yes, up to a degree. Sony has optimized the length of the whip on their AN-1 to avoid overload problems that a longer whip would cause. The longer the antenna, the more intermodulation ("intermod") you will experience; this sounds like a constant din or blend of background radio signals that really shouldn't be where you are tuning.

The same holds true for portable shortwave radios; adding some wire to their whips will increase reception, but strong-signal overload problems are usually attendant, spoiling reception. Experiment with a few additional feet of wire and select a happy medium for your installation.

***Q.** Are there any frequency extension or memory upgrades available for the Realistic PRO-2011 scanner? (Kenneth Koerper, Ironton, OH)*

A. No.

***Q.** If possession or use of a descrambler is now illegal under the ECPA, how can anyone even own a scrambled system for his own use which, by its very nature, must contain a descrambler? (John Opp, Pierre, SD)*

A. The prohibition against manufacture, sales, possession or use of a descrambler must be considered in the context of the wording of the Electronic Communications Privacy Act.

You are forbidden from descrambling any transmission to which you are not entitled to listen.

Bob's Tip of the Month

Memory Lockup on the AR1000

There are several things we learn not to do: Don't spit into the wind, don't poke your finger into a fan and don't clear memory channels in the AR1000!

Fred Wolf, N3CL, assures us from first-hand experience that sequentially pressing CLEAR, ENTER on several successive channels guarantees a trip to the factory to reset the microprocessor after it locks up.

The CLEAR button is intended to delete an erroneous key press before it is entered, not to remove a memorized frequency which confounds the microprocessor.

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Club Circuit

Welcome to the first edition of the **Club Circuit**. Each month on this page you will find listings of all kinds of radio clubs with interests from DC to Daylight. Some are organized around a geographic region; others are devoted to a specific facet of listening.

We encourage you to get involved, preferably with a group that periodically meets together face to face. If there's no group in your region, why not help start one? We'll print (one time only) your name and address as a contact person in hopes that other *MT* readers in your area will contact you if they are interested in such a venture.

Who can get on the list and how? The column is open to all radio listener clubs, regardless of affiliation. Thanks go to the clubs below who responded to our initial mailing. Our main intent, though, is to list local chapters and small independent clubs. The only way we'll hear about such clubs is for someone to write us. Request a listing form for the Club Circuit, fill it out and return it, and that's all there is to do.

What do you get in return? Free advertising to thousands of readers and one free *MT* subscription to the club — you can't beat that for the price of two stamps! Overseas clubs will also be eligible for the MT subscription if they will pay the postage costs.

More information on clubs may be forthcoming if you write the following umbrella organizations: ANARC, The Association of North American Radio Clubs (79 Kipps Street, Greenfield Park, Quebec, J4V 3B1, Canada); EDXC, The European DX Council (P.O. Box 4, St. Ives, Huntingdon, Cambs., PE17 4FE, UK); SPARC, South Pacific Association of Radio Clubs (c/o NZ Radio DX League, P.O. Box 1313, Invercargill, New Zealand).

Club Name: **All Ohio Scanner Club**
Contact: Dave Marshall
Club Address: 50 Villa Road
Springfield, OH 45503-1036
Region: Ohio and surrounding states
Interests: VHF/UHF and some HF and amateur coverage
Publication: American Scannergram

Club Name: **American Shortwave Listener's Club (ASWLC)**
Contact: Stewart MacKenzie, WDX6AA
Club Address: 16182 Ballad Lane
Huntington Beach, CA 92649
Phone: (714) 846-1685
Region: Western US, Pacific, Asia, & Middle East
Interests: SWBC
Publication: SWL

Club Name: **Association of Clandestine Enthusiasts (A.C.E.)**
Contact: Kirk Baxter
Club Address: P.O. Box 11201
Shawnee Mission, KS 66207
Region: US, some Europe and Middle East
Interests: Pirate and clandestine
Publication: The A.C.E.

Club Name: **Association of DX Reporters (ADXR)**
Contact: Reuben Dagold
Club Address: 7008 Plymouth Rd.
Baltimore, MD 21208
Region: International
Interests: Utilities, ham band, QSLing, MW, LW, and SWBC
Publication: DX Reporter

Club Name: **Association of Manitoba DX'ers (AMANDX)**
Contact: Shawn Axelrod
Club Address: 30 Becontree Bay
Winnipeg, Manitoba, R2N 2X9
Canada
Phone: (204) 253-8644
Region: Manitoba
Interests: LW, MW, SW, and VHF/UHF

Club Name: **Bay Area Scanner Enthusiasts**
Contact: Herman Frisch
Club Address: 1465 Portobelo Drive
San Jose, CA 95118
Region: San Francisco Bay area
Interests: 30+ MHz
Publication: Listening Post

Club Name: **Cincinnati Area Monitoring Exchange (MONIX)**
Contact: John Vodenik
Phone: (513) 398-5968
Region: SE Indiana, Kentucky, SW Ohio
Interests: SWBC, utility, military, satellites, scanning, BCB

Club Name: **Drake SPR-4 International Club**
Contact: Rick Sitz
Club Address: 5210 14th St. West, #11
Bradenton, FL 34207
Region: International
Interests: Information specific to Drake SPR-4 radio

Club Name: **Michigan Area Radio Enthusiasts**
Contact: Bob Walker
Club Address: P.O. Box 311
Wixom, MI 48393
Region: Michigan & surrounding
Interests: All bands
Publication: Great Lakes Monitor

Club Name: **Monitor Communications Group**
Contact: Louis Campagna, Operations Mgr.
Club Address: 8001 Castor Avenue, #143
Philadelphia, PA 19152-2701
Region: 35 mile radius of Philadelphia
Interests: Various types of communications

Club Name: **National Radio Club**
Contact: Mike Knitter, General Mgr.
Club Address: P.O. Box 24
Cambridge, WI 53523-0024
Phone: (608) 423-4159
Region: Worldwide
Interests: AM/FM
Publications: NRC Publications, P.O. Box 164, Mannsville, NY 13661

Club Name: **North American Shortwave Association (NASWA)**
Contact: Bob Brown, Executive Director
Club Address: 45 Wildflower Lane
Levittown, PA 19057
Region: Worldwide
Interests: Shortwave broadcast only
Publication: The Journal

Club Name: **Northeast Scanner Club**
Contact: Les Mattson
Club Address: P.O. Box 62
Gibbstown, NJ 08027
Phone: (609) 423-1603 evenings
Region: Maine thru Virginia
Interests: UHF/VHF, public safety, aircraft, military
Publication: Northeast Scanning News (NESN)

Club Name: **Ontario DX Association**
Contact: Harold Sellers, General Mgr.
Club Address: P.O. Box 161, Station A
Willowdale, Ontario M2N 5S8
Canada
Phone: (416) 853-3169 voice & fax
(416) 299-6392 DX-Change information svce.
Region: Predominantly Providence of Ontario
Interests: SWBC, utility, MW, FM-TV, scanning, technical, propagation
Publication: DX Ontario

Club Name: **Pakistan SW Listeners Clubs Association**
Contact: Javaid Iqbal
Club Address: P.O. Box 5
Sheikhupura, 39350, Pakistan
Region: Pakistan
Interests: SWBC

Club Name: **Regional Communications Network (RCN)**
Contact: Bill Morris, Public Info. Officer
Club Address: Box 83-M
Carlstadt, NJ 07072-0083
Region: 50 mile radius of mid-town New York City
Interests: HF, VHF, UHF, 800 MHz, utilities, and broadcast

Club Name: **Rocky Mountain Radio Listeners**
Contact: Wayne Heinen
Club Address: 4131 S. Andes Way
Aurora, CO 80013-3831
Region: Denver metropolitan area
Interests: All bands

Club Name: **Southern California Area DXers (S.C.A.D.S.)**
Contact: Don R. Schmidt
Club Address: 3809 Rose Avenue
Long Beach, CA 90807-4334
Phone: (310) 424-4634
Region: California area
Interests: AM, FM, TV, scanner and shortwave broadcasting

Club Name: **SPEEDX (Society to Preserve the Engrossing Enjoyment of DXing)**
Contact: Bob Thunberg, Business Mgr.
Club Address: P.O. Box 196
DuBois, PA 15801-0196
Region: Worldwide
Interests: SWBC, utilities
Publication: SPEEDX-monthly newsletter

Club Name: **Toledo Area Radio Enthusiasts**
Contact: Ernie Dellinger, N8PFA
Club Address: 6629 Sue Lane
Maumee, OH 43537
Phone: (419) 865-4284
Region: NW Ohio and SE Michigan
Interests: Shortwave, scanning, amateur

Let's Start A Club:

Wisconsin area: contact Ken Bitter, c/o A.J. Communications, W. 17912 Pearl Dr., Muskego, WI 53150-9608.

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Letters
continued from p. 4

monitor who is interested in pirate radio stations. He's never heard a pirate, but he'd like to. The problem is, he is blind, so reading lists of frequencies is not possible. He asks if anyone could send him some pointers on cassette; some active pirate frequencies, and maybe a tape of what to listen for. Call him at 218-729-7752 if you can help or send a cassette to P.O. Box 68, Saginaw, MI 55779. I think shortwave is his band of interest, but call to be sure.

Thanks for the letters, news, thoughts, and opinions. The past year has been a good one for *Monitoring Times*, and our readers are the reason. We're pleased to announce a new page for club listings in the back, next to the Special Events Calendar, and next month we inaugurate a column on Computers and Radio.

There's no resting on our laurels, however. More than ever, each one of us needs to stay alert to events in the changing world around us. The balance between the public good vs. the right of the individual is always a shaky one, at best, but every time the world starts to change, we teeter back and forth all over again. Our fight for the right to listen may only seem a small matter to some. It is not. Important issues lie behind it — so write your congressman.

Until next year, here's wishing you a happy holiday and the very best of monitoring times.

Rachel Baughn,
Editor

We'd like to hear your comments, opinions, and experiences concerning the world of radio. Please understand that personal replies are not always possible.

Letters should be addressed to: ***Letters to the Editor,*** *Monitoring Times, P.O. Box 98, Brasstown, NC 28902-0098.*

SPECIAL EVENT CALENDAR

Date	Location	Club/Contact Person
Dec 1	**Pasadena, CA**	Toys for Tots Ham Rally/Bruce Nolte, N6TFS PO Box 41446, Los Angeles, CA 90041, (213)257-5502. Location: Rose Bowl Parking Lot #1. Admission: 1 toy valued at $5 or more. Talk -in on 145.180.
Jan 18	**Hammond, LA**	SE Louisiana Amateur Radio Club/Ernest Bush, N5NIB 331 Rock Road, Hammond, LA 70403, (504) 567-1261 or (504) 542-0034 Location: SLU University Center, 9-4, free admission.
Jan 18	**Marathon, NY**	Skyline Amateur Radio Club Winterfest '92/Rick A. DuBrava P.O. Box 5241, Cortland, NY 13045. Location: Civic Center starting at 7:00 a.m. Talk-in on 147.225.825.
Jan 18	**Monterey, CA**	NPSARC Winterfest '92/Doug McKinney, KC3RL 9 Glenn Ave., Prunedale, CA 93907, (408) 663-6117. Location: Monterey Peninsula College Armory
Jan 18	**Cameron, MO**	Greenhills & Ray Clay ARC's/G.E. Miller, WA0/ZOG 15816 Oakmont Pl., Kearney, MO 64060
Jan 18	**Ft. Myers, FL**	Ft. Myers ARC/Earl Spencer, K4FQU 1735 Hanson St., Ft., Myers, FL 33901
Jan 19	**Yonkers, NY**	Metro 70cm Network/Otto Supliski, WB2SLQ 53 Hayward St., Yonkers, NY 10704

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from our MT family to yours!

And to all a peaceful and prosperous New Year!

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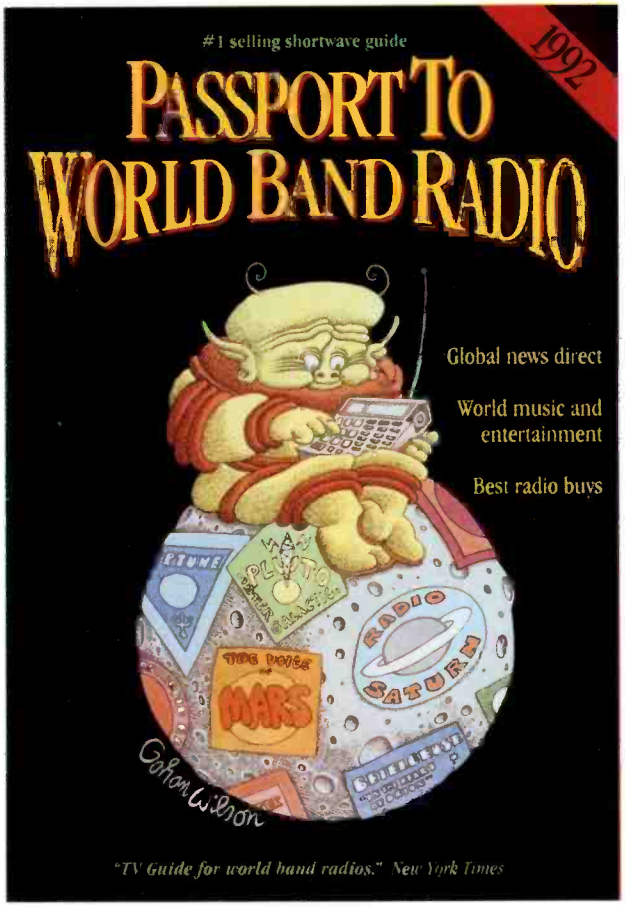

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