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MONITORING TIMES

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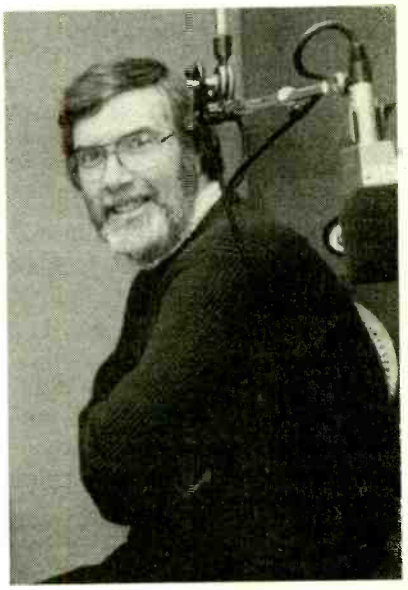
MONITORING TIMES

September 1990



Ian McFarland: Shortwave's Favorite Canadian *by Wojtek Gwiazda* 6

Radio Canada International's personable Ian McFarland is probably the country's best known ambassador to shortwave listeners. His easy-going approach is deceptive, however; it took determination to advance from his start as a radio technician to the host and producer of Shortwave Listeners' Digest.

Fellow announcer Wojtek Gwiazda brings us some highlights from the career of this popular *MT* Convention speaker.

African Hopscotch *by Charles Sorrell* 8

Why do so many DXers and magazine articles focus on Africa as their favorite target? Perhaps it's because in addition to its exoticism and mystique, it's "do-able." So join in as Charles Sorrell does a little country-hopping through the continent of Africa.

R. Botswana QSL, Tim Johnson

A History of Police Communications *by Brian Johnson* 14

Police work used to be quite different before the advent of radio communications. Although focusing on San Diego, this historical sketch could be the story of Anytown, USA, and how it progressed from "radio cops" to a modern municipal switchboard, dispatchers and "911" emergency operators.

Flight Over Manhattan *by Michael Sturm* 18

Manhattan from the air -- It was just a dream lived out through years of monitoring aero comms, until finally, Michael Sturm achieved his own license: Private Pilot, Rotorcraft-Helicopter. Tag along as he flies you through the many radio contacts required for a flight over Manhattan.

ON THE COVER: Ian McFarland of Radio Canada International (Courtesy of RCI)

Wrong Place, Wrong Time 23

A word to the wise from Robert McGowan who almost had to learn the hard way ...

And more ...

This month is your last chance to register for the *Monitoring Times* Convention. If you're still undecided about attending, check out the latest information on pages 12 and 13. On the other hand, if you've already registered, but you're a little nervous -- you've never been to a radio convention before -- turn to page 38 for Uncle Skip's advice on how to get the most out of your experience.

Rod Pearson checks out some of the federal monitoring to be heard in the great vacation state of California (page 40) in between his fixation on string bikinis ... And speaking of beaches, James Hay takes you to Australia to the maritime coastal stations (page 42).

Reviews this month include a double-life battery pack for the BC200XLT from MetroWest (page 37), the new ICOM IC-R1 scanning receiver (reviewed by an English subscriber who was able to buy one on the European market - page 88), and a highly-advertised but low-end shortwave receiver (page 86).

In the mood for a project? We've got several -- A tuning scope for RTTY applications (page 47), heat sinks that anyone can make (page 92), or using a tree as an antenna (page 96). How's that for variety?!

What do station WWCR and a well-known pirate broadcaster have in common? Turn to page 52 for a hot radio news flash.

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LETTERS

J. R. Mielke of Plano, Texas, was upset with a letter we ran in the June 1990 issue from a reader who criticized the idea of a no-code ham license. On page 100 of that issue, reader Harrison Leon Church said that "the only function to be served by taking codeless licensing under the amateur umbrella is to promote no-achievers to a position of unearned and undeserved honor..."

"I find the letter extremely offensive," says Mr. Mielke. "I can 'read' code fine but due to a high fever at age 3, I can not send code, or dribble a basketball, etc., even though I am not handicapped in the usual meaning of the word. I passed the general ham test for theory and copying code at the age of 19 but could never send acceptably due to my problem with rhythmic actions -- though I spent hundreds of hours trying.

"I think," continues Mr. Mielke, "that you and the reader in question are both disgustingly offensive and insensitive."

First, you should know that the FCC is now processing waivers of the code requirement for certain classes of handicaps. And while we have been told that official policy has not yet been formulated, we know of at least two waiver requests that have already been processed. You should contact the FCC in order to keep up on the latest information. We will attempt to keep you advised as well.

Second, we want to point out, as we are often forced to do, that printing a reader's comment does not necessarily indicate our endorsement of his or her point of view. We work hard to print a wide variety of reader comments -- both good and bad -- but always within the bounds of good taste.

Finally, we must defend Mr. Church. Although his letter was strongly worded, it was no more so than the dozens of others we received on the subject from other hams. Although we don't personally agree with Mr. Church, frankly, we honestly don't feel that his comments were directed towards anyone who put out a serious effort at learning code.

Remember the letter from the Finnish reader last month who complained that he had written to Igor Sannikov and gotten no response? Sannikov was allegedly a DXer who, back in 1988 when the thawing of the Cold War was but a rumor, risked all to write the first article in the Western press on DXing in Russia for *Monitoring Times*. Some time later, Sannikov wrote a similar article for our good friends over at *Popular Communications*.

Well, apparently Sannikov ignored *PopCom* readers just as he did *Monitoring Times* readers who wrote to him. In their most recent issue, *PopCom* reprints a letter from Sannikov, who apologizes for not having the time to respond to everyone who wrote.

On the other side of the friendliness fence is Helena Apkhadre, editor of the Foreign Department of Radio Tbilisi, who writes to *Monitoring Times* from Soviet Georgia. In a handwritten letter she invites *MT* readers to send in reception reports of her station. "Please," she says, "sent [sic] us the information about the listening to Tbilisi Radio. We'll confirm them with a QSL.

"Our frequency: 5040, 5930, 4875, 189 kHz. The time is: 1st programme, 6:00-24:00 Moscow time [0300-2100 UTC]; 2nd programme, 8:50-23:30 [0550-1830 UTC].

"The address is Tbilisi Radio, 68 Lenin Str., Tbilisi, 380015, Georgia, USSR.

"With kind wishes, Helena Apkhadre."

This is quite a change for Tbilisi Radio which has been, over the years, a notoriously poor verifier. We do have a couple of questions about the schedule Ms. Apkhadre offers since it seems to indicate that both the 1st and 2nd program run simultaneously on the same frequencies. So far we've been unable to sort it out through monitoring.

The promise of a Radio Tbilisi QSL reminded us of the cartoon, "Sparky," which appears in *DX News*, the magazine of the National Radio Club (2840 S.E. Illinois Ave., Topeka, Kansas 66605-1427). We always get a chuckle out of "Sparky," but this one -- of QSLing fever unabated -- we really enjoyed. We reprint it by permission.

More numbers station information, this time from an East German

[Please turn to page 100]

COMMUNICATIONS

TV Orgy: Part I

For anyone who fears the decline of culture and solid moral values in the United States, this is a bad time of the year. It's the time when the A.C. Nielsen Co. releases the latest survey information on the state of TV viewing in the United States. Sit down, haters of the one-eyed monster. The news is not good.

Of the 92.1 million homes in the U.S. that have TVs, 98 percent are color. Sixty-five percent of the homes have at least two TVs, 68 percent have a VCR. Thanks to cable, the average home gets 30.5 different channels.

The typical TV set in a typical home is in use for 7 hours and 2 minutes a day. That's up three minutes from last year.

The most slavishly devoted TV viewers are women age 55 and older. They've got the tube on for an average of 41 hours a week.

The two most popular shows on TV are "Roseanne" and "Cosby."

As the Boston *Herald*'s Bob Wisehart put it, "Nielsen's compilation of facts and factoids always makes a satisfying wallow..." Forget "satisfying. Try "depressing."

TV Orgy: Part II

Stating that there are children in the radio and TV audience 24 hours a day, the U.S. Federal Communications Commission has reiterated its request for a total ban on "indecent" broadcast programming to protect children under 18 years of age.

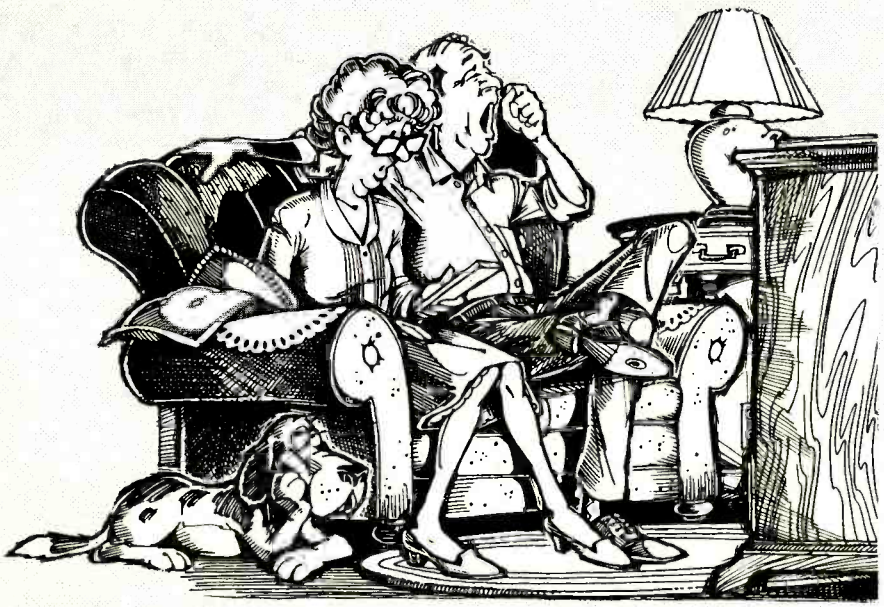
The Commission voted 5-0 to report its conclusions to the U.S. Court of Appeals for the District of Columbia, which is considering a 24-hour ban that the FCC imposed under orders from Congress in 1988. The FCC report could play a major role in how the appeals court -- and inevitably, the Supreme Court -- decides the issue.

Current regulations ban obscene material from the air at all times and indecent material from about 6:00 a.m. to 8:00 p.m. local time.

TV Orgy: Part III

The head of Soviet TV and radio says that he now fears an "Orgy of Democracy" now that Mikhail Gorbachev has loosened state control over the government broadcast monopoly. Mikhail F. Nenashev, the chief of Gostelradio and a Communist Party traditionalist, said in an interview on Soviet TV that the decree issued by Gorbachev will make "managing television...much more complex than in the past."

Gorbachev's "Presidential Decree on Democratization of Television and Radio" is designed to cut back on the Communist Party's monopoly on the airwaves.



Who watches, how much do they watch, what do they watch, and who decides what there is to watch?!

Big Bucks

The next time that you're listening to a particular frequency on your radio, think money -- big money. In today's crowded broadcast spectrum, "MHz" is the standard abbreviation for "money."

Consider this little tidbit: In New York a band of 900 MHz frequencies about one and a half megahertz wide recently sold for $12 million or $8 million a megahertz. In another deal, a band of cellular telephone frequencies 25 megahertz wide brought in $4 billion or $160 million a megahertz.

Radio Station Contest Boils Listeners

It all started innocently enough. Radio station WNNH wanted some way to get a little free publicity and so started a contest in which listeners would design and paint a sign for the station and then put it in their front yards. Station personnel would then select the best and award a prize.

Well, a lot of listeners went to a lot of trouble putting together some pretty nice signs. And then the letters started coming. Township officials have sent out dozens of letters advising contest participants that they are going to be fined $20.00 a day for violating local zoning ordinances. All were given two days to remove their signs.

Station officials were discouraged. Says Clark Smidt, station owner and general manager, "It's got to be legal.

It can't harm anyone or anything." Grand prize in the contest is $999.00 which works out to just under 50 days worth of fines.

Rock Stars Sue Hardware Store

Don Henley, a former member of the folk/rock band, "The Eagles," and representatives of the long-defunct band "The Doors," are suing a Pelham, New Hampshire, hardware store for $80,000 in damages because the owner played his radio in the store.

The American Society of Composers, Authors and Publishers, which represents the artists, discovered about three years ago that the store was playing music by some of its artists and is now asking Edmond Bisson, the store owner, to shell out between $500 and $20,000 royalties per song plus court costs. Needless to say, Bisson is outraged by the suit and says that he won't pay.

"I'll cut the speakers out first," says Bisson. "Since when do I have to pay someone to turn on the radio? I don't think this is a free country anymore."

Detecting the Detector

Got a radar detector to help you get around police? Guess what? The police now have a radar detector *detector* to help them get around you.

Saying that the only reason for a radar detector is to break the law, police in Richmond, Culpepper and Fairfax, Virginia, have been testing a device that detects the presence of radar detectors in motorists cars.

Says State Police spokesperson Charles Vaughn, "Radar detectors emit a microwave signal. The radar detector detector is tuned so that it picks up that signal." A black box mounted on patrol car dashboards flashes a red light and begins to beep more rapidly as the patrol car approaches the vehicle.

Vaughn admits that while the device is effective, motorists are generally not pleased when pulled over. In Ontario, where police have been using the detector since 1988, hundreds of radar detectors have been seized and destroyed.

New Beacons Required for Fishing Boats

The Coast Guard is trying to improve its rescue capability by requiring commercial fishing vessels nationwide to carry emergency equipment that will send distress signals automatically.

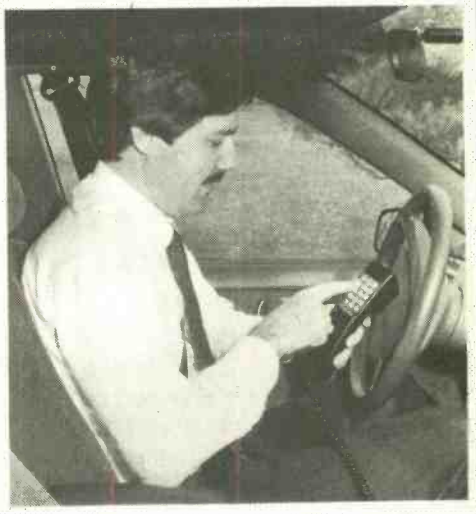
According to the new regulations, fishing boats over 36 feet that travel more than 3 miles offshore will have to carry Category One Emergency Position Indicating Radio Beacons, a regulation the Coast Guard says it intends to enforce strictly.

The electronic devices, known as EPIRBs, are stored upside-down outside the boat. If the vessel tips over, capsizes, or sinks, it would get knocked over and trigger the signal. Each unit has its own electronic signature which can be checked against a database to determine the name of the boat, the owner and emergency telephone numbers, enabling the Coast Guard to rule out false alarms quickly.

Victory for Wilkes-Barre Car Phone Users

A Wilkes-Barre, Pennsylvania, man who was stopped by police and fined for talking on the carphone while driving has won his legal battle with the town. Calling his case a victory for car phone users everywhere, Dave Davies, general sales manager for WKRZ-FM, told reporters after the trial that "I'm glad it's legal to drive around and use your car phone."

Davies was reportedly pulled over in mid-conversation by a city police sergeant who fined him $25 for driving while hearing-impaired. District Justice Martin Kane ruled that Davies broke no law by holding a receiver to his ear while driving.



Motorola

Won to Talk

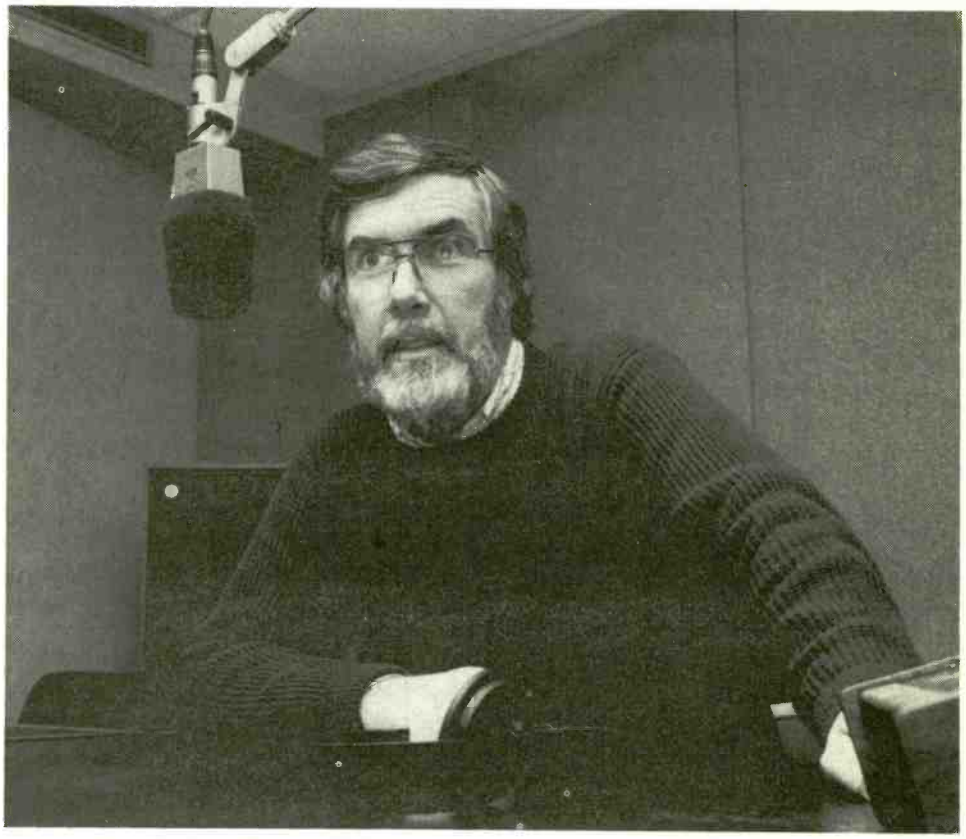
Short Circuit?

People facing the death sentence will, not unexpectedly, try almost anything to avoid the inevitable. And while arguments concerning the cruelty of the electric chair are common, others are not unknown. According to reports, a Federal Appeals Court in Orlando has stayed the execution of at least one convicted killer based on the argument that Florida's chair is "faulty."

Shortwave's Favorite Canadian

A Profile of Ian McFarland

by Wojtek Gwiazda
Radio Canada International



Say the name Ian McFarland, and you almost hear the word shortwave. In fact, it's hard to imagine shortwave listening in North America without Ian's friendly presence and his enthusiastic advice and hints on RCI's "Shortwave Listeners' Digest."

"Ian sounds like he's one to one with the listener," says Larry Magne, who does radio test reports for the SWL Digest. "He's wound up as the guy next door, a friendly, helpful guy." Unfortunately, says Magne, there are fewer and fewer announcers who take that approach; most are "all hokey sounding voices."

Glenn Hauser, who's been doing the DX news for Ian since the program hit the airwaves in 1977, is quick to agree: "He's got a friendly manner ... and goes out of his way to meet his audience ... He comes across as non-technical, as someone you can relate to."

As the host of SWL Digest, Ian has also become Canada's best known ambassador to shortwave listeners around the world. "He really conveys an image of Canada ... friendly and open to outsiders," says Magne. "My image of Canada is altered by this and if I had to leave the U.S., Canada would be at the top of my list."

Ian worked hard to get where he is. His laid-back approach on air is the product of a determined broadcaster who from the beginning knew he wanted to work in radio. Immediately after high school he spent four years majoring in electronics at the Montreal Institute of Technology, with the goal of working for the Canadian Broadcasting Corporation, Canada's publicly owned broadcast system.

By 1959, after some months of temporary work, he was hired as a technician and ended up working with an announcer who later made a name for himself in the U.S. .... Peter Jennings. But Ian wanted to do more than only the technical part of radio. He wanted to produce and he wanted to concentrate on international broadcasting.

"It's very difficult to break from being a technician and get into production," says Ian, "and the intriguing part of international broadcasting is it's not in just one city, but in different parts of the world. There's a lot more variety in the programs."

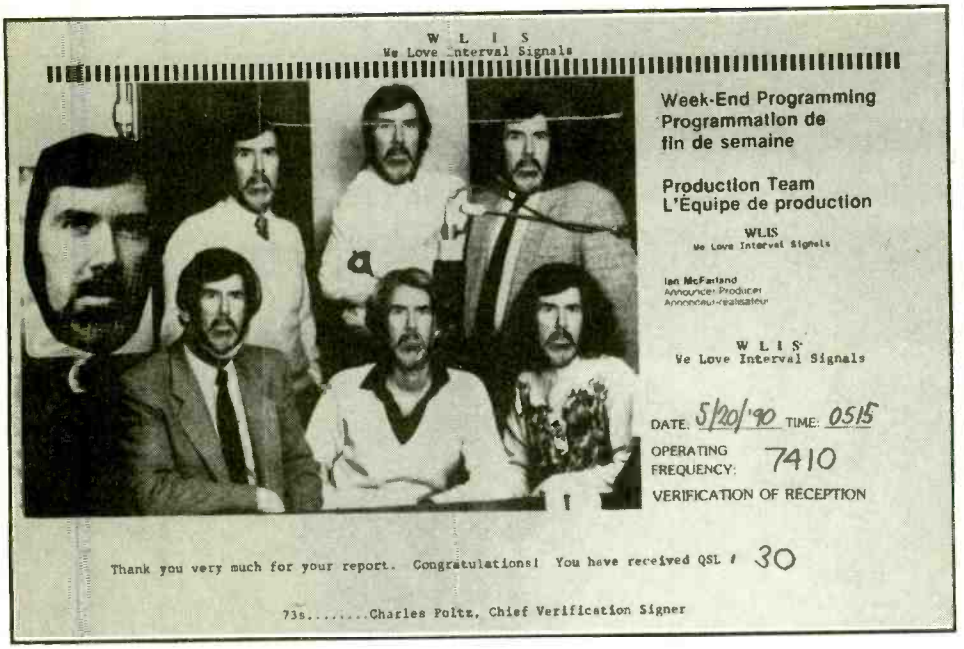
He crossed the Atlantic, determined to work with the BBC ... and ended up at the London bureau of the CBC. He manned the news operation, took care of news feeds to Canada and acted as technical liaison between CBC and the BBC.

After three years in London, he returned to Canada, worked briefly as a CBC technician again, and then in 1957, in Canada's Centennial Year, he was hired by the International Service of CBC (as RCI was then known). With his technical background it wasn't long before he was supervising the production of the Radio Canada Shortwave Club program.

"It wasn't until 1977 that I was the host, producer and chief cook and bottle washer." recalls Ian. "Basically I was trying to do as interesting a program for as wide an audience as possible."

"He has an excellent understanding of shortwave," says Harold Sellers, until recently the chairman of the Ontario DX Association, one of North America's largest SW clubs. "He's kept himself current. He's related very well to the shortwave hobbyist."

Not only does he feed the insatiable information needs of DX veterans, he holds the hands of the SW beginner who asks what's a QSL and how to figure out UTC time. And like the mailman: through rain and sleet and snow he does his weekly program, proud that he's never repeated an edition of



Ian's easy accessibility has made him the object of some good-humored fun, such as in MT's February "Letters" section where we likened him to HCJB's mascot, or in this pirate QSL from WLIS (sent by Tim Johnson - see "Broadcast Loggings" on p.27).

SWL Digest and never missed an edition.

Ian's popularity is due also to his eagerness to meet with listeners at different conferences and conventions. "For many listeners," says Sellers, "he may be the only shortwave broadcaster they have ever met."

Ian feels that it's very important for the listener to put a face on the voice on the radio: "For me it's very important the listener see what they hear. That it's not an actor they hear on the show. It's also important for me to have an image of the listener I'm talking to."

He's quick to admit that he's a workaholic, who's saved from himself by his family and community activities, such as teaching native Indian students broadcasting.

"If I was single I'd still be at work until eight at night," says Ian. "There's never enough time to do everything I'd like. I just enjoy it, dealing with people around the world. And there is a certain romance to it dealing with listeners and other broadcasters."

Outside the shortwave community in Canada he's an unknown. Media followers in Canada would be surprised to find out he consistently beat out our own local media stars in popularity polls among shortwave listeners, even though programs such as "As It Happens" and "Sunday Morning" are heard on RCI.

"It doesn't bother me at all," says Ian. "The only aspect that bothers me is that RCI is not known better in Canada."

Through the years his contribution to shortwave and RCI have been recognized by numerous awards and certificates. He has survived the numerous reorganizations at RCI and is philosophical about the future and his retirement:

"I don't know how I'm going to react to having a lot less contact with listeners. I'm hoping to do some freelancing -- I just enjoy the field so much not to stay involved. And I'd like to do a lot more listening to shortwave than I get a chance to now."

But retirement is still a few years away and Ian's standing invitation is always there: "If you're in Montreal, drop by and let's talk."

mt

African Hopscotch

by Charles Sorrell

Didja ever wonder why -- when asked their favorite area of the world as a listening and DXing focus, so many shortwave broadcast fans say "Africa"?

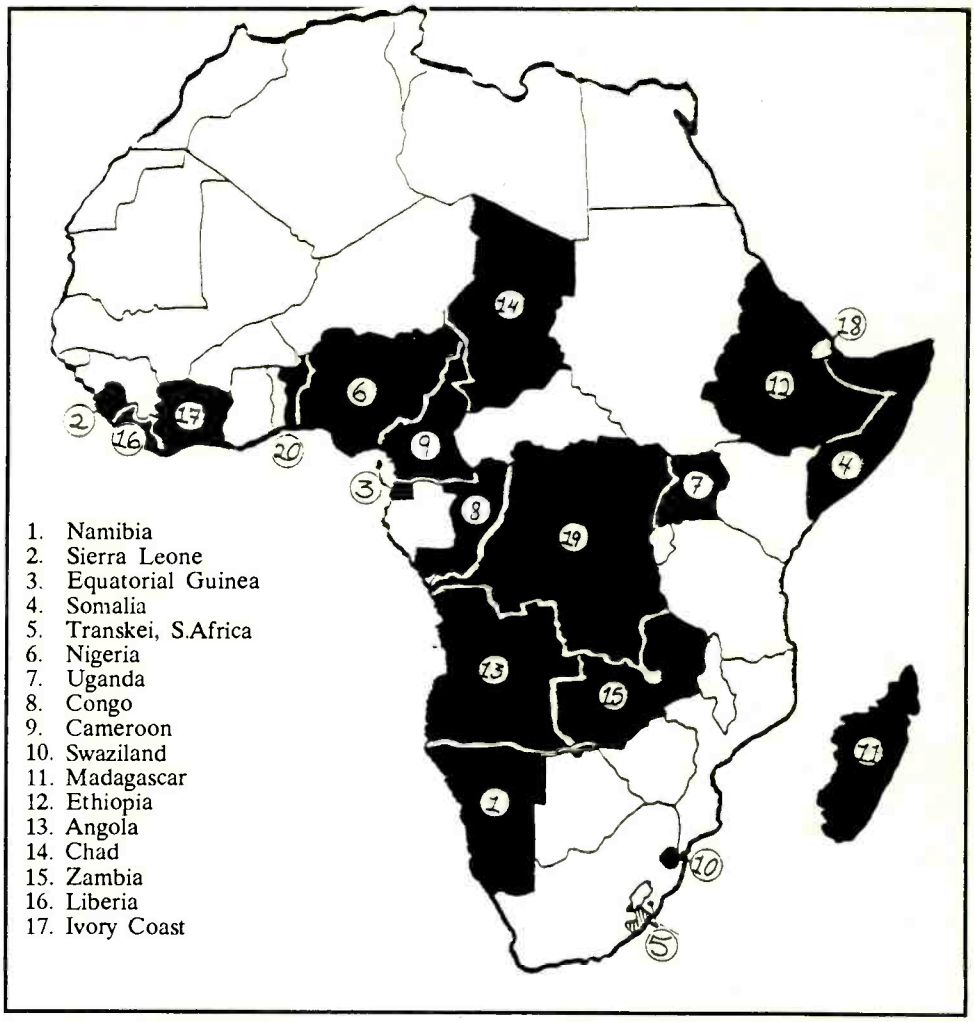
There are probably any number of reasons why African stations make attractive targets. All the stories, the lore, the romance of the place probably accounts for a lot of it. Stanley and Livingston. Zulu warriors. Bogart and Hepburn navigating "The African Queen" to freedom and romance. Safaris and wild animals.

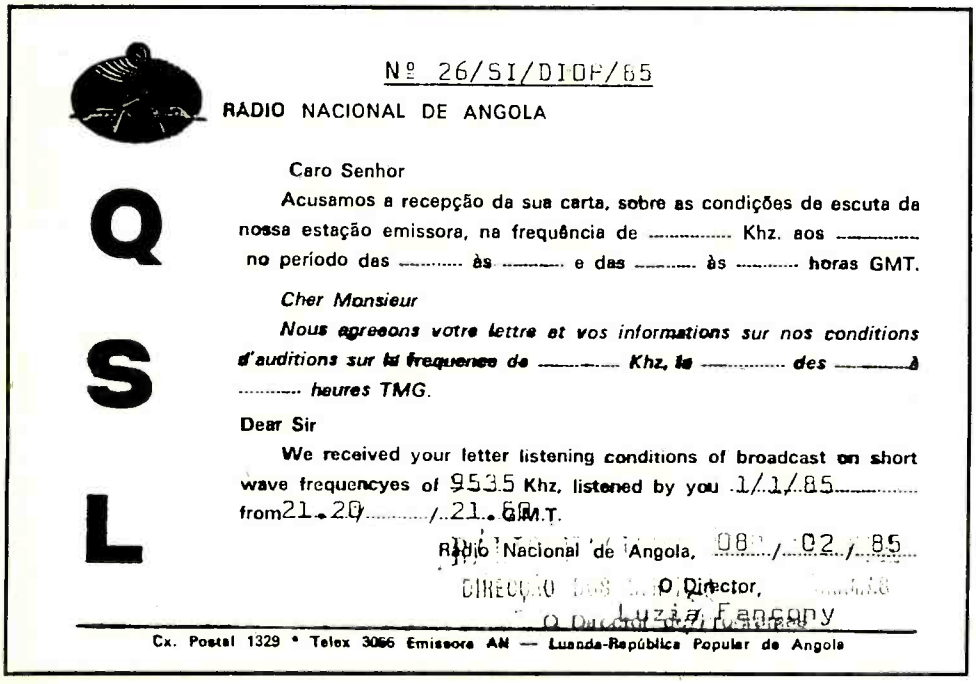
And, from a radio standpoint, there are a great variety of stations to tune for, ranging from easy to impossible.

Another reason Africa attracts is that it is a highly practical place to focus your listening efforts. Unlike Latin America or Indonesia, where -- no matter how hard you work at it there will always be a significant number of stations you can't hear -- Africa is "do-able."

There are a handful of exceptions, of course (aren't there always) but, by and large, if you give your attention to tuning Africans over a couple of years, chances are pretty good that about 90 percent of the active stations can be entered into your logbook.

DXing Africa requires spending a lot of your hunting time on the 60 (4750-5060 kHz) and 90 (3200-3400 kHz) meter tropical bands. There are, of course, Africans up on the international broadcasting bands but, basically, Africa is a game for tropical band DXers.





Nº 26/SI/DIOF/85

RÁDIO NACIONAL DE ANGOLA

Caro Senhor

Acusamos a recepção da sua carta, sobre as condições de escuta da nossa estação emissora, na frequência de ..... Khz. aos ..... no período das ..... às ..... e das ..... às ..... horas GMT.

Cher Monsieur

Nous agreeons votre lettre et vos informations sur nos conditions d'auditions sur la frequence de ..... Khz, le ..... des ..... à ..... heures TMG.

Dear Sir

We received your letter listening conditions of broadcast on short wave frequencyes of 9535 Khz, listened by you 1/1/85 from 21.20 /21.60 G.M.T.

Rádio Nacional de Angola, 08 / 02 / 85

O Director,

Luzia Fancony

Cx. Postal 1329 * Telex 3066 Emissora AM — Luanda-República Popular de Angola

Q S L

There are frequent opportunities to catch these stations coming and going, too. We are able to hear their morning sign-ons between 0300 and 0700 and catch their late night sign-offs, generally at 2300 and 0000 during our winter months when fewer hours of daylight open up 60 and 90 during our late afternoon.

At present there are about 50 African countries active on the shortwave bands (depending on how you figure "countries") and something like twice that many stations. Assuming you have already heard such common stations as Radio RSA, Radio Cairo, Africa Number One and so on, we're going to take a hopscotch tour of the continent and look at some of the other stations you can set your sights on. Almost all of them should be loggable over a single fall-winter-spring DX season. And with the 90-91

season upon us, this is a good time to get going.

So, let's do it. And in no particular order, either.

NAMIBIA -- Radio Southwest Africa was renamed Radio Namibia after the country finally became an independent nation. Radio Namibia has recently added more English in the form of a program called "Newsfront," which is scheduled on 3270 and 3290 Monday to Friday at 0430-0530 and on 7165 and 7190 at 0530-0600. Radio Namibia starts to show as early as 0230 on 3270 and 3290. Logging it is no snap, though.

SIERRA LEONE -- The Sierra Leone Broadcasting Service reactivated a year or so back. It, too, isn't a very easy logging and it has never been easy to QSL. The station is still using its longtime 3316 frequency, with an 0600 sign-on, in English. In the dead of winter you might also want to check 5980 to around 2200 sign-off.

EQUATORIAL GUINEA -- There are three shortwave stations in this country and all owned by the government. The most recent addition to this collection, Radio Africa, exists -- believe it or not -- to help put money into the sickly national treasury. It's programmed by Pierce International Communications in California and carries paid block religious programming. The schedule runs to 2230 sign-off on 7189.

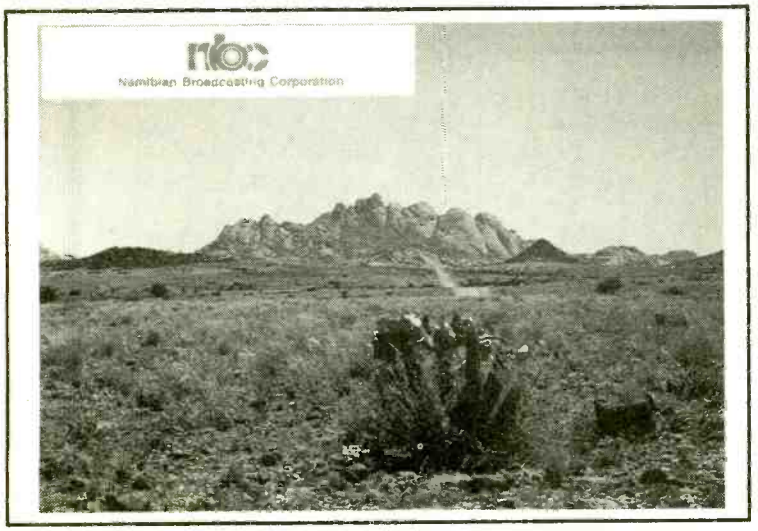
SOMALIA -- Radio Mogadishu, the government station, is reported to be inactive, but there's a 50-50 chance that this will make a return. If it does show up again, it's very likely to be back on 7200 with an 0300 sign-on, in Somali. It'd probably be a good idea to check the frequency once or twice a week at the proper time, just in case.

ELWA of Monrovia, Liberia (QSL from Ray Labrie, New Hampshire)

TRANSKEI/SOUTH AFRICA -- Capital Radio is a government/commercial combo operation in the South African "homeland" of Transkei. It's on the air from Umtata, using 3927.4 between 0230 and 0440 and, obviously, often suffers severe QRM from ham operators. Try also the 0440 sign-on on 7150.

NIGERIA -- This country's broadcasting infrastructure has virtually fallen apart in recent years and as a result, many of the regional outlets are no longer on the air. One which is, is FRCN at Kaduna which uses 4770 from 0430 sign-on. Broadcasts include English as well as a number of native languages.

UGANDA -- Radio Uganda is another station which is tough to hear -- though easier for east coast residents. Most loggings take place at the 0300 sign-on or shortly after on 4976 or 5027. 4976 is frequently made useless by utility station QRM. The odd frequencies will help make the ID easier if you have digital readout. Mostly it's just a matter of constant checking until, one evening -- voila -- there they are.



Signs of change: This Namibian Broadcasting Corporation QSL (sent to us by Tim Johnson of Illinois) has the new logo pasted over the words "Radio RSA."

CONGO -- RTV Congolaise in Brazzaville, dormant for quite some years, returned to shortwave last spring. The station can be heard in French and vernaculars on 3265 from 0357 sign-on. It's also active on its old 19 meter band frequency, 15190, between 1100-2300.

CAMEROON -- The Republic of Cameroon has several regional stations in operation on shortwave. The western provincial station, Radio Bafoussam, is easy to spot since it's on 4000. Listen for the xylophone interval signal at 0425 sign-on.

You may also hear the station in the afternoons to its sign-off shortly after 2300, especially in the wintertime. Programs are mostly in French.

SWAZILAND -- The large Trans World Radio organization has one of its stations in Swaziland, near Manzini. Best bets to hear this one are on 3200 (in the Ndebele language) to 0330 closing and then again from 0430 sign-on, in English. Others include 3245 in Shona until 0345. English also airs from 0430 on 5045 and 7200, though there seem to be fewer loggings on these two frequencies.

IVORY COAST -- (or Cote D'Ivoire, if you prefer) -- RTV Ivoirienne put 500 kW on the air a couple of years ago but, at last report, these high power units were inactive. Still, Abidjan very often puts in a good signal on 4940 from 0600 sign-on, in French. Check for the sign-off at 0000, too. Also try slightly variable 7215 from 0700. Most QSLers will tell you this station is one of the worst on the continent in the QSL department.

MADAGASCAR -- Radio Television Malagassy (aka Radio Madagasikira) is one of the harder ones on this potpourri list. It's been heard fairly recently, though, on 5010 with a sign-on just prior to 0300 in the Malagassy language. That's a weekend sign-on time; during weekdays start-up seems to be an hour earlier.

ETHIOPIA -- The Voice of Ethiopia (no longer the Voice of Revolutionary Ethiopia) has both foreign and domestic services on shortwave. Neither is very well heard but chances are you'll have better luck with the domestic service than you will with the foreign service, which is intended only for Africa. The foreign service signs on at 1500 on 9560, in English. The domestic service opens with Amharic at 0330 on 7110.

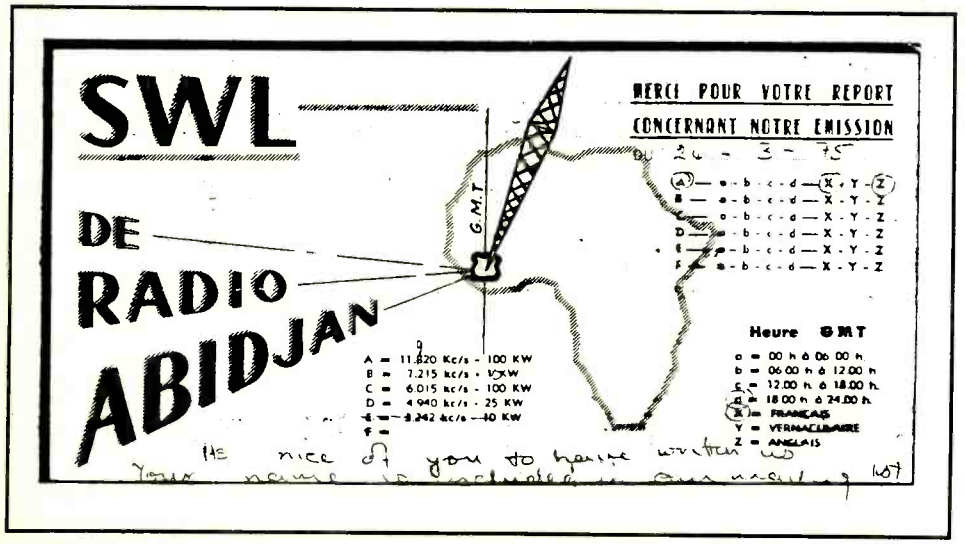
ANGOLA -- This is another African nation that used to have a lot of great regional stations in action. There are a lot fewer of them active with any regularity now. Even the main station, Radio Nacional, at Luanda isn't very reliable in the reception department.

Try 3354 variable at 0300 or 3376 around 2300. 5489 is sometimes noted in the evenings in North America. Watch 4953 also. It seems to be the intended habitat for the 5489 transmitter. All programming is in Portuguese, of course.

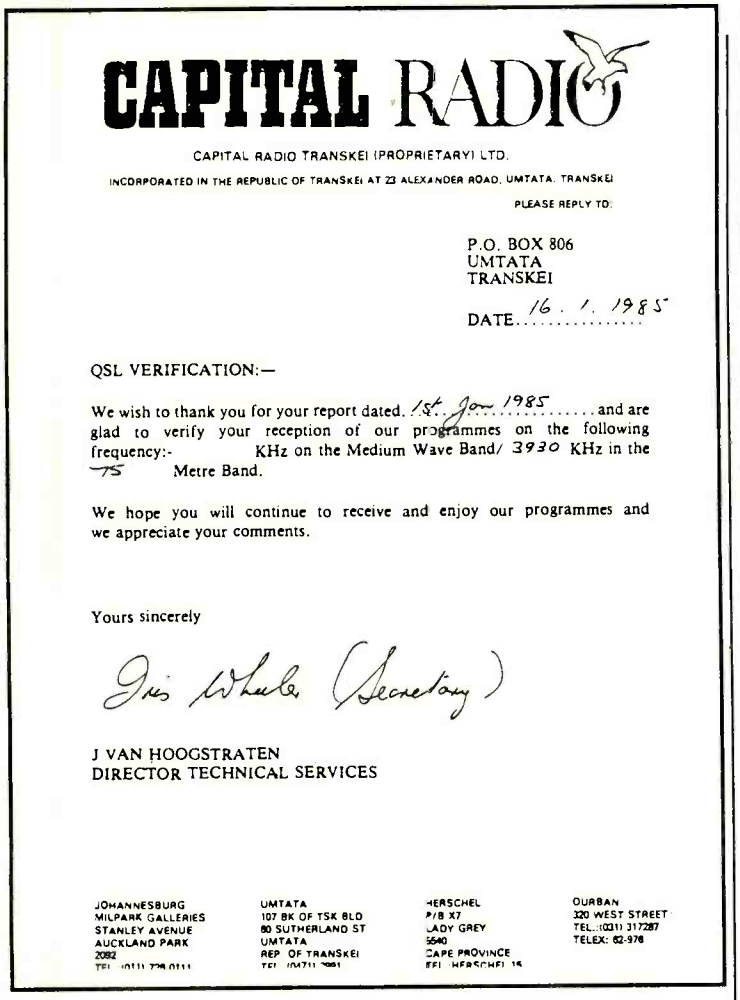
CHAD -- There's an interesting regional in this country, Radio Moundou, in the town of the same name. Despite its relatively low 5 kW of power it is heard quite a few times in an average DX season. The frequency is 5286 or just slightly higher, signing on in French at 0500.

ZAMBIA -- The call of the fish eagle kicks off broadcasts by the Zambian government station, which is now calling itself both Radio One and ZNBC Zambia. The external service on the higher frequencies is almost never reported in North America. Your best bet is to try 4910 for the station's 0330 sign-on.

LIBERIA -- ELWA cut back on staff as the civil war here got worse and worse but, at this writing, the station was still operating. There have been loggings of ELWA during our daytime hours up on 11830, in various languages. Try also 4760 for the 0600 sign-on. ELWA is a religious broadcaster, operated by the Sudan Interior Mission. English and several local languages are used.



QSL from J.D. Stephens of Alabama



CAPITAL RADIO

CAPITAL RADIO TRANSKEI (PROPRIETARY) LTD.
INCORPORATED IN THE REPUBLIC OF TRANSKEI AT 23 ALEXANDER ROAD, UMTATA, TRANSKEI

PLEASE REPLY TO:

P.O. BOX 806
UMTATA
TRANSKEI

DATE 16. 1. 1985

QSL VERIFICATION:—

We wish to thank you for your report dated. 15th Jan 1985 and are glad to verify your reception of our programmes on the following frequency:- KHz on the Medium Wave Band/ 3930 KHz in the 75 Metre Band.

We hope you will continue to receive and enjoy our programmes and we appreciate your comments.

Yours sincerely

Iris Whale (Secretary)

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DIRECTOR TECHNICAL SERVICES

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LADY GREY
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CAPE PROVINCE
TEL: HERSCHEL 16

DURBAN
320 WEST STREET
TEL.:(031) 317287
TELEX: 62-976

DJIBOUTI -- Here's a hard one, though it wouldn't be nearly as difficult if the US government FEMA (Federal Emergency Management Agency) wasn't operating a utility station on Djibouti's only shortwave frequency – 4780. Once in a while, though, Djibouti does manage to squeak through at its 0300 sign-on, in French. Using upper or lower sideband when you tune for this one will help.

ZAIRE -- Radio Candip is an educational station, operating from the town of Bunia. Although it uses three shortwave frequencies (3290, 5066v and 7150) only the 5 MHz channel provides any kind of consistent reception in North America. The frequency varies a bit (currently reported on 5066.4). The current sign-on time is a bit of a question mark -- but it's probably 0500. Power is just one kilowatt and programming is in French and local languages.

BENIN -- Another regional station is Radio Parakou which is part of the government's ORTB broadcasting system. It uses 10 kilowatts on 5025. Check for an 0500 sign-on often enough and you're likely to be rewarded, despite a tendency for there to be QRM from Latin American stations in this vicinity. Sometimes the programming on Radio Parakou is in parallel to that of the main station in Cotonou on 4870.

And that's the end of our trip highlighting some of the better and more interesting African targets you might want to aim at this season. Tune carefully, tune often and listen sharp. By spring you should have added at least half of these to your logbook. Good luck.

mt

Want More

Twenty pages of shortwave challenges waiting for you in the Frequency Section beginning on page 65. Let us know how you do!

It's the 1990 Monitoring Times/ International Radio Club of America Convention

Friday, October 5 through Sunday, October 7, 1990...Three fun days of endless radio adventure! Not just a group of 20 or 30 DXers, but hundreds of DXers from all aspects of DXing! Join the IRCA for their annual meeting and auction, along with the Monitoring Times banquet on Saturday night!

Guests will include Richard W. Carlson, Director of the Voice of America, Bob and Judy Grove and Larry Miller of Monitoring Times, Al Weiner of offshore broadcaster, Radio New York International, Ian McFarland of Radio Canada International, Geov Parrish of The M-Street Journal and IRCA, Larry Magne of MT receiver review and Passport to World Band Radio fame, Gerry Dexter of Popular Communications, and most of the columnists of Monitoring Times!

Join in on a special taping of Radio Canada International's Shortwave Listener's Digest or guest DJ on the convention's own carrier current radio station in the hotel on 530 kHz!

If you're a ham, talk-in to the convention on 147.30/147.90 and meet friends from The Amateur Club of Knoxville (RACK)! If you're not a ham, bring along your scanner and listen in!

Workshops will be held in station design, receiver sensitivity and selectivity, (Bring in your rig for a free checkup!) and many, many seminars in almost every aspect of DXing: scanning, shortwave broadcast, ham radio propagation, satellite TV, pirate radio, longwave, and QSL collecting!

Call the Hyatt Regency in Knoxville to book your room today! Mention the Monitoring Times/IRCA convention for a special room rate of $62.00 a night. And here's a big plus. You can stuff up to 10 people into a room if you wish! Extra rollaway beds are available or bring your sleeping bags! We also have a special discount with Delta Air Lines for convention travel. Just mention discount number "J20088." Be sure to check for supersaver fares and other bargain rates with your travel agent and make your best deal.

Hyatt Regency 1-800-233-1234
Delta Airlines 1-800-221-1212

More and more guests and friends are signing up every day, and we'll keep you up to date on the plans! Station tours, bumper stickers, and other door prizes, and bad jokes until it Hertz! CU there!

The Monitoring Times Radio Convention

It's the Radio Event of the Year!

☐ Sign me up! Enclosed is my $30 registration fee. I'll see you in Knoxville!
☐ Enclosed as well is my $18.40 banquet payment (includes Tennessee tax and gratuity)

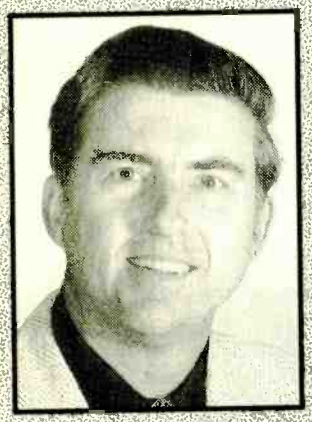
Name _____

Address _____

City _____ State/Prov _____ Zip _____

Phone (Optional) _____

Make your check payable to Monitoring Times and send it to P.O. Box 98, Brasstown, NC 28902.



See You There... Bob

Judging from the enormous number of early registrants, the 1990 Monitoring Times convention is going to be quite spectacular! The list of dignitaries who will be attending reads like a "Who's Who" of radio! Meet representatives from foreign countries, officials from top-level agencies, fellow hobbyists eager to exchange information.

Commercial exhibit space went quickly, with dozens of top MT advertisers grabbing space to show their wares. They know that the personal touch benefits both the buyers and the sellers, and they will be showing their newest equipment, publications and accessories, some of which you will never see in stores.

Have you wondered what the friendly folks from distant lands you hear on the radio are really like? Meet them here! International broadcasters from around the world will be attending, giving away colorful souvenirs of their homelands and sharing insights into their people and customs.

The most respected experts in the world of shortwave and scanner monitoring will be in Knoxville, sharing their collective knowledge. How do you snag rare DX? Is it possible to get a QSL from Radio Finland? What can be done to avoid strong-signal overload? What are really the best antennas, receivers and scanners? How can I hear undercover communications? Ask the experts.

But not all the best stuff comes from forum speakers. You may be surprised who is sitting next to you in the audience--and what he might tell you now that he's away from his official desk! I know, some of my best leads come from "forum feedback."

Want to see the newest in miniature surveillance equipment--real "bugs"? Would you like to meet the leading authority on monitoring--and ask him questions face to face? What is the true story behind the industry rumors about new equipment? The answers will be in Knoxville, October 5th, 6th and 7th.

WELCOME TO KNOXVILLE

A History of San Diego Police

by Brian Johnson III

Back in the early part of this century, when the top brass at the San Diego Police Department wanted to get in touch with a cop on the beat, they communicated by light rather than radio.

At headquarters, a signal from a switchboard would activate a flashing red light bulb atop the call box on the officer's beat. Seeing the light flash, the officer would then use the call box to phone back to headquarters for more information. Known as the Gamewell Light System, it was effective but little more. Relying as it did on the beat officer's eye to spot the signal, there was no guarantee of a quick response.

That's why one day in 1927, the squad room at SDPD was abuzz. Chief Joseph V. Doran had announced plans for the department to begin using radio. Two years later, Doran's successor, Arthur R. Hill, proposed doing away with the old Gamewell Light System altogether. Replacing the light and call box would be a transmitter which would send one-way radio messages to patrol cars equipped with receivers.

Then, in 1932, the idea of using radio in patrol cars got serious. Chief Harry A. Scott announced that twenty police vehicles would be equipped for coverage around the clock. This included two police units and an ambulance for East San Diego, five units for the beaches and northern areas of the city including downtown and seven others for additional areas throughout the city. Only five cars, however, would be equipped in the beginning. That year, city officials began soliciting bids for a broadcasting station in Balboa Park near the hub of the city.

Left: A view of the original city police and fire repeater location on Lyons Peak.
Below: San Diego dispatch base operations "Station A" in 1959.

The first so-called "radio cops" began receiving dispatched messages at 2 p.m. on the afternoon of December 1, 1932, when station KGZD went on the air. Utilizing a 100 watt transmitter housed in a concrete block building in Balboa Park just north of the city shops complex, the first broadcast was typically succinct: "KGZD is now on the air; stand-by for further broadcast."

KGZD did not achieve its dream of 24 hour operation right away, instead going on the air each day from 2 p.m. until 6 a.m.. Two dispatchers were on duty at all times, their job being to take the messages handed down from central headquarters and relay them over the air to cars and stations. No radio codes were used by dispatchers then but each letter of the alphabet was given a name to ward off possible mistakes. These letters were most often used in the broadcast of automobile license numbers.

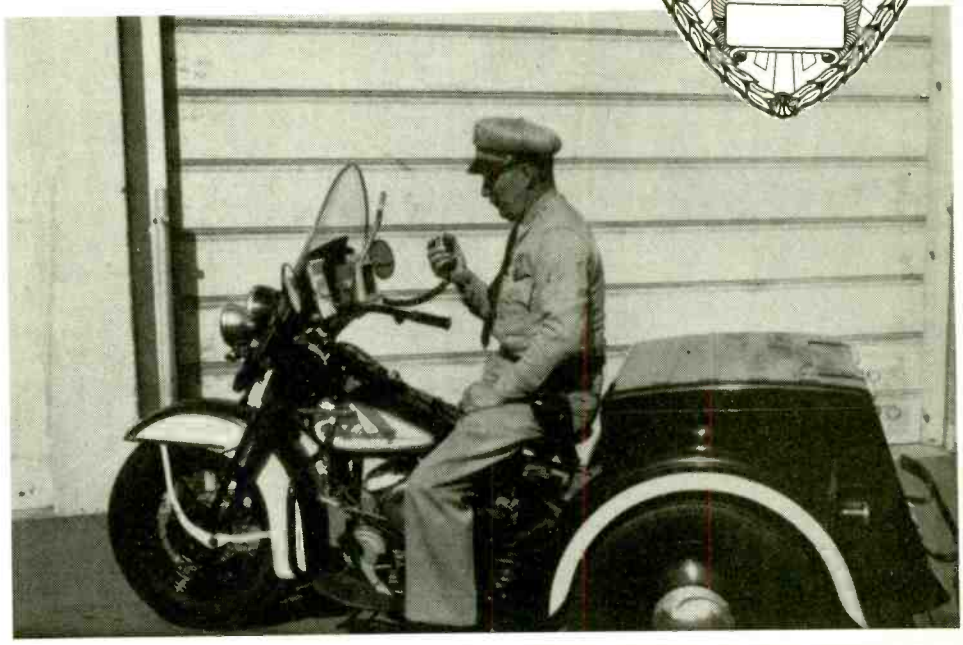
The first five cars to receive radios were Ford Model A's. And what a change it made. With the introduction of radio, the response time to an event was quickened. Simultaneously, headquarters could now get in touch with the beat cop by radioing him a message -- remember that the system was one-way only -- and wait for him to get to the nearest call box and ring up headquarters. The frequency used by the San Diego Police Department in those days: 2,490 kilohertz.

While radio did serve to launch the San Diego Police Department into the 20th century, the system was not without its problems. Primary among them was the fact that since it was indeed a one-way system, no one at headquarters knew what happened once the dispatch was made. Headquarters could, of course, wait until the officer returned to at the end of his shift or hope that the officer would get in touch via the call box.

Communications

Police Chief George Sears continued the department's push into the 20th century in 1936 when he made the one-way system two-way. Now the radio equipped car could not only receive; Now it could talk back as well. A new frequency was established for the purpose: 37.02 megahertz in the low VHF band. Eventually, every car in the field would be equipped with transmitting and receiving equipment based on a Western Electric design and built by the San Diego Electrical Division.

Knowing a good thing when they saw it, other government agencies in the area jumped on the San Diego PD's radio bandwagon. Before long, 2,940 kHz got crowded. At any time, an important police call might be interrupted by a transmission from the San Diego Fire Department, the Chula Vista Police Department, the San Diego County Sheriff's Department and the California Highway Patrol.



An old three wheeler used by San Diego Police in the 1950s. Notice the old Motorola type radio being used by this officer.

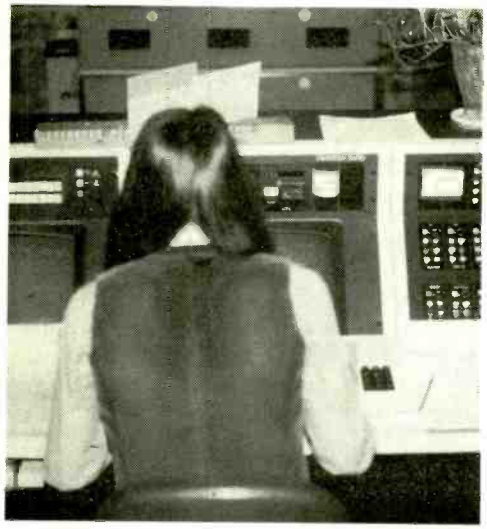
Eventually, each agency did obtain its own transmitting and receiving frequency. First to abandon 2,940 was the San Diego Fire Department which left for 154.310 MHz in the high VHF band. Others followed and by April 19, 1961, even the frequency's original owner had left, converting over to FM equipment featuring both "talk-out" and "talk-back" capabilities. The next year, the City Electrical Division designed and built a new dispatch center for the police department at 801 West Market Street, severing almost all ties to its radio pioneering past.

SAN DIEGO POLICE REGIONAL RADIO CODE

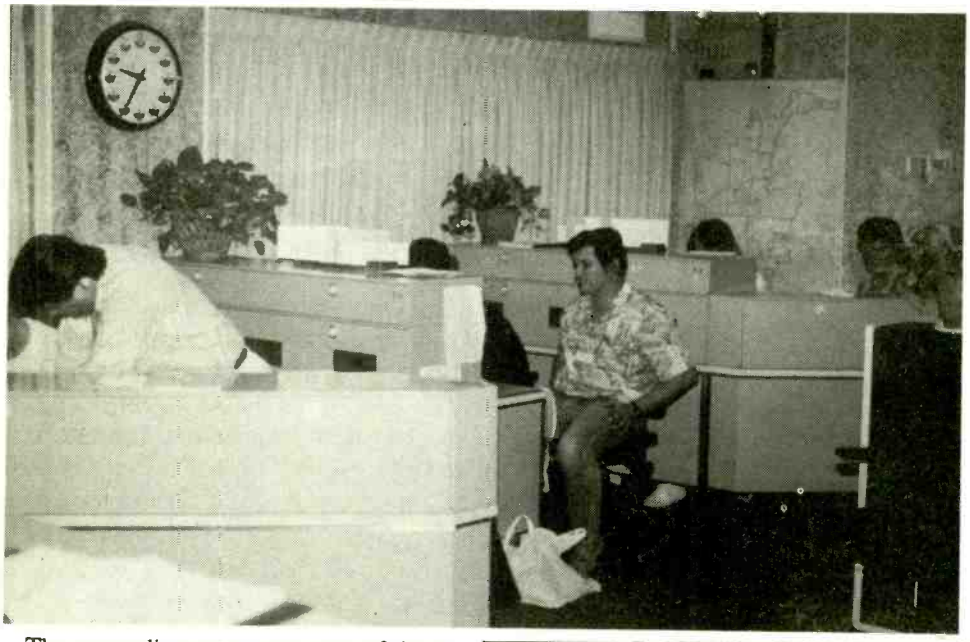
10-1	Receiving Poorly
10-2	Receiving Well
10-4	Acknowledgement
10-5	Relay
10-6	Busy
10-7	Out-of-Service
10-8	In-Service
10-9	Repeat
10-10	Remain in Service
10-13	Advise Road or Weather Conditions
10-16	Prisoner
10-17	Report Routine
10-19	Return to Station
10-20	Location
10-21	Phone Your Station
10-21H	Phone Your Home *(Emergencies Only)*
10-22	Disregard
10-23	Stand By
10-28	Vehicle Registration
10-29 Local	Local Check for Wants Only *(Persons or Plates)*
10-29 NCIC	Check for All Wants
10-34	Are You Clear?
10-35	Dangerous Person Alert
10-36	Are You Clear?
10-87	Meet the Officer 10-10
10-88	Request for Cover Unit
10-89	Bomb Threat
10-97	Arrived at Scene
10-98	Finished Last Assignment
11-6	Discharging Firearms
11-7	Prowler
11-8	Person Down
11-10	Conduct an Investigation
11-11	Pickup or Check Area
11-12	Injured Animal
11-13	Dead Animal
11-14	Dog Bite
11-15	Ball Game in Street
11-24	Abandoned Vehicle
11-27	Felony Record - No Want
11-28	Misdemeanor Record - No Want
11-29	No Want
11-30	Incomplete Phone Call
11-31	Calling For Help
11-40	Notify If Ambulance Needed
11-41	Ambulance Needed
11-42	Ambulance Not Needed
11-44	Coroner's Case
11-45	Attempt Suicide
11-46	Report of Death
11-47	Injured Person
11-48	Furnish Transportation
11-49	Vehicle Stop - No License Check
11-50	Vehicle Stop - License Check *(10-20 Only)*
11-51	Pedestrian Stop/Field Interview
11-52	Are You O.K.? *(If response is other than Code Word, cover will be sent.)*
11-53	Security Check
11-55	Hazardous or Chemical Spill
11-60	Investigate Water Leak
11-66	Signals Out of Order
11-71	Fire
11-80	Serious Injury Accident
11-81	Minor Injury Accident
11-82	Non-Injury Accident
11-83	No Detail Accident
11-84	Traffic Control
11-85	Request for Tow Truck
11-86	Special Detail
11-88	Assist Disabled Motorist
11-99	Officer Needs Help
187	Homicide
207	Kidnapping
211	Robbery
242	Battery
245	A.D.W.
246	Shooting At Dwelling
261	Rape
273a	Child Abuse or Neglect
278	Child Abduction
288	Child Molest
314	Indecent Exposure
330	Gambling
374	Illegal Dumping/Littering
415	Disturbance
417	Person with Weapon *(Describe)*
451	Arson
459	Burglary
470	Forgery
480	Felony Hit and Run *(20001)*
481	Hit and Run *(20002A)*
487	Grand Theft
484/488	Petty Theft
496	Possession of Stolen Property
502	Drunk Driving *(23152)*
503	Auto Theft *(10851)*
504	Tampering With Vehicle *(10852)*
505	Reckless Driving *(23103)*
518	Extortion
537	Defrauding Innkeeper
586	Illegal Parking
594	Vandalism
595	Runaway Vehicle *(20002b)*
597	Cruelty to Animals
602	Trespass
647(b)	Prostitution
647(f)	Drunk
653m	Phone Threats
5150	Mental Case
11350	Possession of Dangerous Drugs
11357	Possession of Marijuana
12020	Possession of Illegal Weapon
12025	Carrying Concealed Weapon
Code 3	Emergency *(Lights and Siren)*
Code 4	No Further Help Needed
Code 5	Stakeout
Code 6	Remain Clear of Area
Code 7	Eating
Code 8	Restroom
Code 10	SWAT Alert
Code 11	SWAT Staging Location
Code Blue	Bus/Taxi In Trouble
Emergency	I Want the Air

DISPOSITION CODES

A	Arrest Made - Report to be Submitted
R	Report Made and Will be Submitted
K	No Report Required
U	Unfounded



Left: A police dispatcher at one of the Centracom Series consoles. The dispatcher identifies the end of each transmission with "Station A." Below: The dispatch center, presently housed in the basement of the City Operations building. Drapes and soundproofing minimize external noise.



The new radio center was a state of the art "remote" electronics system. There were three dispatch consoles and ten radio channels with expansion capacity to five consoles. A second "talk-out" channel was implemented which bisected the city, resulting in more flexible use of radio equipment. The very first high VHF frequency used by San Diego police was 158.730 MHz. This system operated flawlessly until late 1974 when a new Motorola system was installed in the city operations building at 1220 First Avenue.

Today, the San Diego Police Department has six operational frequencies in the high VHF band. Each handles a separate area of the city. In addition, there is also an inquiry channel used primarily to offer assistance for officers running warrant checks, among other functions such as requesting the dispatcher to call the owner of a business regarding a break-in or burglary.

For use in the field, officers working on a special detail use the tactical channel for surveillance operations or during traffic re-routing and control during times of unusually heavy pedestrian and vehicle traffic. SDPD detectives use yet another frequency that is specifically set aside for their operations. Special Weapons and Tactical (SWAT) units have another.

Because San Diego is in a coastal valley surrounded by hilly terrain, transceiver/repeater locations have been placed on mountain tops (although some are inside the city itself.) The current system is designed for line-of-sight communications. It is also voted, whereby the best signal from a unit in the field is captured by the receiver closest to that signal. It is then transmitted to the dispatch center.

The San Diego Police Department has about 1,024 vehicles in the fleet. Police cruisers and motorcycle units are all equipped with Motorola or GE (General Electric) mobile radios. This system also includes handie-talkies.

All car radios have the full complement of operational frequencies but some don't have the capability of transmitting on detective (154.725 MHz) or NALEMARS (155.475 MHz) channels. All SDPD vehicles do have CLEMARS (154.920 MHz) and tactical (155.685 MHz) capabilities.

In case of a break down at the main dispatch center, emergency back-up communications can be handled by a command van in the field. This converted GMC bus is fitted with all the main

SAN DIEGO POLICE DEPARTMENT FREQUENCIES

	Base TX	Call	Mobile TX	Call	Area/Desig
F-1	158.730	KJD 935	154.950	KB 8432	Southeast
F-2	158.970	KMD 727	155.550	KB 8432	North/northeast
F-3	159.090	KLI 385	154.875	KB 8432	East
F-4	159.045	KXK 366	155.535	KB 8432	Central
F-5	158.895	KFE 583	155.370	KB 8432	West
F-6	158.910	KNBF 384	154.650	KB 8432	South
F-7	154.055	KNFG 736	154.785	KB 8432	Inquiry
F-8	155.685	KLD 705	n/a	KB 8432	Tactical
F-9	154.725	KTX 765	n/a	KB 8432	Detectives

Other frequencies used by SDPD

154.920 CLEMARS (California Law Enforcement Mutual Aid Radio System)
155.475 NALEMARS (National Assistance to Law Enforcement Mutual Aid Radio System)
154.935 SDPD SWAT

Above left: Standard arrangement of control heads, speakers and microphone brackets in an SDPD supervisor's car in the 70s. Left: Hundreds of phone calls are answered each day by PD and 911 emergency operators, adjacent to the police dispatch center.

frequencies and can operate on its own power for 48 hours or two weeks with outside electricity.

Dispatchers in the massive underground communications center, presently located in the City Operations Building, use Motorola Centracom consoles with the capability of 20 channels. In addition, the consoles are equipped with two computer systems which monitor the status of police units along with each phone and radio room position.

Phone operators man 18 positions while dispatchers are equipped with six consoles to provide adequate coverage for all areas of the city. The phone room, which includes 911 operators, is separate from the main dispatch room.

In the radio room there are also two supervisor consoles and one entry position console. Each was built around the original Motorola design. However, according to Paul Salter, senior communications engineer with the city, "Electronically, they are remote consoles with the main components located in another room upstairs." This, according to Salter, eliminates the problem of bothering dispatchers when repairs have to be made in the electronic circuitry. Maintaining the present communications system runs about $30,000 per year.

During the 1900s, the San Diego Police Department was among the pioneers of radio communications. They retain their cutting edge by continuously fine tuning and improving the system, their plans for the next couple of years confirming their dedication to providing the best possible service to the community: A new 800 MHz trunked system and a new location in the Police Headquarters Building at 1401 Broadway in the spring of 1991. Geographically, that's not all that far from where Chief Joseph V. Doran first proposed the revolutionary idea of equipping patrol cars with radios. Technologically, though, it's about as far apart as dinosaurs and space shuttles. Chief Doran would be proud.

mt

All photos are courtesy of the San Diego Police Department.

It started with a dream, a guy wishing he could fly, listening to those who do. But finally, Michael Sturm was airborne. Listen in as he embarks on a

Flight over Manhattan

by Michael Sturm

Back in the mid-sixties, my father put my mother and myself on a sightseeing helicopter flight over Mt. Rushmore. I remember every detail of the flight because it instilled in me a strong desire to learn to fly that "aluminum insect."

My 20/30 vision disqualified me from free military flight training. So for years I was content to monitor the aircraft bands, a guy who wished he could, listening to those who do.

Two years ago, the desire to fly got a bit too strong and I took a leave from work to attend a commercial helicopter school. Learning to fly a helicopter is a story in itself. Buzz Aldrin attests to its difficulty in his book as he describes how the Apollo astronauts (all super-jet jocks) were humbled when learning to fly helicopters as part of their training to handle the Lunar Module.

I stayed with it, and now my wallet contains two documents certifying my two proudest accomplishments. One says Amateur Extra, and the other, Private Pilot, Rotorcraft-helicopter.

I would like to share with you a flight around Manhattan Island from the point of view of a radio monitor, explaining what you would hear as you monitor the frequencies I use to communicate with Air Traffic Control (ATC) and other pilots.

A note to the serious aircraft monitor -- you really should purchase your local sectional and TCA (Terminal Control Area) charts and probably also the Airman's Information Manual and Airway/Facilities Directory. These references are crucial to understanding aircraft communications.

As we strap into the Robinson R22, a two seat helicopter, the communication transceiver is found in a rather inconvenient position at the bottom of the mushroom-shaped instrument panel. The radio has two

displays: one for the active frequency and one for the standby. The standby frequency is adjusted by two concentric knobs controlling MHz and kHz, and a press of a rectangular button alternates the active and "on deck" frequency.

The push-to-talk (PTT) button is located on cyclic, one of the primary flight controls. My right hand won't leave this "joystick" until I land, park and shut down. Next to the radio PTT button is one for the intercom which is needed to talk to the passenger because we're both wearing noise canceling headsets.

Below the comm radio is a transponder which works in concert with ATC radar to identify my aircraft and provide altitude information on the controller's display. A four-digit code known as a "squawk code" will be assigned to me by ATC and will act as my radar "call sign." It is set with four knobs on the transponder which look like TV channel selectors.

Okay, I've just completed a 30-minute preflight inspection, before-takeoff checklist, checked the weather, briefed my passenger on what not to touch and warmed up the engine.

We're departing from Linden Airport which is located about 15 miles southwest of the tip of lower Manhattan. Linden is an extremely convenient and desperately needed general aviation facility but is on the "endangered species" list because a few greedy developers, abetted by equally greedy politicians, are getting ready to replace it with a shopping center. I lift off and hover, taxiing to takeoff position with my back facing the direction I will depart so that I can check for other aircraft about to use the runway.

Linden has no control tower. A Common Traffic Advisory Frequency (CTAF) of 123.0 is used to self-announce each pilot's intentions to other aircraft in the traffic pattern. LINDEN TRAFFIC, HELICOPTER THREE NINER ROMEO DEPARTING RUNWAY 27, LINDEN. I do a 180 degree hovering turn to line up parallel to the runway and depart to the west, into the wind.

After gaining sufficient altitude, I turn back around to the east to cross over the northern end of Staten Island (where my father is probably monitoring me on my R-7000) and on towards upper New York Bay and the East River. I make a final call on the Linden CTAF to advise my intentions. LINDEN TRAFFIC, HELICOPTER 39R DEPARTING THE PATTERN DOWNWIND.

Most of the airspace over the New York or any metropolitan area is designated a Terminal Control Area (TCA) in order to facilitate traffic to and from high volume airports. The TCA is centered about a primary airport. The New York TCA has three: New York, Kennedy and LaGuardia. Its horizontal and vertical dimensions are

denoted on the TCA chart along with frequencies for its various sectors.

Amongst other restrictions, pilots must obtain clearance before entering the TCA. I didn't need a clearance before departing Linden, however, because the TCA only extends to the surface very near the primary airport. In the busiest metropolitan areas, special routes are set up for helicopters to save time in obtaining clearances. These routes are found on a Helicopter Route Chart.

I've chosen a route which crosses Staten Island from southwest to northeast and ends at the Statue of Liberty, called the "Staten Island Route." The Newark Airport tower controls the airspace this route traverses.

As I approach the Arthur Kill waterway between New Jersey and Staten Island, I switch from the Linden CTAF frequency to Newark TCA on 127.85 and make the initial call. NEWARK TCA, HELICOPTER EIGHT ZERO THREE NINER ROMEO. Newark answers, THREE NINER ROMEO, NEWARK.

I now say my position and intentions. (I'll dispense with spelling out the phonetics now, but understand they are always used in radio communications.) HELICOPTER 39R JUST DEPARTED LINDEN, OVER ARTHUR KILL, REQUEST STATEN ISLAND ROUTE AT 800 FEET. Newark assigns a transponder code to identify my radar target -- 39R SQUAWK ZERO THREE ONE THREE.

Before I departed Linden, I set the transponder code to 1200 which is used for traffic flying by visual references, not under direct control. It's also been set to transmit the helicopter's altitude. I reach down and dial in my assigned code and repeat it to the controller. Sometimes the controller will require additional identification of my radar target and will request I press the "ident" button on the transponder by issuing the instruction SQUAWK IDENT.

With my target identified, the controller now clears me into the TCA. 39R, RADAR CONTACT THREE SOUTHEAST OF LINDEN, CLEARED TO ENTER THE TCA AS REQUESTED.

Flying over the bedroom communities of Staten Island at 800 feet, I scan the sky from side to side, looking for other traffic. I spot another helicopter ahead of me and slightly

New York City Traffic Helicopters

ATC Callsign	User	Downlink Frequency
SHADOW ONE	Shadow Traffic/ WINS	455.5625 (simplex)
710	WOR	450.25R
9HS	WCBS	450.0875R
86N	Metro Traffic Control/ several radio stations	450.8125R

Note: All other Shadow Traffic aircraft use 453.0 primary and 452.975 secondary.

to my left. The controller also sees it and issues me a traffic advisory -- HELICOPTER 39R, TRAFFIC ELEVEN O'CLOCK, TWO MILES, OPPOSITE DIRECTION, ALTITUDE READOUT INDICATES ONE POINT FOUR (1400 feet).

Traffic advisories are given according to an imaginary horizontal clock face with 12 o'clock directly ahead, 1 o'clock about 30 degrees to the right, etc. Distance, direction of flight and altitude, if known, are also provided. Since I see the other aircraft, I respond, 39R ROGER, TRAFFIC IN SIGHT. Otherwise I would say NO CONTACT.

I cross the Kill Van Kull north of Staten Island and leave Newark airspace over the Military Ocean Terminal in Bayonne, New Jersey (where I have to work in order to earn money to rent the helicopter). Newark releases me from control with the following instruction -- 39R LEAVING THE TCA, SQUAWK 1200, RADAR SERVICE TERMINATED, FREQUENCY CHANGE APPROVED. I reset the transponder code and respond, 39R ROGER, THANK YOU SIR, GOOD DAY.

All of upper New York Bay and the Hudson River is excluded from the TCA from the surface to 1100 or 1500 feet, depending on location. Due to the density of air traffic in the area, a CTAF of 123.05 is established for everyone to self-announce their position and direction of flight. I dial up 123.05 and make my first position report. HELICOPTER 39R TWO MILES SOUTHWEST TO THE STATUE (of Liberty), PROCEEDING NORTHEAST-BOUND FOR GOVERNOR'S (island), AND UP THE EAST RIVER AT 800 FEET.

We proceed up the East River, over the Brooklyn waterfront. The skyscrapers of Manhattan, close abeam to my left, are kicking up enough turbulence to make it a little difficult to hold a steady airspeed and altitude. The view of the city is just fantastic here, but I can't dwell on it because I've got to watch out for other helicopters proceeding to and from the east side heliports.

My radio calls get frequent because the Robinson R22 is very small and difficult to spot and I want to make sure everybody knows I'm here. HELICOPTER 39R AT THE BROOKLYN BRIDGE, NORTHBOUND UP THE RIVER AT 800 FEET, BROOKLYN SIDE.

Another CTAF, 123.075, is used for the East River, between the Williamsburg Bridge and the north tip of Roosevelt Island. I switch frequencies and continue self-announcing my position until I reach the 59th Street Bridge.

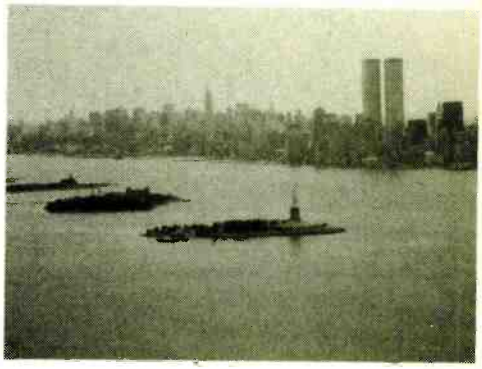
The rest of the route around Manhattan lies close to LaGuardia airport and is under their control. I will use a pre-determined helicopter route through the LaGuardia TCA which follows the Harlem River and terminates at the intersection of the Harlem and Hudson rivers at the northernmost tip of Manhattan. The route is called, you guessed it, the "Harlem River Route."

LaGuardia TCA, on 126.05, is where most of the traffic helicopters can be heard as they patrol the major arteries of the New York area during rush hours. In fact, the helicopter I am renting today is used by Shadow Traffic and identifies as HELICOPTER SHADOW ONE when on traffic patrol. Most of the clearances they get use the highways as reference -- HELICOPTER 710 CLEARED BRUCKNER, SHERIDAN, TO THE THROGS NECK BRIDGE.

I obtain my clearance from LaGuardia with the following exchange: LAGUARDIA TCA, HELICOPTER 8039R . . . 39R LAGUARDIA, SQUAWK 0221, SAY YOUR REQUEST . . . 39R, APPROACHING THE NORTH TIP (Roosevelt Island), REQUEST THE HARLEM RIVER AT 800 . . . 39R, RADAR CONTACT, CLEARED INTO THE TCA AS REQUESTED, AT OR BELOW 800 . . . 39R ROGER.

We snake our way up the narrow Harlem River between Manhattan and the Bronx, taking care to avoid flying over Yankee Stadium. All pilots try to avoid flying over noise-sensitive residential areas or outdoor events. I can see the big scoreboard though and, as usual, they're behind by 12 runs in the eighth inning.

After rounding the northern end of Manhattan Island, and clearing LaGuardia TCA at the Hudson River, I cross to the New Jersey side and turn southbound, parallel to the West Side of Manhattan. I switch back to 123.05 and resume self-announcing my position to the other helicopters and fixed wing pilots flying up and down the busy Hudson River corridor.



We pass the George Washington Bridge and Intrepid Museum and approach lower Manhattan on the west side. Here we get a great view of the twin towers of the World Trade Center. The top of its TV transmitting antenna is about 1000 feet higher than I am now.

Pulling up abeam the Statue of Liberty, it's time to contact Newark again on 127.85 to get clearance for the Staten Island route southwestbound, back to Linden. HELI-

COPTER 39R, YOU'RE CLEARED STATEN ISLAND ROUTE TO THE LINDEN EXCLUSION, 800 FEET. My return course across the island has aligned me perfectly with Linden's runway 27.

After clearing Newark TCA, I switch back to the Linden CTAF, 123.0. I observe no other traffic in the pattern, so I elect to use a straight-in approach rather than the standard rectangular pattern with its downwind, base and final approach legs. LINDEN TRAFFIC HELICOPTER 39R THREE WEST OF THE FIELD, STRAIGHT IN APPROACH TO RUNWAY 27, LINDEN.

I cross the New Jersey Turnpike and descend to initial approach altitude and slow to entry airspeed. LINDEN TRAFFIC, HELICOPTER 39R, FINAL APPROACH RUNWAY 27 LINDEN, LANDING TO THE RIGHT OF THE RUNWAY.

I intercept the 10 degree final approach angle, perform the before landing checklist, and lower the collective to descend.

Many private pilots are afraid to fly into areas where they have to talk to Air Traffic Control for clearances; my twenty years of monitoring really paid off.

Adjusting the pedals and cyclic to maintain attitude and heading, I slowly reduce airspeed to arrive at my landing spot at a stable five foot hover. Very simple -- only took a thousand trips around the traffic pattern to perfect it. LINDEN TRAFFIC, HELICOPTER 39R CLEAR OF THE ACTIVE RUNWAY.

Some final observations as we wait for the main rotor to stop spinning. The trip around the city took about one hour and covered about 40 miles. I changed frequency seven times and spoke to controllers at Newark and LaGuardia Airports.

For the sake of brevity, I have made some omissions of more mundane communications and, for obvious reasons, limited my descriptions to helicopter operations only.

My twenty years of monitoring the aircraft bands have really helped me to learn to use the airspace system. I fly to many places that other private pilots won't because they are afraid to talk to ATC to get the necessary clearances. It's interesting that many flying organizations recommend that pilots buy receivers and monitor the airbands to hear how the "pros" do it.

I have no desire to become a commercial pilot, just a proficient and safe private pilot. For this I rely on my flight instructors who have given and continue to give me the skills and confidence to interact with the highly professional pilots and controllers operating in the New York area.

mt

Photos are by Vinny Onorio, "a top notch computer systems analyst and one of the few people with 'guts' enough to fly with me at the controls."

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NEW! Bearcat® 147XL-A

List price $189.95/**CE price $94.95/SPECIAL**
10-Band, 16 Channel • No-crystal scanner Priority control • Weather search • AC/DC
Bands: 29-54, 136-174, 406-512 MHz.
The *Bearcat* 147XL is a 16 channel, programmable scanner covering ten frequency bands. The unit features a built-in delay function that adds a three second delay on all channels to prevent missed transmissions. A mobile version called the **BC560XLT-A** featuring priority, weather search, channel lockout and more is available for $94.95. CEI's package price includes mobile mounting bracket and mobile power cord.

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List price $549.95/**CE price $249.95/SPECIAL**
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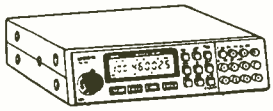

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The Wrong Place, The Wrong Time

I felt privileged the day I got my Bearcat Scanner. I knew what was happening and where it was happening.

It was nice to listen at home but before long, the old armchair wasn't enough. I needed more. I needed to go mobile. So I hooked my radio to the car and I was off. It was great!

In those days it was pretty hard to beat the police to the scene. Nowadays, with the increased crime in my city, it's easy to get there first (which can be very dangerous)!

On one occasion, my wife and I were "on patrol" as we would say, when we heard a call about a man being shot. Well on the way to the scene, we were almost broadsided by an unmarked squad car. If they had known that we had a scanner in the car I think they would have been very upset, to say the least. But being young and foolish, that close call didn't bother me.

Later on I discovered the hand held. With my new Bearcat 4-6 I wasn't restricted to the roads. I could go anywhere -- across a field or along a river bank -- and still be in on the action. One other time we "responded" to an "officer shot" during a hold-up attempt at a restaurant. When we got there, the police had already set up a line of officers along a three-block stretch. They were about to commence a house-to-house search of a 12 square block area. By this time I was on foot, on line with the officers.

Standing there with my hand-held, I mingled right in with the police. One of the officers finally asked me, "in what capacity are you here?" After my answer, I was led across the street, a safe distance from the line of police. I guess I didn't think about the serious danger I was in.

Then there was the time the vice squad was doing a stake out of some drug suspects. After listening for twenty minutes or so I figured out where they were. I decided to make a few passes of the house in my van. After the third time around, I heard one of the officers say, "we've got a van that keeps going around the block. Want to check him out?" Needless to say, I was gone mighty quick. Once again I didn't realize the danger and the stupidity of being there. Doing what I did could have endangered not only myself but others. I was interfering with a serious operation of surveillance.

Yes, I've been there when the stolen car whizzes by my car at over 70 miles-an-hour with ten squads chasing it. Yes, it was exciting. But it was very dangerous and foolish. It took me a while to realize that it was more than just my life I was jeopardizing. Yes, I still go mobile. But I have a new respect for the police and fire personnel and what they do and I try to stay out of their way. I guess I was lucky that nothing bad (that I know of) was caused by my foolishness.

I hope that all my monitoring friends are respectful of the seriousness of the situation they "respond" to.

Robert J. McGowan
(Address withheld)

Monitoring Times does not endorse the practice of "going mobile."

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

Shortwave Broadcasting

Glenn Hauser
Box 1684-MT
Enid, OK 73702

RELIEF IN SIGHT FOR 40-METER MESS?

A tentative agreement has been reached by the informal working group concerned with shortwave reallocations at the 1992 World Administrative Radio Conference. If it sticks, it could resolve the current (suboptimal) situation in which hams in North and South America share part of the 7 MHz band with international broadcasters.

The Industry Advisory Committee working group tentatively agreed to propose to the FCC that hams be allocated 6950-7250 kHz on an exclusive basis worldwide, while broadcasters get 7250-7750 kHz on an exclusive worldwide basis.

In a few months, the FCC will get together with US Government users and put together the US positions to take to WARC. So this proposal is quite preliminary, but it was readily agreed to, and no opposition was voiced within the group (pending successful reaccommodation of certain fixed services).

For in-depth and ongoing coverage of preparations for WARC-92, visit the "Airwaves" conference of Capital Online, a new computer conferencing system based in Washington, DC (202) 833-1591; 300/1200/2400 baud, 8-N-1; hit the spacebar and type preview at the prompt. (via Robert Horvitz, DC, *World of Radio*)

OVER THE HORIZON RADAR A new machine-gun signal has been observed, perhaps test of the new OHR station in Maine? At 1200, 1800 and 2330 UTC spreading 35-50 kHz wide, on 21710-21775, 17435-17490; and at 0000 around 15225 (Wolfgang Bueschel, Stuttgart, Germany, *World of Radio*)

LONG-TERM PROPAGATION OUTLOOK Solar activity is expected to increase with a peak in September or October. Predicted monthly 10.7 cm flux averages are: August 200, September 240, October 230, November 200, December 190, January 180. Predicted sunspot maximum continues to be March 1990, with a predicted smoothed sunspot number of 158.2, plus or minus 10 (Space Environment Services Center, *World of Radio*)

AFGHANISTAN (non) Radio Free Afghanistan heard with strong signals at 0230-0330 UTC in Pashto and Dari on new 17895 via Biblis, Germany; 15370 via Holzkirchen, Germany; 11770 and 9555 via Gloria, Portugal (Ernie Behr, Kenora, Ont., RCI *SWL Digest*)

ALASKA KNLS has only two English hours: 0800 on 11715, 1500 on 11800, both daily as the four Asian languages instead Mondays at 1500 are no longer heard. Tentative schedule from Sept. 30 shows 0800 on 7365, 1500 on 7355, and resumption of additional broadcasts: 1800 on 7355, 2000 on 11700 (*DX Listening Digest*)

AUSTRALIA Due to interference problems, VNG may have to reduce power, abandon 10 MHz and shift from 15 to 16 MHz; schedule is 24 hours on 5 MHz, 2200-0700 UTC on 10 and 15. Comments to Box 1090, Canberra, ACT 2601 (Volker Walkendorf, *Sweden Calling DXers*)

BHUTAN BBS, Thimphu, 5023.1 kHz, fair in English at 1445 with pop music program, 1458 ID, then slow instrumental music until closing at 1500 (Craig Edwards, South Australia, *OzDX*)

BRAZIL Two stations on 4975 are only 20 km apart. When Radio Iguatemi, Osasco was running open carrier, Radio Tupi, Sao Paulo could be heard underneath at 0545 (Antonio Ribeiro da Motta, Sao Jose dos Campos, SP, Brazil)

Radio Educadora da Baia is back on shortwave after an 8-year absence, heard from before 0900 until 1000 on 9540; non-commercial cultural station unlike most Brazilian shortwavers; previously used 6025 and 9515, still shown on QSL (Nobuyoshi Aoi, *Radio Nuevo Mundo*, and Radio Japan *DX Corner*)

Sunday Morning to lose 2 hours; format will change in the fall

CANADA CBC's *Sunday Morning*, once a must-hear for "a week in the life of the world," may be on the way out. Though the shortwave simulcast continued, 1300-1600 on 17820, 11955, 9625, the final two hours were something else this summer, and a new format is to be introduced this fall (Julia Nunes, *The Globe & Mail*, via Doug Copeland)

COLOMBIA Though some have reported a Peruvian on 3500, I taped a definite ID from La Voz del Guaviare at 0100, announcing 6035 and 1160, a variant of the latter producing this third harmonic (Dario Monferini, Milan, Italy, RCI *SWL Digest*)

Radiodifusora Nacional strong on 11821.6 AM, from 2230 orchestral music and ID (Ernie Behr, Ont., RCI *SWLD*)

(non?) Radio Patria Libre, 6300, less strident than the Central American clandestines, heard at 0000 but gone at 0100 recheck (Jerry Berg, MA, *Fine Tuning*) Later found on 6315 opening at 1128 (Peter Bunn and Dave Onley, Australia, *OzDX*)

CONGO La Voix de la Revolution Congolaise was heard for a while on 15190 at 1200-1500, after which France dominates the frequency (Ernie Behr, Ont., RCI *SWLD*) And on 11710 until 1530 (Bruce MacGibbon, OR, Radio Japan *DX Corner*) 5985 replaced 3265 on the test schedule given last month, heard parallel 4765 until 2100 (BBC Monitoring)

COSTA RICA Radio Impacto remained on mediumwave 980, but music only; the station was being sold, probably to be renamed, and the new owners have no interest in reviving the two 20-kW shortwave transmitters (Jeff White, Radio Nederland *Radio-Enlace*)

ECUADOR Without announcement or acknowledgement on its station breaks, HCJB began its long-planned SSB tests, first heard after dark both in England at 2200, and in Montreal at 0230 on 25950 (Alan Roberts, PQ, RCI *SWL Digest*) In Arizona, we heard 25950 as early as 1700, past 2300; by 2330, 21470 was on, probably all night past 0700, and again at 1430, much of the time in English parallel lower frequencies. Later SSB was shifted to 21460, but some evenings 25950 stayed on much later (gh)

HCJB may not be one big happy family. *DX Partyline* host Brent Allred went back to New Zealand in July, six months ahead of schedule, predicting that Canadian DXer Richard McVicar would take over the program when he arrived in August. The following week, former and temporary host John Beck suggested that longtime former host Clayton Howard, now back at HCJB, would take it over once he gets the Andex club running again.

EGYPT Voice of Unity, clandestine via the Abis transmitter site: 0130-0225 on 11490, 15685, 17540; 1200-1255 on 12230, 15100, 15685; 1515-1610 on 12230, 15685, 17540 (Wolfgang Bueschel, Stuttgart, Germany, *World of Radio*)

ETHIOPIA (non) The Ethiopian People's Revolutionary Democratic Front keeps expanding, now with four different services

from one transmitter plant. First among equals is Voice of the Ethiopian People for Peace, Democracy and Freedom, in Amharic at 0430 (Sunday 0420)-0530, and 1900-2000 (Sunday 1930). Voice of the Broad Oromo Masses, in Oromo at 0400-0430, 1500-1530; Voice of the Tigray Revolution, in Tigrigna, 0530-0615, 1530-1615; and newest is Voice of the Ethiopian Democratic Officers' Revolutionary Movement, Sunday's 0500-0530 and 1930-2000 in Amharic. Frequencies for all: 0400-0615 on 9335, 7886; 1500-1615 on 9315, 7820; 1900-2000 on 9320, 7905. These are seldom reported from North America, though the out-of-band frequencies ought to make them easier.

Ethiopian People's Revolutionary Party is a separate station, 0330-0400 and 1430-1500 on 9400 and 7010 (BBC Monitoring)

GABON The RFI relay was heard trying 3305 at 2000 (David Kernick, England, DSWCI)

GERMANY The Director General of Deutsche Welle has a clear concept for the unified future. All international broadcasting, both radio and TV, should be done by DW. The shortwave service of Radio Berlin International, and the foreign service of Deutschlandfunk should be joined to DW to form one powerful Voice of Germany, able to compete with the BBC and VOA (Dieter Bauer, DW, via Paul Rex, WDXC *Contact*)

GUAM Voice of Hope transmissions via KSDA ended some time ago, High Adventure Ministries says they hope to start up broadcasts from Guam sometime in October or November, at 1000-1600 on 9830, 2000-2400 on 9820, each block in English, Mandarin and Korean. Not stated is whether these would be on their own new station KHBN, or KSDA. A separate folder contradicts this: KHBN on 9840 at 2000 in Korean, 2100 in Mandarin; 15225 in English at 0000-0300; 9830 at 1000 in English, 1200 in Mandarin, 1500-1600 in Korean (via Mike Hardester, Okinawa)

VOICE OF HOPE ASIA
KHBN SW • 9840/15225/9830

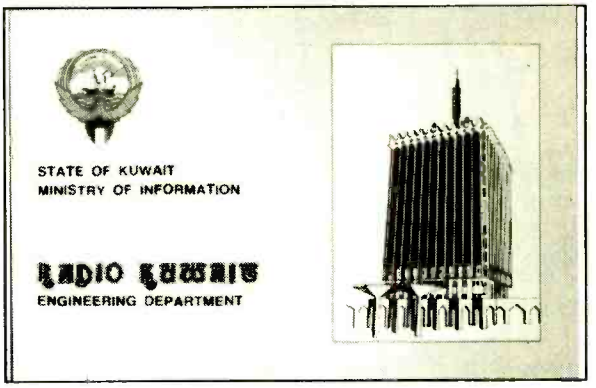
HAITI Missionaries have fed 40,000 pre-tuned radios into unnamed restricted areas of the world where they cannot enter, solar-powered and capable of receiving only one frequency, a particular missionary station (*OMS Outreach* via Marlin Field, NASWA *Journal*)

INDONESIA These RRI stations had improved signals this summer, either in modulation or strength; good bets for dawn DXing this fall: Jayapura 5044.8; Dili 3306.1; Kupang 4805.3; Palu 3959.8; Ambon 3241.4 (John Bryant, Lopez Island, WA, *Fine Tuning*)

IRELAND (?) Quality Radio, pirate, sends a nice QSL card; likes $2 or 2 IRCs for return postage, to P O Box 85455, NL-2508 CD Den Haag, Holland; they say transmitter is in another country. Programs usually run two hours, always start on the hour; power ranges 200 to 600 watts; professional but old transmitter, dipole 5 meters above ground. Frequencies are 21850, 15055 (or 15054 or 15058), 9985. Check the 15 MHz frequency in our evenings (Jerry Berg, MA, *FT*)

ITALY Radio Europe, Milan, had reduced power to 50 watts when heard on 7294.1, Sunday at 0855 (L. Botto, Italy, *Play-DX*)

IVORY COTE Africa Number One, Gabon, hopes to lease the under-utilized 500-kW transmitter here, in order to improve its coverage of West Africa (RN *Media Network*)



Radio Kuwait QSL from John Flake, North Carolina

KASHMIR Radio Kashmir, Leh, on new 3330 at 1130-1630, including English news at 1530 (*DX Spread*)

KOREA NORTH Radio Pyongyang's announced English schedule, mostly confirmed by monitoring: Americas 2300 on 11735, 13650; 0000 on 11975, 13775, 15115; 1100 on 9645, 9977, 11735; 1300 on 13650, 15230. Southeast Asia and India 0400 on 15180, 15230, 17765; 0600 on 15180, 15230; 0700 on 15340, 17765; 0800 on 15180, 15230; 1300 on 9640, 13650, 15230. Mideast and Africa 1500, 1700 and 2000 on 9640, 9977. Europe 1500 and 1700 on 9325, 11760; 2000 on 6576, 9345; 1300 on 9325, 9345 (Ed LaCrosse, CA, *World of Radio*)

KUWAIT Radio Kuwait in English: 0500-0800 on 15345; 1800-2100 on 13610, the latter designated to serve Australia, Southern Africa, Europe, North America (Radio Australia Japanese *DX-Time*) Multiple-lobe, or omni-directional?

MONGOLIA Radio Ulan Bator in English to South Asia at 1445-1515 on 13780 and 9795 is 7 days per week (Victor Goonetilleke, Sri Lanka, *RNMN*) Contrary to BBC Monitoring, which assumed all English broadcasts, not just the 1200 one, were pre-empted by Japanese certain days of the week.

PAKISTAN When monitoring for Congo on 15190, found Radio Pakistan on 15191.2 variable, from 1200 South Asian music and talk, 1300 English and Urdu news to closing at 1310; back on at 1357 with interval signal and brief talk to 1404-off; weak signal, previously on 15189.2v (Ernie Behr, Ont., RCI *SWLD*)

Azad Kashmir Radio, Rawalpindi, on 6069.5 at 1513 parallel to 7290-variable; PBC Quetta weak but clear on 7169.4 at 1527 (Mikhail P Timofeyev, USSR, DSWCI *SW News*)

PAPUA NEW GUINEA Most stations have excellent signals from new Japanese transmitters, with these exceptions: 2410, 3275, 3290, 3305, 3325, 3335, 3345, 3355, 3365, 3375, 3395, 3905. Due to insurrection, Radio North Solomons on 3325 was evacuated, and the intact transmitter could be operated by rebels at some point; however, RRI Palangkaraya, Indonesia is heard on 3325 instead. The

Shortwave Broadcasting

3365 and 3375 stations usually stay on past 1300 relaying the National FM service (John Bryant, Lopez Island, WA, *FT*) Lots of exceptions there!

PERU Another new station: Radio Cora, 4914.6 variable, heard three mornings in a row, opening as early as 0935, until 1105 fade; however, doesn't play national anthem until 1055 or 1100, followed by "Viva Peru, viva!" (Chuck Bolland, FL, RCI *SWLD*) Also heard one of the same days on 4914.5 from 1006 past 1100, travel program (Geoff Cosier, Australia, *OzDX*) Also strong until sign-off around 0502; had orchestral music from 0300, tropical music 0400; first reported in December 1985 on 3270 with 10 kW, OAZ4N (Ernie Behr, Ont., RCI *SWLD*)

Radio Tacna is 50 years old on Aug. 18; will probably issue a new pennant (Ernie Behr, Ont.)

Radio Eco, Iquitos, on 5097v at 1030 past 1100 (Peter Bunn and Craig Edwards, *OzDX*) Radio Sensacion, 6895.2, at 1100 (Edwards, *ibid.*)

TV news footage showed Radio Frecuencia Popular, Rioja, 4011, destroyed in an earthquake, but heard again a few weeks later at 0115-0130 (Rafael Rojas, Peru, *Play-DX*)

Radio La Voz de San Antonio, Bambamaraca, heard on 6628v from 0348 to closing at 0413, announcing frequency as 6627; previously also heard on 2nd harmonic 13256v (Antonio Ribeiro da Motta, Brazil) Something fishy here -- 4417 is one third of one frequency, two thirds of the other, so is 6628 actually a sesqui-harmonic?

PHILIPPINES Radio Philippines, 9578, verified a follow-up to a 1981 report; says off shortwave at present, but plans to return in '91 with upgraded transmitters. Does use 6170 for relay to provinces. Signed by Jose Q. Borromeo, at PBS, Sgt. Esquerra Ave., Quezon City (Ed Kusalik, Coaldale Alta, NASWA *Journal*)

SA'UDI ARABIA Holy Qur'an program: 7250 at 1500-2100; 7275 at 1900-2100; 11730 at 0600-0800; 11935 at 1900-2100; 15170 at 1000-1400; 21505 at 0600-1000; 21665 at 0800-1000. Reports go to Suliman A. Al-Samnan, Frequency Manger, BSKSA, Ministry of Information, P O Box 61718, Riyadh 11575 (Ed Cichorek, *SPEEDX*)

SOMALIA Radio Mogadishu has been heard again, on 7198.1 variable (BBC Monitoring)

SRI LANKA In tribute to the former chairman of SLBC, who was assassinated exactly a year before, an external service toward Europe in English has started, 1835-2000 on 100 kW 9720, and 35 kW 15120 (Victor Goonetilleke, *RNMN*)

SUDAN (non) Radio SPLA, 11710.15, from sign-on at 1300 in English, talk and Sudanese music, 1328 Arabic to 1357 sign-off, fair parallel to weak 9550 (Ernie Behr, Ont., RCI *SWLD*)

SWITZERLAND SRI on 9650 ex-9725 noted at 0300 and 0430 (Bruce MacGibbon, OR, *DX Spread*)

TURKEY For Voice of Turkey, four 500 kW transmitters, two rotatable, three quadrant and 44 HF curtain antennas have been purchased; this will soon be increased by five 250 kW transmitters; the first to be ready by March 1991, and all five 500 kW completed in 15 months. West coast coverage of the USA should be possible by mid-1992 at the latest (Coskun Arslan, TRT, via George Poppin, CA, *World of Radio*)

TURKMENISTAN Another (ex?-) Soviet (ex-?) Republic starts its own external service: Voice of Soviet Turkmenistan from Ashkhabad, aimed at Afghanistan, Iran, Iraq, Turkey, but only in the Turkmen language, after the end of domestic programming on 4825 and 279 kHz Tuesdays, Thursdays and Saturdays at 1903-2003, repeated Monday, Wednesday and Friday at 1200-1300 on the same (BBCM)

U S A Jeff White's application to the FCC for a 10-kW Radio Miami International asks for a waiver of the 50-kW minimum, with evidence that 10 kW is sufficient for a nearby target area, and this would be in keeping with ITU standards to use no more power than necessary. However, if FCC will not waive, RMI will go 50 kW. Proposed site is next to WCMQ-AM, near Hialeah Gardens (*World of Radio*)

U S S R Transworld Communications, in Washington DC, hopes to begin a joint venture with Radio Moscow in September, for a one hour daily commercially sponsored program, to be broadcast on English external services, then expand to two hours; and by next year, three hours. All production facilities will be in Moscow; the agreement took a year to put together; RM and TWC will split the profits 50-50; "a great service to multi-national advertisers". The agreement also involves ads elsewhen during the broadcast day, and television. It may lead to a radical overhaul of Radio Moscow in the rest of its languages (Richard Milman (?), TWC, RN *Media Network*)!

VENEZUELA Radio Maracaibo reactivated, 4859.89 at 0915-0955, lots of talk, some tunes (Chuck Bolland, FL, RCI *SWLD*) Also heard one night only on 4860 at 0145-0210 (Dave Valko, PA, *FT*)

VIETNAM VOV domestic service, Hanoi, good on peaks from 1549 to closing at 1600 on 14685, third harmonic of 4895 (Ed LaCrosse, CA, *W.O.R.*)

Cao Bang heard at 1200-1400 on 6495 in local languages, except 1300-1330 in Vietnamese; replaces 6615, which is now occupied by Bac Thai at same time, ex-6585 (Isao Ugusa, Kobe, Japan, Radio Japan *DX Corner*)

YEMEN Although the Yemen Arab Republic and PDR Yemen unified into the Republic of Yemen in May, the two radios, in Sana'a and Aden, still operate separately although they do carry the same signature tune before each news bulletin. Republic of Yemen Radio in Sana'a: 0300-0705 on 9779.4, 6135, 5950, 4853; 1000-1100 on the same; Friday 0705-1000 and daily 1100-1600 on 9, 6 and 5; 1600-2115 on 9 and 5. All in Arabic, including armed forces program *Guardians of the Homeland* daily at 1115-1150; *Voice of Palestine* at 1600-1630 (but 1800-1830 during Ramadan); *Homeland and the Emigres* at 1900-1930. During Ramadan extends to 2310.

Republic of Yemen Radio, Aden: 0300-0600, 0600-1100 Friday, 1100-2100 on 7190 and 5970, including: *The Rebublic of Yemen During the Week*, Friday 1245-1300, repeated at 1915-1930; *Voice of Palestine* daily 1815-1900. Ramadan schedule is: 0400-0600, 1200-2300 (BBCM)

ZIMBABWE (non) Radio Truth, 5014.1 USB, from 0430 English talk about Zimbabwe and bird interval signal to closing at 0504, good signal (Ernie Behr, Kenora Ont.)

Read much more about shortwave broadcasting and other media in REVIEW OF INTERNATIONAL BROADCASTING and/or DX LISTENING DIGEST. Samples are $2 each, 10-issue subscriptions $21, or both for $40, in North America; US funds on a US bank, from Glenn Hauser, Box 1684-MT, Enid, OK 73702.

Monitor Glenn Hauser's DX news reports concluding each SWL DIGEST on Radio Canada International; Saturday 2337 UTC on 9755, 5960; Sunday 1837 on 17820, 15260, 13670; 2137 on 17875, 15325; 2307 on 11730, 9755; Tuesday 1233 on 17820, 11855, 9635 and C-SPAN Audio 1.

See COSTA RICA and last month for WORLD OF RADIO on Radio for Peace International; also on WRNO, New Orleans: UTC Thursday 0030 on 7355, 1530 on 15420, 2300 on 13720; UTC Friday 0030 on 7355; UTC Saturday 0300 on 6185, 2330 on 13720; Sunday 2030 on 15420.

Broadcast Loggings

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

0000 UTC on 7215
YUGOSLAVIA: Radio Yugoslavia. Newscast and commentary on the national economic stability. (Bob Doyle, Shelton, CT) Monitored on 11735 kHz with editorial on "Nationalism in Yugoslavia." (John Carson, Norman, OK) (Dennis Green, Atlanta, GA)

0010 UTC on 4935
BRAZIL: Radio Capixaba. Portuguese. U.S. and Brazilian pop music show. Great signal tonight including IDs and local commercials. (William Kruger, Miami, FL) (Sam Wright, Biloxi, MS)

0015 UTC on 11605
ISRAEL: KOL Israel. "Mosaic" program discussing the upcoming proposed VOA relay transmitter site in the Neger Desert. Comments included that this site is a major threat to human health and wildlife. (Bob Fraser, Cohasset, MA) Monitored on 15690 kHz at 2140 UTC. (George Neff, Lutz, FL) (Sam Wright, Biloxi, MS)

0028 UTC on 17705
CHINA: Radio Beijing. Trade Fair discussion and "Third World Reports" from various countries. (George Neff, Lutz, FL) (Bruce Grohman, San Antonio, TX) (Walter Sneider, Tyler, TX)

0110 UTC on 1800
ITALY: RAI. Italian pop music program to ID/frequency schedule and abrupt sign-off at 0122 UTC. (Cathy Turner, Yonkers, NY) Italian programming monitored on 9575 kHz at 0100 UTC. (Bob Fraser, Cohasset, MA) (Bob Doyle, Shelton, CT) (David Thompson, Houston, TX)

0120 UTC on 7345
CZECHOSLOVAKIA: Radio Prague. Report on a self-contained traveling dance ensemble. Sign-off at 0130 UTC. Audible on parallel frequency 5930 kHz. (Bob Fraser, Cohasset, MA) Audible also on 7345 kHz at 0300 UTC. (John Carson, Norman, OK)

0128 UTC on 9835
HUNGARY: Radio Budapest. DX program and request for reception reports. (John Carson, Norman, OK) Monitored at 0130 UTC on parallel frequency 11910 kHz. (George Neff, Lutz, FL) (Dennis Green, Atlanta, GA) (Bruce Grohman, San Antonio, TX)

0137 UTC on 5960
JAPAN: Radio Japan. "DX Corner" and "Viewpoint" programs to Japanese programming at 0200 UTC. 11865 kHz heard at 1545 UTC. (John Carson, Norman, OK) (Bruce Grohman, San Antonio, TX)

0140 UTC on 5030
ECUADOR: Radio Catolica. Spanish. Children's prayers to Santa Maria. Station ID/frequency schedule at 0156 UTC. (Sam Wright, Biloxi, MS)

0215 UTC on 7413
USA: Pirate-Radio Clandestine. Rock music show and commercial parodies. Announcer R.F. Burns mentioned he was "transmitting somewhere off the coast of North America." (Tim Johnson, Galesburg, IL)

0250 UTC on 6240
USA: Pirate-Voice of Tomorrow. Tim Leuscher with speech before an audience, at the 9th Revisionist Conference. Station ID at 0318 UTC. Monitored to 0325 UTC. (Nicholas Peter Adams, Newark, NJ)

0300 UTC on 6005
WEST GERMANY: RIAS-Berlin. German. Time pips and station ID at 0300 UTC. US and German pop/rock, with BBC interference. (Frank Hillton, Charleston, SC) (Bill McDavitt, Durham, NC)

0309 UTC on 11785
EAST GERMANY: Radio Berlin Int'l. Commentary and European/USA letters on Mailbag show. News and sports report on 11890 kHz at 0404 UTC. (John Carson, Norman, OK) (Bruce Grohman, San Antonio, TX)

0404 UTC on 7409
USA: Pirate-Tube Radio. Odd music selection with comments, "from the bowels of the earth" and "I am the earth, the planet you call home." Station address given as P.O. Box 6527, Baltimore, Maryland 21219." (Tim Johnson, Galesburg, IL) Heard 0115 UTC, with IDs and pops to 0120 sign-off. (Dennis Green, Atlanta, GA)

0445 UTC on 5012
ZIMBABWE: Z.B.C. Very weak signal for English newscast. "Radio 2" ID and bird call interval signal at 0500 UTC. (Tim Johnson, Galesburg, IL) Audible on 5011.2 at 1812 UTC with talk on World Telecommunications Day. (Dick Moon, George, South Africa)

0520 UTC on 7410
USA: Pirate-WLIS. Noted call as "We Love Interval Signals." Comedy bits from Monty Python and Gilligan's Island. Address given for the Slanesville, West Virginia maildrop. (Tim Johnson, Galesburg, IL) Nonstop interval signals noted while browsing for pirates at 0505 UTC. (Donald Westbrook, Columbus, OH)

0600 UTC on 17680
NEW ZEALAND: Radio New Zealand Int'l. World news and ID to program feature beamed to Tonga. (John Carson, Norman, OK) (Bruce Grohman, San Antonio, TX) (Rod Pearson, St. Augustine, FL)

0630 UTC on 14917.7
KIRIBATI: Radio Kiribati. Two discussions on the use of computers in medical research, and rock climbing. (Dick Moon, George, South Africa) Heard at 0710 UTC with lady reading the news in local Kiribatese. (Tim Johnson, Galesburg, IL) (Donald Westbrook, Columbus, OH)

0645 UTC on 11760
COOK ISLANDS: Radio Cook Islands. Lady announcer presents music program to 0700 UTC. Radio New Zealand news relay to 0715 UTC, followed by local news topics. (Tim Johnson, Galesburg, IL)

0800 UTC on 11715
USA: KNLS-Alaska. Fair signal for sign-on routine and 50s swing music show from original 78 records. (Cathy Turner, Yonkers, NY) Music and KNLS IDs at 1500 UTC on 11800 kHz. (Walter Sneider, Tyler, TX) (Donald Westbrook, Columbus, OH)

0815 UTC on 15200
GUAM: KTWR. Fair signal with atmospheric noise and signal fading. Religious program "Insight for Living" on women's role in marriage. (Cathy Turner, Yonkers, NY) Monitored on 11805 kHz at 0940 UTC. (Harold Bower, Sunbury, PA) (Sam Wright, Biloxi, MS)

0835 UTC on 9645
BRAZIL: Radio Bandeirantes. Portuguese. Morning wake-up show with DJ chat, IDs, and cuckoo bird sound effects. (Tim Johnson, Galesburg, IL) (Bruce Grohman, San Antonio, TX)

0915 UTC on 4790
PERU: Radio Atlantida. Spanish. Station ID and Andean music program. (Tim Johnson, Galesburg, IL) Audible to 1015 UTC with folk music. (Bruce Grohman, San Antonio, TX) (Sam Wright, Biloxi, MS)

0920 UTC on 5040
VENEZUELA: Radio Maturin. Spanish. Latin pops and ballads to clear ID. Monitored to the hour despite fades. (James Bynum, Glenview, IL)

0935 UTC on 3385
PAPUA NEW GUINEA: (New Britain) Radio East New Britain. Pidgin. Closing newscast to ID. Sports report and local music show. (William Kruger, Miami, FL) (James Bynum, Glenview, IL)

0935 UTC on 4935
PERU: Radio Tropical. Spanish. Sign-on IDs and Peruvian anthem. (Tim Johnson, Galesburg, IL) (James Bynum, Glenview, IL)

0955 UTC on 6135
BOLIVIA: Radio Santa Cruz. Spanish. News bits and coffee commercials. Station ID at the hour with morning chat. Fair signal to 1015 UTC. (William Kruger, Miami, FL) (James Bynum, Glenview, IL)

1000 UTC on 6105.5
BOLIVIA: Radio Panamericana. Spanish. Fair signal for sign-on and national anthem, with opening morning announcements. Great Bolivian music tunes! Monitored to 1030 UTC. (William Kruger, Miami, FL)

1000 UTC on 4945
BRAZIL: Radio Progresso. Portuguese. Morning sign-on with station ID and frequency. Newscast with deteriorating signal quality. (James Bynum, Glenview, IL) (William Kruger, Miami, FL)

1015 UTC on 9735
DOMINICAN REP.: Radio Amanecer. Spanish. Station ID in progress at tune-in as, "Amigos oyentes, muy buenos dias Radio Amanecer International," followed by religious script and music. (Brian Bagwell, St. Louis, MO) Audible on 6025 kHz at 1005 UTC. Canned ID/frequency schedule to religious music. (James Bynum, Glenview, IL)

1035 UTC on 9735
PARAGUAY: Radio Nacional. Spanish. Good signal for national music. IDs and brief news topics. (William Krueger, Miami, FL) (Rod Pearson, St. Augustine, FL) (T.D. Leinweber, Blytheville, AR)

1105 UTC on 3264.8
INDONESIA: (Sumatra) Radio Republik Indonesia-Gorontalo. Indonesian. Presumed Jakarta news relay to ID/frequency quote. Announcements to Islamic programming. (Donald Westbrook, Columbus, OH)

1215 UTC on 9750
SOUTH KOREA: Radio Korea. International news and "Seoul Calling" with talk on upcoming Buddhist conference. (Bruce Grohman, San Antonio, TX)

1930 UTC on 11745
ALGERIA: RTV Algerienne. Arabic. Fair signal during announcer's interviews. French programming monitored on 9509 kHz at 2150 UTC with American music, IDs and newscast. (Richard Langer, Pittsburgh, PA) (John Miller, Thomasville, GA)

2000 UTC on 13610
KUWAIT: Radio Kuwait. Rock music program to ID and Pall-Mall ads. Arabic programming commencing at 2100 UTC. (John Carson, Norman, OK) (George Neff, Lutz, FL) (Dennis Green, Atlanta, GA)

2015 UTC on 9022
IRAN: V.O.I.R.I. Talk on the principles of Islamic faith to program closedown at 2025 UTC. Station ID/frequency schedule and station address. (Dick Moon, George, South Africa)

2033 UTC on 3369.6
MOZAMBIQUE: E. Prov. De Sofala. Portuguese. Fair signal for sports roundup report and ID. Audible on parallel 3279.7. (Dick Moon, George, South Africa)

2120 UTC on 13635
SWITZERLAND: Swiss Radio Int'l. Talk on women's role in the Islamic world. (Bob Doyle, Shelton, CT) (James Bynum, Glenview, IL)

2130 UTC on 15330
BULGARIA: Radio Sofia. News and commentary on "Old Dates-New Truths." (Bob Doyle, Shelton, CT) Audible on 15330/11660 kHz at 2203 UTC. (Harold Bower, Sunbury, PA) (James Bynum, Glenview, IL)

2240 UTC on 7189
EQUATORIAL GUINEA: Radio Africa. Gospel scripture readings, followed by ID/station address and national anthem. (Bob Doyle, Shelton, CT)

Utility World

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

It's the largest and deepest body of water on earth. In fact if all the continents were placed in the Pacific, there would still be room for another continent the size of Asia.

The Pacific covers about a third of the surface of the world and yet just one agency is charged with aiding its maritime community. It's a big job but the men and women of the Coast Guard have answered the call for the past 200 years.

Listeners on the Pacific rim have probably monitored at least a couple of Coast Guard stations but in case you haven't there is some good listening on Coast Guard frequencies.

The primary mission of Coast Guard communication is to provide communications support for Coast Guard units and other government agencies. Some of the other missions include: monitoring international distress frequencies, support for the National Marine Fisheries Services and disseminating weather for the maritime boating public.

West Coast COMSTAs

One of the Coast Guard stations in the Pacific is located on the west coast, specifically at Point Reyes Station, California. Called COMSTA San Francisco, it was originally located in San Bruno, California, and went on the air in June 1943. Ground was broken for the current site at the Point Reyes National Seashore in 1972 and within a year, Communication Station San Francisco was on the air. Soon afterward, the name was changed to Communications Area Master Station Pacific, or in short, CAMSPAC, to reflect the station's changing role in Coast Guard communications.

The station utilizes vertically polarized omni-directional antennas with a full 360 degree orientation. The shortwave transmitters are from Collins/Rockwell, HF80 series, utilizing 10 kW.

The Coast Guard in general and San Francisco in particular, send a lot of different broadcasts over the shortwave spectrum. One of the more widely heard and utilized are the Fleet Composite CW (Morse Code) Broadcast (FCMP). Table 1 lists times and frequencies of these broadcasts as well as content.

Table 1 -- Fleet Composite Morse Code Broadcast (FCMP) Schedule and Frequencies

Keyed by NMO Honolulu, Hawaii, 9050 13655 16457.5 22472 kHz

Time (Zulu)	Remarks/Content
0100/0400	FCMP-FZPN 2300/FZPS 2330Wx
0130/2030	FCMP-Mercast Areas 1 and 2
0300/1700	FCMP-NAVAREA XII
0430/0730	FCMP-Mercast Area 2
0600/2200	FCMP-Hydropacs
0700	FCMP-FZPN 0500/FZPS 0530 Wx
1300	FCMP-FZPN 1100/FZPS 1130 Wx
2000	FCMP-FZPN 1700/FZPS 1730 Wx

Broadcast Contents

FCMP- Eastern Pacific Composite Fleet/General CW broadcast. Broadcast between 16 and 29 wpm coincident with volume of traffic to be broadcast.
FZPN- High Seas North Pacific between 160E and 140W, Equator to 50N. Includes warnings, synopsis and forecast.
FZPS- High Seas South Pacific from Equator to 25S, between 160E and 110W, includes warnings, synopsis and forecast.
Hydropac- Safety of Navigation information for the Pacific area not covered by NAVAREA XII Advisories.
NAVAREA XII- Navigational warning information for Pacific Ocean area bounded by Pacific Coast to 180, 67N to the Equator, east to 120W, south to 3-25S and eastward to the coast.

There are a couple of broadcasts that are keyed by NMC/CAMSPAC San Francisco. These are general broadcast and are listed in Table 2.

Table 2 -- NMC-CAMSPAC San Francisco Broadcast

Shortwave CW Broadcast
0030/1900 - 8680 12728 17203
0630 - 4344 8680 12728

Shortwave/MF Voice Broadcast
0203/1430 - 2670
0403/1030 - 4428.7 8765.4 13113.2
1630/2230 - 8765.4 13113.2 17307.3

Contents of the above broadcasts include:

Hydropac- See broadcast contents: Table 1
NAVAREA XII- See broadcast contents: Table 1
ABIO- Significant tropical weather advisory for ocean areas north of the equator, west of 180 and east of the African coast.
ABPW- Significant tropical weather advisory for the western Pacific 180 west to the Malay peninsula.
GCMP- Western Pacific composite Fleet/General CW broadcast.
Note: GCMP 1 - Covers time zones I, K
GCMP 2 - Covers time zones E, F, G, H and part of D.
WMIO- North Indian Ocean High Seas warnings, includes Bay of Bengal, Arabian Sea, Gulfs of Oman and Aden.
WMPN- High seas warning northwest Pacific
WTIO- Tropical Cyclone formation alerts and warnings for southern hemisphere Indian Ocean east of 20E to 60S, 130E to Australian coast at 130E, thence coastal to 115E, northward to 9S 115E, thence coastal to equator.
WTPA- Tropical cyclone formation alerts and tropical cyclone warnings for north Pacific west of 180 including China Sea.
WTXS- Tropical cyclone formation alerts and tropical cyclone warnings for the South Pacific.
WWIO- High wind warning for the Northern Indian Ocean, Bay of Bengal, and Persian Gulf.
WWPN- High wind warnings for the northwest Pacific
WXPQ- Northwest Pacific map summary.

Now San Francisco is not the only Coast Guard site in the Pacific. There are several and they include: COMSTA's Guam, Honolulu and Kodiak. Kodiak has a remote site at Adak Island, Alaska, and San Francisco has remote sites at Long Beach, California, and Astoria, Oregon.

NMO Honolulu

As mentioned earlier, broadcasts for the FCMP broadcast listed in Table 1 is keyed by NMO-Honolulu, Hawaii. This station located on a Navy complex (Navy Communications Area Master Station Eastern Pacific -- NAVCAMS EASTPAC) on the Hawaiian Island of Oahu.

A lot of readers have asked me just what goes on behind the closed doors of a Coast Guard COMSTA. Well, let's open the door and look inside and take a peek at the communications positions of NMO.

The person in charge is the Communications Watch Officer (CWO). The CWO console oversees the total station operational functions. This position is normally manned by a chief petty officer (CPO) or a very senior first class petty officer.

Another major position is the Medium Frequency Ship-Shore distress console. At this position, 500 kHz MF/CW is guarded 24 hours a day. Also at hours prescribed by the ITU regulations, this

position guards a 22 MHz frequency. The Comm Center folks call this a "Split Phone" watch because in one ear they monitor 500 kHz and the other ear listens to the 22 MHz CW band.

This position is also known as AMVER "B" since they have the capability to send and receive messages on all their other AMVER CW bands. This position sends out Urgent and Safety Marine Information Broadcasts, and scheduled Marine Information Broadcasts along with local Hawaiian weather information. The MF Ship Shore Distress console can also send Auto Alarms if the need arose.

The shortwave Ship-Shore console maintains a communications guard for Coast Guard cutters and various government vessels underway in their Systems Coordination Net (SCN) on 4, 6, and 8 MHz. This is also known as voice AMVER, where commercial vessels can call to pass position reports or weather observations. On a few occasions, they do get Distress calls or requests for medical advice on these bands.

Another mission on the shortwave console is to broadcast weather on 2, 6, 8 and 13 MHz. The operator at this position also communicates with Coast Guard, government and Navy vessels via radioteletype and CW if required. This position's frequency range starts at 2 MHz and runs the whole range up to 30 MHz. For vessels who are too far away, the shortwave console can switch to directional antennas (receiving and transmitting).

A fourth position at NMO is the air-ground console. At this position the watch staff maintains the guard for Coast Guard and other military aircraft. Modes of operation include voice and radioteletype. The A/G console can conduct phone patches for these aircraft if they need to establish a direct link with another ground facility. Most of us have listened to 5696 MHz. This is just one of the A/G frequencies monitored at this console.

Broadcasts as mentioned in Table 1 are sent out at console number five, the "broadcast" position. At this console, broadcasts are sent out in two different ways: SITOR-Simplex Teletype Over Radio and FCMP mentioned in Table 1.

The SITOR system is one of error detection and correcting. This enables ships on the high seas to receive Weather Notices to Mariners (known as NAVAREAS and HYDROPACS) to obtain perfect copy. They can also send military messages to military vessels if the need arises.

The FCMP broadcast is a Morse Code broadcast sending the same information that would go out on their SITOR system with one exception. If a Navy vessel is underway and has his communications guard with NMO, they would send his messages out in CW but on a broadcast called MERCAST. These vessels are mostly of the Military Sealift Command (USNS) ships.

One added feature to SITOR is merchant vessels who have this type of equipment can send NMO messages. Weather observation reports, AMVER (a type of ship movement report) and requests for medical information are the types of messages received.

At position six in the NMO communications complex is the shortwave AMVER console. This position is for high speed CW operations. In addition to maintaining a continuous guard on the International Shortwave Survival Craft Distress frequency 8364 kHz, another 8 MHz and two 12 MHz channels are monitored. Weather reports, AMVERS, medical information requests and distress messages are received at this position. A total of five channels are monitored at the AMVER console. Peak periods of operations are 0000, 0600, 1200 and 1800 UTC. This is when most of the merchant fleet send their messages to NMO. Busiest periods are the 0000, 0600 and 1800 UTC periods.

The final console at NMO is the landlines console. This position sends out and receives all messages destined to and from other government agencies. They receive weather, Notice to Mariners broadcasts, administrative and operational messages for NMO or stations we have communication guards established at this console. This is where all incoming and outgoing messages are processed for dissemination to one of the other positions for transmission.

All the previous positions are manned 24 hours a day. A normal watch section consist of one CWO, which is a chief petty officer (E7) or a first class petty officer (E6), one supervisor (E6) or second class petty officer (E5) and the radio watchstanders. These are highly skilled first class to third class (E4) petty officers. Including the CWO and supervisor there are a total of eight radiomen on watch 24 hours a day. NMO can operate with only five personnel during a dire emergency, but this puts a heavy strain on those involved. The duty crews work in 12 hour shifts, two days in a row, then they get three days off. After the two days off they return for two more 12 hour night shifts. They have four duty crews.

All the operators at NMO are skilled in all areas of Coast Guard communications. Not like that of other services, NMO operators will be sitting at the high speed CW code console for three hours then they might move to the console working Coast Guard vessels working radioteletype followed by a stint at the aircraft desk.

Initial schooling for a Coast Guard radioman is a minimum of six months and can last as long as eight months. After initial training is completed, the operator has the knowledge to make them well-rounded communicators. One unique skill is the ability to copy 18 words per minute CW and transmit a minimum of 16 words per minute by hand. Most of the radiomen currently assigned to NMO copy an average 22 to 28 words per minute with some reaching 30 words per minute. This ability is what makes Coast Guard radiomen different from other military communicators who may specialize in one type of communications.

The frequencies in Table 3 apply to the indicated NMO operations.

Table 3 -- NMO-Broadcast/Shortwave Frequencies

Weather for North/South Pacific and Hawaiian waters
0545/1145 UTC 6506.4 8765.4
1845/2345 UTC 8765.4 13113.2 (voice)
0130/0430/0730/1330/2030 UTC 8716 13082.5 22203.5 kHz (SITOR)
0100/0400/0700/1300/2200 UTC 9050 13655 16547 22472 kHz (CW)

Hawaiian weather and Notice to Mariners (CW)
0500/2200 UTC 500 440 kHz

NAVAREA: Type of Notice to Mariners
0300/1700 UTC 9050 13655 16547 22472 kHz (CW)
0330/1730 UTC 8716 13082.5 22203.5 (SITOR)

HYDROGRAPHICS: Type of Notice to Mariners
0600/2200 UTC 9050 13655 16547 22472 kHz (CW)
0630/2230 UTC 8716 13083.5 22203.5 (SITOR)

AMVER: CW frequencies

NMO transmit	8650	Ship transit (NMO monitor)	8364 8368.4
	12889.5		12546/12552.6
	22476	(Daylight hours only)	22232

AMVER: Voice frequencies for the Pacific area

NMO transmit	4428.7	Ship transmit (NMO monitor)	4134.3
	6506.4		6200
	8765.4		8241.5
	13113.2	(Daylight hours only)	12342.5
	17030.7	(Upon request)	16534.4

Notes: All hours of operation are 24 hours unless otherwise noted.
A 10 minute call tape is sent prior to all FMCP (CW) broadcasts.
A five minute call tape is sent prior to a SITOR broadcast.
For vessels having SITOR equipment NMO guards the following frequencies 24 hours a day: 8355 12502.5 22203.5 kHz.

Well, that just about does it for this month. I'd like to thank the following individuals who assisted in the preparation of this month's column: Preston Sewell-Denville, New Jersey; Ken Richardson-Flagstaff, Arizona; Master Chief Petty Officer Frank H. Greene-USCG San Francisco and Radioman 2nd Class Kevin L. Miller-USCG Honolulu. And now it's time to check out what you have been hearing in the Utility World.

Utility World

Utility Loggings

Abbreviations used in this column

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

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

2182.0 USCG Station Astoria-NOM broadcast at 0933 in USB. NMC-San Francisco, California, heard at 1422 in USB with weather broadcast. CG Group Monterey, California, heard at 0334 with announcement of pending broadcast. (Brian Webb, Thousand Oaks, CA) *Welcome back, Brian, and thanks for the logs.-ed.*

2707.0 Female German 3/2 digit number station heard at 0603. (Fernandez, MA)

2716.0 USS Samuel B. Gompers calling Newport Port Control at 1328 in USB, couldn't hear a reply. (Doyle, CT) *Oh boy, the Sam is on the move, must be on their annual cruise for sea pay, hi.-ed.*

HMCS Comoron? calling for radio check, nothing heard at 0156 in USB. (Doyle, CT)

3109.0 6CA (ground) working P5S (aircraft) with flight data and landing time ETA at 06553 in USB. (Fernandez, MA)

3258.0 Female German five-digit number station ending at 0614 followed by musical tune with simulated church bells for 10 seconds, then off. (Fernandez, MA)

4035.0 American stations PG with radio checks with KG, IE, AA, BA at 2150 with QRM from foreign language five-digit number station on 4030. (S. Hosegood, Surrey, UK) *Welcome aboard, Mr. Hosegood, glad to see you check in from the UK.-ed.*

4373.0 I5Y calling Giant Killer at 0024 in USB in the blind with traffic info. (Doyle, CT)

4458.0 Female net control calling many stations with two letter calls and asking all for radio checks in USB at 0617. (Fernandez, MA)

4545.0 Lima Victor (net control) calling many two letter stations at 0420. (Fernandez, MA)

4560.0 YHF Israel Moshad station heard at 0430. (Fernandez, MA)

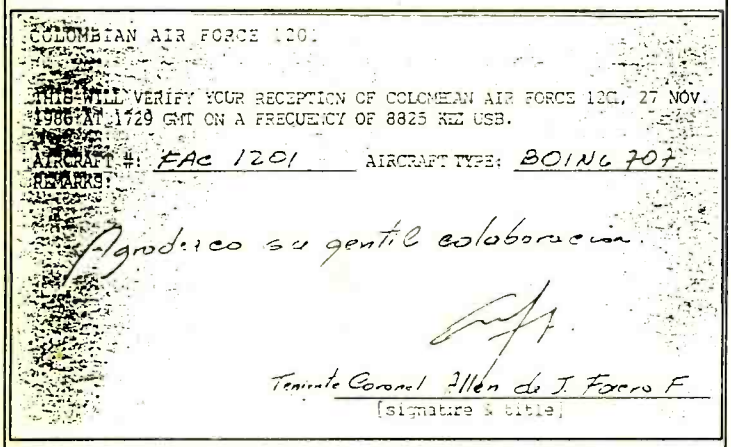
4574.0 Female English five-digit number station heard at 0609. (Fernandez, MA)

5128.9 Unid Central America Spanish males talking about cattle/water levels etc. Heard at 0125 in USB. (Webb, CA)

5205.0 Female German four-digit number station at 0637. (Fernandez, MA)

5629.0 SYN2-(*Israeli Moshad number station-ed.*) Heard at 0028 (Burhardt, NJ)

5630.0 MIW2-(*Israeli Moshad number station-ed.*) Heard at 0034. Any connection with 5629, the voices sounded the same. (Burhardt, NJ) *Yep, I think you can see it now, Bill.-ed.*


COLOMBIAN AIR FORCE 1201

THIS WILL VERIFY YOUR RECEPTION OF COLOMBIAN AIR FORCE 120, 27 NOV. 1986 AT 1729 GMT ON A FREQUENCY OF 8825 KZ USB.

AIRCRAFT #: FAC 1201 AIRCRAFT TYPE: BOING 707

REMARKS:

Agradezco su gentil colaboracion.

Teniente Coronel Allen de J. Forero F.

[signature & title]

Patrick O'Connor sent a photocopy of his prepared form card signed by the Colombian Air Force.

5696.0 USCG CAMSPAC San Francisco, California working USCG aircraft 1487, gave position over Anacapa Island asking to maintain guard until airborne. CAMSPAC advised 3413 as primary and 13288 would be primary in 1/2 hour in USB. (Norma Anderson, Santa Ana, CA)

6227.0 Female Spanish five-digit number station heard at 0800. (Eric Forslund, Citrus Heights, CA)

6262.0 ULZW-Cargo ship Kara working UAT Moscow with telegrams in Russian at 2355. Baudot 170/60R. (Ronald Dole, Boxford, MA) *Welcome aboard, Ron, hope you report often.-ed.*

6745.0 CIO1D Israeli Moshad number station at 0145. Have heard IO2, MIW2 and CIOX2 here in the past. (Fernandez, MA)

7404.0 Female German three/two number station heard at 0638. (Fernandez, MA)

7600.0 HD210A-Guayaquil, Ecuador, SFTS heard at 0356. Announcements by male in Spanish. (Tim Johnson, Galesburg, IL) *Welcome aboard, Tim, hope you check in often.-ed.*

7763.0 Female English four-digit number station at 0135. (Fernandez, MA)

7860.0 Female English five-digit number station at 0641. (Fernandez, MA)

8018.0 KCNA news service Pyongyang, North Korea, with English news bulletin at 1555-67 HZ shift. (Mike Colon, Palmdale, CA) *Welcome aboard, Mike.-ed.*

8056.0 Female Spanish five-digit number station at 0705. (Forslund, CA)

8185.0 Female Spanish five-digit number station at 0515. (Johnson, IL)

8295.6 Delta Sierra to Echo Foxtrot with mention of River City. DS said he hoped EF would arrive this destination first so that he could sneak in with less attention. At 0524 in USB. (Johnson, IL)

8347.0 UKDC-Soviet cargo ship Pioneer Moldawii working UDN Archangelsk with Russian telegrams at 0436. Baudot 170/60R. (Dole, MA)

8460.0 VQI4-Constanta Radio, Romania, with CW marker at 0215. (Lloyd Scott, Bartow, FL)

8516.0 5AT-Tripoli Radio, Libya with CW marker at 0240. (Scott, FL)

8523.0 FFL23-St. Lys Radio, France, with CW marker at 0250. (Scott, FL)

8533.0 LZW42-Varna Radio, Bulgaria, with CW marker at 0300. (Scott, FL)

8558.0 APE41-Szczecin Radio, Poland, with CW marker at 0230. (Scott, FL)

8701.0 YUR3-Rijeka Radio, Yugoslavia, with CW marker at 0105. (Scott, FL)

8718.9 USS Piutw?? with radio check followed by USS Eaton passing data in USB at 2130. (Fernandez, MA)

8719.0 Continuous CW marker "IAC" with two other CW IDs in the background. Sane CW markers heard on 6502. (Quarantiello, CA)

8771.0 Raspberry Pensacola, Florida, working Spartan in reference to supplies needed by Spartan on arrival at 1850 in USB. (Neal Perdue, Madison, AL) *I agree that this is probably a NAS frequency, Neal, but I don't think it is nationwide. I have only seen this one used on connection with USS Lexington (Spartan) operations. By the way, folks, the Lex isn't going to be plowing the Gulf much longer. It will be replaced by another carrier soon.-ed.*

8781.0 SSK-Cairo/Alexandria Naval Radio, Egypt, with CW marker at 0150. (Scott, FL)

8825.0 DanAir 89VT with position report to Shanwick ATC. Told to switch to 135.6 at 1842 in USB.

Speedbird 265 handed over to Shannon ATC from Santa Maria ATC at 1850. (Hosegood, UK)

8960.0 Portishead Radio working Speedbird 19 at 2231 in USB with phone patch traffic. Also tried 10291.0 and 8185.0. (Doyle, CT)

8984.0 USCG San Diego Air working Copter 1487 at 2030 in USB. Also heard Corpus Christi Air Q90 at 0105. (Webb, CA)

8989.0 USAF GCCS McClellan AFB, California, working MAC 80228 with phone patch to Travis AFB. "We're on the ground at Moffett NAS with a flap problem. Flaps only go 22-1/2 to 30 degrees." Troubleshooter at Travis said, "That's a new one on me, we will send down a maintenance team." At 1741 in USB. (Greg Bazil, Albany, CA)

8993.0 USAF GCCS MacDill AFB, Florida, and USCG COMSTA New Orleans, Louisiana, working a rescue of the M/V Alexandria at various times in USB. (Jack NeSmith, Deltona, FL) *Nice to hear from you again, Jack. Sounded like an exciting rescue.-ed.*

9170.0 Spanish male (*??-ed.*) five-digit number station at 0453. (Forslund, CA)

9225.0 Female Spanish number station heard at 0210. (Laura Quarantiello, San Marcos, CA) *Welcome to Ute World, Laura, glad to see you onboard and feel free to report often.-ed.*

9353.0 Lariat working unknown station at 2256. Referred to frequency at Kilo 6 switched to Kilo 2. (Quarantiello, CA)

10150.0 Spanish female four/two digit (*??-ed.*) number station at 0408. (Johnson, IL)

10211.0 W3D and LOR working each other about sending data via RTTY at 0112. (Fernandez, MA) *I think this is Navy.-ed.*

10493.0 WGY-912 working WGY-907 thru WGY-915 with roll call at 1605 in USB. (Doyle, CT)

10820.0 KAP2 Israeli Moshad numbers station at 0618 in AM. (Fernandez, MA)

11191.0 Hershey working Fineart at 1352 in USB with a list of ships and their paint schemes. (Doyle, CT)

11214.0 Sail 81 calling Raymond 24 (Tinker AFB) on "Charlie 6" at 2004 in USB. (Fernandez, MA)

11226.0 Stockade to Swamp Pot on X-905 at 1625 in USB. (Brinkley, CA)

11239.0 Milsat buffs note: SAC comms here revealed that SATCOM channel #9 (probably AFSATCOM channels) is the SAC world-wide alert channel. (Brinkley, CA) *Bill, probably on all four band plans, nice catch.-ed.*

USAF GCCS McClellan working King 24 and Ergo 36 with phone patch traffic at various times in USB. (Johnson, IL)

11268.0 KCP-63 working Highstalk at 2146 in USB. Putting Highstalk back in scan. (Doyle, CT)

11345.0 Stockholm Radio working Sterling 994 at 2307 in USB with phone patch traffic to operations in Bangor, Maine. 994 was in Barbados. (Doyle, CT)

11413.0 USAF GCCS McClellan AFB, California working YP00 at 0148 in USB with phone patch traffic. Also worked Rarebird. (Doyle, CT)

11415.0 Female English four-digit number station parallel 9041 at 1500 Saturday UTC. (Brinkley, CA)

12270.0 Army convoy? "Tango this is Golf, I'm your NCIOC and using another radio out of a truck." In USB at 1740. (Brinkley, CA)

12500.5 UFDS-Soviet fishing trawler LB-0473 working UMN2-Klaipeda with Russian telegrams, bound for Havana. Baudot 170/60R at 0533. (Dole, MA)

12509.5 UUBD-Soviet tanker Kriwbass working UFN-Novorossiyk with telegrams vessel bound for Novorossiyk. ARQ at 2037. (Dole, MA)

12511.5 UVMR-Soviet Cargo ship Fedor Bredikin working UDH-Riga with three Russian Telegrams, vessel bound for Wentspils. ARQ at 0645. (Dole,MA)

13218.0 Abnormal 10 (Vandenberg AFB) working MAC 50250 requesting he go to 11110.0 so they wouldn't tie up the guard channel at 1808 in USB. (Brinkley, CA)

13997.7 ACM5USF working AAR4USH at 1648 in USB. 5USF going to 4USH's position in USB. (Doyle, CT)

14775.0 Pacific Pt-to-pt. Channel Mike; AGA8JI working Telstar requesting contact with MARS station in Hawaii because he couldn't contact him on frequency PS1. Finally told MARS operator in Hawaii was late at 1755 in USB. Also PACOM 01 working Reventment at 1814 in USB. (Brinkley, CA)

15867.0 Maverick 33, 37 (A/C) working Slingshot passing radar targets and their vectors and tracking data of suspect aircraft in USB at 1725. (Fernandez, MA)

Omaha 04 working Razorback at 2036 in USB with ETA on deck. (Doyle, CT)

16260.0 English speaking female with the following voice marker announcement, "This is a test transmission for special adjustment purposes from the Moscow Radio-Telephone station." Heard from 1710 to 1800 in USB. (Johnson, IL) *Probably REM57, Tim, nice to see some dinosaurs still on the air.-ed.*

16587.0 ELCR5-Ascot calling Anna, no reply then general call for any other transoceanic ship, no reply at 0216 in USB. (Anderson, CA)

16645.0 Oriental radio operators talking in unid oriental language transmission started normal then both operators started yelling at each other, shouting contest lasted several minutes at 0430 in USB. (Anderson, CA) *Any bets they were Japanese.-ed.*

16671.5 UFCU-Factory fishing trawler Donisar working UDK2-Murmansk with telegrams. Bound for Sevastapol. Using 170/60R at 2244. (Dole, MA)

16691.0 UVIE-Soviet tanker Broz Tito working UAT-Moscow with telegram traffic, vessel bound for Argentina. ARQ at 2348. (Dole, MA)

17138.0 URB2-Klaipeda Radio, Lithuania SSR heard at 1417 with CW CQ marker. (Art Blair, San Francisco, CA)

Preston Sewell checks in with a Coast Guard QSL unmistakably from NMO in Honolulu!

17202.0 NRV-USCG Guam with CW call sign only marker then ARQ idler at 0720. (Eric Forslund, CA)

17610.0 RFD53-Tass news service Moscow, USSR, with French RTTY news 350/50R at 1502. (Blair, CA)

18005.0 PACOM 01 working Reventment here on channel Tango at 1820. (Brinkley, CA)

18035.0 Spanish female five-digit number station heard at 1905. (Fernandez, MA)

18353.8 Oria control with Oria 1 (his recovery will be Easter Island), Oria (took care of data translation) Sunnyvale, California, reported excellent data. Oria 1 requested Oria Control call Hammer control (*Hammer Ace Bunch-ed.*) about his coming up on satellite net. Cape Radio gave 20390 (NASA calling frequency) to call anytime. This was a MUX channel with 18353.8 as its center. (Brinkley, CA) *Great log, Bill.-ed.*

18726.0 Female English five-digit number station heard at 2000. Same female voice as on 7547, 9041 and 11415. No parallels noted. (Brinkley, CA)

19467.0 Female English three/two digit number station at 1811. (Johnson, IL)

20192.0 Ascension Island USAF MUX with voice channels carrying Space Shuttle audio. (John Kokinda, Marblehead, OH) *Well, John, guess that wiped out theories that when the new TDRSS went up that circuit would go away. Nice to hear it's still there.-ed.*

20860.2 French Telecom Network station transmitting circuit adjustment tape (voice marker) at 1824 in USB. (Fernandez, MA)

20795.0 Echo Tango calling several other two letter call signs for radio checks, just after another male operator repeated an EAM broadcast in USB. (Fernandez, MA)

22198.5 UFZX-Soviet ship Azerbajdvan working UAT Moscow with telegram traffic (personal telegrams). Using ARQ at 1615. (Dole, MA)

22220.0 UNOL-Soviet cargo ship Kotowskio working URD-Leningrad with telegrams. Vessel bound for Odessa. Baudot 170/60R at 1717. (Dole/MA)

22226.0 UHTX-Soviet vessel Arkhimeb working URB2-Klaipeda with weather observations message to Klaipeda Metro. Baudot 170/60R at 2145. (Dole, MA)

Before I put this month to bed, folks, I want to remind you that I want to visit with all of you at the convention in Knoxville. Larry says I will be doing two forums, one with a distinguished panel on military communications and a special forum on Utility Listening. Be sure to bring your frequency lists and let's share some good frequencies with all present. Those of you with call sign lists be sure to throw those into the suitcase too.

I hope that we have a strong Utility World crowd turnout in Knoxville. Let's show the shortwave broadcast folks we are alive and well. See you all in about 30, live from Knoxville!

The Scanning Report

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

Cordless Mods

If you own a Pro-2004 scanner radio, you're probably an experienced radio surgeon. As you poked around the innards of the radio, you were gaining valuable experience. Sure, snipping a diode was easy, but it wasn't the only modification that required your attention. To add an additional 100 channels, you needed a steady hand, a keen eye and a thorough knowledge of soldering techniques.

Now that you have successfully completed your internship, why not use your newly developed talents to extend the operating range of your cordless phone? The entire operation will take less than an hour, and it can be accomplished on your kitchen table.

We begin by taking apart the cordless handset. The screws that hold the two halves together are usually hidden beneath the front panel. On most handsets, a retaining screw is located under the plastic holder that displays your telephone number.

After the two sections have been separated, remove the factory antenna and replace it with a 72" telescoping whip antenna, Radio Shack part #270-1408. Reconnect the antenna wire, assemble the handset, and check your work by making a call to a friend.

The base unit modification requires a little more expertise, but it is certainly within the skill level of most scanner buffs. After taking the base apart, remove the small antenna, and install a BNC chassis mount connector into the existing antenna hole. If the connector won't fit into this location, the hole can be enlarged, or you can drill a hole and install the connector at a more suitable location.

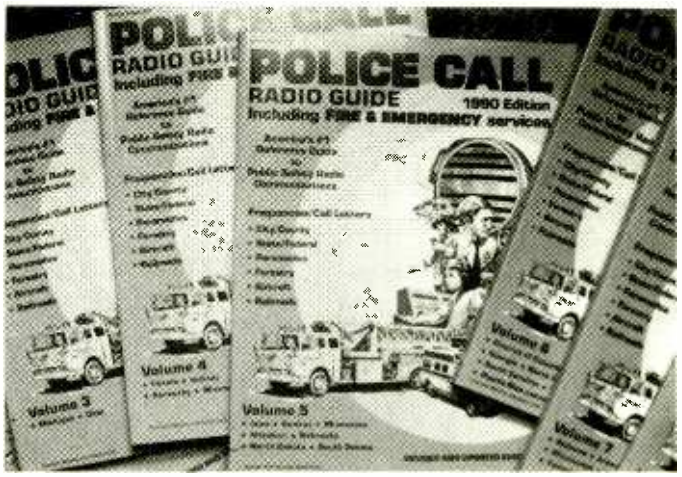
Don't forget to solder the antenna wire to the center lug of the connector. Should the wire be too short, splice into it and extend the length as needed. The trick here is to keep the wire as short as possible. When the "mods" are complete, reassemble the base and grab your ladder.

For my cordless base antenna, I chose "Cushcraft's" 10 meter, vertical ground plane. The height of the antenna's vertical element can be changed by adjusting a few screw clamps. I set the height at 10 feet and used 25 feet of RG-59 coax. The coax was temporarily routed through a window and connected to the cordless base by using a solderless male BNC, Radio Shack #278-104.

You can eliminate the cost and inconvenience of erecting a separate antenna by simply hanging ten feet of wire along an outside wall of your home. Solder the RG-59 directly to the wire and weatherproof the connection.

The performance of my modified cordless phone was outstanding. The improved antenna system increased the operating distance to approximately 3000 feet. It was now possible to answer my cordless phone from across the street! However, there were some disadvantages.

The increased transmitting range was also accompanied by an increase in the reception range. On many occasions, I could hear the voices of other cordless phone users. And during several phone calls, I could actually talk to a third party! Readers that live in rural areas may not have this problem. But if you live in the city or nearby suburbs, don't be surprised if you suddenly find yourself talking to a complete stranger.



Hey gang, don't miss the September/October treasure hunt. Bob Kay is giving away two complete sets of the 1991 edition of Police Call!

Scanner buffs that live nearby will also enjoy the increased range and clarity of your cordless signal. It's similar to a "catch 22" situation. If you increase the operating range, you also increase the possibility of being monitored.

Treasure Hunt

Of all the frequency guides on the market, *Police Call* is probably the most popular. Published annually by Gene Hughes, *Police Call* can be purchased from any Radio Shack store. Although most scanner buffs only buy a single, localized edition, there are a total of 9 volumes that cover every state in the nation.

Seasoned scanning enthusiasts will often purchase the entire set and use them to identify and confirm frequencies on a national level. Others have used the complete set to compile a frequency list for vacation trips.

If you would like to have all nine volumes for your scanning library, simply find the answers to the following clues:

1. Turn to page 11 of the May 1990 issue. Look at the picture in the upper left corner. Is that a picture of Bob Kay? True or false?

2. In the July 1990 issue, locate "Bob's Bargain Bin," and provide the price for the R61C/GRR7.

3. How many people are on the front cover of the 1990 edition of *Police Call*?

4. What is the phone number to the Hyatt Regency in Knoxville, Tennessee?

5. What is the frequency for "LoJack?"

As most of you realize, this is the September/October Treasure Hunt. Since the year is nearly over, Gene Hughes has agreed to provide a nine volume set of *Police Call* that contains all the hot frequencies for next year. Two lucky persons will join the elite rank of Treasure Hunt winners by being the first in their neighborhood to receive the 1991 edition. Good luck!

Speaking of lucky winners, those who have joined the winner's circle in 1990 so far are as follows:

Larry Jones of Greensboro, North Carolina, won the Ace Communications AR-950 scanner in the January/February Treasure Hunt;

Terry Ivey of Marshall, Michigan, and Thomas Howley of Canton, Michigan, each walked away with a ScanRecord from Capri Electronics after the March/April Hunt;

and Jack NeSmith of Deltona, Florida, is putting up his new Grove Scanner Beam after winning the May/June contest.

For the two OptoElectronics frequency counters offered in the July/August Hunt ... well, you'll just have to hold your breath a little longer.

Frequency Exchange

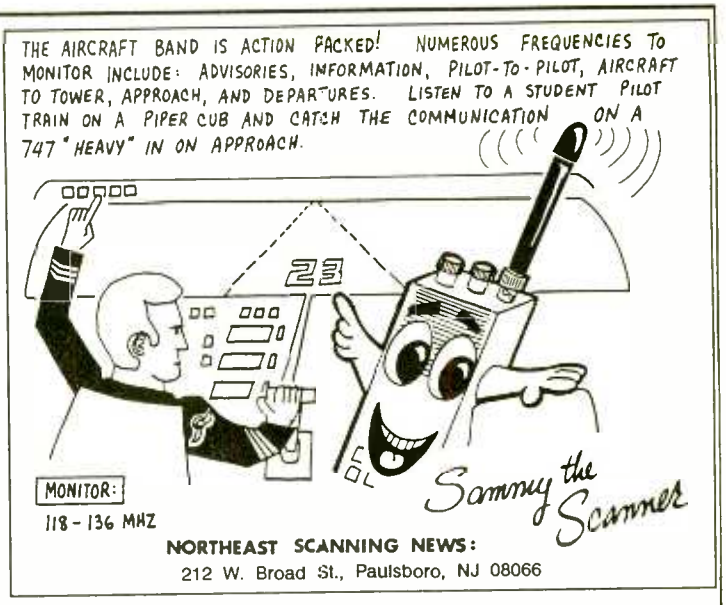
Our journey begins in **South Central Kansas.** Bob Yuna, has submitted a list that contains over 150 frequencies. As most of the local folks already know, Bob is the News Director for KSNW, Channel 3, Television. Here's a sample of Bob's list:

143.46	Air Force Mars
146.94	Severe storm net
148.075	Mcconnell AFB
148.545	Mcconnell AFB
150.315	Mcconnell AFB
151.10	Turnpike phone patch
154.725	Wichita detectives
155.775	Wichita animal control
156.095	Wichita police talk around
163.20	Federal Marshal
163.45	McConnell AFB police
173.585	McConnell AFB crash trucks
450.05	KFDI radio news dispatching
450.15	KWCH TV news & engineering
453.15	USD 259 schools security

If you want the entire list, here's the deal. Send one dollar and an SASE. Short on cash? No problem. I'll swap Bob's list for one hundred and fifty of your local frequencies.

From Kansas, we take a mad dash through **Indiana, Illinois and Kentucky.** An anonymous reader who calls himself the "Phantom," has sent in the following:

31.78	Kentucky Division of Forestry
31.86	Dixon Springs State Park
36.90	Fort Campbell Kentucky Medivac
39.46	Illinois State Police
42.16	Indiana State Police
44.62	Kentucky State Police
43.020	River Queen Mines
43.080	Homestead Mines



43.12	Sinclair Mines
44.68	Kentucky Game Warden
48.640	Indiana Drilling Company
139.30	Fort Campbell Army Air
139.90	Fort Campbell Helicopter approach
158.13	Indiana Gas & Electric
158.31	Illinois Drilling Company
160.335	Illinois Central Railroad
161.730	WOMI radio, Owensboro, Kentucky

Many thanks to the "Phantom," for supplying the above list. Our next stop is the home of James W. Bailey. James lives in **Omaha, Nebraska,** and here's what he sent in:

Offutt Air Force Base

40.17	Special investigations
40.19	Special investigations
49.70	Ordinance disposal
121.70	Ground control
130.65	Military Airlift Command
135.35	Approach
138,325	Pagers
140.40	Command and Control Squadron
143.46	MARS
149.50	Wing Commander
165.375	"Charlie"
166.512	"Sierra"
171.285	"Yankee"

From Nebraska, we travel to **Las Vegas, Nevada**. When you get tired of gambling, take out your scanner radio and spend your free time listening to the following frequencies:

Aladdin Hotel	154.515, 154.57, 463.45, 462.925
Bally's Grand	462.825, 463.825, 463.60, 154.54
Caesar's Palace	463.40, 461.950, 466.95, 465.00, 461.775
California Club	31.04, 461.425, 464.125
Dunes	151.655, 464.125, 464.625, 469.625, 460.80
Desert Inn	464.425
Four Queens	464.925, 464.85, 462.15
Golden Nugget	157.62, 461.75, 462.00
Hilton	35.08, 154.54, 463.375, 468,375, 468.725, 461.06, 466.05, 462.85, 461.925, 463.325
Horseshoe Club	51.775, 461.050, 461.90
Holiday Inn	464.925, 463.375, 464.00, 464.225, 464.375
Silver Nugget	464.475, 461.10, 154.570
Showboat	151.685, 461.425, 463.900
Sands	461.225, 462.650, 462.05, 467.05, 462.90
Tropicana	466.925, 461.925, 461.675

Okay, that's it for this month's frequency exchange. I'll be leaving you guys in Nevada. If you win the jackpot, don't forget to send me a few million.

Cops on Bikes Revisited

In our June issue, I mentioned that several West Coast cities have placed their police on bicycles. I also joked about monitoring a high speed bicycle chase. Although I was only kidding, it seems that the police in Seattle, Washington, are quite serious.

Mark Silver, lives near the "Gilman Trail," and he sent in an interesting letter. According to Mark, the Gilman Trail starts in "Gasworks Park," and follows the shore line of Lake Washington. On the weekends, it is a popular trail for bicyclists, joggers and walkers. Mark points out that on a nice weekend the trail is also used by people on roller skates, and skateboards.

As one might imagine, the congestion has caused many accidents. Folks have been hit by bicycles and nailed in the shins by skateboards. To reduce the accident rate, King County Police have posted a speed limit of 5 MPH. To enforce the law, the police mount their bicycles, and hide behind the shrubs that grow along the trail. Mark reports that some of the police are using hand held radar detectors to clock speeding cyclists.

Cellular Phones and Drugs

Did you know that the Drug Enforcement Agency has been monitoring the cellular phone bands? In the Chicago area, DEA agents contributed the success of a major drug bust to information obtained from cellular phone monitoring.

I wonder if the DEA is aware of the ECPA? What do you think? And while you're thinking, here's one additional thought. If the DEA is monitoring cellular phones, can we also assume that they are monitoring cordless phones?

Scanning Six Million Dollars

In Charlotte, North Carolina, the police have installed a brand new, 6 million dollar "trunked" radio system. And according to a local newspaper writer, the new system cannot be monitored on a scanner radio. Here's a direct quote from an article that appeared in the Charlotte *Leader*: "The new system has made scanner radios useless piles of JUNK."

Do the Charlotte Police actually think that their 6 million dollar system can't be monitored? If so, I've got a little surprise for them. In the September 1988 issue of *MT*, I wrote an article titled, "Trunk Busting Basics." And as you might guess, the article explained how to monitor a trunked radio system. If you want a reprint, send $2.00 to Grove Enterprises, P.O. Box 98, Brasstown, NC 28902.

What do you think? Do we dare send a copy of my article to the Charlotte Police Department? Or would it be best to keep quiet?

Next Month

They are one of the hottest scanning accessories on the market. Yet, they are the most misunderstood piece of equipment that you can buy. In October, I'll dispel the myths and reveal the truth about "Frequency Counters."

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EEB

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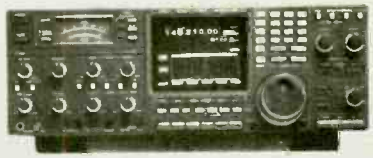

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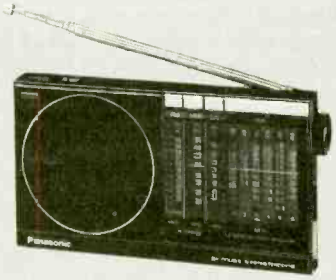

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what's new?

Underground Frequency Guide

A couple of years ago, Harry Helms published a small booklet called "Underground Frequency Guide." The booklet, computer-generated and staple bound, was a big seller, packed full of Helms' seemingly inside insights into the world of the unusual on the radio.

Now comes edition two, completely updated and containing over 500 frequencies of everything from spy numbers stations to the single letter beacons and beyond. And, as with past Helms efforts, it's a must-have for anyone who likes to explore the dark side of shortwave -- and there's plenty to explore.

The new second edition of *Underground Frequency Guide* checks in with 88 pages and is now available from DX Radio Supply for $10.95 plus 1.20 book rate or 2.30 UPS. The address is P.O. Box 360, Wagontown, PA 19376.

New Wide Band Preamp

Nevada, which bills itself as "Europe's Leading Distributor and Retailer of Hobby Communications Equipment," has announced the release of their new M50 Wide Band preamplifier.

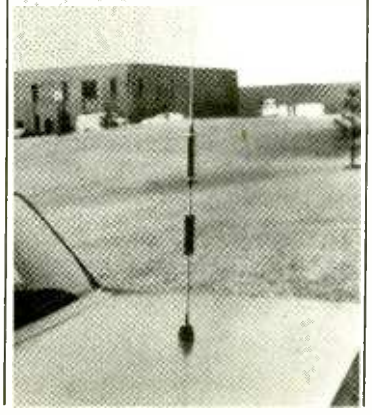
According to company officials, the M-50 provides low noise, wide band amplification from 24 MHz to 1.2 GHz.

Retailing at just 49.95 Pounds Sterling, the unit has a fixed 20 dB gain and will "significantly improve the performance of many receivers at UHF."

To order, call (0705) 662145 (24 hours a day) or write Nevada, 189 London Road, North End, Portsmouth, Hants, PO29AE, England.

Enhanced 800 MHz Antenna

Those folk at Antenna Specialists keep crankin' 'em out. AS is now offering a roof/deck-mounted, all-band scanner antenna with enhanced performance in the 800 MHz band. That, of course, is where the cellular phones live.



The new antenna, called the MON-53, utilizes what the company called "the exclusive A/S Micro-Choke" to achieve, again quoting the company, "enhanced performance at 800 MHz frequencies without affecting performance at other monitoring frequencies."

The antenna comes with 17 feet of coaxial cable with an installed pin plug ready for immediate 3/8" hole mounting.

For more information, see your favorite radio store or contact Antenna Specialists at 216-349-8400.

Go, Go, Ham Radee Oh

Ham Radio's been in a bit of a slump lately and there have been a number of efforts to revive it -- not the least of which is the long-awaited "no-code" license in which applicants will no longer be forced to learn archaic Morse Code in order to earn a ham license.

Now comes yet another ham-promoting effort, this one in the form of a book from MFJ. Entitled, *The Wonderful World of Ham Radio: An Introduction for Young People*, the publication is designed to "help young people enjoy learning about ham radio."

Personally, we think that we'd be afraid of any book that manages to use the words "wonderful" and "young people" in its title, but we applaud the effort nonetheless. Buy a copy today and leave it on one of the video machines at the local arcade. Who knows?

The book is available for $7.95 from MFJ Enterprises; order toll-free by calling 1-800-647-1800.

Computer Controller for 'R-5000

TRS Consultants has introduced a new IBM PC-compatible program that controls the Kenwood R-5000 communications receiver equipped with the IF-232C Interface and IC-10 IC Kit. According to the manufacturer, the software is "based on the method of programming a 7- or 14-day VCR," and "allows multiple events on the same or following days, changing frequencies, modes and antenna settings as required." The package retails for $75.00 plus $2.50 shipping and handling.

For more information on this program, called "Event Manager," write to P.O. Box 2275, Vincentown, NJ, 08088.

New ICOM Power Supply

ICOM has just released the new PS-70 2 amp handheld power supply. It is, says the company, "the one accessory [that] everyone has been waiting for. Just plug the PS-70 into your 110v wall socket, attach your favorite ICOM handy talky and continue to QSO with your friend." The PS-70 works with the following ICOM handhelds: IC-02AT, 03AT, 04AT, 12AT or IC-2GAT, 4GAT, 12GAT, 32AT with AD12 or IC-u2AT, u4AT with DC-25.

The new PS-70 power supply is just $89.00 and is available from your favorite ham radio store. For more information, call the ICOM information hotline at 1-800-999-9877.

New from Radio Shack

The new Radio Shack catalog announces four additional products to their listening retinue -- two scanners and two shortwave portables.

The PRO36 hand-held scan-

ner offers 20 memory channels with frequency coverage of 30-54, 108-174 and 380-512 MHz. It will be available for $199.95.

The PRO2025 16-channel mobile scanner is a low-end radio with 29-54, 134-174 and 406-512 MHz coverage. It lists for $139.95.

The almost-pocket-size (4"x7"x1-1/2") DX350 provides analog (slide rule) dial readout of the shortwave bands and lists at $69.95.

And lastly, a clock radio with digital readout and stereo earphone capability describes the DX370, replacing the old DX360. It covers the broadcast bands only (no utilities), but offers LCD digital frequency display with PLL tuning at $119.95.

Radar Directory

First it was radar detectors, now there is the *USA Radar Directory* written by John Wilson to tell you where to look for radar speed control areas -- state, city, county and even those on federal lands and military installations!

Covering S, X, K and even Ka (photo) band speed control radar, the directory includes over 10,000 listings of location, type, number, power and use. An informative introductory chapter contains additional information.

Order the *USA Radar Directory* by sending $25 plus $5 shipping to John Wilson, 6413 Bull Hill Rd., Prince George, VA 23875; phone 1-804-862-1262.

Scanner Master:
Massachusetts

Unquestionably, the most professionally-prepared scanner frequency directory in print is this edition of the *Scanner Master*, a wealth of accurate information on radio systems for the Commonwealth of Massachusetts. Not only are frequencies listed, but system profiles as well.

Over the last 12 years, Barnett has refined his work into a model of comprehensiveness, so much so that it has been adopted by many government agencies as their official reference on radio system users in the region.

Not only does this directory list alphabetically every community in the state, it provides almanac-style profiles of these communities -- population, elevation, area, geographical location and listings of radio-coordinated utilities.

Metropolitan regions are accompanied by zone maps to make radio monitoring more productive. Many services include names and positions of key personnel. Frequencies are keyed by use; ten codes and jargon lists are included as well.

If you are within radio range of the Commonwealth of Massachusetts, this book is a must for your reference shelf.

The *Scanner Master: Massachusetts Guide*, 4th Edition by Richard Barnett, is available for $29.95 plus $1.75 shipping from Scanner Master Corp., 2 Indian Ridge Rd., Natick, MA 01721.

Review:
Long Life Battery Pack

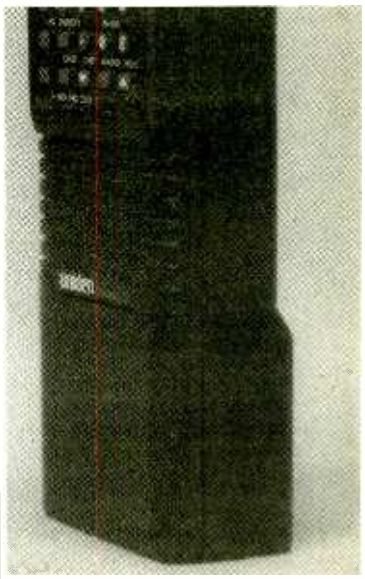
Over the years, MetroWest has introduced a number of innovative accessories for hand-held scanners, but none is more welcome than their new double-life battery pack for the popular Uniden BC200XLT hand-held scanner.

The 1200 mAH battery pack slides on to replace the normal BP200 making it slightly taller so that the top strap may be snapped only in front of the display window, not over the top as before.

Because the charger jack had to be located in a different place, the scanner must be removed from its holster before it can be recharged. A small current-limiting resistor cartridge is included which must be inserted between the battery pack and charger to avoid overcharging.

These minor inconveniences are trivial when the benefits are realized. The new battery pack is a cosmetic match for the BC200XLT and will last more than twice as long as the old BP200 with the same 10-12 hour charge.

The long-life battery pack is $59 plus $3 shipping from Grove Enterprises, PO Box 98, Brasstown, NC 28902 or from the manufacturer, MetroWest, 822 N. Spring, LaGrange Park, IL 60525.



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

Anticipation . . .

Gee, this is fun. Unless I tell you what's going on, you can't possibly know what I am talking about. Very well then. Not being one to keep his loyal readers in suspense, I will explain myself.

Thanks to the many joys of advanced technology, I am pulling this prose together while on the road. With the aid of a "luggable" Commodore SX-64 I am able to keep up with *MT*'s deadlines whilst traveling.

Get to the point, Uncle Skip!

Well folks, the reason I am traveling at this time is that we have run smack dab into the middle of the Radio Hobby Convention Season. This is when many monitoring type people hit the road in search of gatherings of other monitoring type people. But as you all must know by now, this entire season of radio gatherings is only a prelude to the greatest radio monitoring show on earth -- *the Monitoring Times Convention.*

Now it has come to Old Uncle Skip's attention that some folks are laboring under the misconception that radio get-togethers are only for folks who are well seasoned in the ways of our hobby. *Not So Old Son.* All radio happenings are great places for the new monitor to get to learn about their new hobby up close and personal.

From the first moment I heard that *Monitoring Times* was holding a whoop-de-doo, Old Uncle Skip got on the phone to both Larry Miller and Bob Grove to check out just what we were planning for all the folks who are new to the radio art.

We will get to the details of the beginner's program in a few minutes, but first, it would probably be a good idea to let everybody in on the fun of radio conventions. So without further free association I give you -- (Drum roll please.)

First and foremost . . .

Show Up!

In this world, ya gotta play ta win, Bunky. Please do not think that because you are a beginner you have anything to fear or that you will have nothing to contribute. You are going to find rooms full of people who are just as excited about the monitoring hobby as you. Most folks in this gathering will be super helpful to any beginner they meet.

All the folks that work and write for *MT* think of you as family so if you're still a little queasy about coming down to Knoxville, just think of it as showing up at a family reunion (only that aunt who smells bad and gives big hugs won't be there to talk your ear off). Nothing compares to the excitement of your first convention.

Bob Grove and other radio veterans will be ready to answer your questions, so have 'em ready! October 8th will be too late to think of what you really wanted to know!

Don't be afraid to be a beginner

Remember what your school teachers always said . . . "The only stupid question is the one you never ask."

Let's face facts. There are aspects of the radio hobby that can get pretty complex. Even many so called "experts" in this hobby can learn a thing or two at a convention. Regardless of whether you're in an informal gathering in the hospitality suite or at one of the many presentations and programs, if someone starts to talk about something out of your league or tosses a term around that you don't understand *...ask a question ...ask a question ...ask a question*. Get the information you need to enjoy the hobby. Believe me, nobody is going to shut you down for trying to learn.

By the way, it's a really good idea to bring along a notebook and something to write with. The data is going to be flowing freely and you will need to take notes to get it all down. You might even want to bring along a tape recorder to draw down even more information.

Remember, Compadre, this is your convention and you should be able to carry away all the information you can handle. All you have to do is raise your hand and speak up.

Have a plan

Before you even get to the convention, jot down some notes concerning questions you already have. Maybe you are wondering about the best antenna for your application, or you're planning to upgrade to a new receiver. Having these notions down on paper will allow you to make best use of the many programs that will be available to you.

Then, as soon as you walk through the doors of Hyatt Regency Hotel in Knoxville, get your hands on a final copy of the schedule. As you've no doubt noticed from the ads in this paper, there is going to be a lot going on and a lot to distract you from the things you need to know.

Develop a plan that allows you to attend the events that will help you the most. Then fill in the gaps with some things that catch your eye. Don't be afraid to check out something you have never dealt with before. If you're a shortwave listener, show up at a scanner workshop or vice versa. You may find a new way to enjoy monitoring.

Bring a friend

Most anything you do in this world is more fun if someone comes along. Even if your friend is only casually interested in radio, invite them to join in the fun. If you are a parent, this might just be the time and place

to get your young'uns interested in a hobby that will last a lifetime.

Talk to everybody

The only licensed curmudgeon in the bunch is Old Uncle Skip and even I stopped biting people several years ago. Radio folks are the friendliest people on the planet. You will make friends that you will correspond with for years to come. Several of my closest associates were first encountered at various radio get togethers. Don't forget that this is your opportunity to eyeball and chat with all the *MT* writers and contributors. One big happy family, remember?

Bring a rig

There are a lot of good reasons to bring along a radio or so. First off, you can do some practical testing of all that new information you have jotted down at the forums and programs.

Shortwave listeners can get together after hours for late night DX sessions and often do. Scanner folks will be able to sample the action in the greater Knoxville area. Hams will want to have two meters with them for talk in and staying hooked up with their compatriots.

Don't forget that Bob Grove will be running a free receiver check-up service.

Give advice

Yes, you. Beginner that you are. It's okay to share your experiences with people. Don't be afraid to let people know about your personal discoveries and inroads into the radio art. It is pretty likely that you have come across a skill or two even if you have only been in the hobby a short while. Make a point to hook up with other beginners and hold a few informal roundtables. You will be surprised how effective this kind of sharing works. Give it a try.

Speak to the speakers

Yeah, I know I already told you to talk to everybody. I just want to emphasize that everyone scheduled to lead the various aspects of the *MT* Convention are at your service.

Old Uncle Skip has written for several radio magazines and I have run across most everyone in the "radio press" at one time or another. Without exception, everyone involved has a commitment to help the beginner get off to a good start in monitoring.

After the various forums are done, the leaders don't go off and hide in some monitoring equivalent of a star's dressing room. It's much more likely that they will beat feet over to hear some other workshop where they too can learn something new. If they aren't doing that, no doubt they will be browsing around. You will find everyone very approachable. We all put our headphones on one ear at a time, Compadre.

Try this

Now for something slightly different. Before you head out to the convention, stop by your local AM, FM or TV stations and see if you can scare up some promotional items. Station stickers, pens, T-shirts, area coverage maps, are all fun to trade with folks from other parts of the country. Swapping stickers is a relatively painless way to break the ice and get to know folks.

Meat and potatoes

Okay, so now that we have lessened the fear of conventioning, lets take a look at just what the *Monitoring Times* Staff has cooked up especially for the newcomers.

There will be dozens of workshops, programs and forums for you to attend. Most of these will cater to specific areas of interest such as SW DX, scanners, accessories, antennas, etc. While these will not be solely for beginners, beginners and their questions will be most heartily welcome.

Specifically for beginners, however, you will find "A Beginners Guide to SW Listening" by Ian McFarland of Radio Canada International. Also, just to make sure nobody gets lost in the shuffle, Old Uncle Skip will be holding a "Beginner's Forum" where we will try to hash out everyone's needs and get you pointed toward the right experts since the *MT* Convention is going to be the one place where all the experts are going to be at once.

In addition to all the *MT* activities, The International Radio Club of America will be holding their convention right along with us. The IRCA is a group of very dedicated mediumwave (AM radio) enthusiasts.

If you have been following this column for a while you know that Old Uncle Skip thinks BCB DXing is a great entry-level monitoring activity. The IRCA folks will be glad to help you learn more about this exciting aspect of the radio hobby.

Psyched up

This is going to be some get together. Remember, Pal, there will be a lot of newcomers to the radio hobby at this gig. As for everyone else, they were all beginners at one time or another and they will be glad to help you along.

Save a seat for me at the banquet.

Rod Pearson

California Cruisin'

Yes sir, it's a whole different world out there. Great beaches, string bikinis, a nice climate, string bikinis, a lot of radio activity, string...

Well, I guess you get the point, California is a real nifty place to listen to the federal frequencies and the fringe benefits aren't bad either.

California ranks first in the nuclear infrastructure of the U.S. military with 80 locations and fourth in nuclear warheads with 1,437. It has the largest number of military installations of any state (not counting individual missile silos). Every category of the nuclear infrastructure can be found in CA.

The variety of bases include naval complexes around San Diego and Long Beach SAC bomber bases, Castle and Mather, and one of two main army nuclear storage sites in the U.S., Sierra Army Depot (the other is in New York). Radar and electronic sites abound in the state supporting four major research, development and testing centers: China Lake, Edwards AFB, Point Mugu and Vandenberg AFB. Twelve communications and 10 early warning radars directly support strategic forces.

There is an almost endless list of other federal agencies and their communication systems active in California. In larger cities such as San Diego, Los Angeles and San Francisco, the federal frequency bands are loaded with activity. There is never a want for radio activity to monitor.

Well, folks, several of you have checked in to provide us with your personal list of California activity. I really appreciate seeing these lists and would like to personally thank you all for your support of this column on a very radio active area of the country.

Checking Out Santa Barbara

First up is a listener who identifies himself as "Uncle Winky." Boy oh boy did I get a chuckle over that one. Anyway here is "Uncle Winky's" list for San Luis Obispo and Santa Barbara areas.

FBI (Charlie channels)

162.740	Repeater out	*	Charlie 2 (Note)
162.760	Simplex		
163.835	Repeater out	*	Charlie 3 (Note)
163.910	Repeater out	*	Charlie 7 (Note)
163.988	Repeater out	*	(Inactive)
165.590	Repeater out		(State net)
167.290	Simplex	*	Charlie 1
167.290	Repeater out	*	Charlie 4 (Note)

Note: Frequencies indicated are repeated on UHF link channel 419.500.

KMC250 Los Angeles "Control"
KMC 261 Santa Barbara
KMC271 Santa Maria

All repeaters are linked and can be operated independently.

Channel designators A/B/D/S are unknown and any help would be appreciated on those frequencies.

Secret Service

415.700	Full duplex	*	Channel Echo

(UHF downlink from SAM/AF1/AF2 aircraft, part of nationwide system) 407.850 is the other side, ground station uplink channel called Foxtrot.

DEA

418.625	Repeater out	*	Channel 1
416.050	Mobile	*	Channel 1
418.825	Repeater out	*	Channel 5
416.200	Mobile	*	Channel 5

FAA

172.975	Repeater out	*	Channel 3

(Per Wayne Hudtloff this repeater is on Black Mountain-Rod)

172.175	Repeater out	*	Channel 10

Border Patrol

162.975	Mobile	*
163.625	Repeater out	*
163.725	Repeater out/Mobile	*
163.925	Repeater out	*
168.875	Repeater out	

US Marshall

163.200	Repeater out	*	KRD247
164.400	Mobile		

Vandenberg AFB

163.490	Repeater out	*	F-3 (security)
163.515	Repeater out	*	Bravo (command net)
290.500		*	USAF
118.000		*	Approach
255.600		*	USAF

Hunter Liggett Military

229.500	*	Army helicopters
41.500	*	Tower

Camp Roberts

229.400		Army helicopters
126.200	*	Army aircraft

Camp San Luis Obispo

399.650		Military police

(Interesting UW is this associated with some sort of aircraft activity-Rod?)

399.700		Operations (summer)

Naval Air Station Lemoore

360.400	*	Navy

(are you sure that's not 360.2-Rod?)

358.000	*	Navy
279.200	*	Approach
299.300	*	Operations

(Base operations-Rod)

NORAD

364.200	*	Sierra Pete

remote site primary A/G channel

Now it's time to check in with Wayne Hudloff who adds some additional stuff for the area of California we have been talking about. "Uncle Winky" and readers -- this list is for you:

Diablo Canyon Nuclear Power Plant
153.560 Security
451.175 Operations

Vandenberg AFB
163.463 Gate Security Control
173.590 Crash/Fire crews

Camp Roberts
38.900 Army National Guard
36.500 Army National Guard

Hunter Liggett
126.200 Army tower
126.900 Army approach

NAS Lemoore
126.200 Navy tower (VHF)
340.200 Navy tower (UHF)

I'd like to thank both Uncle Winky and Wayne Hudtloff for their list and here are a few more frequencies from my files you can plug into your scanners:

ATIS 267.6
Approach control 134.1 286.0
Ground 128.3 305.2
Departure control 124.1 318.8
Clearance delivery 124.1 380.8
Weather information (PMSV:Metro) 317.0

Vandenberg AFB
CTAF 124.95
Pilot to dispatcher 123.0 372.2
ATIS 125.7 271.8
Approach control 118.0 118.35 339.1 363.8
Tower 124.95 326.2
Ground control 118.2 275.8
Departure control 324.3
Command post 311.0 321.0
(These are SAC primary/secondary nationwide respectively)
Range control 121.4 296.5 386.6
Weather 344.6

One More List from California

Another California resident, Mike in Riverside, has provided the following impressive list of frequencies for his area. He has also passed along the following call signs/aircraft/base of operations:

El Toro	F-18s	Knight/Shooter/Snake
	KC-130s	Raider
Tustin	CH-53s	Phoenix/Red Lion
March	F-4s	Grizzly
Norton	C-141s	Lifter/Slam

Los Alamitos GCA 230.8 231.0
El Toro MCAS GCA 268.7 314.8
Tower 271.7
ATIS 284.2
App 337.6
Clearance delivery 301.3
Ground 383.8
Brown Tower 288.1
John Wayne Airport Tower 379.9
Norton AFB Tower 320.1
Command post 349.4
PTC 372.2
Coast App/Dep 248.0 255.1 263.1 263.6 269.6 281.4 299.6 305.5 320.4 323.1 337.2 343.2 380.2 381.4 382.6 397.95
Edwards AFB App/Dep 269.2 269.4 291.6 307.2
Tower 318.1
George AFB Command Post 381.3
San Diego App/Dep 281.8 285.2 290.4 323.0 363.1 385.2
March AFB Tower 253.5
ATIS 270.1
Final controller 271.3 284.0 353.7

GCA 324.1 359.0 396.0
ground 335.6
PTD 372.2
FSS-Hawthorne/Lancaster Radio 255.4
Ontario Intl App/Dep 269.3 278.3 295.7 306.3
318.2 327.5 351.1
Ground 257.8
Tower 385.6
Tustin MCAS Clearance Delivery 274.9
Tower 350.1
GCA 350.5
ATIS 384.3
Ground 380.8
LA ARTCC 261.5 263.0 269.5 277.4 279.6
284.7 285.5 285.6 290.2 290.9 307.1
307.8 322.4 327.1 351.7 351.8 351.9
354.1
Oakland ARTCC 353.8
Beaver Control 266.9
Aerial Refueling channel 276.5 281.0

A big Federal File thank you, Mike, for the military aircraft update and I hope your PRO-2004 continues to bring in new channels there in Southern California.

More SAC Bomb Plots Identified

Monitoring Times reader Jim Nelson recently wrote concerning my list of SAC bomb plots in the June Federal File. Jim says LaJunta also uses 258.2 and he says that aircraft can be heard approaching the plot from the Denver Metro area. Jim has also identified another bomb plot around the Cheyenne, Wyoming, area on 271.9 using the call sign Beaver Dam.

I really appreciate the update, Jim, and he has a question concerning the call signs and operating frequencies in use for the O'Neill MOA in central Nebraska.

Jim, while I am not completely sure on this, I think I can give you some hints on where to start your search. The O'Neill MOA is controlled by the 159 TRG Air National Guard unit based out of Lincoln Muni. Their base call sign is Husker. They use 236.85 as an operating frequency as well as 4280 kHz in the shortwave spectrum. There is also a National Guard unit operating out of Lincoln Muni that might also use the O'Neill MOA. Their frequencies include 38.8 and 123.075 MHz.

If these frequencies do not pan out. I suggest you monitor the controlling agency for that air space which is the FAA. The ARTCC in Minneapolis-St. Paul is responsible for that air space and in fact has a remote ARTCC site located in O'Neill. Both frequencies listed for the site are listed as discretes which indicates to me that they are used in the MOA for air traffic control. Try 128.0 (VHF) or 385.5 (UHF). You'll probably find what you are looking for on these frequencies.

I want to remind all our beginners and old hands alike that you should listen closely when monitoring military traffic and other federal frequencies. You should listen for other possible frequencies stations might pass. Pay close attention when frequency designators are mentioned.

If you are listening to 162.200 and a station IDs that as channel X, be sure to write that down for future reference. There is nothing worse in the heat of some good listening six months or a year later trying to remember the frequency for channel X when everybody switches off to it and doesn't announce what frequency X is.

I have used this method successfully over the years to discover new unlisted frequencies in the UHF military aircraft bands to monitor. You need to keep a pad/pencil at your monitor post at all times. Usually when a possible new frequency is announced over the air, it's passed pretty quick. Don't wait to write it down. If you're like me I get excited listening to some of this stuff and yep, you guessed it, the first thing you'll do is forget the frequency or designator you heard over the air.

Another suggestion I can offer you is even if you think a frequency/designator is on your list, write it down anyway with the call signs of the stations involved. You don't want to take a chance in missing a new and possibly exciting frequency for federal activity.

Always double check with your master list later. I have discovered a bunch of frequencies down here in Florida and there is no way I could keep track of all of them without a master list. It is sort of like trying to follow a sporting event without a program. It can be done but the program adds a certain amount of enjoyment to the game for a true sports fan.

Well, a big thanks to Jim for the bomb plot update and Jim let me know how you make out on the O'Neill MOA.

We Want Your List

Yes sir. If you didn't see your area represented how about dropping your favorite federal frequencies in the mail to the address in the masthead. Lists, no matter how large or small are welcomed. You might be surprised how a few frequencies might spur someone from your area to send in their list and increase the number of known frequencies on your list. It is sort of contagious. Your questions are always welcomed here also. Until next month ... time for a Cubo on the rocks.

James R. Hay

Radio Down Under

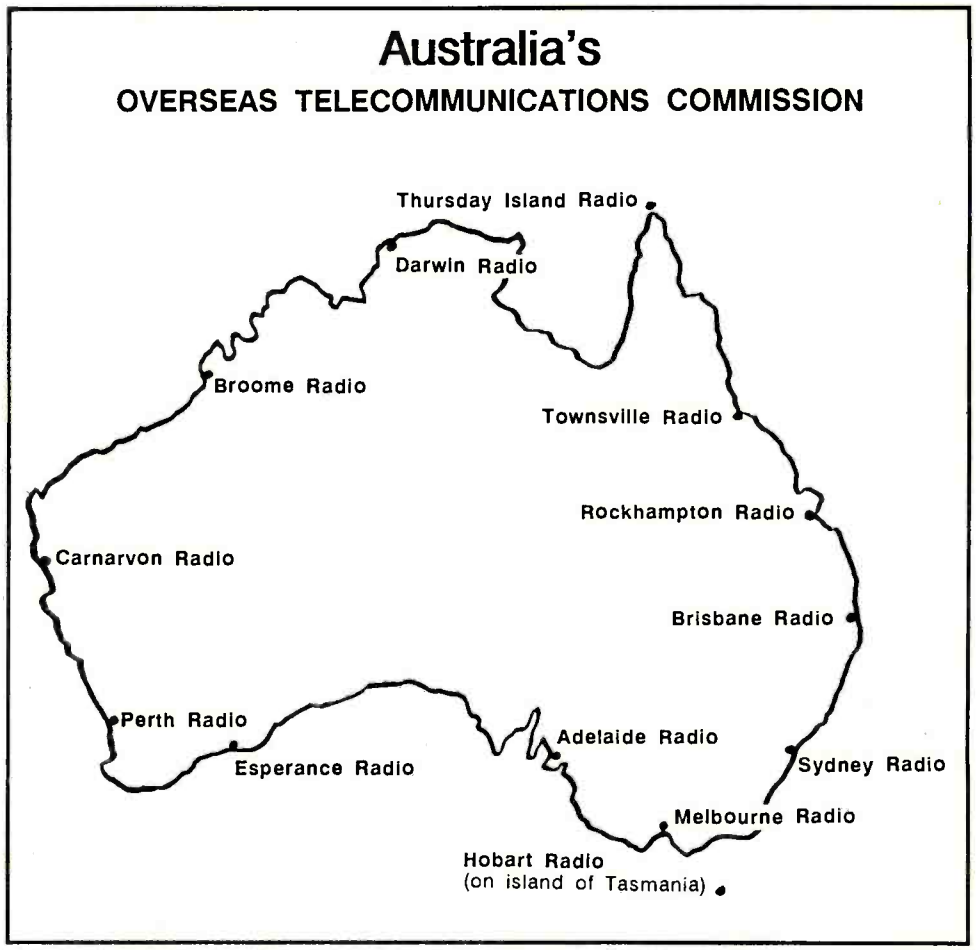
This month's topic was prompted by information which was received in the mail about the Overseas Telecommunications Commission in Australia. It has been some time since Australia has been mentioned in this column, so this seems like a good time.

The **coast stations** in Australia are as follows:

VIA	Adelaide Radio
VIB	Brisbane Radio
VIC	Carnarvon Radio
VID	Darwin Radio
VIE	Esperance Radio
VIH	Hobart Radio
VII	Thursday Island Radio
VIM	Melbourne Radio
VIO	Broome Radio
VIP	Perth Radio
VIR	Rockhampton Radio
VIS	Sydney Radio
VIT	Townsville Radio

On **MF/HF radiotelephone frequencies** will be found the usual telephone and message traffic. The frequencies below marked with an asterisk are used for navigational and weather warnings as well as traffic lists.

2201*	VIA, VIB, VIC, VID, VIE, VIH, VII, VIM, VIO, VIP, VIR, VIS, VIT
4143.6*	VIB, VID, VIP, VIS, VIT
4366.7	VIB, VIH, VIM, VIP, VIT
4369.8	VIS
4391.5	VIA, VIB, VIT
4400.8	VIB, VID, VIP
4407	VIM, VIR, VIS
4413.2	VIA, VID, VIS, VIT
4428.7	VIA, VIB, VIC, VID, VIE, VIH, VII, VIM, VIO, VIP, VIR, VIS, VIT
6221.6*	VIB, VID, VIP, VIS, VIT
6512.6	VIA, VIB, VID, VIM, VIP, VIR, VIS, VIT
8291.1*	VIB, VID, VIP, VIS, VIT
8722	VIS
8734.5	VIP
8749.9	VIB, VID, VIM, VIP
8762.3	VID, VIP
8768.5	VIA, VIT
8784	VIT
8805.7	VIA, VIB, VIS
13107	VIS, VIT
13178.3	VIP



13181.4	VIA, VID
13187.6	VIB, VID, VIM, VIP
13193.8	VIS, VIT
17236	VIS
17242.2	VIP
17260.8	VIS
17298	VIS
22602.2	VIS
22630.1	VIP
22664.2	VIS

As is the case in North America there is considerable activity on **VHF**. If you are taking a scanner along with you on a trip to Australia, you will find the following frequencies of interest. The frequencies are megahertz.

156.375 (ch 67)	VIA, VIB, VIC, VID, VIE, VIH, VII, VIM, VIO, VIP, VIR, VIS, VIT
156.800 (ch 16)	VIA, VIB, VIC, VID, VIM, VIO, VIP, VIS, VIT
160.625 (ch 60)	VIP, VIT
160.700 (ch 2)	VIS
160.850 (ch 5)	VIS
161.750 (ch 23)	VIA, VIB, VIM, VID, VIP, VIS, VIT
161.825 (ch 84)	VIS
161.850 (ch 25)	VIP
161.900 (ch 26)	VIA, VIB, VIC, VID, VIM, VIO, VIP, VIS, VIT
161.950 (ch 27)	VID, VIS
162.000 (ch 28)	VIP, VIS

Many of the local port authorities also operate **VHF radio stations**. Although the individual stations are too numerous to mention, they can be found on various of the following frequencies. Remember that all coast stations use channel 16 (156.800 MHz)

which is always a good frequency to monitor.

156.375	ch 67
156.450	ch 9
156.500	ch 10
156.600	ch 12
156.350	ch 13
156.700	ch 14
156.800	ch 16

Anyone who will be in Australia with a scanner, and who will be in the area of the great barrier reef, might find some interesting monitoring there, especially if they can find the elusive frequencies used by the Coast Guard in that area.

Perth and Sydney Radio both have a **radiotelex service** operating on the following frequencies:

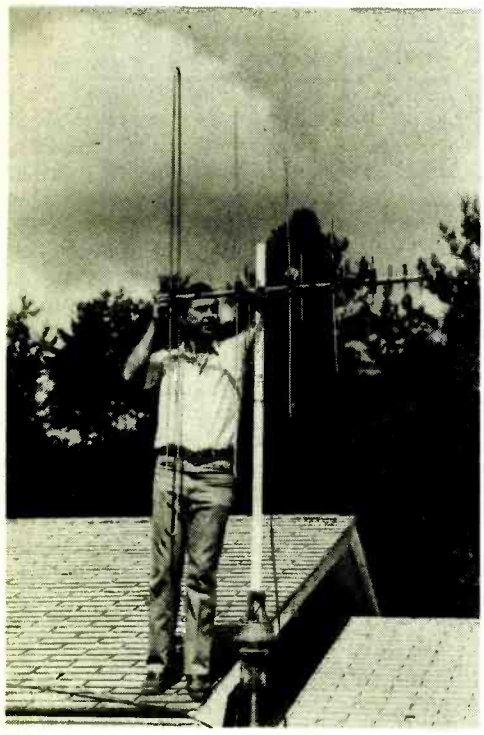
4352.5	VIP 31
4356.5	VIS 61
6497	VIP 32
6499	VIS 72
6501	VIS 63
8707.5	VIP 33
8709.5	VIS 74
8711.5	VIS 65
13074	VIP 34
13076	VIS 76
13078	VIS 67
17200	VIP 35
17202	VIS 78
17204	VIS 69
22564	VIP 36
22568	VIS 71

For those interested in **CW**, try the following frequencies:

430	VIM
435	VIB, VIE
440	VIO, VIS
445	VID
472	VIA
476	VIC, VIS
484	VIP
488.5	VII
512	VIA, VIB, VIC, VID, VIE, VII, VIM, VIO, VIP
4228.5	VIM
4229	VIP 7
4230.5	VIB
4245	VIS 53
4255.6	VII, VIR
4272.5	VIA, VID
4323.6	VIO, VIE
4339.4	VIC
6333.5	VIM, VIR
6351.5	VIB
6407.5	VIC, VIO, VIE, VIP 2
6463.5	VIA, VID, VII
6464	VIS 3
8452	VIS 35
8487	VID
8521	VIS 26
8597	VIP 3
12952.5	VIS 5
12979.5	VIS 49
12994	VIP 4
16947.6	VIP 5
17161.3	VIS 6
17194.4	VIS 64
22315.5	VIP 6
22474	VIS 42
22495	VIS 43

Thanks go to Mr. M.L. Cauthon, III of the Royal Australian Navy who sent some of the information which has been used in this column. This goes to show you that I do read your mail even though, admittedly, I am not always the swiftest to respond to it. Keep those cards and letters coming, and until next time, good listening.

We're Safe Now!



Antennas attract lightning 365 days a year!

For many ham operators in North America, lightning season is something that people think about only during a few, short, summer months. Mother Nature hands out a few harsh lessons and moves on her way. Jerry Keisler, KB7IMX, was the recipient of one such lesson.

Jerry was up late, watching the TV, when a storm blew up. At about 12:05 a.m., there was a loud clap of thunder. "It must have been pretty close," relates KB7IMX, "as I recall seeing a flash of light through the window. That got me thinking about the safety of all my radio gear." We'll let Jerry tell you the rest of the story.

"I started with my 2 Meter rig...and got as far a disconnecting the coax from the amplifier when it happened! ZAP! POW! A loud report and a flash of light at essentially the same time. And there I was, standing by the 2 Meter rig, holding the PL-259 connector in one hand. Luckily, my other hand was free.

"What happened then is still something of a blur...lights going out as the breakers were tripped, burning smell in the room, and the feeling of electricity on the surface of my skin. But I can't forget the amazing, vivid recollection of seeing long sparks or streamers going off the tips of the fingers on my free hand.

"The next thing I knew was that I felt like I had been hit by a ten-ton brick, flying backward and ramming into the wall of my shack [and] breaking the plasterboard."

Amazingly, Jerry never lost consciousness during his ordeal and eventually drove himself to the local hospital where he was released after several hours of observation.

Again, Jerry tells the story: "While it took me several days to feel that I had recovered physically from the experience, the important damage was not done to me; I survived. That means that I didn't take the full brunt of that lightning strike, thanks to having a free hand in the air and being well insulated by my shoes. But there's no doubt about it, I was charged up to a very high voltage when all of this was taking place."

There are a couple of twists to Jerry's story. First is the obvious: Jerry lived. Second, we should point out that he had just moved into a new house and *had no lightning protection on his equipment*. And third, lest you become complacent now that lightning season has past, keep in mind that Jerry was struck on January 28th.

The FCC and Interference

According to our good friends at the *W5YI Report*, Joycelyn Walls, a Pubic Affairs Specialist at the FCC's Baltimore, Maryland, office, has been writing a series of bulletins on radio interference that are aimed at the public. Since many members of the public automatically point to their ham radio neighbor whenever they experience any interference whatsoever, we thought we'd pass along some of her wisdom.

Walls suggests that citizens who are experiencing interference take a battery operated AM radio and tune it to an AM station. "Make sure," says Walls, "that you are receiving the interference."

Walls advises consumers to take the radio and go to the breaker box in their home. Shut off the main switch. If the interference goes away, she tells complainants, it's originating in your own home and you are responsible for correcting the problem.

This is excellent public relations-type advice that hams should keep in mind the next time a neighbor suggests that your amateur radio gear is responsible for "that static" on the radio. Of course, if the interference doesn't go away when the main breaker switch is turned off, the neighbor is going to be more convinced than ever that you're the culprit...

Monitoring Times Special Events Station

There will be two special ham radio stations operating from the 1990 *Monitoring Times* Convention in Knoxville, Tennessee, this October 4, 5 and 6. A special commemorative QSL card is offered to both hams and shortwave listeners worldwide who confirm hearing contacts with either of them.

Special event station WA4PYQ will be on the air Friday and Saturday on 14215 kHz ($\mp$ 5 kHz).

In addition, experimental station KB2XGE will be operating on the hour, 24 hours a day, on 10547 SSB ($\mp$ 1 kHz) with a short announcement testing propagation conditions.

Both stations will operate primarily in voice. Requests for the limited edition QSL must be submitted within 30 days of the event to P.O. Box 98, Brasstown, NC 28902.

QSL's Alive!

Bob Smith, A3PEI, of Lusby, Maryland, says that he has received what he believes to be the most unique QSL card ever sent. "It was about twice the size of an overage post card but at least 200 times as thick. It took a couple of hours to 'read'," teases Bob, "but it was so descriptive and informative that I could actually 'see' the other party's rig, antenna, power supply, you name it."

As you might have guessed, Bob got a videotape to confirm his 10 Meter QSO with James "Murph" Murphy, WV4R, and his XYL Patty Lou, KC4HBV, of Rivo Alo, Florida.

"After a great opening of 'Don't Worry, Be Happy,'" says Bob enthusiastically, "Murph narrated a guided tour around his radio shack (which Bob describes as incredible), in which several activities were demonstrated." Also included in the video QSL was a tour of WV4R/KC4HBV's antenna farm, and the homes of several other Florida hams.

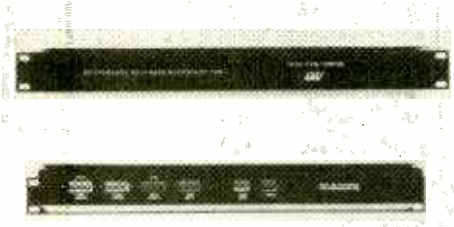
Says the happy recipient, "This is a real treasure and I truly feel that it may very well becomes a collector's item." What a great way to get to know other hams! Has anyone else received a QSL like this?

License to Innovate

The FCC has been seeking input on giving special licensing preferences to new spectrum modes and innovation. The proposed "pioneers preference" would provide such advantages as a six month earlier licensing window, "thereby ensuring the innovator an opportunity to participate in a service it first sought to develop. The Commission is especially interested in new and unique approaches to spectrum usage.

New Products

MFJ Enterprises, Inc. has announced the release of the new MFJ-2040 Repeater Controller with autopatch. The device rings in at $499.95 and includes programmable Morse ID (or optional Voice ID, MFJ-2050, $39.95), ring detection for reverse autopatch, input and output ports, cross band linking and more.



"Installation," says the crew at MFJ, "is easy." You get standard "D" style connectors for all control and audio lines and the instruction manual gives you step-by-step instructions that get you up and running in minutes. Hardware schematics are also provided.

For more information on the MFJ 2040, contact your favorite dealer or call MFJ at 601-323-5869.

DX

If you think that you have all the current DX nets listed, watch out. Here come two more! A DX Net meets on 14243 kHz at 2300 UTC daily and the RADX Net meets on 14261 kHz from 0200 to 0500 UTC.

Here are some other DX tuning and talking tips. Non hams! Join in on the fun! Many ham operators will issue QSL cards to shortwave listeners!

China: BZ4CQ is an active Chinese RTTY station and has been on 15 meters as early as 0600 UTC (a difficult time for North America, though). **Czechoslovakia**: Czech hams have been using the special prefix OM in honor of the 60th anniversary of amateur radio in Czechoslovakia. **El Salvador**: YS1SI has been on 15 meter RTTY at 2230 UTC daily. QSL to Rafael Sos, P.O. Box 792, San Salvador, El Salvador. **Kampuchea**: XU8DX has been heard on 14190 kHz at 1600 UTC and 14195 kHz at 1220 UTC. The operator is a young lady named Sokun. It is not known where she is located and no QSL information was announced. **Lebanon**: OD5NG has been appearing on 20 meter RTTY at 0230 UTC most days. **Malawi**: With all of the recent activity from this former rare one, RTTY enthusiasts can look for 7Q7LW on 20 meters starting at 2000 UTC most days. **Pitcairn Island**: While Tom (VR6TC) and Betty (VR6YL) Christian are away visiting the U.S., VR6HW will be one of the two operators of the island's commercial shipping station. VR6HW will be on the island until December and is an active RTTY operator. Look for Bill on 15 and 20 RTTY, and possibly 10, sometime after 1900 UTC (0100 for 20 meters) each day. QSL to: Bill Haig, 12 Kauri Lopp Rd., Oratia, Auckland 1207, New Zealand. **Solomons**: H44AP has been a daily fixture on the Family Hour DX Net (14226.5 kHz) at 1100 UTC recently. QSL routes to either WA2HA or direct. **World Bank**: This is a special station operated by the World Bank Headquarters in Washington, D.C. It can be heard almost daily on 14227 kHz at 1700 UTC. The operation is during the operator's lunch break. QSL to KK4HD, one of the two operators of the station.

That's all for this month. Thanks to *Worldradio* (2120 28th St., Sacramento, CA 95818), *W5YI Report* (P.O. Box 565101, Dallas, TX 75356-5101), Rob Gerardi and the CIDX *Messenger* (79 Kipps, Greenfield Park, Que. J4V 3B1) and everyone who provided input for this month's column. See you in 30!

the qsl report

Gayle Van Horn

AIRCRAFT TRAFFIC

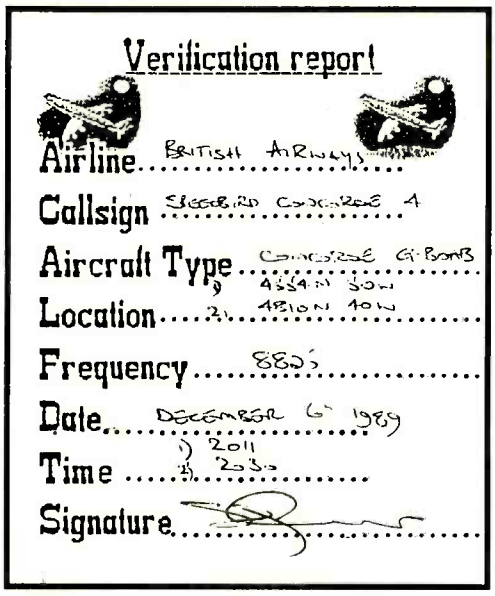
American Airlines #1180, 11396/17925 kHz. Prepared card and personal letter. Received in 30 days for an English utility report and one IRC. Airline address: American Airlines, P.O. Box 619616, DFW Airport, Dallas, TX (Dick Moon, George, S. Africa)

Air Singapore, 823. 6556 kHz. Prepared card, verified by the captain. Received in 33 days for an English utility report. Airline address: Singapore airlines, Changi International Airport, Singapore 1781. (Dick Moon, George, S. Africa)

Speedbird Concorde, 004, 13306 kHz. Prepared card, and personal letter verified by Captain Roger Mills. Received in 25 days for a self-addressed envelope. Airline address: British Airways, Flight Operations, P.O. Box 10, Hounslow TW6 2JA, United Kingdom. (Dick Moon, George, S. Africa)

Air New Zealand, Flight 56, Boeing 767-200, 8867 kHz USB. Full data prepared form card, verified by B. Blantz. Received in 32 days for an English utility report, souvenir postcard, and return postage. Airline address: P.O. Box 73111, Auckland Int'l Airport, Auckland, New Zealand. (Rick Albright, Merced, CA)

East-West Airlines, Flight 1166, SELCAL CKAG (F-28), 8867 kHz USB. Full data prepared form card, aircraft photo, and airline mementos. Received in 24 days for an English report, a souvenir postcard and return postage. Airline address: 323 Castlereagh, Sydney 2000, Australia. (Rick Albright, Merced, CA)



Dick Moon of the Republic of South Africa caught a flight of the British Airways' Concorde. They signed his prepared form and added a friendly note to boot.

BOLIVIA

Radio Abaroa. 4712 kHz. Full data paper QSL, verified by Rolman Medina Mendez, QSL manager. Also enclosed postcard and religious material. Received in 65 days after a Spanish follow-up report, and mint stamps. Station address: Casilla No. 136, Riberalta, Beni, Bolivia. (Robert Landau, Secaucus, NJ)

BRAZIL

Radio Alvorada de Parintins, 4965 kHz. Full data QSL card, verified by Raimunda Ribeiro de Silva, Diresora-Gerente. Received in 60 days for a registered Portuguese report, prepared form card, and two IRCs. Station address: Trav. Gov. Leopoldo Neves 503, Parintins, Amazonas, Brazil. (Robert Landau, Secaucus, NJ)

CANADA

CBC-Canadian Broadcasting Corp., 11720 kHz. Noted station does not issue QSL cards, but received a personal letter signed by Natalie Chamberland. Also enclosed French/English program schedule. Received in 108 days for an English report and IRCs which were returned. Station address: CBC, Northern Service-Quebec, Box 6000, Montreal, Quebec, Canada H3C 3A8 (Preston Sewell Jr., Franklin, NJ)

CUBA

Radio Taino-830 AM. Full data verification letter, without signer. Received in 30 days for a Spanish AM report and one IRC. Station address: Apartado Postal 3040, La Habana 3, Cuba. (Fraser Bonnet, Fairborn, OH)

FRENCH GUYANA

Radio France Int'l, 11670 kHz. Full data QSL, without verification signer. Received in 180 days for an English report. Station address: Boite Postal 9516, Paris, France. (Nicholas Peter Adams, Newark, NJ)

NEW ZEALAND

Radio New Zealand Int'l, 17680 kHz. Partial data scenery card of Taupo the Great, without verification signer. Received in 31 days for an English report, and three IRCs. Station address: P.O. Box 2092, Wellington, New Zealand. (Nicholas Peter Adams, Newark, NJ)

NIGER

La Voix du Sahel, 5020 kHz. Full data paper QSL, verified by Yacouba Alwali. Received in 49 days after a follow-up French report, and mint stamps. Station address: Office de Radiodiffusion-TV de la Republicque du Niger, Boite Postal 361, Niamey, Rep. du Niger. (Robert Landau, Secaucus, NJ) (Darren White, New Augustus, MS)

PHILIPPINES

Radio Veritas, 15445 kHz. Full data QSL card, verified by Ms. Cleofe R. Labindao, Audience Relations Officer. Received in 74 days for an English report and two IRCs. Station address: P.O. Box 939, Manila, Philippines. (Robert Landau, Secaucus, NJ)

SHIP TRAFFIC

HMS Jupiter F-60 (British Naval frigate), 16512.7 kHz USB. Data only letter with ship info folder, and ship photo enclosed. Received in 34 days for a follow-up report (total 480 days), and mint British stamps. Ship address: c/o BFPO Ships, London, England (Patrick O'Connor, Hinsdale, NJ)

Caribic-C4ZF (refrigerated cargo), 22012.4 kHz USB. Full data prepared card. Received in 69 days for an English utility report and one IRC. Ship address: c/o Columbia Ship Management Ltd., Columbia House, Dodecanissou & Kolonakiou Corner, P.O. Box 1524 Yermasoyia, Limassol, Cyprus. (Patrick O'Connor, Hinsdale, NH)

Adabelle Lykes-WPFZ (container ship), 500 kHz. Full data letter. Received in 42 days for an English utility report and return postage. Ship address: U.S. Maritime Administration, 400 7th St., SW, Nassif Building, Washington, D.C. 20590 (Hank Holbrook, Dunkirk, MD)

Melgar Bay-DUIN (bulk carrier), 500 kHz. Full data letter. Received in 41 days for an English utility report and return postage. Ship address: Van Ommeren, NV PHS, Westerlaan 10, Postbus 1923, 300 BX Rotterdam, Netherlands. (Hank Holbrook, Dunkirk, MD)

SWAZILAND

Trans World Radio, 11755 kHz. Full data QSL folder and schedule, verified by Carol Tatlow. Received in 94 days for an English report, and one IRC. Station address: P.O. Box 64, Manzini, Swaziland, Africa. (Darren White, New Augustus, MS)

SWITZERLAND

Swiss Radio Int'l, 9885 kHz. Full data QSL scenery card, with out verification signer. Received in 21 days for an English report and one IRC. Station address: CH-3000 Berne 15, Switzerland (Robert Landau, Secaucus, NJ) (Nicholas Adams, Newark, NJ)

UNITED KINGDOM

Portishead Radio, 8765.4 kHz USB. Full data QSL card, verified by Larry Bennet. Received in 12 days for an English utility report, and three IRCs which were returned. Station address: Maritime Radio, Portishead Radio Station, Highbridge, Somerset, TA9 3JY, United Kingdom, (Darren White, New Augusta, MS)

UNITED STATES

WKRG-Mobile, Alabama - 710 AM. Partial data letter, verified by Thomas H. Brown, radio engineer supervisor. Also enclosed a ball cap and three logo souvenirs. Received in 11 days for an English AM report, and return postage. Station address: P.O. Box 160587, Mobile, AL 36616 or 555 Broadcast Drive, Mobile, AL 36616. (Larry Van Horn, New Orleans, LA)

KOA-Denver, Colorado-850 AM. Data only card, verified by Jan Chadwell, C.E. Received in 15 days for an English AM report and return postage. Station address: 1380 Laurence St., Suite 1300, Denver, CO 80204. (Larry Van Horn, New Orleans, LA)

WRGA-Rome, Georgia-1470 AM. Full data letter, verified by Ben Cleary, Ops. Director. Also enclosed a personal letter, and coverage map. Received in five days for an English AM report and return postage. Station address: P.O. Box 1187, Rome, GA 30161. (Larry Van Horn, New Orleans, LA)

WAGE-Leesburg, Virginia-1200 AM. Full data form letter, verified by Todd James, Prgr. Director. Received in nine days for a self-addressed stamped envelope. Station address: 711 Wage Dr., Leesburg, VA 22075. (Harold Frodge, Midland, MI)

WMPC-Lapeer, Michigan-1230 AM. No data personal letter, verified by Robert Wolfe, C.E. Received in 46 days for a self-addressed stamped envelope. Station address: P.O. Box 104, Lapeer, MI 48446. (Harold Frodge, Midland, MI)

A Tuning Scope for your Shack

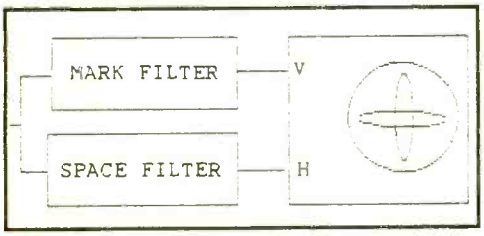


Fig 1: Connect the filter outputs to the oscilloscope inputs

If you are an "oldtimer" and you use an oscilloscope for tuning, you are probably familiar with the "Crossed Footballs" or "Crossed Ellipse" (see Figure 2). Ham radio operators have used this tuning system for years. It's similar to the "Lissajous" oscilloscope pattern that most technicians use for testing audio amplifier circuits.

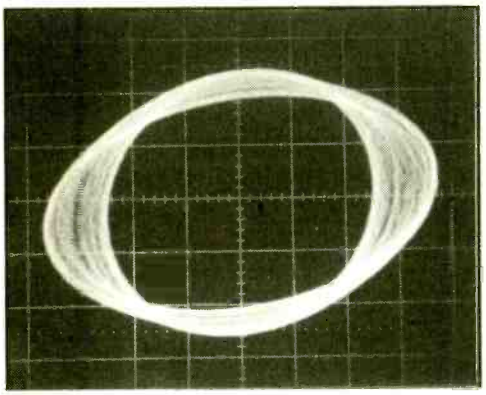


Fig 2: The M7000 copying 300 baud HF packet radio

In RTTY applications the horizontal and vertical inputs of the scope are connected to the "mark" and "space" filter outputs (see Figure 1). I use a Tektronics 604 monitor scope that I purchased at a local Hamfest for $30. It needed a few repairs but when I checked the current Tektronics catalog, the price was $4000. I learned later that there was a flood of these scopes in the Chicago area because a research laboratory went bankrupt.

You don't need something that fancy. An old tube model will do as long as the horizontal input is sensitive enough to amply the signal from the filter.

I also use the same scope and a switch box to toggle between my Kantronics KAM, Universal M7000 and a Homebrew TU. The KAM was modified by installing a Radio Shack stereo headphone jack on the real apron and connecting it to the PC board using a small diameter shielded audio cable (which is also available from the "Shack"). I connected the cable to two points on the PC board, near U12, marked MA and SP.

This tuning system worked well for many years because Ham Radio operators used it with 45 baud at 170 Hz shift RTTY, but when packet came along, the baud rate increased to 300 and a new filter design was needed. The old 45/170 filter was too slow for the higher baud rate. A new 300/200 packet filter had to be realized.

In SWL applications an even more complex filter system is needed because frequency shifts in the HF band can vary from 20 to 1000 Hz and baud rates from 45 to 1800 baud. The Universal M7000 can adjust to the above parameters with some limitations. On most RTTY or packet controllers the "crossed football" can be very distorted and inaccurate for tuning.

Would you like a Flux Capacitor or a Bowtie Filter?

The "Bowtie" filter is a new innovation in radio teletype and packet radio modems. It improves the tuning display by generating a bowtie pattern on the tuning scope (Figure 3). It allows the user to tune with a higher degree of accuracy without degrading the performance of the filters.

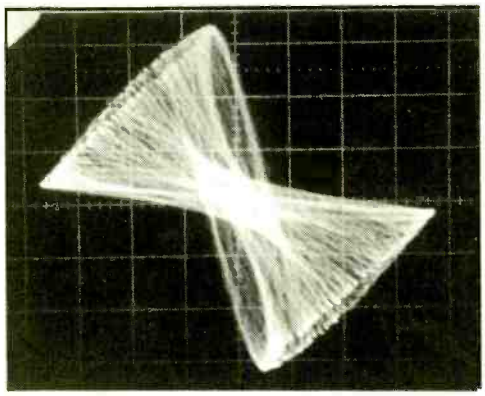


Fig. 3: The M7000 copying packet radio using the bowtie filter

Packet signals, for example, can be tuned within 10 Hz (frequency accuracy has been a big problem on the ham bands). Another improvement is the filter's ability to tune very narrow shifts.

I own two Homebrew TUs, one Universal M7000 and a Kantronics KAM with bowtie filters installed. Another M7000 prototype or "beta" test unit is being evaluated by another hobbyist in the U.S. With the exception of the KAM (due to software limitations) the four units have the ability to accurately measure and copy shifts as low as 20 Hz.

The first bowtie prototype was built in 1973 so this technology isn't new. Hopefully this circuit will soon be available to the ham and SWL market. By the way, I'm the inventor.

NNN

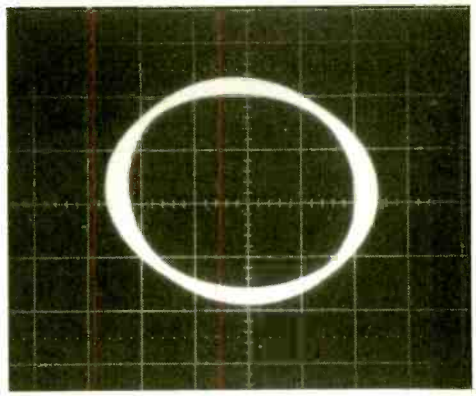


Fig. 4: The M7000 using normal filters (300 baud packet at 30 Hz shift)

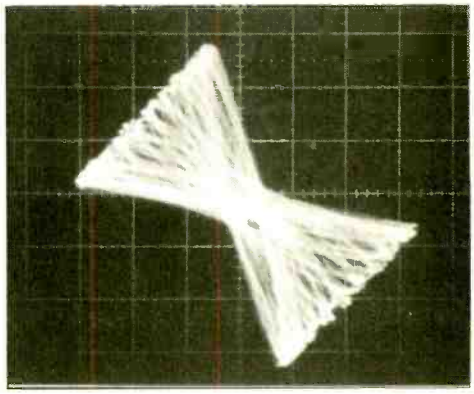


Fig. 5: With the bowtie filter the M7000 can even copy 300 baud packet using 30 Hz shift

TVRO News Hounds

It's easy to think of these times of fast breaking international news as somehow more volatile and urgent than any other. That's not really the case. Rather, it is the immediate delivery of information live from the scene of action that makes it seem that way.

When news happens quickly, who wants to wait for the six o'clock news to get the heavily edited, possibly slanted network view? Why not watch the news as it happens and do the editing yourself? This is exactly why those of us who call ourselves students of current affairs (newshounds, if you prefer) have TVRO systems.

When earthquakes hit the west coast, the Berlin Wall crumbles, an eastern European government falls, you can be there watching it all.

Where to Look

The first source for satellite news can be the regularly scheduled channels: All News Channel (F2, 7) CNN and CNN Headline (G1, 7, 8). These are 24-hour-a-day channels, complete with commercials, which cycle the top news series over. These channels, as with the big three networks, are "fed" raw news footage via their "contract" channels and can provide interesting viewing. See accompanying chart.

Network	Sat	Xpnder
FRENCH ONE TV	F2	20
JISO (JAPAN)	F2	21
TV GLOBO (BRAZIL)	F2	24
CNN HEADLINE	G2	1
CNN HEADLINE	G2	5
WNYW (FOX)	G2	5
ABC	T2	11
CBS	T2	17
CBS (LA/NY)	T2	19
CBS	T2	22
ABC (LA/NY)	T1	4
ABC (ESPN)	T1	11
CBS	T1	15
ESPN	T1	16
BRIGHTSTAR (BBC)	W4	10
ESPN	W4	20
NHK (JAPAN)	W4	18
BBC	W4	20
ESPN	W4	24
CBC (LAB/NEWF)	D1	7
CBC, CTV	D2	7
FOX NEWS	S1	1
CNN	W5	1
FNN (NY FEED)	W5	6
CBS	W5	7
ESPN	W5	11
BRIGHTSTAR (BBC)	W5	16
CNN	W5	23
RAI (ITALY)	F3	4

How to Look

When stories break, it's good to know how to look. For example, when the U.S. invaded Panama, the press -- as was the case during the Granada invasion -- was formed into a Defense Department authorized "pool." Using portable earth stations, on-location news feeds were beamed back to the U.S. for all the networks to use. These transmissions are not announced and the news hound will simply have to sniff them out. Look for color bars and a billboard stating something like "DOD NEWSPOOL" or "POOL PANAMA" or the like. Try the obvious newsfeed satellites first such as W5, T1, G2.

The Waiting Game

Patience is a virtue here as the feeds are sent only occasionally and again without announcement. Often feeds are merely camera shots with "natural sound." It's not uncommon to have the screen blank for hours to suddenly come to life with the news of tomorrow. A safe bet is to watch closely around 5 p.m. ET as correspondents try to feed the last minute "stand ups" and footage for the six o'clock network news.

World Satellite Annual

MLE, Inc. has just released its new catalog of "Technical Publishing for the Satellite Professional." The publishers of *The World Satellite Almanac* by Mark Long, now offer *The 1990 World Satellite Annual*, an updated supplement to the Almanac.

Chapters in the latest *Annual* include: Satellite launch vehicles for the 1990s, mobile satellite communications systems, HDTV and more.

Also available from MLE and again by Mark Long is *The World of Home Video Entertainment*. As the catalog states, "The complete guide to TV sets and monitors, VCRs, camcorders, laser disc players, satellite dishes, personal computers, video games and the future of the medium."

In addition, Mark Long teams up with Jeffrey Keating in *The World of Satellite TV*. Here are tips on selecting, installing and maintaining your satellite system.

The ubiquitous Mr. Long has available *KU Band Satellite Handbook*, is featured in his own video tape entitled *The World at 12 GHz*, and still has enough energy left to put out his monthly newsletter *World Satellite Update*.

There are a number of other publications available from MLE including the offer of a free sample copy of *World Satellite Update* on return of the order blank in the catalog. Prices range from $16 for *The World of Home Entertainment* to $40 for the *1990 World Satellite Annual*. For your catalog write: MLE, Inc., P.O. Box 159, Winter Beach, FL 32971.

Transponder Notes

National College Television (NCTV) has moved to W5 transponder 4, Monday through Friday, midnight to 6 a.m. (ET). Of particular interest on NCTV is the adult cartoon program which features vintage cartoons in black and white and early color. Produced by the National Cartoon Museum, these are original theater animation films at the dawn of the art. The half-hour show is the best thing on NCTV.

Soviet Television is up 24 hours a day. On S2, 14. This channel is a must for Russophiles, but better have a fluent interpreter alongside. Also on S2, 16 (SCOLA) Radio France is on subcarrier 5.8 Mn.

The BBC six o'clock news remains on W4, 10 even though it's not listed anywhere. BBC occasional video is also found on W4, 20 as well as W5, 16.

On Spacenet 1 Xpnder 21 Greensheet, the Shawn Kenny's war-against-GI continues while 3 Angels Broadcasting offers its alternative on Xpnder 23.

Mailbag

From Ron Vaceluke W9SEK of Tucson, Arizona: *"Just a quick comment about your column in June Monitoring Times, page 48. Reference to an R-7000 TV adapter for satellite usage... the adapter is for standard AM video and not FM wideband video. Besides its lack of modulation compatibility, the TV adapter has an input of 10.7 MHz with a band width of about 5 to 6 MHz. TVRO FM bandwidth is four to five times greater than that.*

"In other words, it won't work. Just thought I would mention it because you didn't in your reply to the reader from Texas."

✓ From my colleague Karl Zuk whose "American Bandscan" column appears elsewhere in this magazine: *"Re Transponder notes May 1990 MT, ABC TV Net has never scrambled its C-Band feeds. They have tested several systems in house -- but not on air."*

✓ From Chris Arndt of San Luis Obispo, California: *"...I have been interested in weather satellite reception for some time, and more recently in TVRO. I am in a position to start planning and construction of a system (finally). Due to zoning requirements, I would like to combine S-band weather, and C and Ku band TVRO on the same dish. Do you know of anyone who has tried this, or of any articles written about such a system?*

"I would like to keep the diameter down. Zoning limits me to 10 feet. I would like to go smaller, and get better LNBs to compensate. I think that the S-band feedhorn can be mounted to the side of the TVRO horn. The off-center feed would require aiming to the side of the weather sat, at some reduction in gain.

"How do I figure how much I lose and how much is tolerable? Can S, C, and Ku be combined in the same feedhorn? The added cost and hassle might be worth the gain increase."

This is the spirit of TVRO experimentation that makes this hobby fun. In fact, the entire satellite industry owes its very existence to the "What if" spirit. I hate to tell you not to try combining them because your own tinkering might uncover designs or techniques others have missed.

On the other hand there are many things to be learned from the folly or successes of those who traveled the same path before us. In addition, there are practical aspects to questions such as these that have nothing to do with technical or electronic functions.

In the mid 80s, when TVRO experimenters started turning their attention to the Ku band, the obvious reception solution was to mount a separate Ku feed horn to the side of the existing C Band feedhorn. It was obvious because no one relishes putting up yet another expensive dish for the limited Ku transmissions.

First, Chris, you're right to keep the dish size at 10 feet. Anything smaller will only degrade reception. The newer, higher power C-band satellites won't be operational for well over a year and even so dish sizes of 7.5 feet will be about the smallest you would want. There really is no compensation for a large reflector surface. Lower noise temperature LNBs are no substitute for greater reflective surface.

Secondly, the new "in-line" C-Ku feedhorns are the design breakthrough necessary to make reception of C and Ku frequencies on the same dish without significant loss of signal. However, it is still necessary that the reflective surface is capable of reflecting the smaller Ku frequencies. Otherwise the signal passes straight through the dish.

For weather satellite reception I would recommend a stand alone antenna system. The frequencies at 1.5 to 1.7 GHz need totally different feedhorns and separate LNBs.

An excellent source of information and equipment concerning GEOS, NOAA and INMARSET satellites is the 1990 shortwave catalog from EEB at 516 Mill Str. Ne, Vienna, VA 22180. Their toll free order number is 800-368-3270. Technical and information line is 703-938-3381.

A complete GEOS-NOAA weather satellite reception system would cost around $1,400, if you already have an ICOM 7000 about $1,200. This system includes a 36 inch parabolic dish, low noise amplifier (LNA), power supply, radio facsimile terminal. Many of you who are amateur radio operators or serious SWLers will already have the necessary receiver and terminal node controller (TNC) and need only the antenna system such as the NOVEX AS1600 from EEB.

For those interested in satellite weather fax reception on a C Band domestic North American satellite, Fred Osterman, in his excellent publication "The RTTY Listener," recommends Spacenet III transponder 17, 1576 kHz and 1875 kHz 120 LPM and 576 IOC AM Fax FM Radio mode.

✓ And finally from Rob Cave of Princeton, Texas, a question about frequency allocations. He has a chart from 1977 which indicates that 41-43 GHz and 84-86 GHz are allocated for broadcast satellite. He adds, *"If so, what's up there? I have never seen any equipment advertised to cover those bands."*

Rob, my resources regarding your question proved lacking and I was forced to fall back on a limitless font of knowledge on matters such as these. In other words I asked *MT* publisher Bob Grove who consulted his trusty 1989 IRAC table of frequency allocations. According to that source 40.5 to 42.5 GHz and 84-86 GHz are still indeed allocated on an international as well as national basis to satellite and broadcast general fixed and mobile service.

The fact is, there isn't anything up there which explains why there's no equipment sold to receive those frequencies. It's interesting to contemplate such large tracts of unoccupied frequencies. One wonders what fascinating pieces of gear will be used to transmit and receive the heretofore unthought of transmission modes.

Don't spend too much time wondering why the current radio spectrum has to be surrendered to big business when such underdeveloped territory waits. The answer is simple. The technology for communications on the ham bands has already been perfected. The tough research and development work has already been done. Big business has only to step in and reap the profit.

Incidentally, IRAC stands for Interdepartmental Radio Advisory Committee. Their table of frequency allocations can be had for free by writing: Executive Secretary, IRAC, U.S. Dept. of Commerce, Room 1605, HCHB Building, 10th and Constitution Ave. NW, Washington, DC 20230.

Instant Radio

All you have to do is plug it in and you're on the air. No license required, no antenna required. Carrier current AM radio stations are broadcasting all over the country, transmitting programs limited only by your imagination. Come to the *Monitoring Times* Convention and see one in action!

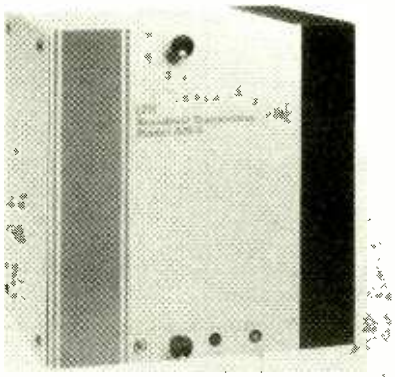
Here's how it works: A small AM broadcast band transmitter, under 60 watts output, is linked to a building's AC power system with a small coupling unit. You carefully adjust the power until your signals cannot be heard further than a few feet outside your building and you are ready to broadcast. Any radio close to a power line will have no problem picking you up. No FCC license is necessary. Only two rules apply: Pick an unused frequency to avoid interference with licensed broadcasters in your area and keep your transmissions within the limits of your building.

Since most household radios plug into a wall-mounted AC socket, carrier current signals are usually the strongest on the dial. Hand-held portables get a pretty strong signal too. Please remember that you cannot connect a transmitter's output to AC wiring without a coupling unit. The results can be lethal and will resemble a Fourth of July fireworks celebration. Don't try it.

To use your AC power lines as an antenna, use a transmitter coupling unit.

The most common place to find carrier current broadcasting is on college campuses. Many colleges cannot afford the equipment and technical maintenance necessary to become over-the-air broadcasters. Carrier current broadcasting is very easy to set up, relatively inexpensive, and requires no complicated applications or long waiting periods before being licensed to hit the air. Unlike most over-the-air educational broadcasters, carrier current stations can sell advertising and become financially self-supporting. One transmitter can usually service a large dormitory, and by using several transmitters all linked to a single studio, an entire campus can begin to enjoy its own radio station in no time.

Students often prefer carrier current AM to over-the-air FM. When a signal leaves a campus the station becomes obligated to serve surrounding communities as well as the school's population. Carrier current AM allows campus stations to be for the students and by the students.



A typical carrier current transmitter

WCVF, the voice of The State University College of New York at Fredonia, has the best of both worlds. For over twenty years students have broadcast to all the dorms on campus, and even off-campus apartment buildings using carrier current transmitters on 600 kHz. When the university's budget and FCC rules were favorable a few years ago, WCVF-FM was established on 88.9 FM as the 130 watt voice of the college to the outside world. Fredonia's student association controls WCVF-AM and the university governs WCVF-FM. The AM station often serves as a training ground for advancing to over-the-air FM and broadcasting careers after graduation. Even high schools take advantage of carrier current broadcasting. WHIL broadcasts on 680 kHz to all of Richmond Hill High School on Long Island.

You don't have to be young, or in college, to enjoy it either. Many senior citizens' homes use it as an invigorating form of recreation. At the Daughters of Israel Geriatric Center in West Orange, New Jersey, WMRF broadcasts several hours each week to two residential buildings on 540 kHz. Under the direction of Marcie Cooper, the center's 300 residents listen to reruns of old shows like the Lone Ranger, Amos and Andy, Fibber McGee and Molly and even fireside chats with FDR. With an enthusiastic staff averaging 84 years young, WMRF is an activity that makes all its listeners smile and remember.

Other homes use carrier current systems to rebroadcast shortwave programs from "the old country." A shortwave radio is permanently tuned to an overseas station's best frequency. The radio's audio output is directly fed to the transmitter for AM rebroadcasting. Consider how a German home would enjoy hearing Deutsche Welle just by turning on an AM radio.

76-year old Amelia Dade broadcasts on WMRF -- a station you can only pick up in two buildings in West Orange, New Jersey.

Going to the movies? You might want to bring your AM radio with headphones. Using a system called Ampli-Sound, theaters throughout the country are becoming carrier current AM broadcasters so the hard of hearing can join in the fun on the silver screen. Loew's 84th Street Cinema on Broadway in Manhattan operates six transmitters, one for every screen. You'll hear the soundtrack of "Dick Tracy" on 810 kHz, "Robocop 2" on 540 kHz, "Gremlins 2" on 590 kHz and more. No need to rent expensive infrared headphones offered in some theaters. Just bring your Walkman. Other theaters take the idea a step further and provide a soundtrack in Spanish for those who don't "hable Ingles."

Where there isn't any house wiring you can create some. Most drive-in theaters have replaced their old cast metal hang-on-the-door speakers with a variation of carrier current broadcasting. Since there is no building wiring available to carry the signal, drive-ins use a special coaxial cable buried in the ground under the parking lot. You simply turn on your car radio to hear the soundtrack of the movies.

Bring your AM radio to church, too. Similar low power AM installations have made drive-in churches possible. Amazingly enough, many people who do not attend traditional services enjoy driving into a church parking lot and worshiping without leaving their car. Dr. Robert H. Schuller's famous Crystal Cathedral uses a system called Radio-Aide to transmit services to cars and to hard-of-hearing parishioners inside the church itself. The Worldwide Billy Graham Crusade utilizes a portable, multi-frequency AM transmission system to broadcast simultaneous translations of their meetings in many languages. To listen in, AM headphone radios are offered for sale as people enter the church or stadium.

Be an American BandScan Reporter.
See any stories about radio in the local paper? Send them to Bandscan, c/o MT, PO Box 98, Brasstown, NC 28902.

Drive-in banks and drive-through car washes also used buried cable AM to provide instructions for waiting vehicles. You'll also find these transmitters in shopping centers and office buildings, at military installations and Indian reservations. Everyone has something to say, and carrier current is the way they get their message to you.

Nationwide, many "leaky cable" AM installations are used as motorist radio advisory systems. Repetitive messages about parking, entrance fees and directions can be heard approaching a variety of theme parks, beaches, airports and national monuments. Disney World, Colonial Williamsburg, Hershey Park and Jones Beach on Long Island all operate unlicensed transmitting systems using special leaky coaxial cable running along the center median divider to radiate their signal.

One transmitter can cover up to one mile of road. Sometimes more than one transmitter is used, each with its own message, providing a series of announcements to listen to as you approach your destination. A special digitally recorded annunciator or continuous playing cartridge tape will repeat these messages over and over again for broadcast. Large blue advisory signs will direct you to the right frequency as you drive in. Then listen. "Welcome to Disney World. Parking is now available in lots C and D..."

Probably the most unusual application of leaky coax AM is at the Holland and Lincoln Tunnels linking New Jersey with New York City. Powerful broadband amplifiers rebroadcast the entire AM band to cars riding inside the tunnels where almost no signals can penetrate. Your radio never fades away and you may be scratching your head wondering "How did they do that?"

Carrier current and leaky cable AM have uses that are endless and this article will hopefully whet your appetite. If you live in a town less than a mile long, and everyone lives close to the main road, this could be your chance to go on the air. Lay out some leaky coaxial cable. Live in a high rise apartment? Your audience is waiting by their AC power cords. Just follow the rules and join in the fun.

For more information about sources of equipment and other technical information, just send an SASE to American Bandscan, P.O. Box 98, Brasstown, NC 28902.

Mailbag

✓ "Oh what a tangled web we weave when we start to deceive." writes Harold Bower from Sunbury, Pennsylvania. Rebecca Boedker of Northumberland, Pennsylvania, had filed an application with the FCC for a new station on 107.3 FM. She claimed that a local lending institution was ready to grant her $250,000 for the new venture even though her income was only $625 a year. An FCC judge discovered that she was relying on her husband's annual salary of $90,000.

What Boedker "forgot" to tell the Commission was that her husband was a Danish citizen and therefore was not eligible to be a partner or invest in an American broadcast property according to FCC regulations. It also became evident that Boedker used part of a home equity loan to her husband to pay the FCC's license application fees.

She had applied for a $250,000 financing loan from two separate banks and had received only letters of interest in her project which she misrepresented to the FCC as letters of commitment. Although the construction permit to build the station has already been granted to competing applicant, William Zurick, Boedker is asking for a review to reverse the decision in her favor. She claims the Commission has not heard the whole story. What will she think of next?

✓ John Spencer Carson Jr. of Norman, Oklahoma, says the sound of KLOR-FM is dynamite, maybe literally. KLOR has been carefully covering a scandal involving the local Ponca City school board and their involvement in running a private bus company using public school facilities.

KLOR owner and general manager Mary Jane Kelly believes that her station's coverage is correct and the community has the right to know. Others don't share the same feeling. One threat by phone caused a lot of concern.

"The caller said we would be blown off the air before our next news story came on the air. I think it is dead serious up here, guys. I really do," Kelly told the local police. KLOR is still on the air and still reporting the scandal, but don't stay long if you hear something ticking in the newsroom, okay?

New Station Grants

Here's where those beautiful new transmitters are being fired up soon: Cedar Key, FL 102.7; Key West, FL 107.9; Palm Bay, FL 88.5; Kankakee, IL 95.1; Topsail Beach, NC 103.9; Voorheesville, NY 96.3; Banks, OR 107.5; Bishopville, SC 93.7; Kershaw, NC 106.1; Bryan, TX 99.5; Sunderland, VT 95.1; Wapato, WA 89.5; Lorima, WI 106.7; Burns, WY 101.9 and Estevan, SK 840 kHz. Courtesy of the *M Street Journal*.

For Sale

The scenic Pacific Northwest is the site of a Class A FM station that serves over 100,000 people. Priced at only $300,000, less than twice its 1989 revenue. Write to: Box 15971, North Hollywood, CA 91615.

A full-time AM, with updated equipment and real estate, is ready to move in American's 40th biggest market. You can assume highly recognized call letters and a great frequency. Call 817-430-3548.

If you want to live near the *Monitoring Times* office, how about a 5 kilowatt full-time AM station in a large western North Carolina town with "lots of potential" for only $360,000. Contact Ted Gray at Box 900, Graham, NC 27253 or call 919-227-4254.

A full-time AM and FM station with excellent facilities is the only broadcaster in a city on the Carolina coast and is ready to go for cash or terms. Call Rick Goines at 919-447-0101 for details.

International Bandscan

La Voz de Venezuela is causing concern with the hundreds of American broadcasters that use 1240 AM as their home. The station should be on by year's end with a big one megawatt signal. The station's operators are trying to ease the tension by emphasizing that their transmissions will be highly directional toward neighboring Guyana.

Britain's new "incremental" radio station, **Spectrum Radio**, broadcasting from London on 558 kHz, is battling off shore **Radio Caroline** for the frequency. Radio Caroline has squatted on 558 kHz for years without interference. Spectrum's 800 watt transmissions are said to be so powerful that **Radio Telefis Eireann** (RTE) from Ireland on 567 kHz is losing quite a bit of coverage.

Italy's **Radio Citta** is looking for signal reports of their updated facilities. They have added 1494 kHz in parallel with their FM transmitters on 103.1, 105.5 and 105.85 MHz. Write them at : Radio Citta, Via Masi 2, 40137, Bologna, Italy. Send one IRC for a QSL.

Credits: Many thanks to John Tiedeck of LPB, Incorporated of Frazer, Pennsylvania, for endless information on carrier current AM broadcasting. Thanks also to *Radio World*, *Broadcasting and Communication* magazine of The British DX Club. Readers Ron Carruthers, M.L. Cauthon III and W. Earle Doan added to our fun. Until next month, Happy trails.

Dr. John Santosuosso

P.O. Box 1116
Highland City, FL 33846

Cuban American National foundation bumper sticker

NEWSFLASH! It is some of the hottest pirate radio news to hit the fan in a decade.

First, we have been told by a highly reliable source that the good ship Sarah, the Honduran-registered ship from which super-pirate Radio New York International once broadcast, has been sold. The new buyer is reportedly a Texas firm called Multiplex Radio. With a name like that, would anyone care to hazard a guess as to what it will be used for?

But wait. There's more. Despite the fact that the Sarah has been sold, Radio New York International is reportedly returning to the air, this time legally.

According to what we've heard, Alan Weiner has bought time on WWCR, the Christian shortwave station out of Nashville, Tennessee. And if all goes well, the same people who risked all to broadcast to you from a boat anchored off the coast of New York, will be coming over WWCR's 100,000 watt 7520 kHz frequency every Sunday night (UTC Monday) from 9:00 p.m. until midnight (eastern time).

Incidentally, Mr. Weiner has an appointment before the FCC in Washington, D.C. next month. Seems the Commission wants to talk to him about some of his past radio work before they issue him the license he's seeking for a commercial shortwave station in Maine.

This should be worth listening for.

Alan will be attending the *Monitoring Times* convention in Knoxville, Tennessee.

ADIOS, CIA? Sometimes what you do not hear can be as fascinating as what you do. In the case of Radio Impacto (5130, 6160) that certainly is the case. The Costa Rican-based station is now gone from shortwave. Impacto played a nice variety of Latin pops, and its music plus a strong signal made it a delight to monitor. Although a sluggish verifier, it even sent an unofficial representative to an ANARC convention.

But there was the serious side to Impacto. One Panamanian broadcaster who became associated with the station personally told me Impacto was a Panamanian clandestine. It was not popular with the authorites in Managua either. The Sandinistas claimed it was funded and operated by the CIA.

With both Noriega and the Sandinistas ousted from power, Impacto announced in one of its broadcasts that its mission had been accomplished. A few days later it disappeared. Probably our readers at Camp Perry could answer a few questions about this one, but it is not likely they will.

Then, to everyone's surprise, Radio Impacto returned to the air, this time on medium wave 980 kHz. Shortwave, however, remains off the air. It seems as if the ghost of Radio Impacto, once thought destined to rest with those of the Gibraltar Steamship Company and Radio Swan, is not at peace.

As we noted last month, Radio Quince de Septiembre (6214) has also disappeared. With the disbanding of the Contras, it too appears to have become a permanent part of history. And according to Florida's David Crawford, Radio Miskut (5560), which broadcast to the Indians of Nicaragua's eastern lowlands, is also gone. Even the clandestine broadcasting activity related to El Salvador appears to have diminished.

Central America, once a clandestine capital, is now strangely quiet. Does that mean that peace and stability are finally returning to that troubled region? The best way to answer that question is to keep monitoring.

Clandestines for Cuba: In contrast to Central America, the radio war involving Cuba, if anything, appears to be heating up. Could that be a sign that something big might be about to happen? Only time will tell. The Cuban American National Foundation continues to be heard via WHRI. Probably the best time to hear its La Voz de la Fundacion program is from 0100 to 0300 UTC on 9495 kHz. The Foundation has its own QSL card. You can write them at P.O. Box 440069, Miami, FL 33144. English is acceptable for your report.

The veteran clandestine monitor should listen very carefully to La Voz de la Fundacion broadcasts. With some patience, and maybe a bit of luck, in time you should hear something very interesting. Enough said.

We have heard that Diego Medina's La Voz de Alpha 66 is also leasing air time on WHRI at 0030 UTC. We have yet to hear this broadcast, but it might be a good idea to keep looking for it. Medina is a veteran anti-Castro broadcaster, and it seemed only a matter of time before he returned after the FCC shut down his clandestine transmitter for at least the second time.

Of course, Radio Caiman can still be found on 9965 along with La Voz del CID on both 7340 and 9942. For its part Cuba continues to jam Radio Marti on 1180 kHz with its Radio Taino broadcasts, but still leaves Marti alone on 9525 shortwave.

As for the reports of the FCC's closing of anti-Castro Radio Antorcha Martiana, we have to agree with the opinions of some people we hold in high regard. Something just is not right about this. No one has reported hearing this station for several years. This may have been nothing more than Washington attempting to respond to one of the periodic complaints from Habana about the anti-Castro broadcasters. The claim could be made that something was done, when in fact nothing actually was.

For Your Next Vacation: A number of *Monitoring Times* readers come to the Central Florida area at one time or another to visit Mickey Mouse. That is why we are including this item. Next time you are in the area, tune in licensed WMNF Tampa on 88.5 MHz FM at 11 p.m. Sundays local time. If you dare, you will encounter a program appropriately entitled "Sonic Irritations." See if you can handle the entire hour. It must be heard to be believed. No pirate has ever broadcast anything more "off-the-wall" than this.

Electric Radio is a new mediumwave pirate that has been making appearances recently. The station also identifies as WFAM and claims to be broadcasting in stereo. The frequency varies between about 1618 and 1620, and transmissions have taken place on week nights. I've bagged this one as has Terry Krueger and David Crawford, both of Florida.

What about a mediumwave pirate with as much as 5,000 watts? No, it's not Electric Radio, but we have heard from a most reliable source it is coming one of these days,

Movimiento Insurreccional Martiano

Logo of Movimiento Insurrectional, sponsor of Radio Antorcha Martiana.

and maybe sooner rather than later. Stay tuned.

It Pays to Read *MT*: As we have previously reported, the Goddess of Democracy ship is gone without ever having made a single broadcast to the Chinese mainland. However, thanks to a recent article in *MT*, this writer managed to hear clandestine Voice of June 4 transmitting from Taiwan to the mainland. It was logged at 1100 UTC on 11905.

If you want to hear this voice of Chinese student protest, be prepared to do battle with the Communist regime's jammers. They are powerful and they are effective. Although the frequency was monitored for over half an hour, probably no more than five minutes of the program managed to break through.

Still, when it does, you sense that you are in the middle of a political struggle that in the end will change the world's most heavily populated nation. That can be both sobering and exciting.

Buccaneers At Work: Italy's unlicensed Voice of Europe on which we reported last month may currently be off the air. However, most likely its disappearance is temporary. So keep monitoring 7538. If you have had little or no luck catching Europirates in the past, this station should put out enough wattage to give you a reasonable chance.

Recently, once again, we came across Radio Clandestine, which experienced listeners know is a pirate. R.F. Burns and the gang were on 7400 kHz and noting this was a new revitalized Radio Clandestine. Of any existing pirate, none is older than Clandestine, which has been around for well over ten years. If you haven't heard this, gang, keep looking. You are in for a treat.

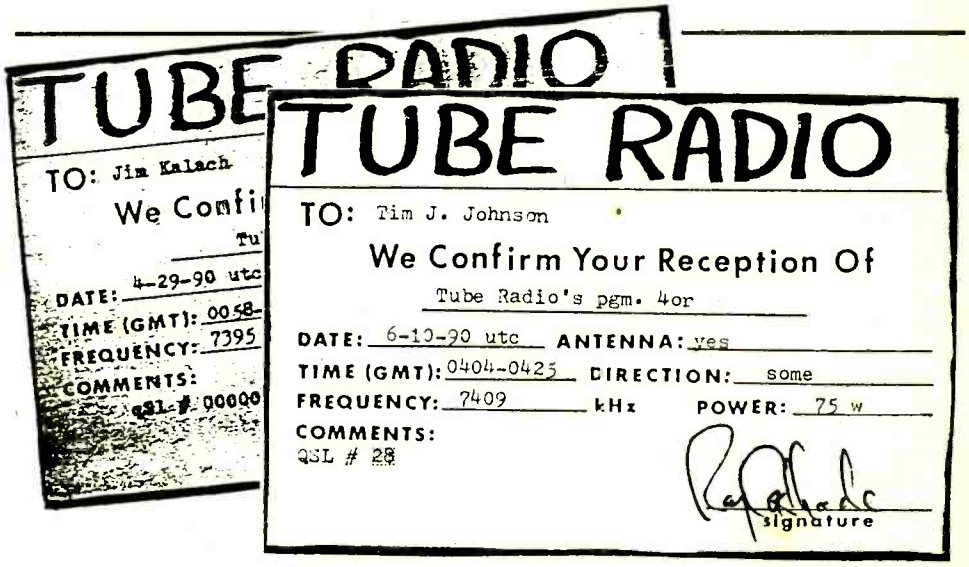
"Outer Limits" readers continue to be rewarded for their persistence in listening and reporting. In Virginia, Steve Rogovich received a copy of the famous "Oh No! It's Radio USA!" QSL for his recent logging of that station.

Minnesota's Alan Masyga, a regular reporter to the "Outer Limits" got himself a classic. He found Radio Confusion on 7412 at 0110 UTC. The folks at Confusion are as entertaining as Radio Clandestine and can also claim a longer-than-typical broadcasting life. In recent years they have limited themselves to just a few transmissions a year, so when you do come across them it is something special.

Bill Taylor from Pennsylvania has also been listening to Radio Clandestine on 7398.5 kHz at 0250 sign-on. Bill found them doing some of their zany comedy routines plus Jimmy Hendrix music. He also bagged clandestine La Voz del Cid at 0422 with news, commentary and Latin pop music.

Announces Bill, "Coming soon to a neighborhood near you. The resurrection of Radio Free Oz -- The Voice of Munchkinland -- a wholly owned subsidiary of Radio/TV Oz!" Bill adds, "Don't ask how I know." We understand, Bill. We will just keep listening for those Munchkins.

We have a number of other excellent reports which we will hold over until next time. So keep listening and keep those cards and letters coming, folks. They are all appreciated.



Jim Kalach and Tim Johnson are both proud owners of a Tube Radio QSL.

Massachusetts Loggings

Loggings Time --

This month we have another contributor from Massachusetts. Bob Fraser of Cohasset sends his beacon loggings for your enjoyment and as targets for those of you in the general area. Bob is using a Uniden CR2021 receiver with a 25 foot wire over the house plus a ground wire. (Let's hear from you and maybe your loggings will appear here.)

The beacons listed between 286 and 325 kHz are marine beacons. The two on 286 are sequenced marine beacons that only operate one minute out of six. Sequence 1 beacons (SQ1) transmit for one minute starting at the hour and every six minutes thereafter. Sequence 6 beacons transmit for one minute starting at five minutes past the hour and every sixth minute thereafter.

Each transmission consists of repeated IDs for fifty seconds followed by a ten-second long tone. The beacon goes silent for five minutes while other beacons transmit. Because MI is at the end of the six minute cycle and HI begins the next cycle, HI comes on as MI goes silent.

Montauk Point is also supposed to be in the sequenced group on 286 as SQ3. It was temporarily moved to 295 apparently as a test as a continuous beacon. Continuous beacons also send their ID for 50 seconds and then a ten-second long tone. There has been no official notice so far that MP is moving permanently to 295. These tests may be forerunners of permanent moves and again they may not. Time will tell about MP.

Notice the words in capitals after the Logan Airport/Boston listings. These are chart names. They are easily identified in two ways. They are always exactly five letters long and they are always pronounceable. Some are actually only intersection points on a chart and have no real physical location. Others are used for beacon locations. These names will often have some tie-in to the location of the beacon or the beacon ID.

Incidentally, the chart name for DRY/338 is DERRY. Hence the use of DRY as the ID. If any of you listen to airport VHF traffic on scanners, you may hear reference to these chart names. Pilots will ordinarily refer to beacons by their chart names rather than any other form of identification.

194	TUK	Nantucket MA
212	PMX	Palmer MA
216	BID	Block Island RI
220	IHM	Mansfield MA
227	TAN	Taunton MA
232	RZP	Provincetown MA
241	SFZ	Smithfield RI
251	SKR	Bedford MA
257	FFF	Plymouth MA
262	ESO	QTH?
269	TOF	Beverly MA
286	HI	Highland LS MA SQ1
286	MI	Manana Isl. LS ME SQ6
293	MP	Montauk Point LS NY (temp)
295	SH	Scituate Harbor MA MCNT
304	BH	Boston LHB8 MS MCNT
311	CH	Chatham LS MS MCNT
318	CC	Cape Cod Canal Bkwtr MA MCNT
325	EP	Gloucester Hbr MA MCNT
338	DRY	Manchester NH (Grenier Fld)
346	LI	Boston MA (Logan-HULLZ)
352	DKO	Ft. Devens MA Army
365	FIT	Fitchburg MA
368	IMR	Marshfield MS
370	LQ	QTH?
382	LQ	Boston MA (Logan-LYNDY)
392	CLY	Worcester MA
402	LW	Lawrence MA (Mun'l-HAGET)
406	FLR	Fall River MA

Bob also noted that the LQ/382 beacon at Logan Airport in Boston also had voice weather broadcasts.

Follow Up --

Karen Rench is still in there trying. Only this time she is reporting beacons she can't hear and feels she should. CUF/404 from Columbia Airport in Sonora County had not been heard by Karen for several months.

This isn't really unusual. Beacons may be out of service for fairly lengthy periods of time. Sometimes it is a problem with the beacon. Locally, the major Chicago beacon 350/ME had been shut down for a couple of months. This is the beacon with transcribed weather broadcasts. It may be a test to see if it is really needed. It may have a problem. With no official notice either way, it's hard to tell which way it will go.

XHY/526 at Hayward Airport is a different problem for Karen. She says it is only about two miles away and she thinks she should hear it. This is an Army ID, used by army facilities at the airport. It may be used very irregularly or it is possible that the Army is no longer using Hayward airport for military exercises. It might be worth a trip or phone call to find out if the Army is still around.

Out of Range --

This column is for the low end of the band, those frequencies below 500 kHz. Once in a while, something comes along outside the band that is worth mentioning. Recently there has been interest in the frequencies between about 1620 kHz and 1800. The signals reported are repeated apparent ID's varying from two or three characters up to seven characters in length. The majority of the IDs begin with 8W, 9W or KA.

Typical examples would be 8W109/1629; 9W/119/1669; and KA90449/1749. There does seem to be some relationship between the numbers in the ID and the frequency where it is reported. IDs are repeated two or three times and then there may be several minutes of silence.

There don't seem to be any FCC licenses for these IDs/frequencies. One suggestion was that these are floating fishing net buoys used for locating the nets easily. Most of the loggings have been around the coasts, so this may be the case.

If you hear any of these or other similar IDs in these frequencies, please report them to me. I'll pass them along to the man who is working on finding out what they are. Maybe we can all learn what they are.

See you at the convention.

mt

MT Program Team

Kannon Shanmugam, Program Manager
4412 Turnberry Circle
Lawrence, KS 66047

John Carson
Norman, Oklahoma

Jim Frimmel
Willow Park, Texas

program guide

Sunday

Sept 2nd,9th,16th,23rd,30th

0010 Radio Moscow (North America): Moscow Mailbag. A question-and-answer show based on listener letters.
0011 Radio Moscow (World Service): News and Views. Soviet views on news developments.
0025 Radio Moscow (North America): Vasily's Weekend. Vasily Strelnikov spins his favorite Soviet and Western records.
0030 BBC: The Ken Bruce Show. A mix of popular music and entertainment news.
0032 Radio Moscow (World Service): Music. Music selected by Radio Moscow staff.
0101 BBC: Play of the Week. Hour-long drama selections.
0110 Radio Moscow (North America): Outlook. Details not available at press time.
0111 Radio Moscow (World Service): Music and Musicians. Music from world-famous performers and composers.
0120 Radio Moscow (North America): Feature. Programming on various subjects.
0208 Swiss Radio Int'l: Dateline. World news, commentary, and analysis of current affairs.
0209 BBC: British Press Review. Survey of editorial opinion in the British press.
0210 Radio Moscow (North America): Moscow Mailbag. See S 0010.
0211 Radio Moscow (World Service): Top Priority. A discussion and analysis program.
0215 BBC: Feature. Topical programming on various subjects.
0218 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round. Bob Thomann and Bob Zanotti present DX news and advice.
0225 Radio Moscow (North America): Vasily's Weekend. See S 0025.
0230 BBC: Feature. More topical programming on various subjects (except September 2nd, 9th: Industrial Revolutions, developments still going on in six key industries).
0232 Radio Moscow (World Service): Russian By Radio. Russian language lessons for English speakers.
0310 Radio Moscow (North America): Moscow Mailbag. See S 0010.
0311 Radio Moscow (World Service): News and Views. See S 0011.
0315 BBC: From Our Own Correspondent. In-depth news stories from correspondents worldwide.
0325 Radio Moscow (North America): Vasily's Weekend. See S 0025.
0330 BBC: My Music. The return of the popular musical quiz, hosted by Steve Race.
0332 Radio Moscow (World Service): Your Top Tune. A quiz show featuring popular music.
0408 Swiss Radio Int'l: Dateline. See S 0208.
0410 Radio Moscow (North America): Outlook. See S 0110.
0411 Radio Moscow (World Service): Newmarket. A look at commercial products and opportunities in the USSR.
0418 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round. See S 0218.
0420 Radio Moscow (North America): Feature. See S 0120.
0430 BBC: Stuart Colman's Record Hop. Legendary rock 'n' roll music.
0432 Radio Moscow (World Service): Vasily's Weekend. Vasily Strelnikov spins his favorite Soviet and Western records.
0445 BBC: Personal View. A personal opinion on topical issues in British life.
0509 BBC: Twenty-Four Hours. Analysis of the main news of the day.
0510 Radio Moscow (North America): Moscow Mailbag. See S 0010.
0511 Radio Moscow (World Service): Culture and the Arts. A look at the varied arts and cultures of the Soviet Union.
0525 Radio Moscow (North America): Vasily's Weekend. See S 0025.
0530 BBC: Financial Review. A look back at the financial week.
0532 Radio Moscow (World Service): Audio Book Club. The best of Russian classics and contemporary Soviet literature.
0540 BBC: Words of Faith. People share how their scripture gives meaning to their lives.
0545 BBC: Letter from America. Alistair Cooke's distinctly British view of America.
0610 Radio Moscow (North America): Outlook. See S 0110.
0611 Radio Moscow (World Service): Moscow Mailbag. Answers to listener questions.
0620 Radio Moscow (North America): Feature. See S 0120.
0630 BBC: Jazz for the Asking. A jazz music request show.
0632 Radio Moscow (World Service): Your Top Tune. See S 0332.
0638 Swiss Radio Int'l: Feature. Programs broadcast on a rotating basis are "The Grapevine" (listener comment), "Supplement" (news analysis), and "Roundabout Switzerland" (travel/discovery).
0709 BBC: Twenty-Four Hours. See S 0509.
0711 Radio Moscow (World Service): Top Priority. See S 0211.
0730 BBC: From Our Own Correspondent. See S 0315.
0732 Radio Moscow (World Service): Russian by Radio. See S 0232.
0745 BBC: Book Choice. Short reviews of current or future best-sellers.
0750 BBC: Waveguide. How to hear the BBC better.
1108 Swiss Radio Int'l: Feature. See S 0638.
1111 Radio Moscow (World Service): News and Views. See S 0011.
1115 BBC: From Our Own Correspondent. See S 0315.
1130 BBC: The Ken Bruce Show. See S 0030.
1132 Radio Moscow (World Service): Vasily's Weekend. See S 0432.
1201 BBC: Play of the Week. See S 0101.
1208 Swiss Radio Int'l: Feature. See S 0638.
1211 Radio Moscow (World Service): Newmarket. See S 0411.
1232 Radio Moscow (World Service): Your Top Tune. See S 0332.
1311 Radio Moscow (World Service): Top Priority. See S 0211.
1332 Radio Moscow (World Service): Russian by Radio. See S 0232.
1338 Swiss Radio Int'l: Feature. See S 0638.
1345 BBC: Sports Roundup. The day's sports news.
1401 BBC: Feature. Topical programming on various subjects.
1411 Radio Moscow (World Service): News and Views. See S 0011.
1432 Radio Moscow (World Service): Science and

legend

* The first four digits of an entry are the program start time in UTC.
* The time is followed by the station name, program name, and a brief summary of the program's content.
* Some listings may be followed by "See X 0000." The letter stands for a day of the week:

S = Sunday M = Monday
T = Tuesday W = Wednesday
H = Thursday F = Friday
A = Saturday

The four digits stand for a time in UTC. Listeners should check back to that date and time to find out more about that particular program.

* All days are in UTC. Remember that if you are listening in North American prime time, it is actually the next morning UTC.

For example, if you are listening to a program at 8:01 pm [EDT] on your Thursday night, that's equal to 0001 UTC and therefore Friday morning UTC.

* We suggest that you tune in to a program a few minutes before the schedule start time, as some stations have tentative schedules which may slightly vary. Consult the frequency section begining on page 65 for the frequencies in use by that station at that time.

newsline

is your guide to news broadcasts on the air. All broadcasts are daily unless otherwise noted by brackets enclosing the day codes.

We invite listeners and stations to send program information to the program manager at the address above.

program guide

Engineering. Developments in Soviet science and technology.
1511 Radio Moscow (World Service): Music and Musicians. See S 0111.
1515 BBC: Concert Hall. Recordings of classical music selections (except September 2nd, 9th: From the Proms, recordings from this year's Promenade Concerts).
1538 Swiss Radio Int'l: Feature. See S 0638.
1611 Radio Moscow (World Service): Culture and the Arts. See S 0511.
1615 BBC: Feature (except September 2nd, 9th: Industrial Revolutions). See S 0230.
1632 Radio Moscow (World Service): Audio Book Club. See S 0532.
1645 BBC: Letter from America. See S 0545.
2305 BBC: Words of Faith. See S 0540.
2310 BBC: Book Choice. See S 0745.
2310 Radio Moscow (North America): Science and Engineering. Developments in Soviet science and technology.
2311 Radio Moscow (World Service): Top Priority. See S 0211.
2315 BBC: Letter from America. See S 0545.
2325 Radio Moscow (North America): Vasily's Weekend. See S 0025.
2330 BBC: Feature. See S 1401.
2332 Radio Moscow (World Service): Russian by Radio. See S 0232.
2355 Radio Moscow (North America): Feature. See S 0120.

Lori Gilles of Radio for Peace International, which now broadcasts "Amnesty International Reports."

Monday

September 3rd,10th,17th,24th

0010 Radio Moscow (North America): Feature. See S 0120.
0011 Radio Moscow (World Service): News and Views. See S 0011.
0025 Radio Moscow (North America): Moscow Mailbag. See S 0010.
0030 BBC: In Praise of God. A half-hour program of worship.
0032 Radio Moscow (World Service): Music. See S 032.
0040 Radio Moscow (North America): Top Priority. A panel discussion on major events, featuring Soviet experts on North America.
0101 BBC: Desert Island Discs. Celebrity castaways pick their eight must-have records.
0110 Radio Moscow (North America): Science and Engineering. See S 2310.
0111 Radio Moscow (World Service): Moscow Mailbag. See S 0611.
0125 Radio Moscow (North America): Vasily's Weekend. See S 0025.
0132 Radio Moscow (World Service): Audio Book Club. See S 0532.
0145 BBC: Musical Feature. Musical programming of a topical nature.
0155 Radio Moscow (North America): Feature. See S 0120.
0208 Swiss Radio Int'l: Feature. See S 0638.
0209 BBC: British Press Review. See S 0209.
0210 Radio Moscow (North America): Feature. See S 0120.
0211 Radio Moscow (World Service): Culture and the Arts. See S 0511.
0215 BBC: Andy Kershaw's World of Music. Exotic and innovative music from the world over.
0225 Radio Moscow (North America): Moscow Mailbag. See S 0010.
0230 BBC: Science in Action. The latest in scientific developments.
0232 Radio Moscow (World Service): Russian by Radio. See S 0232.
0240 Radio Moscow (North America): Top Priority. See M 0040.
0310 Radio Moscow (North America): Feature. See S 0120.
0311 Radio Moscow (World Service): News and Views. See S 0011.
0315 BBC: Good Books. A recommendation of a book to read.
0325 Radio Moscow (North America): Moscow Mailbag. See S 0010.
0330 BBC: Anything Goes. Sounds from the BBC archives as requested by listeners.
0332 Radio Moscow (World Service): The Jazz Show. A jazz music program.
0340 Radio Moscow (North America): Top Priority. See M 0040.
0408 Swiss Radio Int'l: Feature. See S 0638.
0410 Radio Moscow (North America): Science and Engineering. See S 2310.
0411 Radio Moscow (World Service): Newmarket. See S 0411.
0425 Radio Moscow (North America): Vasily's Weekend. See S 0025.
0430 BBC: Off the Shelf. A reading selected from the best of world literature.
0432 Radio Moscow (World Service): Music. See S 0032.
0445 BBC: Feature. Topical programming on various subjects (except September 3rd: Journey to the Center of the Earth, Martin Redfern descends to the earth's core).
0455 Radio Moscow (North America): Feature. See S 0120.
0509 BBC: Twenty-Four Hours. See S 0509.
0510 Radio Moscow (North America): Feature. See S 0120.
0511 Radio Moscow (World Service): Moscow Mailbag. See S 0611.
0525 Radio Moscow (North America): Moscow Mailbag. See S 0010.
0530 BBC: Waveguide. See S 0750.
0532 Radio Moscow (World Service): Audio Book Club. See S 0532.
0540 BBC: Words of Faith. See S 0540.
0540 Radio Moscow (North America): Top Priority. See M 0040.
0545 BBC: Recording of the Week. A personal choice from the latest classical music releases.
0610 Radio Moscow (North America): Science and Engineering. See S 2310.
0611 Radio Moscow (World Service): Top Priority. See S 0211.
0625 Radio Moscow (North America): Vasily's Weekend. See S 0025.
0630 BBC: Feature. See S 1401.
0632 Radio Moscow (World Service): Music. See S 0032.
0638 Swiss Radio Int'l: Dateline. See S 0208.
0655 Radio Moscow (North America): Feature. See S 0120.
0709 BBC: Twenty-Four Hours. See S 0509.

newsline

0000 BBC: Newsdesk
0000 Christian Science Monitor: News
0000 Kol Israel: News
0000 Radio Australia: International Report
0000 Radio Beijing: News
0000 Radio Canada Int'l: News [S-M]
0000 Radio Havana Cuba: News [T-S]
0000 Radio Korea: News
0000 Radio Luxembourg: News
0000 Radio Moscow: News
0000 Radio New Zealand Int'l: News [M-A]
0000 Radio Prague Int'l: News
0000 Radio Yugoslavia: News
0000 Spanish Foreign Radio: News
0000 Voice of America: News
0000 WWCR: USA Radio News [T-S]
0005 Radio Pyongyang: News
0010 Radio Beijing: News About China
0030 Christian Science Monitor (Asia): News [M]
0030 Christian Science Monitor: News [T-F]
0030 HCJB: Latin American News
0030 Radio Budapest: News
0030 Radio Havana Cuba: Newsbreak [T-S]
0030 Radio Moscow (World Service): News in Brief
0030 Radio Netherlands: News [T-S]
0030 Voice of America (Americas, E.Asia)[T-S]
0030 Voice of America (East Asia) [M]
0045 Radio Korea (World News Service): News
0051 Spanish Foreign Radio: News Summary [S]
0055 KUSW: News [T-S]
0055 WRNO: ABC News [W-H, A]
0100 All India Radio: News
0100 BBC: News Summary
0100 Belize Radio One: Network News
0100 Christian Science Monitor: News
0100 Deutsche Welle: World News
0100 Kol Israel: News
0100 Radio Australia: World and Australian News
0100 Radio Canada Int'l: News [S-M]
0100 Radio Havana Cuba: News [T-S]
0100 Radio Japan: News
0100 Radio Luxembourg: News
0100 Radio Moscow: News
0100 Radio New Zealand Int'l: News [M-A]
0100 Radio Prague Int'l: News
0100 Radiotelevisione Italiana: News
0100 RAE, Buenos Aires: News
0100 Spanish Foreign Radio: News
0100 Voice of America: News
0100 Voice of Indonesia: News
0100 WWCR: USA Radio News [T-A]
0115 Radio Havana Cuba: Cuban Nat'l News [T-S]
0125 HCJB: World News
0130 Christian Science Monitor (Asia): News [M]
0130 Christian Science Monitor: News [T-F]
0130 Radio Austria Int'l: News
0130 Radio Havana Cuba: Newsbreak [T-S]
0130 Radio Moscow (World Service): News in Brief
0130 Voice of Greece: News [M-A]
0145 Radio Berlin Int'l: News
0145 Radio for Peace Int'l: UN Radio News [T-A]
0151 Spanish Foreign Radio: News Summary [S]
0155 KUSW: News [T-S]
0155 Voice of Indonesia: News in Brief
0200 BBC: World News
0200 Christian Science Monitor: News
0200 Deutsche Welle: World News
0200 Radio Australia: International Report
0200 Radio Bras, Brasilia: News [T-S]
0200 Radio Canada Int'l: News [T-A]
0200 Radio Havana Cuba: News [T-S]
0200 Radio Kiev: News
0200 Radio Moscow: News
0200 Radio New Zealand Int'l: News
0200 Radio Romania Int'l: News
0200 Radio RSA: News
0200 Swiss Radio Int'l: News
0200 Voice of America: News
0200 Voice of Free China: News and Commentary
0200 WWCR: USA Radio News [T-S]
0215 Radio Cairo: News
0230 Christian Science Monitor (Af, Eur): [M]
0230 Christian Science Monitor: News [T-F]
0230 HCJB: Latin American News
0230 Radio Havana Cuba: Newsbreak [T-S]

0711 Radio Moscow (World Service): Newmarket. See S 0411.
0730 BBC: Feature (except September 3rd, 10th: Industrial Revolutions). See S 0230.
0732 Radio Moscow (World Service): Music. See S 0032.
1108 Swiss Radio Int'l: Dateline. See S 0208.
1111 Radio Moscow (World Service): News anc Views. See S 0011.
1115 BBC: Health Matters. New developments in the world of medical science and fitness.
1130 BBC: Composer of the Month. A month-long series on a particular classical music composer.
1132 Radio Moscow (World Service): Music at Your Request. Music as requested by listeners.
1208 Swiss Radio Int'l: Dateline. See S 0208.
1211 Radio Moscow (World Service): Newmarket. See S 0411.
1215 BBC: Brain of Britain 1990. Robert Robinson presents "Jeopardy!" with a twist in a general-knowledge quiz.
1232 Radio Moscow (World Service): Music. See S 0032.
1245 BBC: Sports Roundup. See S 1330.
1309 BBC: Twenty-Four Hours. See S 0509.
1311 Radio Moscow (World Service): Top Priority. See S 0211.
1330 BBC: Andy Kershaw's World of Music. See M 0215.
1332 Radio Moscow (World Service): Music. See S 0032.
1338 Swiss Radio Int'l: Dateline. See S 0208.
1345 BBC: Personal View. See S 0445.
1405 BBC: Outlook. Conversation, controversy, and color from Britain and the rest of the world.
1411 Radio Moscow (World Service): News and Views. See S 0011.
1430 BBC: Off the Shelf. See M 0430.
1432 Radio Moscow (World Service): Folk Box. A program for lovers of folk music.
1445 BBC: Feature. See S 0215.
1511 Radio Moscow (World Service): Culture and the Arts. See S 0511.
1515 BBC: Desert Island Discs. See M 0101.
1532 Radio Moscow (World Service): Audio Book Club. See S 0532.
1538 Swiss Radio Int'l: Dateline. See S 0208.
1611 Radio Moscow (World Service): Science and Engineering. See S 1432.
1615 BBC: Good Books. See M 0315.
1630 BBC: Health Matters. See M 1115.
1632 Radio Moscow (World Service): Music. See S 0032.

the program file

September 1990

BBC THIS MONTH: The "Brain of Britain 1990" competition reaches its semifinal and final stages this month. The popular quiz show can be heard on Mondays at 1215 UTC, repeated on Thursdays at 0330 UTC.

Also, classical music recordings "From the Proms" continue on September 2nd and 9th at 1515 UTC, repeated on September 4th and 11th at 2315 UTC.

TOEING THE PARTY LINE: Here's a look at highlights this month on HCJB's "DX Party Line," which can be heard on Sundays at 0055 UTC, repeated at 0255 UTC and 0525 UTC, and on Saturdays at 0755 UTC. Featured countries include Peru (September 1st and 2nd), Uganda (8th and 9th), and Romania (22nd and 23rd). Also, hear a review of computer programs for the Kenwood R-5000 receiver on the 15th and 16th.

AMNESTY ON THE AIRWAVES: Radio for Peace International is now broadcasting "Amnesty International Reports," every other week on Sundays at 0445 UTC, repeated at 1115 UTC and on Fridays at 0200 UTC. For the complete RFPI schedule, check last month's program guide.

-- Kannon Shanmugam
Program Manager

1645 BBC: The World Today. News analysis on a selected location or event in the news.
2305 BBC: Commentary. Background to the news from a wide range of specialists.
2310 BBC: Financial News. News of commodity prices and significant moves in currency and stock markets.
2310 Radio Moscow (North America): Outlook. See S 0110.
2311 Radio Moscow (World Service): Culture and the Arts. See S 0511.
2315 BBC: Feature. Topical programming on various subjects.
2320 Radio Moscow (North America): Newmarket. A look at commercial products and opportunities in the USSR.
2330 BBC: Multitrack 1: Top 20. Tim Smith presents what's hot on the British pop music charts.
2332 Radio Moscow (World Service): Focus on Asia and the Pacific. News and comments on events in the region.
2340 Radio Moscow (North America): Feature. See S 0120.

Tuesday

September 4th,11th,18th,25th

0010 Radio Moscow (North America): Feature. See S 0120.
0011 Radio Moscow (World Service): News and Views. See S 0011.
0030 BBC: Megamix. A compendium of music, sport, fashion, health, travel, news and views for young people.
0032 Radio Moscow (World Service): Music. See S 0032.
0101 BBC: Outlook. See M 1405.
0110 Radio Moscow (North America): Outlook. See S 0110.
0111 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
0120 Radio Moscow (North America): Newmarket. See M 2320.
0125 BBC: Financial News. See M 2310.
0130 BBC: Short Story. Brief tales written by BBC listeners.

0230 Radio Moscow (World Service): News in Brief
0230 Radio Pakistan: News (Special English)
0230 Radio Portugal: News [T-A]
0230 Radio Tirana, Albania: News
0245 Radio Korea (World News Service): News
0250 Radio Yerevan: News
0255 KUSW: News [T-S]
0300 BBC: World News
0300 Belize Radio One: News
0300 Christian Science Monitor: News
0300 Deutsche Welle: World News
0300 Radio Australia: World and Australian News
0300 Radio Beijing: News
0300 Radio Berlin Int'l: News
0300 Radio Havana Cuba: News [T-S]
0300 Radio Japan: News
0300 Radio Moscow: News
0300 Radio New Zealand Int'l: News
0300 Radio Prague Int'l: News
0300 Radio Sofia: News
0300 RAE, Buenos Aires: News
0300 Voice of America: News
0300 Voice of Free China: News and Commentary
0300 Voice of Turkey: News
0300 WRNO: ABC News [F]
0300 WWCR: USA Radio News [M-A]
0309 BBC: News About Britain
0310 Radio Beijing: News About China
0315 Radio Cairo: News
0315 Radio France Int'l: News
0315 Radio Havana Cuba: Cuban Nat'l News [T-S]
0325 HCJB: World News
0330 Christian Science Monitor (Af, Eur): [M]
0330 Christian Science Monitor: News [T-F]
0330 Radio Havana Cuba: Newsbreak [T-S]
0330 Radio Moscow (World Service): News in Brief
0330 Radio Netherlands: News [T-S]
0330 Radio Tirana, Albania: News
0330 UAE Radio, Dubai: News
0340 Voice of Greece: News [M-A]
0345 Radio Berlin Int'l: News
0350 Radiotelevisione Italiana: News
0355 KUSW: News [T-S]
0355 Radio Japan: News [M-F]
0355 WYFR (Network): News [T-A]
0400 BBC: Newsdesk
0400 Christian Science Monitor: News
0400 Deutsche Welle: World News
0400 Kol Israel: News
0400 Radio Australia: International Report
0400 Radio Beijing: News
0400 Radio Canada Int'l: News
0400 Radio Havana Cuba: News [T-S]
0400 Radio Moscow: News
0400 Radio New Zealand Int'l: News
0400 Radio Prague Int'l: News
0400 Radio Romania Int'l: News
0400 Radio Tanzania: News
0400 Swiss Radio Int'l: News
0400 Voice of America: News
0400 WWCR: USA Radio News [T-A]
0405 Radio Pyongyang: News
0410 Radio Beijing: News About China
0425 Radiotelevisione Italiana: News
0430 Christian Science Monitor(Af,Eur,NE Asia):[M]
0430 Christian Science Monitor: News [T-F]
0430 Radio Canada Int'l: News [M-F]
0430 Radio Finland: Northern Report [T-A]
0430 Radio Havana Cuba: Newsbreak [T-S]
0430 Radio Moscow (World Service): News in Brief
0430 Radio Tirana, Albania: News
0455 KUSW: News [S, T-F]
0455 Radio Tanzania: News
0500 BBC: World News
0500 Christian Science Monitor: News
0500 Deutsche Welle: World News
0500 HCJB: Latin American News
0500 Radio Australia: World and Australian News
0500 Radio Beijing: News
0500 Radio Havana Cuba: News [T-S]
0500 Radio Japan: News
0500 Radio Lesotho: News
0500 Radio Moscow: News
0500 Radio New Zealand Int'l: News
0500 Spanish Foreign Radio: News
0500 Voice of America: News
0505 Radio New Zealand Int'l: News About NZ

program guide

Bonita Lee-Swan, the first Canadian voice on the BBC. She can be heard presenting financial reports.

0132 Radio Moscow (World Service): Moscow Mailbag. See S 0611.
0140 Radio Moscow (North America): Feature. See S 0120.
0145 BBC: Europe's World. A magazine program reflecting life in Europe and its links with other parts of the world.
0208 Swiss Radio Int'l: Dateline. See S 0208.
0209 BBC: British Press Review. See S 0209.
0210 Radio Moscow (North America): Feature. See S 0120.
0211 Radio Moscow (World Service): Update. Comments on and in-depth analysis of the latest developments worldwide.
0215 BBC: Network UK. A look at the issues and events that affect the lives of people throughout the UK.
0230 BBC: Sports International. Feature program on a topic or person making sports headlines.
0232 Radio Moscow (World Service): Music. See S 0032.
0310 Radio Moscow (North America): Feature. See S 0120.
0311 Radio Moscow (World Service): News and Views. See S 0011.
0315 BBC: The World Today. See M 1645.
0330 BBC: John Peel. Tracks from newly released albums and singles from the contemporary music scene.
0332 Radio Moscow (World Service): Yours for the Asking. Music as requested by listeners.
0408 Swiss Radio Int'l: Dateline. See S 0208.
0410 Radio Moscow (North America): Outlook. See
0411 Radio Moscow (World Service): Science and Engineering. See S 1432.
0420 Radio Moscow (North America): Newmarket. See M 2320.
0430 BBC: Off the Shelf. See M 0430.
0432 Radio Moscow (World Service): Music. See S 0032.
0440 Radio Moscow (North America): Feature. See S 0120.
0445 BBC: New Ideas. A radio shop window for new products and inventions.
0455 BBC: Book Choice. See S 0745.
0509 BBC: Twenty-Four Hours. See S 0509.
0510 Radio Moscow (North America): Feature. See S 0120.
0511 Radio Moscow (World Service): Update. See T 0211.
0530 BBC: Financial News. See M 2310.
0532 Radio Moscow (World Service): Music. See S 0032.
0540 BBC: Words of Faith. See S 0540.
0545 BBC: The World Today. See M 1645.
0610 Radio Moscow (North America): Outlook. See S 0110.
0611 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
0620 Radio Moscow (North America): Newmarket. See M 2320.
0630 BBC: Musical Feature. Musical programming of a topical nature (except September 4th: Crosstown Traffic, the life and work of Jimi Hendrix).
0632 Radio Moscow (World Service): The Party and Perestroika. Insight on where the Soviet Union is going.
0638 Swiss Radio Int'l: Dateline. See S 0208.
0640 Radio Moscow (North America): Feature. See S 0120.
0709 BBC: Twenty-Four Hours. See S 0509.
0711 Radio Moscow (World Service): Update. See T 0211.
0730 BBC: Europe's World. See T 0145.
0732 Radio Moscow (World Service): Music. See S 0032.
0745 BBC: Network UK. See T 0215.
1108 Swiss Radio Int'l: Dateline. See S 0208.
1111 Radio Moscow (World Service): News and Views. See S 0011.
1115 BBC: Waveguide. See S 0750.
1125 BBC: Book Choice. See S 0745.
1130 BBC: Megamix. See T 0030.
1132 Radio Moscow (World Service): Folk Box. See M 1432.
1208 Swiss Radio Int'l: Dateline. See S 0208.
1211 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1215 BBC: Multitrack 1: Top 20. See M 2330.
1232 Radio Moscow (World Service): Music. See S 0032.
1245 BBC: Sports Roundup. See S 1330.
1309 BBC: Twenty-Four Hours. See S 0509.
1311 Radio Moscow (World Service): Moscow Mailbag. See S 0611.
1330 BBC: Network UK. See T 0215.
1332 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1338 Swiss Radio Int'l: Dateline. See S 0208.
1345 BBC: Stuart Colman's Record Hop. See S 0430.
1405 BBC: Outlook. See M 1405.
1411 Radio Moscow (World Service): News and Views. See S 0011.
1430 BBC: Off the Shelf. See M 0430.
1432 Radio Moscow (World Service): Music. See S 0032.
1445 BBC: Musical Feature. See M 0145.
1511 Radio Moscow (World Service): Newmarket. See S 0411.
1515 BBC: A Jolly Good Show. Dave Lee Travis presents listener record requests and dedications, and the UK's top ten albums.
1532 Radio Moscow (World Service): Music. See S 0032.
1538 Swiss Radio Int'l: Dateline. See S 0208.
1611 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1615 BBC: Omnibus. A half-hour program on practically any topic.
1632 Radio Moscow (World Service): Science and Engineering. See S 1432.
1645 BBC: The World Today. See M 1645.
2305 BBC: Commentary. See M 2305.
2310 BBC: Financial News. See M 2310.
2310 Radio Moscow (North America): Outlook. See S 0110.
2311 Radio Moscow (World Service): Press Review. A look at events as covered in the Soviet press.
2315 BBC: Concert Hall (except September 4th, 11th: From the Proms). See S 1515.
2320 Radio Moscow (North America): Newmarket. See M 2320.
2332 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
2340 Radio Moscow (North America): Feature. See S 0120.

newsline cont'd from p.57

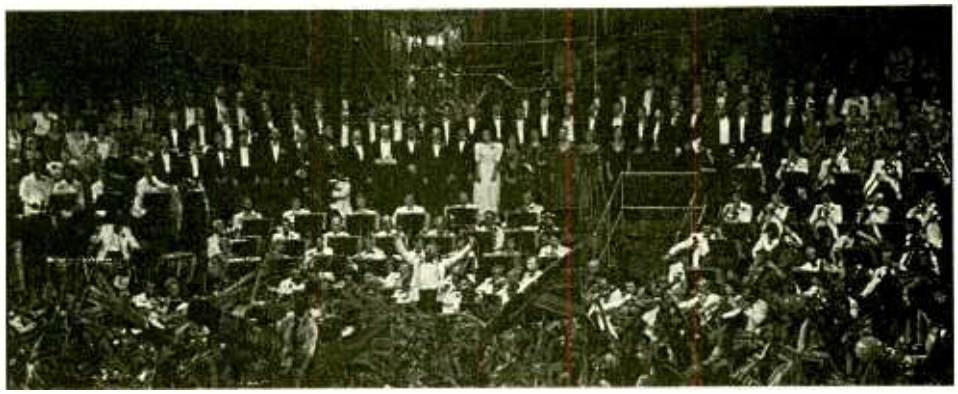
0510 Radio Beijing: News About China
0510 Radio Botswana: News
0515 Radio Berlin Int'l: News
0515 Radio Canada Int'l: News [M-F]
0515 Radio Havana Cuba: Cuban Nat'l News [T-S]
0530 Christian Science Monitor(Af,Eur,NE Asia)[M]
0530 Christian Science Monitor: News [T-F]
0530 Radio Austria Int'l: News
0530 Radio Havana Cuba: Newsbreak [T-S]
0530 Radio Jordan: News
0530 Radio Kuwait: News
0530 Radio Moscow (World Service): News in Brief
0530 Radio Romania Int'l: News
0530 UAE Radio, Dubai: News
0530 Voice of Nigeria: News
0545 Radio Berlin Int'l: News
0545 Voice of Nigeria: News About Nigeria
0551 Spanish Foreign Radio: News Summary [S]
0555 HCJB: World News
0555 KUSW: News [S, T-F]
0600 BBC: Newsdesk
0600 Christian Science Monitor: News
0600 Deutsche Welle: World News
0600 Radio Australia: International Report
0600 Radio Havana Cuba: News [T-S]
0600 Radio Moscow: News
0600 Radio New Zealand Int'l: News
0600 Voice of America: News
0605 Radio Pyongyang: News
0630 BRT, Brussels: News [M-F]
0630 Christian Science Monitor: News [M-F]
0630 Radio Finland: Northern Report [T-A]
0630 Radio Havana Cuba: Newsbreak [T-S]
0630 Radio Moscow (World Service): News in Brief
0630 Radio Polonia: News
0630 Radio Sofia: News
0630 Radio Tirana, Albania: News
0630 Swiss Radio Int'l: News
0640 Radio Prague Int'l: News
0645 Radio Romania Int'l: News
0655 KUSW: News [S]
0700 BBC: World News
0700 Christian Science Monitor: News
0700 Radio Australia: World and Australian News
0700 Radio Havana Cuba: News [T-S]
0700 Radio Japan: News
0700 Radio Moscow (World Service): News
0700 Radio New Zealand Int'l: News
0700 Radio Tirana, Albania: News
0700 Voice of Free China: News and Commentary
0705 Radio New Zealand Int'l: News About NZ
0715 Radio Havana Cuba: Cuban Nat'l News [T-S]
0730 Christian Science Monitor: News [M-F]
0730 HCJB: Latin American News
0730 Radio Austria Int'l: News
0730 Radio Havana Cuba: Newsbreak [T-S]
0730 Radio Moscow (World Service): News in Brief
0730 Radio Netherlands: News [M-A]
0730 Radio Prague Int'l: News
0745 Radio Berlin Int'l: News
0755 KUSW: News [S]
0755 Radio Japan: News [M-F]
0800 BBC: World News
0800 Christian Science Monitor: News
0800 Radio Australia: International Report
0800 Radio Finland: Northern Report [T-A]
0800 Radio Jordan: News Summary
0800 Radio Korea: News
0800 Radio Moscow (World Service): News
0800 Radio New Zealand Int'l: News [M-A]
0800 Voice of Indonesia: News
0805 Radio Pyongyang: News
0825 HCJB: World News
0830 Christian Science Monitor: News [M-F]
0830 Radio Beijing: News
0830 Radio Finland: Northern Report [T-A]
0830 Radio Moscow (World Service): News in Brief
0830 Radio Netherlands: News [M-A]
0830 Swiss Radio Int'l: News
0840 Radio Beijing: News About China
0840 Voice of Greece: News
0855 KUSW: News [S]
0855 Voice of Indonesia: News in Brief
0900 BBC: World News
0900 BRT, Brussels: News [M-F]

program guide

Wednesday

September 5th,12th,19th,26th

0010 Radio Moscow (North America): Feature. See S 0120.
0011 Radio Moscow (World Service): News and Views. See S 0011.
0020 Radio Moscow (North America): Top Priority. See M 0040.
0030 BBC: Omnibus. See T 1615.
0032 Radio Moscow (World Service): Music. See S 0032.
0040 Radio Moscow (North America): Home in the USSR. Local events and domestic issues in the ever-changing USSR.
0050 Radio Moscow (North America): Feature. See S 0120.
0101 BBC: Outlook. See M 1405.
0110 Radio Moscow (North America): Outlook. See S 0110.
0111 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
0120 Radio Moscow (North America): Newmarket. See M 2320.
0125 BBC: Financial News. See M 2310.
0130 BBC: Feature. Topical programming on various subjects.
0132 Radio Moscow (World Service): The Party and Perestroika. See T 0632.
0140 Radio Moscow (North America): Feature. See S 0120.
0145 BBC: Country Style. David Allan presents British country music.
0208 Swiss Radio Int'l: Dateline. See S 0208.
0209 BBC: British Press Review. See S 0209.
0210 Radio Moscow (North America): Feature. See S 0120.
0211 Radio Moscow (World Service): Update. See T 0211.
0215 BBC: Health Matters. See M 1115.
0220 Radio Moscow (North America): Top Priority. See M 0040.
0230 BBC: Musical Feature (except September 5th: Crosstown Traffic). See T 0630.
0232 Radio Moscow (World Service): Music. See S 0032.
0240 Radio Moscow (North America): Home in the USSR. See W 0040.
0250 Radio Moscow (North America): Feature. See S 0120.
0310 Radio Moscow (North America): Feature. See S 0120.
0311 Radio Moscow (World Service): News and Views. See S 0011.
0315 BBC: The World Today. See M 1645.
0320 Radio Moscow (North America): Top Priority. See M 0040.
0330 BBC: Discovery. An in-depth look at scientific research.
0332 Radio Moscow (World Service): Music at Your Request. See M 1132.
0340 Radio Moscow (North America): Home in the USSR. See W 0040.
0350 Radio Moscow (North America): Feature. See S 0120.
0408 Swiss Radio Int'l: Dateline. See S 0208.
0410 Radio Moscow (North America): Outlook. See S 0110.
0411 Radio Moscow (World Service): Culture and the Arts. See S 0511.
0420 Radio Moscow (North America): Newmarket. See M 2320.
0430 BBC: Off the Shelf. See M 0430.
0432 Radio Moscow (World Service): Music. See S 0032.
0440 Radio Moscow (North America): Feature. See S 0120.
0445 BBC: Country Style. See W 0145.
0509 BBC: Twenty-Four Hours. See S 0509.
0510 Radio Moscow (North America): Feature. See S 0120.
0511 Radio Moscow (World Service): Update. See T 0211.
0520 Radio Moscow (North America): Top Priority. See M 0040.
0530 BBC: Financial News. See M 2310.
0532 Radio Moscow (World Service): Music. See S 0032.
0540 BBC: Words of Faith. See S 0540.
0540 Radio Moscow (North America): Home in the USSR. See W 0040.
0545 BBC: The World Today. See M 1645.
0550 Radio Moscow (North America): Feature. See S 0120.
0610 Radio Moscow (North America): Outlook. See S 0110.
0611 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
0620 Radio Moscow (North America): Newmarket. See M 2320.
0630 BBC: Meridian. The world of the arts, including music, drama, and books.
0632 Radio Moscow (World Service): Press Review. See T 2311.
0638 Swiss Radio Int'l: Dateline. See S 0208.
0640 Radio Moscow (North America): Feature. See S 0120.
0709 BBC: Twenty-Four Hours. See S 0509.
0711 Radio Moscow (World Service): Update. See T 0211.
0730 BBC: Development '90. Aid and development issues.
0732 Radio Moscow (World Service): Music. See S 0032.



The scene at the last night of London's Promenade Concerts last September. The Proms can be heard on the BBC throughout the month, with live broadcasts on many days at 1830 UTC, and recorded programs Sundays at 1515 UTC and Tuesdays at 2315 UTC.

0900 Christian Science Monitor: News
0900 Deutsche Welle: World News
0900 Radio Australia: World and Australian News
0900 Radio Berlin Int'l: News
0900 Radio Japan: News
0900 Radio Moscow (World Service): News
0900 Radio New Zealand Int'l: News [A]
0915 Radio Korea (World News Service): News
0930 Christian Science Monitor: News [M-F]
0930 Deutsche Welle (Africa): African News [M-F]
0930 Radio Beijing: News
0930 Radio Moscow (World Service): News in Brief
0940 Radio Beijing: News About China
0945 Radio Berlin Int'l: News
0955 KUSW: News [S]
0955 Radio Japan: News [M-F]
1000 BBC: News Summary
1000 Christian Science Monitor: News
1000 HCJB: Latin American News
1000 Kol Israel: News
1000 Radio Australia: International Report
1000 Radio Jordan: News Summary
1000 Radio Moscow (World Service): News
1000 Radio New Zealand Int'l: News [A]
1000 Radio Tanzania: News
1000 Swiss Radio Int'l: News
1000 Voice of America: News
1030 Christian Science Monitor: News [M-F]
1030 Radio Austria Int'l: News [M-F]
1030 Radio Korea: News [M-S]
1030 Radio Moscow (World Service): News in Brief
1030 Radio Netherlands: News [M-A]
1030 UAE Radio, Dubai: News
1040 Voice of Greece: News
1050 Radio Finland: Northern Report [T-F]
1055 HCJB: World News
1055 KUSW: News [S]
1100 BBC: World News
1100 Christian Science Monitor: News
1100 Deutsche Welle: World News
1100 Radio Australia: World and Australian News
1100 Radio Beijing: News
1100 Radio Berlin Int'l: News
1100 Radio Japan: News
1100 Radio Jordan: News Summary
1100 Radio Korea: News
1100 Radio Moscow (World Service): News
1100 Radio RSA: News
1100 Swiss Radio Int'l: News
1100 Trans World Radio, Bonaire: News [M-F]
1100 Voice of America: News
1105 Radio Pakistan: News (Special English)
1105 Radio Pyongyang: News
1109 BBC: News About Britain
1110 Belize Radio One: News Summary [T-F]
1110 Radio Beijing: News About China
1110 Radio Botswana: News [M-F]
1115 Radio Korea (World News Service): News
1120 Belize Radio One: News Summary [A]
1125 Belize Radio One: News Summary [M]
1125 Radio Botswana: News [A-S]
1130 Christian Science Monitor: News [M-F]
1130 Deutsche Welle: African News [M-F]
1130 Radio Austria Int'l: News [M-F]
1130 Radio Lesotho: News
1130 Radio Moscow (World Service): News in Brief
1130 Radio Netherlands: News [M-A]
1145 Radio Berlin Int'l: News
1152 Radio RSA: News in Brief
1155 KUSW: News [S]
1155 Radio Japan: News [M-F]
1200 BBC News Summary [S]; Newsreel [M-A]
1200 Christian Science Monitor: News
1200 Radio Australia: International Report
1200 Radio Beijing: News
1200 Radio Canada Int'l: World Report [M-F]
1200 Radio Finland: Northern Report [T-F]
1200 Radio Jordan: News
1200 Radio Moscow (World Service): News
1200 Radio Polonia: News
1200 Radio Romania Int'l: News
1200 Radio RSA: News
1200 Radio Tashkent: News
1200 Radio Yugoslavia: News
1200 Swiss Radio Int'l: News
1200 Voice of America: News
1200 WWCR: USA Radio News [S-F]

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1108 Swiss Radio Int'l: Dateline. See S 0208.
1111 Radio Moscow (World Service): News and Views. See S 0011.
1115 BBC: Country Style. See W 0145.
1130 BBC: Meridian. See W 0630.
1132 Radio Moscow (World Service): Music. See S 0032.
1208 Swiss Radio Int'l: Dateline. See S 0208.
1211 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1215 BBC: Feature. Topical programming on various subjects (except September 5th: Japan 5, Wales Nil, a Welsh writer reflects on a year in Japan).
1225 BBC: The Farming World. Issues in agriculture.
1232 Radio Moscow (World Service): Music. See S 0032.
1245 BBC: Sports Roundup. See S 1330.
1309 BBC: Twenty-Four Hours. See S 0509.
1311 Radio Moscow (World Service): Newmarket. See S 0411.
1330 BBC: Development '90. See W 0730.
1332 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1338 Swiss Radio Int'l: Dateline. See S 0208.
1405 BBC: Outlook. See M 1405.
1411 Radio Moscow (World Service): News and Views. See S 0011.
1430 BBC: Off the Shelf. See M 0430.
1432 Radio Moscow (World Service): The Jazz Show. See M 0332.
1445 BBC: Business Matters. See W 0430.
1511 Radio Moscow (World Service): Science and Engineering. See S 1432.
1515 BBC: Feature. See M 2315.
1530 BBC: Comedy. A rare bit of humor on the World Service (except October 3rd: Two Cheers for September, a satirical look at the month just past).
1532 Radio Moscow (World Service): Music. See S 0032.
1538 Swiss Radio Int'l: Dateline. See S 0208.
1611 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1615 BBC: Feature (except September 5th: Crosstown Traffic). See T 0630.
1632 Radio Moscow (World Service): Culture and the Arts. See S 0511.
1645 BBC: The World Today. See M 1645.
2305 BBC: Commentary. See M 2305.
2310 BBC: Financial News. See M 2310.
2310 Radio Moscow (North America): Outlook. See S 0110.
2311 Radio Moscow (World Service): Science and Engineering. See S 1432.
2315 BBC: Good Books. See M 0315.
2320 Radio Moscow (North America): Home in the USSR. See W 0040.
2330 BBC: Multitrack 2. Graham Bannerman presents new pop music records, interviews, news, and competitions.
2330 Radio Moscow (North America): Feature. See S 0120.
2332 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.

Radio Moscow's English Service announcers pause for the camera before taking their stations.

Thursday

September 6th,13th,20th,27th

0010 Radio Moscow (North America): Feature. See S 0120.
0011 Radio Moscow (World Service): News and Views. See S 0011.
0030 BBC: Comedy. See W 1530.
0030 Radio Moscow (North America): Moscow Mailbag. See S 0010.
0032 Radio Moscow (World Service): Music. See S 0032.
0045 Radio Moscow (North America): Feature. See S 0120.
0101 BBC: Outlook. See M 1405.
0110 Radio Moscow (North America): Outlook. See S 0110.
0111 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
0120 Radio Moscow (North America): Home in the USSR. See W 0040.
0125 BBC: Financial News. See M 2310.
0130 BBC: Waveguide. See S 0750.
0130 Radio Moscow (North America): Feature. See S 0120.
0132 Radio Moscow (World Service): Press Review. See T 2311.
0140 BBC: Book Choice. See S 0745.
0145 BBC: Society Today. A weekly look at the changes in Britain.
0208 Swiss Radio Int'l: Dateline. See S 0208.
0209 BBC: British Press Review. See S 0209.
0210 Radio Moscow (North America): Feature. See S 0120.
0211 Radio Moscow (World Service): Update. See T 0211.
0215 BBC: Network UK. See T 0215.
0230 BBC: Assignment. Examinations of current topical issues.
0230 Radio Moscow (North America): Moscow Mailbag. See S 0010.
0232 Radio Moscow (World Service): Music. See S 0032.
0245 Radio Moscow (North America): Feature. See S 0120.
0310 Radio Moscow (North America): Feature. See S 0120.
0311 Radio Moscow (World Service): News and Views. See S 0011.
0315 BBC: The World Today. See M 1645.
0330 BBC: Brain of Britain 1990. See M 1215.
0330 Radio Moscow (North America): Moscow Mailbag. See S 0010.
0332 Radio Moscow (World Service): Folk Box. See M 1432.
0345 Radio Moscow (North America): Feature. See S 0120.
0408 Swiss Radio Int'l: Dateline. See S 0208.
0410 Radio Moscow (North America): Outlook. See S 0110.
0411 Radio Moscow (World Service): Moscow Mailbag. See S 0611.
0420 Radio Moscow (North America): Home in the USSR. See W 0040.
0430 BBC: Off the Shelf. See M 0430.
0430 Radio Moscow (North America): Feature. See S 0120.
0432 Radio Moscow (World Service): Music. See S 0032.
0445 BBC: Andy Kershaw's World of Music. See M 0215.
0509 BBC: Twenty-Four Hours. See S 0509.
0510 Radio Moscow (North America): Feature. See S 0120.

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1210 Radio Beijing: News About China
1215 Radio Berlin Int'l: News
1215 Radio Korea: News
1230 BRT, Brussels: News [M-F]
1230 Christian Science Monitor: News [M-F]
1230 Radio France Int'l: News
1230 Radio Moscow (World Service): News in Brief
1230 Radio Polonia: News
1230 Trans World Radio, Bonaire: News [M-A]
1230 Voice of Turkey: News
1235 Voice of Greece: News
1245 Radio Berlin Int'l: News
1255 WYFR (Network): News [M-F]
1300 BBC: News & 24 Hours[S]; World News[M-A]
1300 Belize Radio One: News
1300 Christian Science Monitor: News
1300 Radio Australia: World and Australian News
1300 Radio Beijing: News
1300 Radio Canada Int'l: News
1300 Radio Finland: Northern Report [T-A]
1300 Radio Moscow (World Service): News
1300 Radio Peace and Progress: News
1300 Radio Romania Int'l: News
1300 Radio Tanzania: News [A-S]
1300 Radio Tirana, Albania: News
1300 Trans World Radio, Bonaire: News [S]
1300 Voice of America: News
1300 WWCR: USA Radio News [M-F]
1305 Radio Pyongyang: News
1310 Radio Beijing: News About China
1325 HCJB: News [M-F]
1330 All India Radio: News
1330 Christian Science Monitor: News [M-F]
1330 Radio Austria Int'l: News
1330 Radio Korea (World News Service): News
1330 Radio Moscow (World Service): News in Brief
1330 Radio Tashkent: News
1330 Swiss Radio Int'l: News
1330 UAE Radio, Dubai: News
1330 Voice of America: News (Special English)
1345 Radio Berlin Int'l: News
1400 BBC: Summary [A-S]; 5-Minute News [M-F]
1400 Christian Science Monitor: News
1400 Radio Australia: International Report
1400 Radio Beijing: News
1400 Radio Finland: Northern Report [T-A]
1400 Radio France Int'l: News
1400 Radio Japan: News
1400 Radio Jordan: News Summary
1400 Radio Korea: News
1400 Radio Moscow (World Service): News
1400 Radio RSA: News
1400 Voice of America: News
1400 WWCR: USA Radio News
1405 Radio Pyongyang: News
1410 Radio Beijing: News About China
1415 Radio Canada Int'l (Central/E.Europe): News
1425 HCJB: News [M-F]
1425 Radio Finland: News Summary
1430 Christian Science Monitor: News [M-F]
1430 Radio Austria Int'l: News [M-F]
1430 Radio Moscow (World Service): News in Brief
1430 Radio Netherlands: News [M-A]
1430 Radio Polonia: News
1445 Radio Berlin Int'l: News
1455 All India Radio: News
1500 BBC: Newsreel
1500 Belize Radio One: News [M-A]
1500 Christian Science Monitor: News
1500 Deutsche Welle: World News
1500 Radio Australia: World and Australian News
1500 Radio Beijing: News
1500 Radio Japan: News
1500 Radio Moscow (World Service): News
1500 Radio Romania Int'l: News
1500 Radio RSA: News
1500 Voice of America: News
1500 WHRI: News [M-F]
1500 WWCR: USA Radio News [M-F]
1505 Radio Pyongyang: News
1510 Radio Beijing: News About China
1530 BRT, Brussels: News [M-F]
1530 Christian Science Monitor: News [M-F]
1530 Deutsche Welle: African News [M-F]
1530 Radio Moscow (World Service): News in Brief

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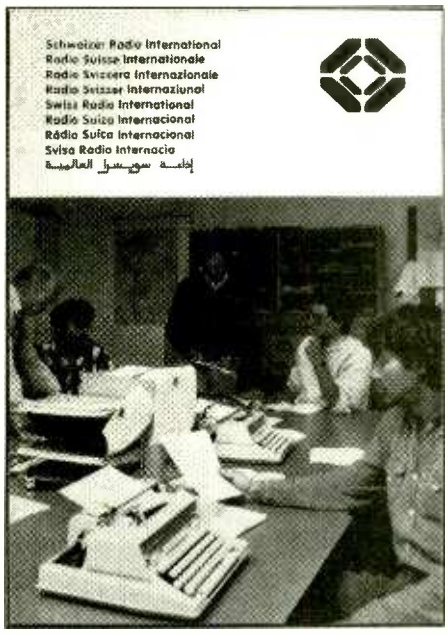
0511 Radio Moscow (World Service): Update. See T 0211.
0530 BBC: Financial News. See M 2310.
0530 Radio Moscow (North America): Moscow Mailbag. See S 0010.
0532 Radio Moscow (World Service): Music. See S 0032.
0540 BBC: Words of Faith. See S 0540.
0545 BBC: The World Today. See M 1645.
0545 Radio Moscow (North America): Feature. See S 0120.
0610 Radio Moscow (North America): Outlook. See S 0110.
0611 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
0620 Radio Moscow (North America): Home In the USSR. See W 0040.
0630 BBC: Feature (except September 6th: Japan 5, Wales Nil). See W 1215.
0630 Radio Moscow (North America): Feature. See S 0120.
0632 Radio Moscow (World Service): Audio Book Club. See S 0532.
0638 Swiss Radio Int'l: Dateline. See S 0208.
0640 BBC: The Farming World. See W 1225.
0709 BBC: Twenty-Four Hours. See S 0509.
0711 Radio Moscow (World Service): Update. See T 0211.
0730 BBC: Write On.... Paddy Feeny reads listener letters.
0732 Radio Moscow (World Service): Music. See S 0032.
0745 BBC: Network UK. See T 0215.
1108 Swiss Radio Int'l: Dateline. See S 0208.
1111 Radio Moscow (World Service): News and Views. See S 0011.
1115 BBC: New Ideas. See T 0445.
1125 BBC: Book Choice. See S 0745.
1130 BBC: Literature Is My Mistress, Medicine My Wife. A portrait of the Russian writer Anton Chekhov (except September 27th: Feature topical programming on various subjects).
1132 Radio Moscow (World Service): The Jazz Show. See M 0332.
1208 Swiss Radio Int'l: Dateline. See S 0208.
1211 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1215 BBC: Multitrack 2. See W 1830.
1232 Radio Moscow (World Service): Music. See S 0032.
1245 BBC: Sports Roundup. See S 1330.
1309 BBC: Twenty-Four Hours. See S 0509.
1311 Radio Moscow (World Service): Science and Engineering. See S 1432.



The office of Swiss Radio International as depicted on this QSL sent by Ray Labrie of New Hampshire.

1330 BBC: Network UK. See T 0215.
1332 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1338 Swiss Radio Int'l: Dateline. See S 0208.
1345 BBC: Folk In Britain or Jazz Scene UK. A look at folk or jazz music on the British Isles.
1405 BBC: Outlook. See M 1405.
1411 Radio Moscow (World Service): News and Views. See S 0011.
1430 BBC: Off the Shelf. See M 0430.
1432 Radio Moscow (World Service): Yours for the Asking. See T 0332.
1445 BBC: Write On.... See H 0730.
1511 Radio Moscow (World Service): Moscow Mailbag. See S 0611.
1515 BBC: Music for a While with Richard Baker. Classical music with the well-known broadcaster.
1532 Radio Moscow (World Service): Music. See S 0032.
1538 Swiss Radio Int'l: Dateline. See S 0208.
1611 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1615 BBC: Assignment. See H 0230.
1632 Radio Moscow (World Service): Newmarket. See S 0411.
1645 BBC: The World Today. See M 1645.
2305 BBC: Commentary. See M 2305.
2310 BBC: Financial News. See M 2310.
2310 Radio Moscow (North America): Outlook. See S 0110.
2311 Radio Moscow (World Service): Newmarket. See S 0411.
2315 BBC: Music Review. Classical music events and developments from around the world.
2320 Radio Moscow (North America): Feature. See S 0120.
2332 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
2340 Radio Moscow (North America): Science and Engineering. See S 2310.
2355 Radio Moscow (North America): Feature. See S 0120.

Friday

September 7th,14th,21st,28th

0010 Radio Moscow (North America): Feature. See S 0120.
0011 Radio Moscow (World Service): News and Views. See S 0011.
0030 BBC: The Amadeus Legacy. The amazing Amadeus Quartet and their recordings (except September 28th: Musical Feature, musical programming of a topical nature).
0032 Radio Moscow (World Service): Music. See S 0032.
0101 BBC: Outlook. See M 1405.
0110 Radio Moscow (North America): Outlook. See S 0110.
0111 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
0120 Radio Moscow (North America): Feature. See S 0120.
0125 BBC: Financial News. See M 2310.
0130 BBC: Folk in Britain or Jazz Scene UK. See H 1345.
0132 Radio Moscow (World Service): Russian by Radio. See S 0232.
0140 Radio Moscow (North America): Science and Engineering. See S 2310.
0145 BBC: Global Concerns. Issues of an

1530 Radio Tirana, Albania: News
1530 Swiss Radio Int'l: News
1530 Voice of Greece: News [M-A]
1545 Radio Berlin Int'l: News
1545 Radio Korea (World News Service): News
1552 Radio RSA: News in Brief
1555 WYFR (Network): News [A]
1600 BBC: World News
1600 Christian Science Monitor: News
1600 Deutsche Welle: World News
1600 Radio Australia: International Report
1600 Radio Beijing: News
1600 Radio France Int'l: News
1600 Radio Jordan: News Summary
1600 Radio Korea: News
1600 Radio Lesotho: News
1600 Radio Moscow (World Service): News
1600 Radio Polonia: News
1600 Radio Portugal: News [M-F]
1600 Radio Tanzania: News
1600 Voice of America: News
1600 BBC: News About Britain
1610 Radio Beijing: News About China
1610 Radio Botswana: News [M-F]
1615 Radio Canada Int'l: News
1630 Christian Science Monitor: News [M-F]
1630 Radio Austria Int'l: News
1630 Radio Moscow (World Service): News in Brief
1630 Radio Netherlands: News [M-A]
1630 Radio Peace and Progress: News
1630 Radio Polonia: News
1630 RAE, Buenos Aires: News
1630 UAE Radio, Dubai: News
1630 Voice of America (exc Africa)
1635 WYFR (Network): News [M-F]
1655 KUSW: News [M-F]
1700 BBC: World News [S-F]; Summary [A]
1700 Belize Radio One: News [M-F]
1700 Christian Science Monitor: News
1700 Kol Israel: News
1700 Radio Australia: World and Australian News
1700 Radio Beijing: News
1700 Radio Japan: News
1700 Radio Jordan: Newsdesk [S-H]
1700 Radio Moscow (World Service): News
1700 Radio Prague Int'l: News
1700 Voice of America: News
1700 WWCR: USA Radio News [A]
1705 Radio Pyongyang: News
1710 Radio Beijing: News About China
1715 Radio Korea (World News Service): News
1725 WYFR (Network): News [A]
1730 BRT, Brussels: News [M-F]
1730 Christian Science Monitor: News [M-F]
1730 Radio Moscow (World Service): News in Brief
1730 Radio Romania Int'l: News
1730 Swiss Radio Int'l: News
1745 Radio Berlin Int'l: News
1755 KUSW: News [M-A]
1800 All India Radio: News
1800 BBC: Newsdesk
1800 Belize Radio One: Headline News [M-A]
1800 Christian Science Monitor: News
1800 KVOH: UPI News
1800 Radio Australia: International Report
1800 Radio Bras, Brasilia: News [M-A]
1800 Radio Canada Int'l: News
1800 Radio Kiev: News
1800 Radio Korea: News
1800 Radio Moscow (World Service): News
1800 Radio New Zealand Int'l: News [M-F]
1800 Radio RSA: News
1800 Radio Tanzania: News
1800 Voice of America: News
1800 WWCR: USA Radio News [M-F]
1803 Radio Jamahiriya, Libya: News Headlines
1830 Belize Radio One: Network News
1830 Christian Science Monitor: News [M-F]
1830 Radio Budapest: News
1830 Radio Canada Int'l: News [M-F]
1830 Radio Finland: Northern Report [M-F]
1830 Radio Kuwait: News
1830 Radio Moscow (World Service): News in Brief
1830 Radio Netherlands: News [M-A]
1830 Radio Polonia: News
1830 Radio Prague Int'l: News
1830 Radio Sofia: News

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environmental nature.
0155 Radio Moscow (North America): Feature. See S 0120.
0208 Swiss Radio Int'l: Dateline. See S 0208.
0209 BBC: British Press Review. See S 0209.
0210 Radio Moscow (North America): Feature. See S 0120.
0211 Radio Moscow (World Service): Update. See T 0211.
0215 BBC: Seven Seas. A weekly program about ships and the sea.
0230 BBC: Literature Is My Mistress, Medicine My Wife (except September 28th: Feature). See H 1130.
0232 Radio Moscow (World Service): Music. See S 0032.
0310 Radio Moscow (North America): Feature. See S 0120.
0311 Radio Moscow (World Service): News and Views. See S 0011.
0315 BBC: The World Today. See M 1645.
0330 BBC: Focus on Faith. Comment and discussion on the major issues in the worlds of faith.
0332 Radio Moscow (World Service): Music. See S 0032.
0408 Swiss Radio Int'l: Dateline. See S 0208.
0410 Radio Moscow (North America): Outlook. See S 0110.
0411 Radio Moscow (World Service): Press Review. See T 2311.
0420 Radio Moscow (North America): Feature. See S 0120.
0430 BBC: Off the Shelf. See M 0430.
0432 Radio Moscow (World Service): Music. See S 0032.
0440 Radio Moscow (North America): Science and Engineering. See S 2310.
0445 BBC: Folk in Britain or Jazz Scene UK. See H 1345.
0455 Radio Moscow (North America): Feature. See S 0120.
0509 BBC: Twenty-Four Hours. See S 0509.
0510 Radio Moscow (North America): Feature. See S 0120.
0511 Radio Moscow (World Service): Update. See T 0211.
0530 BBC: Financial News. See T 0125.
0532 Radio Moscow (World Service): Music. See S 0032.
0540 BBC: Words of Faith. See S 0540.
0545 BBC: The World Today. See M 1645.
0610 Radio Moscow (North America): Outlook. See S 0110.
0611 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
0620 Radio Moscow (North America): Feature. See S 0120.
0630 BBC: Meridian. See W 0630.
0632 Radio Moscow (World Service): Science and Engineering. See S 1432.
0638 Swiss Radio Int'l: Dateline. See S 0208.
0640 Radio Moscow (North America): Science and Engineering. See S 2310.
0655 Radio Moscow (North America): Feature. See S 0120.
0709 BBC: Twenty-Four Hours. See S 0509.
0711 Radio Moscow (World Service): Update. See T 0211.
0730 BBC: Feature. Topical programming on various subjects.
0732 Radio Moscow (World Service): Music. See S 0032.
1108 Swiss Radio Int'l: Dateline. See S 0208.
1111 Radio Moscow (World Service): News and Views. See S 0011.
1115 BBC: Global Concerns. See F 0145.
1130 BBC: Meridian. See W 0630.
1132 Radio Moscow (World Service): Yours for the Asking. See T 0332.
1208 Swiss Radio Int'l: Dateline. See S 0208.
1211 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1215 BBC: Feature. See F 0730.
1232 Radio Moscow (World Service): Music. See S 0032.
1245 BBC: Sports Roundup. See S 1330.
1309 BBC: Twenty-Four Hours. See S 0509.
1311 Radio Moscow (World Service): Press Review. See T 2311.
1330 BBC: Short Story. See T 0130.
1332 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1338 Swiss Radio Int'l: Dateline. See S 0208.
1345 BBC: Here's Humph! All that jazz with Humphrey Lyttelton.
1405 BBC: Outlook. See M 1405.
1411 Radio Moscow (World Service): News and Views. See S 0011.
1430 BBC: Off the Shelf. See M 0430.
1432 Radio Moscow (World Service): Music at Your Request. See M 1132.
1445 BBC: Feature (except September 7th: Journey to the Center of the Earth). See M 0445.
1511 Radio Moscow (World Service): Science and Engineering. See S 1432.
1515 BBC: Music Review. See H 2315.

"This is Radio Moscow." Here, on Pyatniskaya Street, these words come on the air in 66 languages daily.

1532 Radio Moscow (World Service): Music. See S 0032.
1538 Swiss Radio Int'l: Dateline. See S 0208.
1611 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1615 BBC: Science in Action. See M 0230.
1632 Radio Moscow (World Service): The Party and Perestroika. See T 0632.
1645 BBC: The World Today. See M 1645.
2305 BBC: Commentary. See M 2305.
2310 BBC: Financial News. See M 2310.
2310 Radio Moscow (North America): Outlook. See S 0110.
2311 Radio Moscow (World Service): The Party and Perestroika. See T 0632.
2315 BBC: Worldbrief. A roundup of the week's news headlines and human-interest happenings.
2320 Radio Moscow (North America): Home in the USSR. See W 0040.
2330 BBC: Multitrack 3. Sarah Ward surveys the British contemporary music scene.
2330 Radio Moscow (North America): Feature. See S 0120.
2332 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.

newsline cont'd from p.61

1830 Radio Tirana, Albania: News
1830 Radio Yugoslavia: News
1830 Swiss Radio Int'l: News
1830 Voice of America: News (Special English)
1840 Voice of Greece: News [M-A]
1847 Radio Jamahiriya, Libya: News
1852 Radio RSA: News In Brief
1855 KUSW: News [M-F]
1855 Radio Finland: News Summary
1855 WYFR (Network): News [M-A]
1900 All India Radio: News
1900 BBC: News Summary
1900 Christian Science Monitor: News [M-A]
1900 Deutsche Welle: World News
1900 HCJB: Latin American News
1900 Kol Israel: News
1900 KVOH: UPI News
1900 Radio Australia: World and Australian News
1900 Radio Beijing: News
1900 Radio Canada Int'l: News [M-F]
1900 Radio Havana Cuba: News [M-A]
1900 Radio Japan: News
1900 Radio Jordan: News Summary [S-H]
1900 Radio Moscow (World Service): News
1900 Radio New Zealand Int'l: News [S-F]
1900 Radio Portugal: News [M-F]
1900 Radio Tanzania: News
1900 Spanish Foreign Radio: News
1900 Voice of America: News
1910 Radio Beijing: News About China
1910 Radio Botswana: News
1915 Radio Berlin Int'l: News
1920 Voice of Greece: News [M-A]
1930 Christian Science Monitor: News [M-F]
1930 Deutsche Welle: African News [M-F]
1930 Radio Austria Int'l: News
1930 Radio Havana Cuba: Newsbreak [M-A]
1930 Radio Moscow (World Service): News in Brief
1930 Radio Romania Int'l: News
1935 Radiotelevisione Italiana: News
1945 Radio Berlin Int'l: News
1945 Radio Korea (World News Service): News
1955 HCJB: World News
1955 KUSW: News [M-A]
2000 BBC: World News
2000 Christian Science Monitor: News
2000 KVOH: UPI News
2000 Radio Australia: International Report
2000 Radio Beijing: News
2000 Radio Havana Cuba: News [M-A]
2000 Radio Jordan: News Summary [S-H]
2000 Radio Moscow (World Service): News
2000 Radio New Zealand Int'l: News [S-F]
2000 Radio Polonia: News
2000 Radio Portugal: News [M-F]
2000 Radio Prague Int'l: News
2000 Voice of America: News
2000 Voice of Indonesia: News
2000 Voice of Turkey: News
2005 Radio Pyongyang: News
2010 Radio Beijing: News About China
2025 Radio Havana Cuba: Cuban Nat'l News [M-A]
2025 Radiotelevisione Italiana: News
2025 WYFR (Network): News [M-F]
2030 Christian Science Monitor: News [M-F]
2030 Radio Budapest: News
2030 Radio Havana Cuba: Newsbreak [M-A]
2030 Radio Korea: News
2030 Radio Moscow (World Service): News in Brief
2030 Radio Netherlands: News [M-A]
2030 Radio Sofia: News
2045 Radio Korea (World News Service): News
2055 KUSW: News [M-A]
2055 Voice of Indonesia: News in Brief
2100 BBC: News Summary
2100 Belize Radio One: News [M-F]
2100 BRT, Brussels: News [M-F]
2100 Christian Science Monitor: News [M-A]
2100 Deutsche Welle: World News
2100 KVOH: UPI News
2100 Radio Australia: World and Australian News
2100 Radio Beijing: News
2100 Radio Canada Int'l:World at 6[M-F];News[A-S]
2100 Radio Finland: Northern Report [M-F]
2100 Radio Japan: News

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Saturday

Sept 1st,8th,15th,22nd,29th

0010 Radio Moscow (North America): Top Priority. See M 0040.
0011 Radio Moscow (World Service): News and Views. See S 0011.
0030 BBC: From the Weeklies. A review of the weekly British press.
0030 Radio Moscow (North America): Feature. See S 0120.
0032 Radio Moscow (World Service): Music. See S 0032.
0045 BBC: Recording of the Week. See M 0545.
0045 Radio Moscow (North America): Science and Engineering. See S 2310.
0101 BBC: Outlook. See M 1405.
0110 Radio Moscow (North America): Outlook. See S 0110.
0111 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
0120 Radio Moscow (North America): Home in the USSR. See W 0040.
0125 BBC: Financial News. See M 2310.
0130 BBC: Feature. Topical programming on various subjects.
0130 Radio Moscow (North America): Feature. See S 0120.
0132 Radio Moscow (World Service): Audio Book Club. See S 0532.
0145 BBC: Book Choice. See S 0745.
0150 BBC: New Ideas. See T 0445.
0208 Swiss Radio Int'l: Dateline. See S 0208.
0209 BBC: British Press Review. See S 0209.
0210 Radio Moscow (North America): Top Priority. See M 0040.
0211 Radio Moscow (World Service): Update. See T 0211.
0215 BBC: Network UK. See T 0215.
0230 BBC: People and Politics. Background to the British political scene.
0230 Radio Moscow (North America): Feature. See S 0120.
0232 Radio Moscow (World Service): Music. See S 0032.
0245 Radio Moscow (North America): Science and Engineering. See S 2310.
0310 Radio Moscow (North America): Top Priority. See M 0040.
0311 Radio Moscow (World Service): News and Views. See S 0011.
0315 BBC: The World Today. See M 1645.
0330 BBC: The Vintage Chart Show. Paul Burnett presents top ten hits from the music charts of yesteryear.
0330 Radio Moscow (North America): Feature. See S 0120.
0332 Radio Moscow (World Service): Vasily's Weekend. See S 0432.
0408 Swiss Radio Int'l: Dateline. See S 0208.
0410 Radio Moscow (North America): Outlook. See S 0110.
0411 Radio Moscow (World Service): The Party and Perestroika. See T 0632.
0420 Radio Moscow (North America): Home in the USSR. See W 0040.
0430 BBC: Here's Humph! See F 1345.
0430 Radio Moscow (North America): Feature. See S 0120.
0432 Radio Moscow (World Service): Music. See S 0032.
0445 BBC: Worldbrief. See F 2315.
0509 BBC: Twenty-Four Hours. See S 0509.
0510 Radio Moscow (North America): Top Priority. See M 0040.
0511 Radio Moscow (World Service): Update. See T 0211.
0530 BBC: Financial News. See M 2310.
0530 Radio Moscow (North America): Feature. See S 0120.
0532 Radio Moscow (World Service): Music. See S 0032.
0540 BBC: Words of Faith. See S 0540.
0545 BBC: The World Today. See M 1645.
0545 Radio Moscow (North America): Science and Engineering. See S 2310.
0610 Radio Moscow (North America): Outlook. See S 0110.
0611 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
0620 Radio Moscow (North America): Home in the USSR. See W 0040.
0630 BBC: Meridian. See W 0630.
0630 Radio Moscow (North America): Feature. See S 0120.
0632 Radio Moscow (World Service): Newmarket. See S 0411.
0638 Swiss Radio Int'l: Dateline. See S 0208.
0648 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round. See S 0218.
0709 BBC: Twenty-Four Hours. See S 0509.
0711 Radio Moscow (World Service): Update. See T 0211.
0730 BBC: From the Weeklies. See F 2315.
0732 Radio Moscow (World Service): Music. See S 0032.
0745 BBC: Network UK. See T 0215.
1108 Swiss Radio Int'l: Dateline. See S 0208.
1111 Radio Moscow (World Service): News and Views. See S 0011.
1115 BBC: Feature. See A 0130.
1118 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round. See S 0218.
1130 BBC: Meridian. See W 0630.
1132 Radio Moscow (World Service): Music at Your Request. See M 1132.
1208 Swiss Radio Int'l: Dateline. See S 0208.
1211 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1215 BBC: Multitrack 3. See F 2330.
1218 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round. See S 0218.
1232 Radio Moscow (World Service): Music. See S 0032.
1245 BBC: Sports Roundup. See S 1330.
1309 BBC: Twenty-Four Hours. See S 0509.
1311 Radio Moscow (World Service): Science and Engineering. See S 1432.
1330 BBC: Network UK. See T 0215.
1332 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1338 Swiss Radio Int'l: Dateline. See S 0208.
1345 BBC: Sportsworld. A weekly sports magazine (with breaks for news, through 1700 UTC).
1348 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round. See S 0218.
1411 Radio Moscow (World Service): News and Views. See S 0011.
1432 Radio Moscow (World Service): Vasily's Weekend. See S 0432.
1511 Radio Moscow (World Service): Newmarket. See S 0411.
1532 Radio Moscow (World Service): Music. See S 0032.
1538 Swiss Radio Int'l: Dateline. See S 0208.
1548 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round. See S 0218.
1611 Radio Moscow (World Service): Focus on Asia and the Pacific. See M 2332.
1632 Radio Moscow (World Service): Moscow Mailbag. See S 0611.
2305 BBC: Words of Faith. See S 0540.
2310 BBC: Book Choice. See S 0745.
2310 Radio Moscow (North America): Outlook. See S 0110.
2311 Radio Moscow (World Service): Culture and the Arts. See S 0511.
2315 BBC: A Jolly Good Show. See T 1515.
2320 Radio Moscow (North America): Feature. See S 0120

2100 Radio Jordan: News Summary [S-H]
2100 Radio Moscow (World Service): News
2100 Radio New Zealand Int'l: News [S-F]
2100 Radio Peace and Progress: News
2100 Radio Prague Int'l: News
2100 Radio Romania Int'l: News
2100 Radio Yugoslavia: News
2100 RAE, Buenos Aires: News
2100 Spanish Foreign Radio: News
2100 Swiss Radio Int'l: News
2100 Voice of America: News
2110 Radio Beijing: News About China
2130 Christian Science Monitor: News [M-F]
2130 Kol Israel: News
2130 Radio Canada Int'l (Africa): News
2130 Radio Moscow (World Service): News in Brief
2130 Radio Sofia: News
2130 Swiss Radio Int'l: News
2130 WYFR (Network): News [M-F]
2145 Radio Berlin Int'l: News
2155 KUSW: News [M-F]
2155 WYFR (Network): News [M-A]
2200 BBC: Newshour
2200 Christian Science Monitor: News
2200 Radio Australia: International Report
2200 Radio Beijing: News
2200 Radio Canada Int'l (Asia): News
2200 Radio Canada Int'l(USA):World at Six[M-F];News[A-S]
2200 Radio Havana Cuba: News [M-A]
2200 Radio Moscow: News
2200 Radio New Zealand Int'l: News [S-F]
2200 Radiotelevisione Italiana: News
2200 Voice of America: News
2200 Voice of Free China: News and Commentary
2200 Voice of Turkey: News
2208 Voice of America (Carib):Caribbean News[M-F]
2210 Radio Beijing: News About China
2215 Radio for Peace Int'l: UN Radio News [M-F]
2225 Radio Havana Cuba: Cuban Nat'l News [M-A]
2230 Christian Science Monitor: News [M-F]
2230 Radio Havana Cuba: Newsbreak [M-A]
2230 Radio Moscow (World Service): News in Brief
2230 Radio Polonia: News
2230 Radio Tirana, Albania: News
2230 Voice of America: News (Special English)
2233 Radio Jamahiriya, Libya: News Headlines
2255 KUSW: News [M-A]
2300 BBC: World News [A-S]; 5-Minute News [M-F]
2300 Belize Radio One: News [M-F]
2300 Christian Science Monitor: News [M-A]
2300 Kol Israel: News
2300 Radio Australia: World and Australian News
2300 Radio Canada Int'l (Caribbean): News
2300 Radio Finland: Northern Report [M-F]
2300 Radio Japan: News
2300 Radio Luxembourg: News
2300 Radio Moscow: News
2300 Radio New Zealand Int'l: News [S-F]
2300 Radio Sofia: News
2300 Voice of America: News
2300 WWCR: USA Radio News [M-F]
2305 Radio Polonia: News
2305 Radio Pyongyang: News
2330 BRT, Brussels: News [M-F]
2330 Christian Science Monitor: News [M-F]
2330 Radio Budapest: News [M-A]
2330 Radio Canada Int'l (USA): News [A-S]
2330 Radio Jamahiriya, Libya: News
2330 Radio Kiev: News
2330 Radio Moscow (World Service): News in Brief
2330 Radio Tirana, Albania: News
2335 Voice of Greece: News [M-A]
2345 Radio Berlin Int'l: News
2355 KUSW: News [M-A]
2355 Radio Japan: News [M-F]
2355 WRNO: ABC News [F]

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frequency section

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0000 UTC [8:00 PM EDT/5:00 PM PDT]

0000-0015		Radio Prague Int'l, Czechoslovakia	7345 11680 11990
0000-0025		Radio Finland, Helsinki	11755 15185
0000-0030	M	Radio Norway International, Oslo	15165
0000-0030		Kol Israel, Jerusalem	15640 9435 11605
0000-0030		Radio Berlin International, GDR	9730 13610 13690 15240
0000-0030		Radio Korea, Seoul	15575
0000-0030		Radio Australia, Melbourne	11880 13605 15240 15380 15465 17630 17750 17795
0000-0030		Radio Canada International, Montreal	5960 9755
0000-0045		Radio Yugoslavia, Belgrade	7215 11735 15105
0000-0050		Radio Pyongyang, North Korea	15115 15160
0000-0100	M-H	Radio New Zealand, Wellington	17675
0000-0100		BBC World Service, London, England	5975 6005 6175 6195 7325 9590 9915 11750 12095 15260
0000-0100		Adventist World Radio, Costa Rica	9725 11870
0000-0100		Radio Moscow N.American Service	11690 11780 11800 12040 12050 13605 15290 15315 15530 15595
0000-0100		Radio Moscow World Service	12055 15140 15170 15280 15420 15425 15460 15480 15550 15590 17570 17600 17610 17620 17730 17775 17850 17890 17935 21555 21595 21655 21690 21790 21825
0000-0100		CBC Northern Quebec Service, Can	9625(ML)
0000-0100		CBN, St. John's, Nfld, Canada	6160
0000-0100		CBU, Vancouver, British Columbia	6160
0000-0100		CFCF, Montreal, Quebec, Canada	6005
0000-0100		CFCN, Calgary, Alberta, Canada	6030
0000-0100		CHNS, Halifax, Nova Scotia, Canada	6130
0000-0100		Christian Science World Svc, Boston	9410 9850 13760 15435
0000-0100		CKWX, Vancouver, British Columbia	6080
0000-0100		CFRB, Toronto, Ontario, Canada	6070
0000-0100		FEBC Radio Int'l, Philippines	15480
0000-0100		KSDA, Guam	15125
0000-0100		KUSW, Salt Lake City, Utah	15590
0000-0100		Radio Beijing, Beijing, China	17705 15100
0000-0100		Radio Havana Cuba	11820
0000-0100		Radio Luxembourg, Junglinster	6090
0000-0100		Spanish National Radio, Madrid	9630 11880
0000-0100		Voice of America-Americas Service	5995 9775 9815 11580 15205
0000-0100		Voice of America-Caribbean Service	6130 9455 11695
0000-0100		Voice of America-East Asia Service	7120 9770 11760 15185 15290 17735 17820
0000-0100		Radio for Peace Int'l, Costa Rica	7375(T-A add 13630)
0000-0100		WHRI, Noblesville, Indiana	7315 9495
0000-0100		WINB, Red Lion, Pennsylvania	15145
0000-0100		WRNO Worldwide, Louisiana	7355
0000-0100		WWCR, Nashville, Tennessee	7520
0000-0100		WYFR, Okeechobee, Florida	5985 13695 15170
0030-0100	S,M	Radio Canada Int'l, Montreal	5960 9755
0030-0100		Radio Australia, Melbourne	11880 13605 15160 15240 15380 15465 15560 17630 17750 17795 21740
0030-0100		Radio Budapest, Hungary	6110 9520 9585 9835 11910 15160
0030-0100		Radio Netherlands Int'l, Hilversum	6020 6165 15560
0035-0100		HCJB, Quito, Ecuador	15155 17875
0050-0100		Vatican Radio, Vatican City	6150 9605 11780

the frequency file

September 1990

"Do you remember that time in September, when nights were long, and conventions drew nearer...", so goes the song, or something like that. Have you made your plans for the convention? I hope so! Now some more current matters:

You are to be thanked hand over foot for the super support you're giving this section. All of your comments, both good and bad, are being compiled and taken into account.

Timely Events Take Some Time

This is the month when nasty things happen to people whose body clocks are unforgiving. Summer time comes to an end in Europe at the end of the month, then it's drawn out in North America until the end of next month. Rumour has it that in Albania, anyone observing these time shifts are exiled back yet another century (look for an upcoming Radio Tirana program that will detail how clocks are actually named after "cocks", and "clocks" is just a westernized adaptation of a distinct Albanian discovery that the lowly chicken can be used to tell time).

Thank you for Writing

James Henderson of Moulton Alabama says our "...potential confusion may not justify the simplification...", and John Browning of Buena Park, California says that "...another source of reliable information (has gone) down the tube." What these gentlemen are referring to is my mention that we might eliminate repeat listings of some major stations by giving them only one time block per hour instead of, for example, having the BBC listed at 0000-0015, 0015-0030, 0030-0045, and 0045-0100. We've done this in the past because the BBC does have frequencies that come on or close down on the quarter hour.

What I did not mean to imply, but evidently did, was that we were going to list, for example, a Radio Tirana broadcast that starts at 2230 as in fact being at 2200-2300. We were only contemplating this for the larger stations that have such multiple, seemingly repetitive listings. The arguments against it have been taken, and a decision will be made soon. Meanwhile, you will notice that Radio Australia listings have reverted back to their half-hourly listings, where applicable.

Tuning Tips

The situation in the Middle East may make for some very intense listening in the months ahead. Some stations to look up here are UAE Radio in Dubai, UAE Radio Abu Dhabi, Radio Cairo, Radio Jordan, Kol Israel, VOIRI Teheran, Radio Damascus, and Radio Baghdad, as well as the usual BBC, VOA, and now it seems, Radio Moscow. Good listening!

-- Greg Jordan, Frequency Manager

frequency section

0100 UTC [9:00 PM EDT/6:00 PM PDT]

0100-0105		Vatican Radio, Vatican City	6150	9605	11780	
0100-0115		All India Radio, New Delhi	9535	9910		
			11715	11745	15110	
0100-0125		RAI, Rome, Italy	9575	11800		
0100-0125		Radio Netherlands Int'l, Hilversum	6020	6165	15560	
0100-0130		Radio Japan Americas Svc, Tokyo	17755			
0100-0130		Radio Prague Int'l, Czechoslovakia	5930	7345	11680	
0100-0130		CBC Northern Quebec Service, Can	9625	(ML)		
0100-0130		Radio Sweden, Stockholm	15405			
0100-0130		Kol Israel, Jerusalem	9435	15640	11605	
0100-0130	H,A	Radio Budapest, Hungary	6110	9520	9585	9835
			11910	15160		
0100-0150		Deutsche Welle, Koln, West Germany	6040	6145	9565	
			15105	11865		
0100-0200		Radio Moscow North American Svc	11690	11780	11800	12040
			12050	13605	15290	15315
			15530	15595		
0100-0200		Radio Moscow World Service	12055	15140	15170	15280
			15420	15425	15460	15480
			15550	15590	17570	17600
			17610	17620	17730	17775
			17850	17890	17935	21555
			21595	21655	21690	21790
			21825			
0100-0200		BBC World Service, London, England	5975	6005	6175	7325
			9590	9915	11750	12095
			15260	21715		
0100-0200	S,M	Radio Canada Int'l, Montreal	13720	11940	11845	9755
			9535			
0100-0200	A-H	Radio New Zealand, Wellington	17675			
0100-0200		CBN, St John's, Newfoundland	6160			
0100-0200		CBU, Vancouver, British Columbia	6160			
0100-0200		CFCF, Montreal, Quebec, Canada	6005			
0100-0200		CFCN, Calgary, Alberta, Canada	6030			
0100-0200		CHNS, Halifax, Nova Scotia, Canada	6130			
0100-0200		Christian Science World Svc, Boston	15435	9850	13760	9410
0100-0200		CKWX, Vancouver, British Columbia	6080			
0100-0200		CFRB, Toronto, Ontario, Canada	6070			
0100-0200		FEBC Radio Int'l, Philippines	15480			
0100-0200		HCJB, Quito, Ecuador	17875	15155		
0100-0200		KUSW, Salt Lake City, Utah	15590			
0100-0200		Radio Australia, Melbourne	11880	15160	15240	15465
			15560	17630	17750	17795
			21525	21740	21775	
0100-0200		Radio Havana Cuba	11820			
0100-0200		Radio Japan General Svc, Tokyo	5960	17810	17835	17845
0100-0200		Radio Luxembourg, Junglinster	6090			
0100-0200		Radio for Peace Int'l, Costa Rica	7375	(T-A add 13630)		
0100-0200		Spanish National Radio, Madrid	9630	11880		
0100-0200		Voice of America-Americas Service	5995	9775	9815	11580
			15205			
0100-0200		Voice of America-Caribbean Service	6130	9455		
0100-0200		Voice of America-East Asia Service	7115	7205	9740	11705
			15205	21525		
0100-0200		Voice of Indonesia, Jakarta	11755	11788		
0100-0200		WHRI, Noblesville, Indiana	7315	9495		
0100-0200		WRNO Worldwide, Louisiana	7355			
0100-0200		WWCR, Nashville, Tennessee	7520			
0100-0200		WYFR, Okeechobee, Florida	5985	9505	11720	17612
0130-0200	M-A	Voice of Greece, Athens	11645	9395	9420	
0130-0200		Radio Baghdad, Iraq	11830			
0130-0200		Radio Austria International, Vienna	9870	9875	13730	
0145-0200		Radio Berlin International, GDR	6080	11890	13610	13760
			15240			
0155-0200		Vatican Radio, Vatican City	15105	9645	11750	

0200 UTC [10:00 PM EDT/7:00 PM PDT]

0200-0215		Vatican Radio, Vatican City	15105	9645	11750	
0200-0220		Radio Veritas-Asia, Philippines	15220	15360		
0200-0230		SLBC Domestic Service, Sri Lanka	4940			
0200-0230		FEBC Radio Int'l, Philippines	15480			
0200-0230	T-A	Voice of America	5995	9775	9815	11580
			15205			
0200-0230		Swiss Radio International, Berne	6095	6135	9650	9885
			12035	17730		
0200-0230		Radio Berlin International, GDR	6080	11890	13610	13760
			15240			
0200-0250		Deutsche Welle, Koln, W. Germany	7285	9615	9690	11835
			11945	15235	17770	
0200-0250		Radio Bras, Brasilia, Brasil	11745			
0200-0300		BBC World Service, London, England	5975	6005	6110	6175
			7135	7325	9410	9590
			9915	11750	12095	15260
			15390	21715		
0200-0300		RAE, Buenos Aires, Argentina	11710			
		(Subject to covering by co-channel	Moscow)			
0200-0300		KSDA, Guam	13720			
0200-0300		Radio Moscow North American Svc	11690	11710	11780	11800
			11850	11980	12040	12050

LEGEND

- The first four digits of an entry are the broadcast start time in UTC. The second four digits represent the end time.
- In the space between the end time and the station name is the broadcast schedule.

S=Sunday M=Monday T=Tuesday W=Wednesday
H=Thursday F=Friday A=Saturday

If there is no entry, the broadcasts are heard daily. If, for example, there is an entry of "M," the broadcast would be heard only on Mondays. An entry of "M,W,F" would mean Mondays, Wednesdays and Fridays only. "M-F" would mean Mondays through Fridays. "TEN" indicates a tentative schedule and "TES" a test transmission.

The last entry on a line is the frequency. Several codes may be found after a frequency as follows:

- SSB indicates Single Sideband transmission.
- v after a frequency indicates that it varies
- Notations of USB and LSB (upper and lower sideband transmissions) usually refer only to the individual frequency after which they appear.
- [ML] after a frequency indicates a multi-lingual transmission containing English-language programs. All other frequencies may be assumed to be English language programs directed to various parts of the world.
- Listings followed by an asterisk (*) are for English lessons and do not contain regularly scheduled programming.

We suggest that you begin with the lower frequencies that a station is broadcasting on and work your way up the dial. Remember that there is no guarantee that a station will be audible on any given day. Reception conditions can change rapidly, though, and if it is not audible one night, it may well be on another.

HOW TO USE THE PROPAGATION CHARTS

Propagation charts can be an invaluable aid to the DXer in determining which frequencies are likely to be open at a given time. To use the propagation charts, choose those for your location (they are divided into east coast, midwest and west coast of North America). Then look for the one most closely describing the geographic location of the station you want to hear.

Once you've located the correct charts, look along the horizontal axis of the graph for the time that you are listening. The top line of the graph shows the Maximum Useable Frequency [MUF] and the lower line the Lowest Useable Frequency [LUF] as indicated on the vertical axis of the graph.

While there are exceptions to every rule (especially those regarding shortwave listening), you should find the charts helpful in determining the best times to listen for particular regions of the world. Good luck!

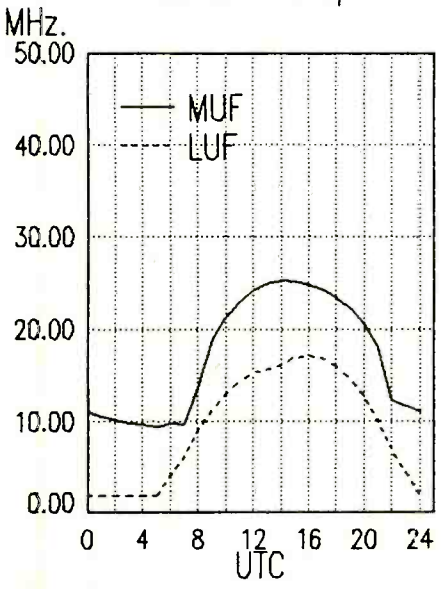
		13605 15290 15315 15425	
		15435 15530 15580 15595	
0200-0300	Radio Moscow World Service	11600 11630 15140 15170	
		15230 15280 15415 15480	
		15550 15590 17560 17570	
		17600 17620 17730 17850	
		17860 17890 17960 21555	
		21585 21625 21655 21690	
		21790 21825	
0200-0300	CBC Northern Quebec Service, Can	9625 (ML)	
0200-0300	CBN, St. John's, Newfoundland, Can	6160	
0200-0300	CBU, Vancouver, British Columbia	6160	
0200-0300	CFCF, Montreal, Quebec, Canada	6005	
0200-0300	CFCN, Calgary, Alberta, Canada	6030	
0200-0300	CHNS, Halifax, Nova Scotia, Canada	6130	
0200-0300	Christian Science World Svc, Boston	9455 9850 13760	
0200-0300	CKWX, Vancouver, British Columbia	6080	
0200-0300	CFRB, Toronto, Ontario, Canada	6070	
0200-0300	HCJB, Quito, Ecuador	15155 17875	
0200-0300	KUSW, Salt Lake City, Utah	15590	
0200-0300	Radio Australia, Melbourne	11880 15160 15240 15320	
		15465 15560 17630 17750	
		17795 21525 21740 21775	
0200-0300	Radio Baghdad, Iraq	11830	
0200-0300 T-A	Radio For Peace Int'l, Costa Rica	7375 USB (T-A add 13630)	
0200-0300 T-A	Radio Canada International, Montreal	9535 9755 11845 11940 13720	
0200-0300	Radio Romania Int'l, Bucharest	5990 6155 9510 9570	
		11830 11940 15380	
0200-0300	Radio Cairo, Egypt	9475 9675	
0200-0300	Radio Havana Cuba	9710 11820	
0200-0300	Radio Luxembourg, Junglinster	6090	
0200-0300	Voice of America-South Asia Service	7115 7205 9740 11705	
		15160 15250 21525	
0200-0300	Radio Cultura, Guatemala	3300	
0200-0300 A,S	Radio New Zealand, Wellington	17675	
0200-0300	Voice of Free China, Taiwan	5950 7445 9680	
0200-0300	WHRI, Noblesville, Indiana	7315 9495	
0200-0300	WRNO Worldwide, Louisiana	7355	
0200-0300	WWCR, Nashville, Tennessee	7520	
0200-0300	WINB, Red Lion, Pennsylvania	15145	
0200-0300	WYFR, Okeechobee, Florida	6065 9505	
0230-0245	Radio Pakistan (Slow speed news)	9545 15115 17660 17725	
		21490	
0230-0300 T-A	Radio Portugal, Lisbon	9600 9680 9705 11840	
0230-0300	Radio Sweden, Stockholm	9695 11705	
0230-0300	Radio Tirana, Albania	9500 11825	

0249-0257v	Radio Yerevan, Armenia	11675 11790 15180 15455 15485

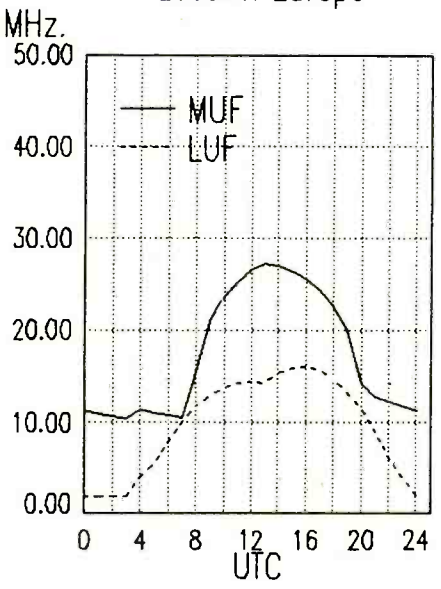
0300 UTC [11:00 PM EDT/8:00 PM PDT]

0300-0315	Azad Kashmir Radio, Pakistan	7286 4980 3665
0300-0330	Radio Australia, Melebourne	11880 15160 15240 15320 15465 15560 17630 17750 17795 21525 21740 21775

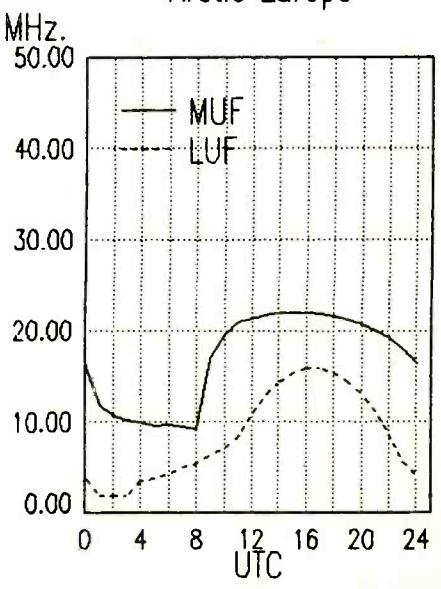
East Coast To Western Europe



East Coast To Eastern Europe



East Coast To Arctic Europe



East Coast

frequency section

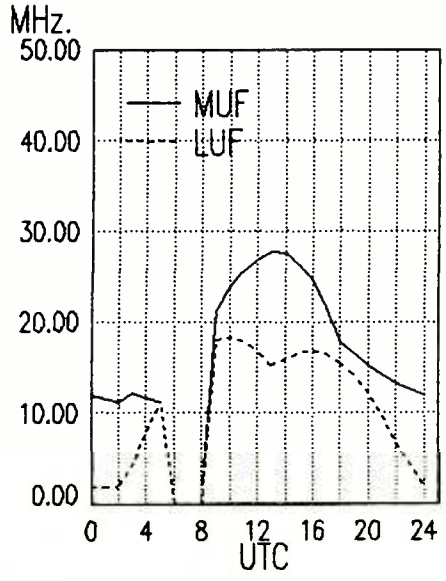
0300-0330		Radio Cairo, Egypt	9475	9675		
0300-0330		Radio Japan General Service, Tokyo	17835	17810	17765	9645
0300-0330		Radio Prague Int'l, Czechoslovakia	5930	7345	11680	
0300-0330		Radio Japan Americas Svc, Tokyo	15195	17825	15325	21610
0300-0345		Radio Berlin International, GDR	6080	9730		
0300-0350		Radio Baghdad, Iraq	11830			
0300-0350		Deutsche Welle, Koln, West Germany	6085	6120	9545	15205
			11810			
0300-0355		Radio Beijing, China	9690	11715	15100	
0300-0400	A,S	Radio New Zealand	17675			
0300-0400		BBC World Service, London, England	5975	6005	6175	6195
			7135	7325	9410	9600
			9915	11750	12095	15220
			15260	15420	17705	21715
0300-0400		CBC, Northern Quebec Service, Can	9625	(ML)		
0300-0400		Radio Moscow North American Svc	9635	12050	13605	15180
			15425	15455	15530	15580
			15595			
0300-0400		Radio Moscow World Service	7305	11615	11630	11675
			11775	11960	11980	
			11995	12040	15140	15170
			15230	15280	15315	15320
			15415	15480	15540	15550
			17560	17570	17600	17620
			17730	17850	17860	17890
			17995	21555	21585	21625
			21655	21690	21740	21790
			21825	21880	25780	
0300-0400		Radio Sofia, Bulgaria	11720	11735	17825	17835
0300-0400		Voice of Turkey, Ankara	9445	17880		
0300-0400		CBN, St. John's, Newfoundland, Can	6160			
0300-0400		CBU, Vancouver, British Columbia	6160			
0300-0400		CFCF, Montreal, Quebec, Canada	6005			
0300-0400		CFCN, Calgary, Alberta, Canada	6030			
0300-0400		CHNS, Halifax, Nova Scotia, Canada	6130			
0300-0400		Christian Science World Svc, Boston	9455	9850	13760	
0300-0400		CKWX, Vancouver, British Columbia	6080			
0300-0400		CFRB, Toronto, Ontario, Canada	6070			
0300-0400		Faro del Caribe,San Jose,Costa Rica	5055			
0300-0400		HCJB, Quito, Ecuador	17875	15155		
0300-0400		Radio Cultural, Guatemala	3300			
0300-0400		Radio Havana Cuba	9710	11820		
0300-0400		Trans World Radio, Bonaire	9535	11930		
0300-0400		Voice of America-Africa Service	6035	7170	7280	9525
			9575	11835		
0300-0400		Voice of Free China, Taiwan	5950	7445	9680	9765
			11745	15345		
0300-0400		WHRI, Noblesville, Indiana	7315	9495		
0300-0400		WRNO Worldwide, Louisiana	6185			
0300-0400		WWCR, Nashville, Tennessee	7520			
0300-0400		WYFR, Okeechobee, Florida	6065	9505	15440	
0310-0325		Vatican Radio, Vatican City	11725			
0315-0330		Radio for Peace Int'l, Costa Rica	7375	USB		
0315-0345		Radio France International, Paris	3965	5990	7135	7280
			9745	9790	9800	11705
			11790	11995	15135	15155
			15300			
0330-0400		Radio Netherlands Int'l, Hilversum	9590	6165		
0330-0400		Radio Tirana, Albania	9500	11825		
0330-0400		Radio Australia, Melbourne	11880	15160	15240	15320
			15465	15560	17795	21525
			21740	21775		
0330-0400		United Arab Emirates Radio, Dubai	11940	13675	15400	15435
0330-0400		Radio Japan General Service, Tokyo	17835	17810	17765	
0340-0350	M-A	Voice of Greece, Athens	11645	9395	9420	
0345-0400		Radio Berlin Int'l, GDR	11785	11890	13760	15125
0350-0400		RAI, Rome, Italy	11905	15330	17795	
			17690	17665		

0400 UTC [12:00 AM EDT/9:00 PM PDT]

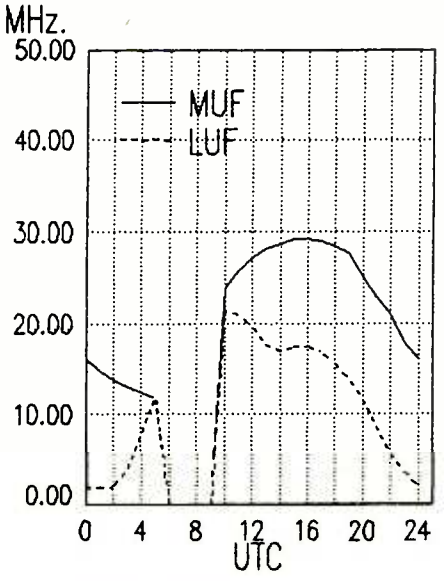
0400-0410	M-F	Radio Zambia, Lusaka	4910			
0400-0410		RAI, Rome, Italy	11905	15330	17795	
0400-0415		Radio Prague Int'l, Czechoslovakia	5930	7345	11680	
0400-0415		Kol Israel, Jerusalem	9435	11605	11655	12077
			15640	17575		
0400-0425		Radio Cultural, Guatemala	3300			
0400-0425		Radio Netherlands Int'l, Hilversum	9590	6165		
0400-0430		Radio Berlin Int'l, GDR	11785	11890	13760	15125
0400-0430		Radio Romania Int'l, Bucharest	5990	6155	9510	9570
			11830	11940	15380	
0400-0430	A,S	Radio New Zealand, Wellington	17675			
0400-0430		Radio Australia, Melbourne	11880	15160	15240	15320
			15465	15560	17795	21525
			21740	21775		
0400-0430		Swiss Radio International, Berne	6135	9650	9885	12035
0400-0430		Trans World Radio, Bonaire	11930	9535		
0400-0450		Deutsche Welle, Koln, West Germany	7225	7150	9765	9565
			11765	15265		
0400-0450		Radio Pyongyang, North Korea	13650	15180	17765	
0400-0455		Radio Beijing, China	11685	11840		
0400-0500		Voice of America-Africa Service	6025	6035	7280	9525
			9575	11785	11835	
0400-0500		Radio Moscow North American Svc	9635	11895	12050	13605
			15180	15425	15455	15530

East Coast

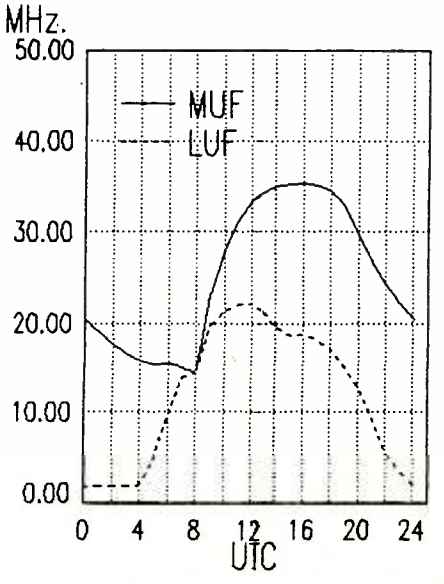
East Coast To Middle East



East Coast To East Africa



East Coast To Central Africa

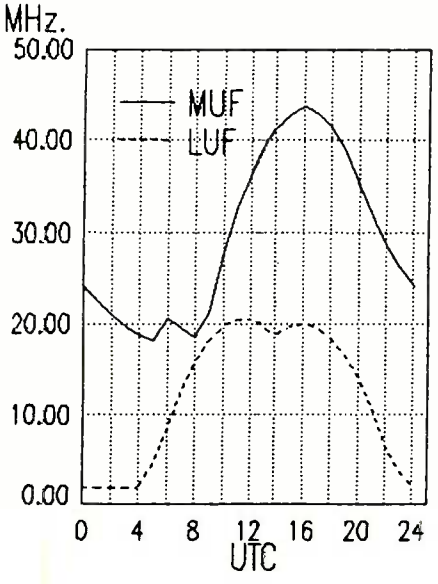


		15595(+17605 from 0430)			
0400-0500	BBC World Service, London, England	5975	6005	6195	7105
		7120	9410	9580	9600
		9610	9670	9915	12095
		15070	15245	17885	21470
		21715			
0400-0500	Radio Moscow World Service	11615	11630	11775	11780
		11980	11995	12010	12040
		15140	15230	15280	15315
		15415	15520	15540	15550
		15590	17560	17570	17600
		17620	17625	17715	17730
		17850	17860	17890	21555
		21585	21625	21690	21740
		21790	21825	25780	
0400-0500	CBC, Northern Quebec Service	9625	(ML)		
0400-0500	Radio for Peace Int., Costa Rica	7375	USB		
0400-0500	CBN, St. John's, Newfoundland, Can	6160			
0400-0500	CBU, Vancouver, British Columbia	6160			
0400-0500	CFCF, Montreal, Quebec, Canada	6005			
0400-0500	CFCN, Calgary, Alberta, Canada	6030			
0400-0500	CHNS, Halifax, Nova Scotia, Canada	6130			
0400-0500	Christian Science World Svc, Boston	9455	9840	13760	17780
0400-0500	CKWX, Vancouver, British Columbia	6080			
0400-0500	CFRB, Toronto, Ontario, Canada	6070			
0400-0500	HCJB, Quito, Ecuador	17875	15155		
0400-0500	KSDA, Guam	15225			
0400-0500	Radio Havana Cuba	9710	9750	11760	11820
0400-0500 S-F	WMLK Bethel, Pennsylvania	9465			
0400-0500	Voice of America-Middle East Service	3980	5995	6040	6140
		7170	7200	11785	15205
0400-0500	Radio Canada International	15275			
0400-0500	WHRI, Noblesville, Indiana	7315	9495		
0400-0500	WRNO Worldwide, Louisiana	6185			
0400-0500	WWCR, Nashville, Tennessee	7520			
0400-0500	WYFR, Okeechobee, Florida	6065	9505		
0425-0440	RAI, Rome, Italy	5990	7275		
0430-0500 A-H	Radio New Zealand, Wellington	17675			
0430-0500 M-F	NBC Windhoek, Namibia	3270	3290		
0430-0500	Radio Australia, Melbourne	11880	15160	15240	15320
		15465	15560	17630	17750
		17795	21525	21740	21775
0430-0500	Radio Tirana, Albania	9500	11835		
0455-0500	Voice of Nigeria, Lagos	7255			

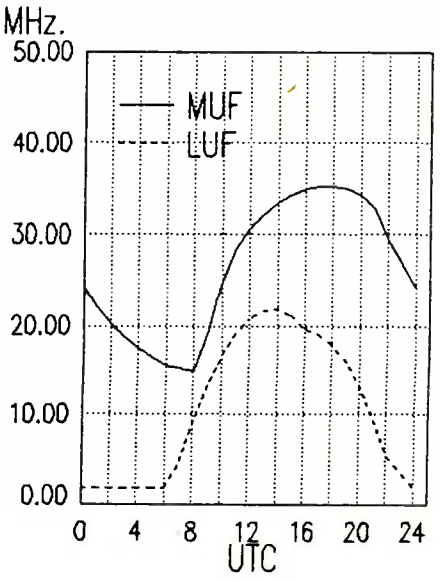
0500 UTC [1:00 AM EDT/10:00 PM PDT]

0500-0505	Radio Oranje, South Africa	3215			
0500-0515	Azad Kashmir Radio, Pakistan	7268	4980	3665	
0500-0520	Vatican Radio	6185	9645		
0500-0530	Vatican Radio African Service	17710	17730	21650	
0500-0530 M-F	NBC Windhoek, Namibia	3270	3290		
0500-0550	Deutsche Welle, Koln, West Germany	5960	6120	9670	11705
		11845			
0500-0600	BBC World Service, London, England	5975	6005	6195	7120
		9410	9600	9640	9915
		12095	15070	17740	17885
		21470	21715		
0500-0600	CBU, Vancouver, British Columbia	6160			
0500-0600	Radio Jordan, Amman	13655			
0500-0600	CFCF, Montreal, Quebec, Canada	6005			
0500-0600	CFCN, Calgary, Alberta, Canada	6030			
0500-0600	CHNS, Halifax, Nova Scotia, Canada	6130			
0500-0600 S-F	WMLK Bethel, Pennsylvania	9465			
0500-0600	Christian Science World Svc, Boston	9455	9840	13760	17780
0500-0600	Radio Moscow North American Svc	9635	11895	12050	13605
		15180	15425	15455	15530
		15595	17605		
0500-0600	Radio Moscow World Service	11615	11630	11710	11980
		11995	12070	15060	15140
		15155	15230	15280	15305
		15405	15415	15430	15540
		15550	15590	17560	17570
		17600	17620	17625	17635
		17710	17730	17765	17850
		17860	17890	17995	
		21555	21585	21625	21630
		21645	21690	21740	21790
		21825	21880	25780	
0500-0600 A-H	Radio New Zealand, Wellington	17675			
0500-0600	CKWX, Vancouver, British Columbia	6080			
0500-0600	CFRB, Toronto, Ontario, Canada	6070			
0500-0600	HCJB, Quito, Ecuador	15155	17875		
0500-0600	Radio Australia, Melbourne	11880	15160	15240	15320
		15465	15560	17630	17750
		17795	21525	21740	21775
0500-0600	Radio Havana Cuba	9710	11760	11820	9750
0500-0600	Radio Japan General Service, Tokyo	17765	17810	17825	17890
		15195			
0500-0600	Radio for Peace Int., Costa Rica	7375	USB		
0500-0600	Spanish National Radio, Madrid	9630			
0500-0600	Voice of America-Africa Service	3990	6035	7280	9540
		9575			

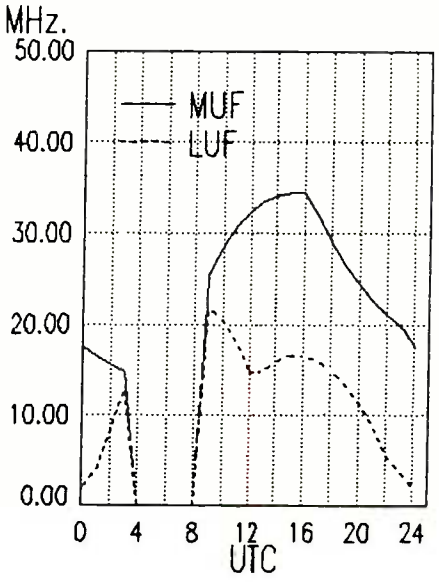
East Coast To South Africa



East Coast To West Africa



East Coast To Indian Ocean



East Coast

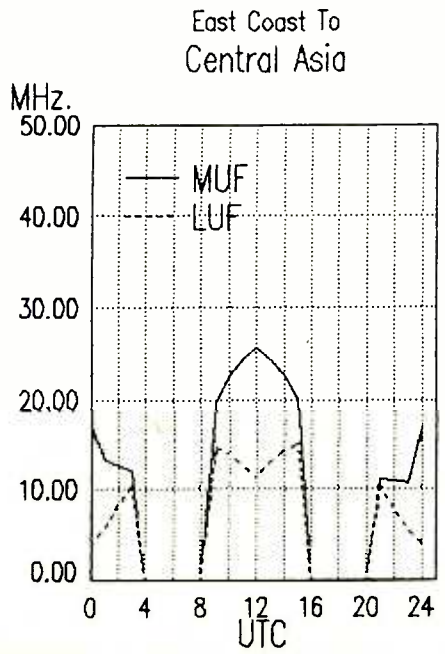
frequency section

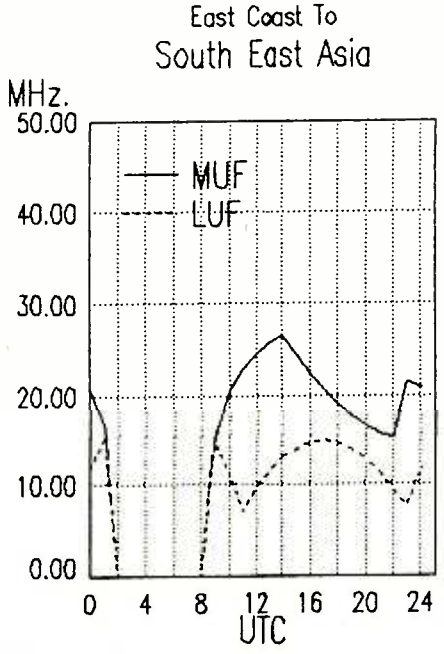
0500-0600		Voice of America-Middle East Service	3980	5995	6140	7170
			7200	11785	15205	
0500-0600		Voice of Nigeria, Lagos	7255			
0500-0600		WHRI, Noblesville, Indiana	7315	9495		
0500-0600		WWCR, Nashville, Tennessee	7520			
0500-0600		WYFR, Okeechobee, Florida	5985	11580	17640	15566
0530-0600		Radio Austria International, Vienna	6015			
0530-0600		Radio Romania Int'l, Bucharest	15340	15380	17720	17745
			17790	21665		
0530-0600	M-F	NBC Windhoek, Namibia	3270			
0530-0600		UAE Radio Dubai	15435	17830	21700	
0545-0600		Radio Berlin Int'l, GDR > Three	9760	13610	13690	15445
0545-0600		Radio Berlin Int'l, GDR > different	11970	21450		
0545-0600	M-F	Radio Canada International, Montreal	6050	6150	7295	9750
			11775	17840		
0545-0600		Radio Berlin Int'l, GDR > programs!	5965	6115	7185	
0555-0600		Voice of Malaysia, Kuala Lumpur	6175	9750	15295	

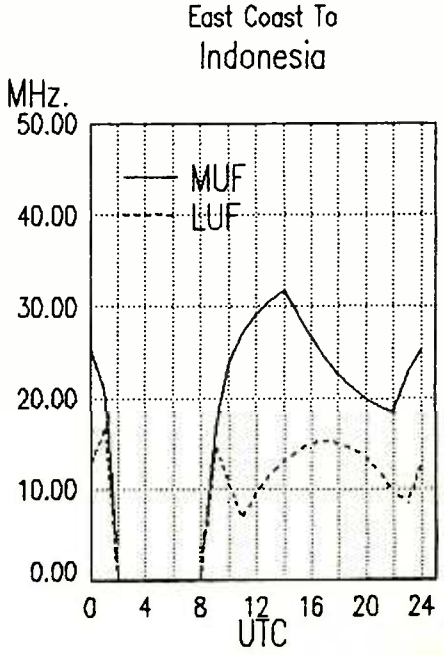
0600 UTC [2:00 AM EDT/11:00 PM PDT]

0610-0615		Sierra Leone Brdcstng.Svc.,Freetown	3316			
0600-0630		Radio Berlin Int'l, GDR > Three	9760	13610	13690	15445
0600-0630		Radio Berlin Int'l, GDR > different	11970	21450		
0600-0630		Radio Berlin Int'l, GDR > programs!	5965	6115	7185	
0600-0630	S	Radio Norway International, Oslo	15165			
0600-0645v		Radio For Peace, Int., Costa Rica	7375	USB		
0600-0650		Deutsche Welle, Koln, W. Germany	11765	13790	15185	17875
0600-0650		CBU, Vancouver, British Columbia	6160			
0600-0700		Radio Pyongyang, North Korea	15180	13650		
0600-0700		Radio Australia, Melbourne	11880	13700	13705	15240
			15465	17630	21525	21740
			21775			
0600-0700		BBC World Service, London, England	5975	6180	6195	7120
			7150	9410	9580	9600
			9640	12095	15070	15245
			15280	15400	15420	17640
			17710	17790	17885	21470
			21715			
0600-0700	M-F	NBC Windhoek, Namibia	7165	7190		
0600-0700		CFCF, Montreal, Quebec, Canada	6005			
0600-0700		SIBC Solomon Islands	9545	5020		
0600-0700	A-H	Radio New Zealand, Wellington	17675			
0600-0700		WYFR, Okeechobee, Florida	5985	6065	7355	13760
			15566	17640		
0600-0700		ABC Domestic Network, Australia	15425			
0600-0700	S-F	WMLK Bethel, Pennsylvania	9465			
0600-0700		CFCN, Calgary, Alberta, Canada	6030			
0600-0700		CHNS, Halifax, Nova Scotia, Canada	6130			
0600-0700		Christian Science World Svc, Boston	9455	9840	11980	17780
			17855			
0600-0700		CKWX, Vancouver, British Columbia	6080			
0600-0700		CFRB, Toronto, Ontario, Canada	6070			
0600-0700		Radio Moscow North American Svc.	9635	12050	13605	15180
			15425	15530	15595	17605
0600-0700		Radio Moscow World Service	11710	11775	11980	11995
			12010	12030	15140	15155
			15170	15305	15320	15375*
			15405	15415	15520	15540
			15550	15585	15590	17560
			17570	17600	17620	lsb
			17635	17710	17730	17775
			17765	17850	17860	17890
			21545	21585	21625	21630
			21645	21655	21690	21725
			21740	21755	21790	21825
			25780			
		* Note: Transmission on 15375kHz begins now and continues through 1859 UTC.				
0600-0700		Voice of the Mediterranean, Malta	9765			
0600-0700		HCJB, Quito, Ecuador	15155	17875		
0600-0700		Radio Jordan, Amman	13655			
0600-0700		ABC Brisbane, Australia	9660			
0600-0700		Radio Tonga, Kingdom of Tonga	5030v			
0600-0700		Voice of America-Africa Service	3990	6035	6080	6125
			7280	9530	9540	9575
			11915			
0600-0700		Voice of America-Middle East Serv	3980	5965	5995	6060
			6095	6140	7170	7200
			7325	9715	11785	11805
			11925	15195	15205	17715
0600-0700		Radio Havana Cuba	9750			
0600-0700		WHRI, South Bend, Indiana	9495	9370		
0600-0700		Voice of Hope, Lebanon	6280			
0600-0700		Voice of Malaysia, Kuala Lumpur	6175	9750	15295	
0600-0700		Radio Korea, Seoul	7275			
0630-0700		Radio Sofia, Bulgaria	11720	15160	17825	
0630-0700		Radio Finland, Helsinki	11755	9560	6120	
0630-0700		Vatican Radio African Service	17710	17730	21650	
0630-0700		BRT. Brussells, Belgium	13675	11695		
0630-0700		Radio Tirana, Albania	9500	7205		
0630-0700		Radio Polonia, Warsaw, Poland	6135	7270	15120	9675
0630-0700		Swiss Radio International, Berne	15430	17570	21770	
0645-0700	A	Radio for Peace Int., Costa Rica	7375	USB		
0645-0700		GBC Radio, Accra, Ghana	6130			
0645-0700		HCJB, Quito, Ecuador	9610	11835	(alt 6050)	

East Coast







0645-0700		Radio Romania Int'l, Bucharest	11810	11940	15335	17720
			17805	21665		

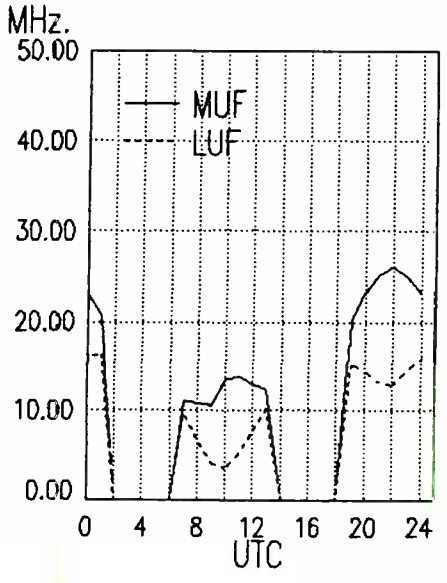
0700 UTC [3:00 AM EDT/12:00 AM PDT]

0700-0710		Sierra Leone Brdcstng.Svc.,Freetown	3316			
0700-0715		Radio Romania Int'l, Bucharest	11810	11940	15335	17720
			17805	21665		
0700-0725		BRT Brussels, Belgium	21815	11695	6035	
0700-0730		Radio Australia, Melbourne	11880	13700	13705	15240
			15465	17630	21525	21740
			21775			
0700-0730		Radio Tirana, Albania	11835	9500		
0700-0750		Radio Pyongyang, North Korea	15340	11335		
0700-0800	A	Radio for Peace Int'l, Costa Rica	7375	USB		
0700-0800		Voice of Hope, Lebanon	6280			
0700-0800		CBU, Vancouver, British Columbia	6160			
0700-0800		TWR Monte Carlo	9480			
0700-0800		Radio Havana Cuba	11835			
0700-0800		WYFR, Okeechobee, Florida	6065	7355	13760	15566
0700-0800		Voice of the Mediterranean, Malta	9725			
0700-0800		ZBC-1, Zimbabwe	7283			
0700-0800	A-H	Radio New Zealand, Wellington	17675			
0700-0800		BBC World Service, London	5975	7150	9410	9600
			9640	9760	11940	12095
			15070	15280	15360	15400
			21715			
0700-0800		Solomon Islands Broadcasting Co.	5020	9545		
0700-0800		Voice of Free China, Taiwan	5950			
0700-0800		WHRI Noblesville, Indiana	9370	9495	9620	
0700-0800		ABC Brisbane, Australia	9660			
0700-0800		CFCF, Montreal, Quebec, Canada	6005			
0700-0800		CFCN, Calgary, Alberta, Canada	6030			
0700-0800		CHNS, Halifax, Nova Scotia, Canada	6130			
0700-0800		Christian Science World Svc, Boston	9455	9840	11980	17780
			17855			
0700-0800		Radio Moscow World Service	7315	11710	11980	12010
			12030	15060	15140	15155
			15170	15210	15280	15305
			15320	15375	15405	15520
			15540	15550	15585	15590
			17560	17570	17580	17600
			17635	17635	17665	17710
			17730	17815	17850	17860
			21495	21585	21625	21630
			21645	21655	21690	21715
			21725	21740	21745	21755
			21790	25780	(+17755 0730)	
0700-0800		CKWX, Vancouver, British Columbia	6080			
0700-0800		CFRB, Toronto, Ontario, Canada	6070			
0700-0800		GBC Radio, Accra, Ghana	6130			
0700-0800		HCJB, Quito, Ecuador	9610	11835	15270	
0700-0800		KNLS, Anchor Point, Alaska	9785			
0700-0800		Radio Japan, Tokyo	21500	17765	17810	17890
			21690			
0700-0800		Radio Jordan, Amman	13655			
0700-0800		Voice of Malaysia, Kuala Lumpur	6175	9750	15295	
0710-0800		HCJB, Quito,Ecuador(S. Pacific Sv.)	6130	9745	11925	
0715-0730		Vatican Radio, Vatican City	15190	17730		
0715-0800	S	Italian Radio Relay Svc, Milan	9815			
0730-0800		Radio Prague Int'l, Czechoslovakia	17840	21705		
0730-0800		ABC, Alice Springs, Australia	2310	(ML)		
0730-0800		ABC, Katherine, Australia	2485			
0730-0800		ABC, Tennant Creek, Australia	2325	(ML)		
0730-0800		Radio Austria Int'l, Vienna	21490	15410	13730	6155
0730-0800		HCJB Quito, Ecuador	9745	11925		
0730-0800		Radio Australia, Melbourne	6035	11880	13700	13705
			15240	17630	21525	21775
0730-0800		Radio Netherlands, Hilversum	9630	9715		
0730-0800		Swiss Radio Int'l European Service	3985	6165	9535	
0737-0741v		Radio Tikhiy Okean, Vladivostok	4485	5940	7210	7320
			9530	9635	9670	9780
			9820	9905	11815	11840
			11850	11915	12050	12070
			13605	15180	15330	15415
			15425	15530	15535	17590
			17605	17645	17695	17860
			21505	21515		
0745-0800		Radio Berlin Int'l, GDR	6040	6115	7185	9730
			11785			
0745-0800		Radio Berlin Int'l, GDR	21465	21540		

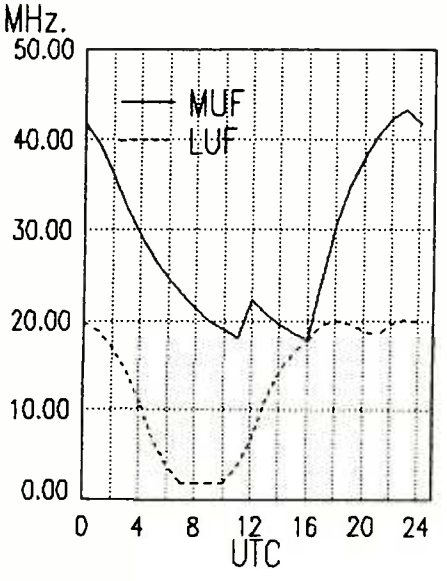
0800 UTC [4:00 AM EDT/ 1:00 AM PDT]

0800-0803		Radio Pakistan	17555	21575		
0800-0810		Sierra Leone Brdcstng Co., Freetown	3316			
0800-0825		BRT Brussels, Belgium	9925			
0800-0825		Radio Netherlands Int'l, Hilversum	9630	9715		
0800-0825		Voice of Malaysia, Kuala Lumpur	6175	9750	15295	
0800-0825		Radio Finland, Helsinki	17800	21550		
0800-0830	S	Radio Norway International, Oslo	15165	25730		
0800-0830		Radio Berlin Int'l, GDR	6040	6115	7185	9730
			11785			
0800-0830		Radio Berlin Int'l, GDR	21465	21540		

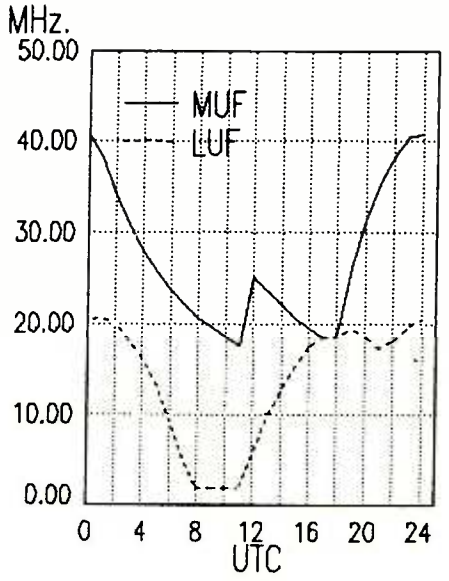
East Coast To Far East



East Coast To Pacific



East Coast To Australia



East Coast

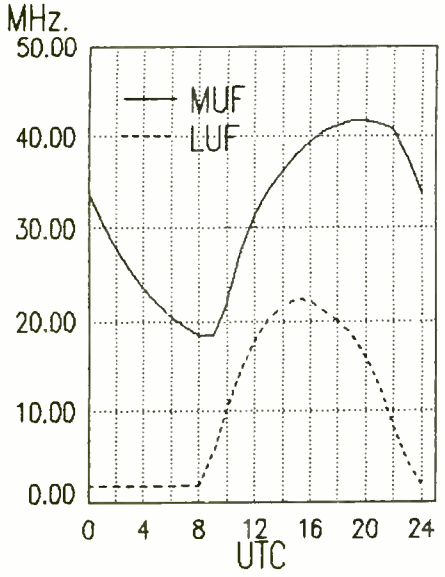
frequency section

0800-0830		Radio Australia, Melbourne	13700 13705 15160 15240 17630 17750 17795 21525 21775
0800-0830		Voice of Islam, Dacca, Bangladesh	15195 11705
0800-0845	S	Italian Radio Relay Svc, Milan	9815
0800-0850		Radio Pyongyang, North Korea	15180 15160 11830
0800-0900		Radio Moscow World Service	7315 11710 11850 12010 12030 15060 15140 15155 15210 15305 15320 15375 15400 15405 15415 15520 15535 15540 15550 15580 15585 15590 15605 17570 17580 17600 17625 17635 17665 17710 17755 17765 17790 17815 17850 21496 21585 21625 21630 21645 21655 21690 21715 21725 21745 21755 21765 21785 21790 21800 25780 (+15110 & 17775 from 830)
0800-0900		Trans World Radio, Monte Carlo	9480
0800-0900		ABC Brisbane, Australia	9660
0800-0900		BBC, London	15280 9640 12095 15070 15360 21715 15400 9410 21660
0800-0900		ABC, Alice Springs, Australia	2310 (ML)
0800-0900		ABC, Katherine, Australia	2485
0800-0900		ABC, Perth, Australia	15425
0800-0900		ABC, Tennant Creek, Australia	2325 (ML)
0800-0900	A	Radio for Peace Int., Costa Rica	7375 USB
0800-0900		Voice of Hope, Lebanon	6280
0800-0900		CBN, St. John's, Newfoundland, Can	6160
0800-0900		CBU, Vancouver, British Columbia	6160
0800-0900		CFCF, Montreal, Quebec, Canada	6005
0800-0900		CFCN, Calgary, Alberta, Canada	6030
0800-0900		CHNS, Halifax, Nova Scotia, Canada	6130
0800-0900		Christian Science World Svc	9455 9530 9840 11705 13760 17855
0800-0900		CKWX, Vancouver, British Columbia	6080
0800-0900		CFRB, Toronto, Ontario, Canada	6070
0800-0900		HCJB,Quito,Ecuador(alt.S.Pac.Svc.)	6130 9610 11835
0800-0900		HCJB, Quito, Ecuador(S.Pacific Sv)	9745 11925 15270
0800-0900		KNLS, Anchor Point, Alaska	11715
0800-0900		Solomon Islands Broadcasting Co.	5020
0800-0900		WHRI. South Bend, Indiana	7355
0800-0900		Radio Jordan, Amman	13655
0800-0900		Voice of Indonesia, Jakarta	11755 11788
0800-0900		Voice of Nigeria, Lagos	7255
0815-0900	A,S	Radio New Zealand, Wellington	9855
0830-0855	M-A	Radio Netherlands Int'l, Hilversum	17575 21485 9770
0830-0900		KTWR, Agana Guam	11810
0830-0900		Radio Australia, Melbourne	9580 17630 17750 21525 21775
0830-0900		Radio Netherlands Int'l, Hilversum	17575 21485
0830-0900		Radio Finland, Helsinki	21550 17800
0830-0900		Swiss Radio International, Berne	9560 13685 17670 21695
0840-0850		Voice of Greece, Athens	15625 17535
0845-0900		KTWR, Agana, Guam	15210
0850-0900		All India Radio, New Delhi	5960 5990 6010 6020 6050 6065 6100 6140 7110 7140 7150 7160 7250 7280 7295 9610 11850 15235 15250 17705

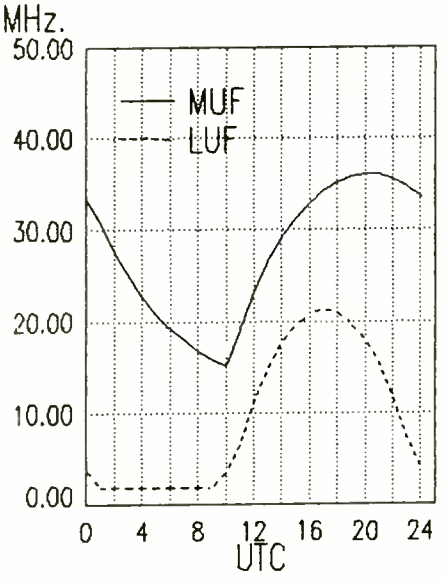
0900 UTC [5:00 AM EDT/2:00 AM PDT]

0900-0915		Radio Budapest, Hungary	15160 15220 11925 9835 9585 6110
0900-0920		ABC, Perth, Australia	15425
0900-0925		BRT Brussels, Belgium	21810 26050
0900-0925		Radio Netherlands Int'l, Hilversum	17575 21485
0900-0930		KTWR Agana Guam	15210
0900-0930	S	Radio Norway International, Oslo	17840
0900-0945		Radio Berlin Int'l, GDR	11785 11890
0900-0945		Radio Berlin Int'l, GDR	21465 21540
0900-0950		Deutsche Welle, Koln, West Germany	6160 9565 11740 15410 17780 17820 21600 21650 21680
0900-1000		ABC, Alice Springs, Australia	2310 (ML)
0900-1000		Radio Beijing, China	11755 15440 17710
0900-1000		ABC Brisbane, Australia	9660
0900-1000		Solomon Islands Broadcasting Co.	5020
0900-1000		Radio Moscow World Service	11710 11850 12010 12030 15110 15140 15155 15210 15320 15375 15405 15415 15520 15535 15540 15550 15580 15585 15590 15605 17560 17570 17580 17600 17615 17625 17635 17655 17665 17755 17765 17775 17790 17815 17830 17850 21490 21585 21625 21630 21645 21655 21690 21715 21725 21740 21745 21755 21785 21790 21800 25780

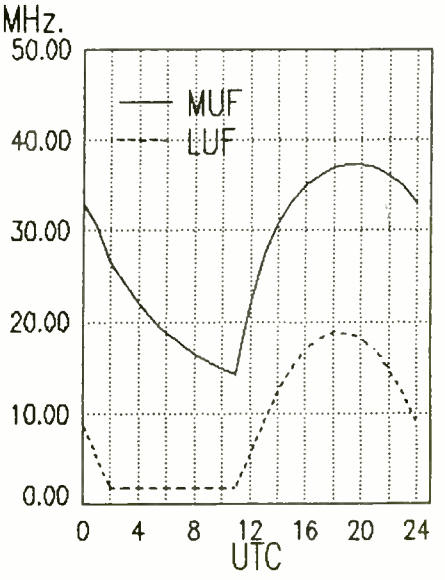
East Coast To South America



East Coast To Central America



East Coast To West Coast



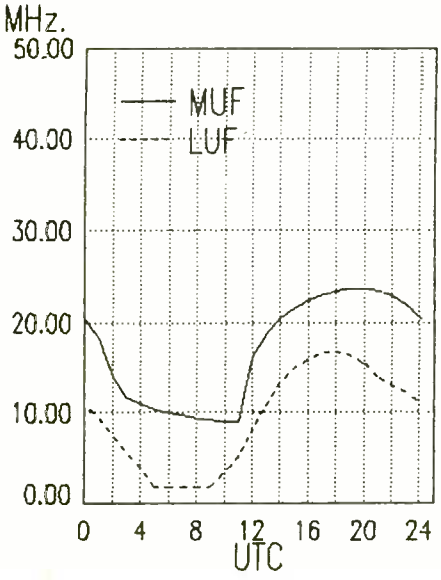
East Coast

0900-1000		ABC, Katherine, Australia	2485			
0900-1000		ABC, Tennant Creek, Australia	2325	(ML)		
0900-1000	S	Adventist World Radio, Portugal	9670			
0900-1000	A	Radio for Peace Int., Costa Rica	7375	USB		
0900-1000		KTWR, Agana, Guam	11805			
0900-1000		Radio Australia, Melbourne	5995	9580	9655	9760
			17715	21775	21825	
0900-1000	A,S	Radio New Zealand, Wellington	9855			
0900-1000	S	Radio Bhutan, Thimpu	5023v			
0900-1000		Voice of Hope, Lebanon	6280			
0900-1000		BBC World Service, London, England	5975	9740	11750	12095
			15070	15190	15360	15400
			17640	17705	17790	17885
			21470	21660	21715	
0900-1000		CFCF, Montreal, Quebec, Canada	6005			
0900-1000		CFCN, Calgary, Alberta, Canada	6030			
0900-1000		CHNS, Halifax, Nova Scotia, Canada	6130			
0900-1000		Christian Science World Svc, Boston	9455	9530	9840	11705
			13760	17855		
0900-1000		CKWX, Vancouver, British Columbia	6080			
0900-1000		CFRB, Toronto, Ontario, Canada	6070			
0900-1000		FEBC Radio Int'l, Philippines	9800	11850		
0900-1000		HCJB, Quito,Ecuador(alt. S.Pac.Sv.)	6130			
0900-1000		HCJB, Quito,Ecuador(S.Pac.Serv.)	9745	11925		
0900-1000		Radio Japan Australian Svc., Tokyo	15270	17890		
0900-1000		Radio Japan General Service, Tokyo	17810			
0900-1000		Radio Jordan, Amman	13655			
0900-1000		Voice of Nigeria, Lagos	7255			
0900-1000		WHRI, Noblesville, Indiana	7355	9495		
0910-0940	M,W,H,A,S	Radio Ulan Bator, Mongolia	11850	12015		
0915-1000	S	Italian Radio Relay Svc, Milan	9815			
0920-1000		ABC, Perth, Australia	6140			
0930-1045		Radio Budapest, Hungary	15160	15220	11925	9835
			9585	6110		
0930-1000		Radio Afghanistan, Kabul	17720	15250	4940	6085
			9635			
0930-0955		RRI Surabaya, Jawa Timur, Indonesia	2377			
0930-1000		CBN, St. John's, New Foundland	6160			
0930-1000		KTWR, Agana, Guam	11805			
0945-1000		Radio Berlin Int'l, GDR	6115			
0945-1000		Radio Budapest, Hungary	7220	9585	9835	11910
			11925	15160	15220	

1000 UTC [6:00 AM EDT/3:00 AM PDT]

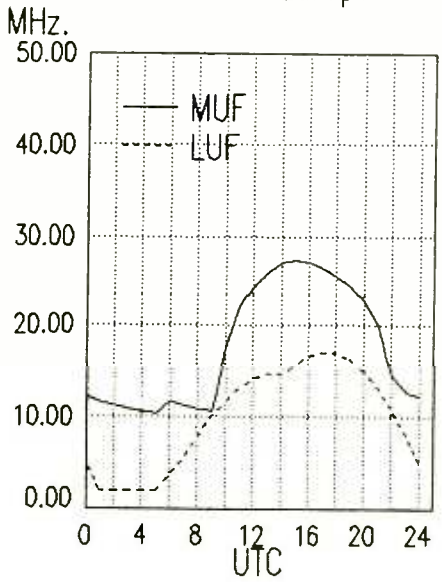
1000-1015		KTWR, Agana, Guam	11805			
1000-1030		Radio Berlin Int'l, GDR	6115			
1000-1030		Radio Afghanistan, Kabul	17720	15250	4940	6085
			9635			
1000-1030	A	Radio for Peace Int., Costa Rica	7375	USB		
1000-1030		Kol Israel, Jerusalem	11585	15485	15650	17575
			17590	21745	21780	
1000-1030		Voice of Vietnam, Hanoi	9755	12035		
1000-1030		Swiss Radio International, Berne	9560	13685	17670	21695
1000-1030		Radio Australia, Melbourne	5995	9580	9655	17715
			21775			
1000-1100		Radio Beijing, China	11755	15440	17710	
1000-1100		ABC, Alice Springs, Australia	2310	(ML)		
1000-1100		ABC, Katherine, Australia	2485			
1000-1100		Solomon Islands Broadcasting Co.	5020			
1000-1100		ABC, Perth, Australia	9610			
1000-1100		ABC, Tennant Creek, Australia	2325	(ML)		
1000-1100		KSDA, Guam	13720			
1000-1100		Radio Moscow World Service	11710	11850	12030	15060
			15110	15140	15155	15210
			15320	15375	15405	15520
			15535	15540	15550	15580
			15585	15510	17570	17615
			17655	17665	17765	17775
			17790	17815	17830	21495
			21625	21630	21645	21655
			21690	21715	21725	21740
			21745	21775	21785	21790
			21800			
1000-1100		All India Radio, New Delhi	17685	17387	15050	15335
			21735			
1000-1100		BBC World Service, London, England	9410	9740	9750	12095
			15070	15190	15360	15420
			17705	17790	17885	
1000-1100		CBN, St. John's, Nfld, Canada	6160			
1000-1100		CFCF, Montreal, Quebec, Canada	6005			
1000-1100		CFCN, Calgary, Alberta, Canada	6030			
1000-1100		CHNS, Halifax, Nova Scotia, Canada	6130			
1000-1100		Christian Science World Svc, Boston	9455	9495	9530	15115
1000-1100		CKWX, Vancouver, British Columbia	6080			
1000-1100		CFRB, Toronto, Ontario, Canada	6070			
1000-1100		FEBC Radio Int'l, Philippines	11850	9800		
1000-1100		ABC Brisbane, Australia	9660			
1000-1100		WYFR, Okeechobee, Florida	5950			
1000-1100		HCJB, Quito, Ecuador	9745	11925		
1000-1100		KTWR, Agana, Guam	11805			
1000-1100		KUSW, Salt Lake City, Utah	6135			
1000-1100		Radio Jordan, Amman	13655			
1000-1100		Radio Metro, Johannesburg,S.Africa	11805			
1000-1100		Voice of America-Caribbean Service	9590	11915		

East Coast To
Alaska

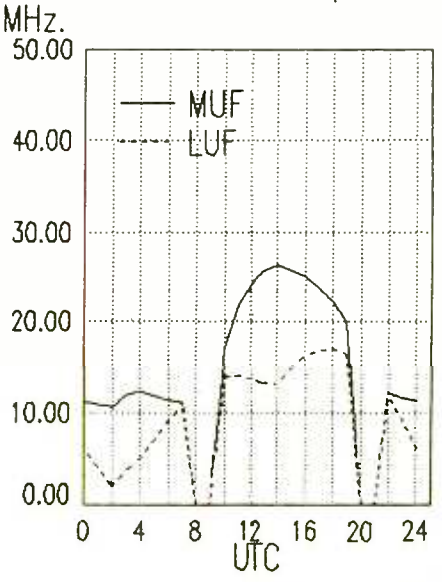


East Coast

Midwest To
Western Europe



Midwest To
Eastern Europe



Midwest

frequency section

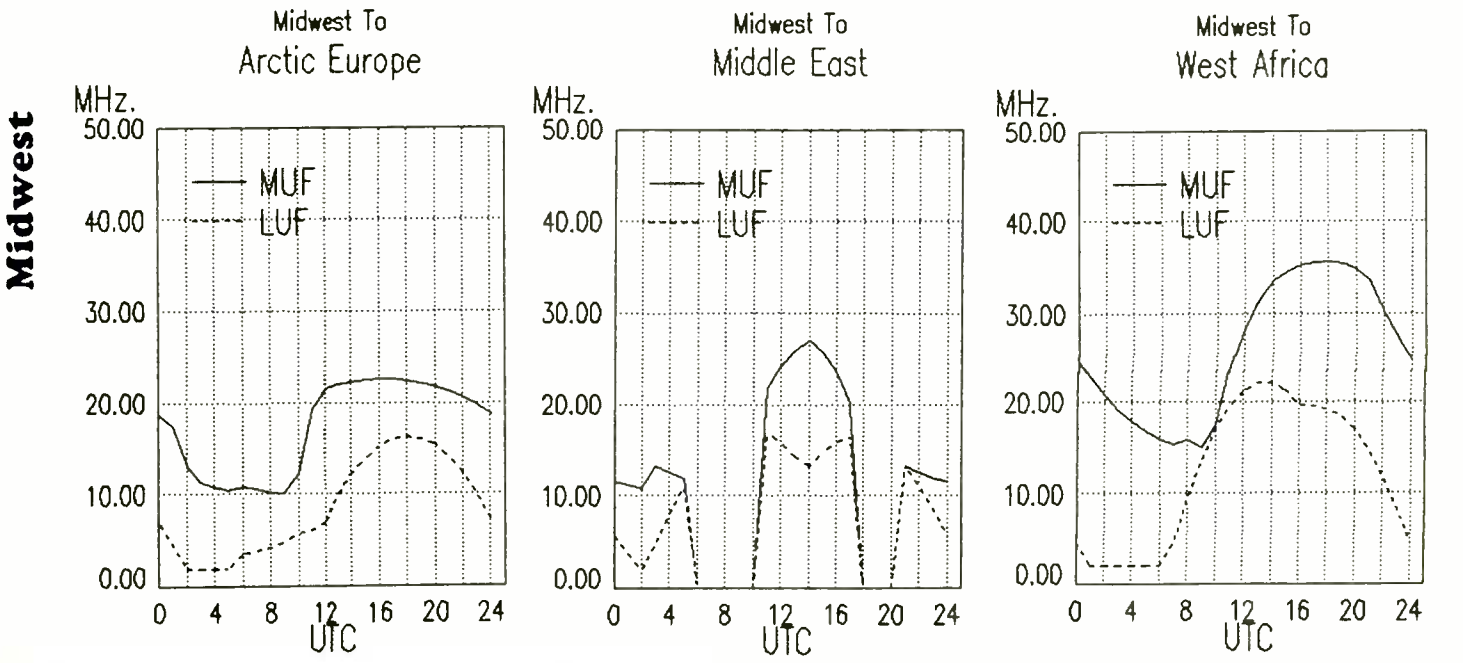
1000-1100	Voice of America-Pacific Service	5985 11720 15425
1030-1045	Radio Budapest, Hungary	15190 6110 9835 15160 15220
1030-1100	Radio Austria Int'l, Vienna	15450 21490
1030-1100	Radio Korea, Seoul	11715
1030-1100	Radio Netherlands Int'l, Hilversum	6020 11890
1030-1100	Radio Australia, Melbourne	5995 9580 9655 21775
1030-1100	Adventist World Radio, Forli, Italy	7230
1040-1050	Voice of Greece, Athens	15625 17535
1050-1100	Radio Finland, Helsinki	15400 21550

1100 UTC [7:00 AM EDT/4:00 AM PDT]

1100-1115	Azad Kashmir Radio, Pakistan	7268 4980 3665
1100-1115	Radio Finland, Helsinki	15400 21550
1100-1120	Radio Pakistan	17555 21575
1100-1125	HCJB Quito, Ecuador	9745 11925
1100-1125	Radio Netherlands Int'l, Hilversum	6020 11890
1100-1130	Solomon Islands Broadcasting Co.	5020
1100-1130	Radio Mozambique, Maputo	11835 11818 9525
1100-1130	Voice of Vietnam, Hanoi	9755 12035
1100-1130	Radio Australia, Melbourne	5995 6020 6035 6080 9580 9655 9710 11910 15465 21825
1100-1130	Adventist World Radio, Forli, Italy	7230
1100-1130	Swiss Radio International, Berne	13635 15570 17830 21770
1100-1150	Radio Pyongyang, North Korea	9645 9977 11735
1100-1150	Deutsche Welle, Koln, West Germany	15410 17765 17800 21600
1100-1200	ABC, Alice Springs, Australia	2310 (ML)
1100-1200	BBC World Service, London, England	9410 9515 9740 9750 11775 12095 15070 15360 15420 17640 17705 17790 17705 17790 17885 21470 21660
1100-1200	WHRI, Noblesville, Indiana	9465 11790
1100-1200	WYFR, Okeechobee, Florida	5950 11580
1100-1200	Adventist World Radio, Costa Rica	9725 11870
1100-1200	Radio Moscow World Service	11685 11850 12030 15060 15110 15130 15140 15155 15210 15305 15320 15375 15520 15540 15550 15585 15590 17570 17615 17655 17665 17765 17790 17815 17830 21495 21625 21630 21645 21655 21690 21715 21725 21740 21745 21755 21785 21790 21800 25780
1100-1200	CBC, Montreal	6160
1100-1200	SBC Singapore	11940
1100-1200	ABC, Brisbane, Australia	9660
1100-1200	ABC, Katherine, Australia	2485
1100-1200	ABC, Perth, Australia	9610
1100-1200	ABC, Tennant Creek, Australia	2325 (ML)
1100-1200	Trans World Radio, Bonaire	11815 15345
1100-1200	CBN, St. John's, Newfoundland, Can	6160
1100-1200	CFCF, Montreal, Quebec, Canada	6005
1100-1200	CFCN, Calgary, Alberta, Canada	6030
1100-1200	CHNS, Halifax, Nova Scotia, Canada	6130
1100-1200	Christian Science World Svc, Boston	9455 9495 9530 15115
1100-1200	CKWX, Vancouver, British Columbia	6080
1100-1200	CFRB, Toronto, Ontario, Canada	6070
1100-1200	Radio Japan, Tokyo	6120 11815 11840
1100-1200	Radio Jordan, Amman	13655
1100-1200	Radio RSA, Johannesburg	9555 11805 11900 17835
1100-1200	Voice of America-Caribbean Service	9590 11915
1100-1200	Voice of America-East Asia Service	5985 6110 9760 11720 15155 15425
1115-1145	Radio Nepal,Katmandu(External Svc.)	5005
1115-1130	Vatican Radio, Vatican City	17840 21485
1130-1145	RRI Yogyakarta,Yogyakarta,Indonesia	5046
1130-1200 S	Italian Radio Relay Svc, Milan (Play-DX news every 2nd Sunday)	9815 (ML)
1130-1200	HCJB, Quito, Ecuador	11740
1130-1200	Radio Australia, Melbourne	5995 6020 6035 6080 9580 9710 11910 15465 21825
1130-1200	Radio Thailand	11905 9655 4830
1130-1200	Radio Austria International, Vienna	6155 13730 15430 21490
1130-1200	Radio Netherlands Int'l, Hilversum	5955 9715 17575 21480 21520
1130-1200	Voice of Islamic Republic of Iran	9575 9705 11715 11790 11825
1135-1140	All India Radio, New Delhi	6065 7110 9610 9675 11620 11850 15320
1145-1200	Radio Berlin Int'l, GDR	11705 11785 11890 11970 13690 15240 15440 17780 21465 21540
1145-1200	Radio Berlin Int'l, GDR	6115

1200 UTC [8:00 AM EDT/5:00 AM PDT]

1200-1215	Vatican Radio, Vatican City	17840 17865 21485 21515
1200-1225	Radio Netherlands Int'l, Hilversum	5955 9715 17575 21480 21520

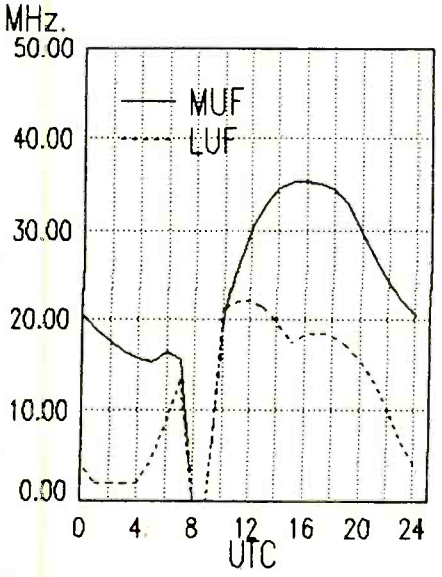


1200-1225		Voice of Islamic Republic of Iran	9575	9705	11715	11790
			11825			
1200-1225	M-F	Radio Finland, Helsinki	15400	21550		
1200-1230		Radio Romania Int'l, Bucharest	15380	17720		
1200-1230		Radio Thailand	11905	9655	4830	
1200-1230		Radio Yugoslavia, Belgrade	17740	21555	25795	
1200-1230	M,W,H,A,S	Radio Ulan Bator, Mongolia	11850	12025		
1200-1230	S	Radio Norway International, Oslo	15165			
1200-1230		Radio Tashkent, Uzbekistan	7325	9715	11785	15460
			17740			
1200-1230		Radio Berlin Int'l, GDR	6115			
1200-1230		Radio Berlin Int'l, GDR	11705	11785	11890	11970
			13690	15240	15440	17780
			21465	21540		
1200-1230		Radio Australia, Melbourne	5995	6020	6035	6080
			9580	9710	11910	15465
			21825			
1200-1300		ABC, Alice Springs, Australia	2310	(ML)		
1200-1300	S	Italian Radio Relay Svc, Milan	9815			
1200-1300		WWCR Nashville, Tennessee	15690			
1200-1300		ABC, Brisbane, Australia	9660			
1200-1300	M-F	Radio Canada Int'l, Montreal	9635	11855	17820	
1200-1300		SBC Singapore	11940			
1200-1300		ABC, Katherine, Australia	2485			
1200-1300		ABC, Perth, Australia	9610			
1200-1300		Trans World Radio, Bonaire	11815	15345		
1200-1300		ABC, Tennant Creek, Australia	2325	(ML)		
1200-1300		Adventist World Radio, Costa Rica	9725	11870		
1200-1300		BBC World Service, London, England	5965	9410	9515	9740
			11775	12095	15070	17640
			17705	17790	17885	21470
			21660	21710		
1200-1300		CBU, Vancouver, British Columbia	6160			
1200-1300		CFCF, Montreal, Quebec, Canada	6005			
1200-1300		CFCN, Calgary, Alberta, Canada	6030			
1200-1300		CHNS, Halifax, Nova Scotia, Canada	6130			
1200-1300		Christian Science World Service	9495	9465	11930	15285
1200-1300		CKWX, Vancouver, British Columbia	6080			
1200-1300		Radio Moscow World Service	7370	11685	11850	12025
			12030	15060	15110	15140
			15210	15305	15320	15375
			15540	15550	15585	17570
			17655	17665	17790	17815
			21630	21645	21655	21690
			21740	21745	21755	
			21785	21790	25780	
			(+11840 via Cuba)			
1200-1300		CFRB, Toronto, Ontario	6070			
1200-1300		HCJB, Quito, Ecuador	11740	17890	25950	USB
1200-1300		Radio Beijing, China	9530	11660	15285	17855
1200-1300		Radio Jordan, Amman	13655			
1200-1300		Radio Korea, Seoul	9570	9750		
1200-1300		Radio RSA, Johannesburg	9555	11805	11900	17835
1200-1300		Voice of America-East Asia Service	6110	9760	11715	15155
			15425	9530		
1200-1300		WHRI, Noblesville, Indiana	9465	11790		
1200-1300		WYFR, Okeechobee, Florida	5950	6015	11580	17750
1215-1225		Radio Bayrak, Northern Cyprus	6150			
1215-1300		Radio Tikhiy Okean, Vladivostok	5015			
1230-1300		Voice of Turkey, Ankara	17785			
1230-1300	M-S	BRT Brussels, Belgium	21820			
1230-1300	M-F	BRT Brussels, Belgium	21815			
1230-1300		Radio Bangladesh, Dacca	15195	11705		
1230-1300		Radio France International, Paris	9805	11670	15155	15195
			17650	21635	21645	
1230-1300		Radio Australia, Melbourne	5995	6020	6035	6080
			9580	11910	15465	
1230-1300		Radio Sweden, Stockholm	15190	21570	17740	
1235-1245		Voice of Greece, Athens	15625	15650	17535	

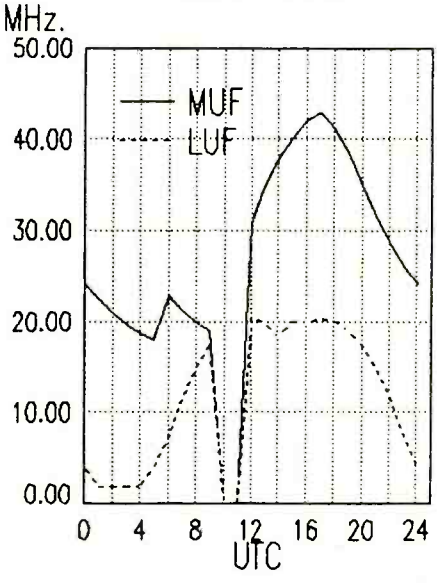
1300 UTC [9:00 AM EDT/6:00 AM PDT]

1300-1325		Radio Finland, Helsinki	15400	21550		
1300-1330		Radio Tirana, Albania	11855	9500		
1300-1330	S	Radio Norway International, Oslo	9590			
1300-1330		Radio Canada Int'l, Montreal	5220	11955	15385	
1300-1330		Radio Australia, Melbourne	5995	6020	6035	6080
			9580	15465		
1300-1330	S	Trans World Radio, Bonaire	15345	11815		
1300-1330		Swiss Radio Int'l European Service	3985	6165	9535	
1300-1350		Radio Pyongyang, North Korea	9325	9345	9645	13650
			15180			
1300-1400		BBC World Service, London, England	5965	9410	9515	9750
			11775	12095	15070	17640
			17705	17790	17885	21470
			21660	21710		
1300-1400	S	Radio Canada Int'l, Montreal	11955	17820	11720	
1300-1400		ABC, Alice Springs, Australia	2310			
1300-1400		ABC, Brisbane, Australia	9660			
1300-1400		ABC, Katherine, Australia	2485			
1300-1400		ABC, Perth, Australia	9610			
1300-1400		ABC, Tennant Creek, Australia	2325	(ML)		
1300-1400		Adventist World Radio, Costa Rica	9725	11870		
1300-1400		CBC Northern Quebec Service, Can	9625			
1300-1400		CBN, St. John's, Newfoundland	6160			

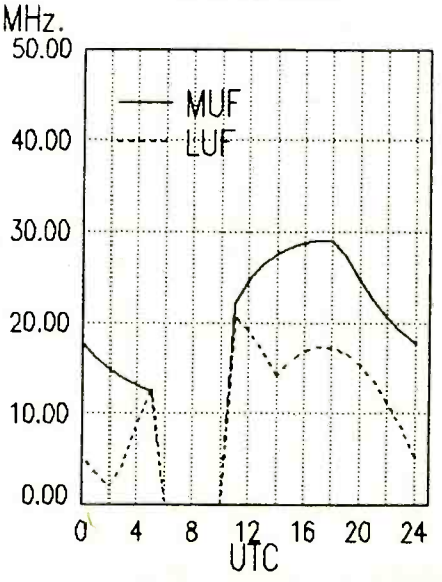
Midwest To Central Africa



Midwest To South Africa



Midwest To East Africa



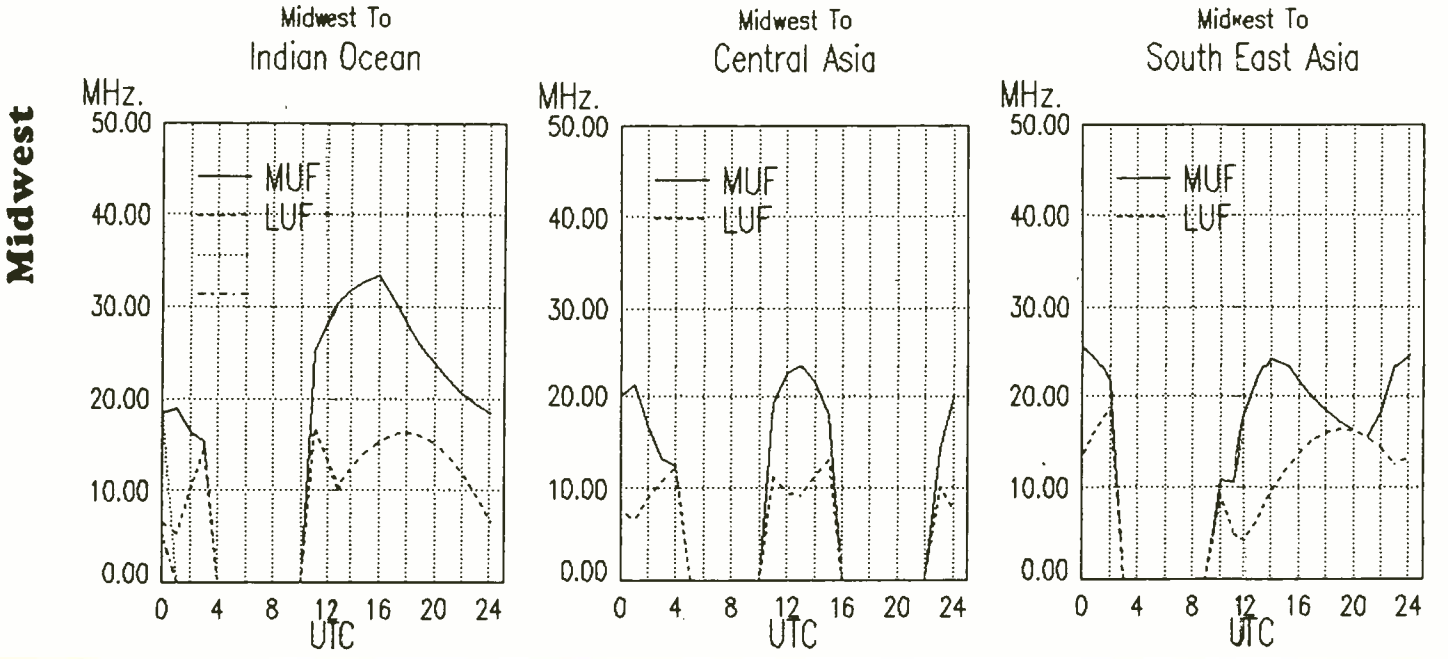
Midwest

frequency section

1300-1400		CBU, Vancouver, British Columbia	6160			
1300-1400		CFCF, Montreal, Quebec, Canada	6005			
1300-1400		CFCN, Calgary, Alberta, Canada	6030			
1300-1400		CHNS, Halifax, Nova Scotia, Canada	6130			
1300-1400		Christian Science World Service	9495	9465	11930	15285
1300-1400		CKWX, Vancouver, British Columbia	6080			
1300-1400		CFRB, Toronto, Ontario, Canada	6070			
1300-1400		Radio Moscow World Service	7135	7175	7315	7370
			9665	9885	11960	11995
			12000	12025	12030	12050
			15060	15305	15320	15375
			15540	15550	15585	15595
			17570	17655	17815	21630
			21645	21690	21740	21745
			21755	21785	21790	
			(+11840 via Cuba)			
1300-1400		FEBC Radio Int'l, Philippines	11850			
1300-1400		HCJB, Quito, Ecuador	11740	17890	25950	USB
1300-1400		KUSW, Salt Lake City, Utah	15590			
1300-1400		Radio Beijing, China	9530	11660	11855	15285
1300-1400		Radio Romania Int'l, Bucharest	11940	15365	17850	21665
1300-1400		Radio Jordan, Amman	13655			
1300-1400		Radio Sta.Peace & Progress,Moscow	11870	15180	17635	17805
		(from 1330 add:	15435	15480	15560	17835)
1300-1400		Voice of America-East Asia Service	6110	9760	11715	15155
			15425			
1300-1400		WHRI, Noblesville, Indiana	9465	11790		
1300-1400		WWCR, Nashville, Tennessee	15690			
1300-1400		WYFR, Okeechobee, Florida	5950	6015	11550	11580
			13695	17750		
1330-1400		All India Radio, New Delhi	11760	9565		
1330-1400		Radio Austria International, Vienna	15430			
1330-1345	A,S	Radio Finland, Helsinki	21550	15400		
1330-1400		Radio Australia, Melbourne	5995	6020	6035	6080
			7215	9580		
1330-1400		Laotian National Radio	7116v			
1330-1400	A	Trans World Radio, Bonaire	11815	15345		
1330-1400		Radio Tashkent, Uzbekistan	7325	9715	11785	15460
			17740			
1330-1400		Swiss Radio International, Berne	9620	11695	15570	17830
			21695	25680		
1330-1400		UAE Radio, Dubai	15320	17775	21605	
1330-1400		Voice of Vietnam, Hanoi	9840	12020	15010	
1345-1400		Radio Berlin International, GDR	6115	9730		

1400 UTC [10:00 AM EDT/7:00 AM PDT]

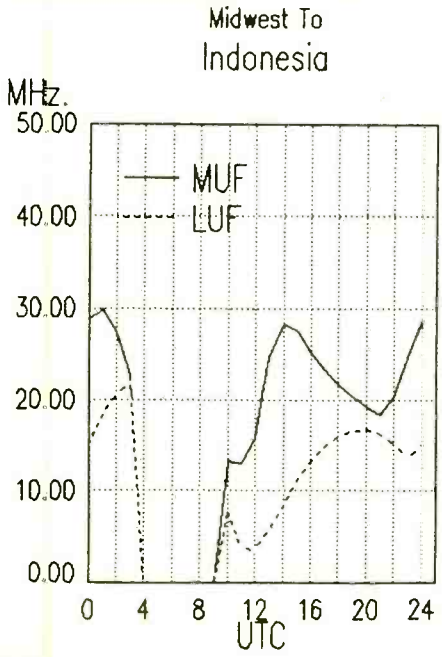
1400-1415		Azad Kashmir Radio, Pakistan	7268	4980	3665	
1400-1420		Radio Jordan, Amman	13655			
1400-1430		ABC, Alice Springs, Australia	2310	(ML)		
1400-1430		Radio Australia, Melbourne	5995	6020	6035	6060
			6080	7215	9580	
1400-1430		ABC, Tennant Creek, Australia	2325	(ML)		
1400-1430		Swiss Radio Int'l, Berne	6165	9535	12030	
1400-1430		Radio Juba, Sudan	9540/9550			
1400-1430		Radio France International, Paris	11925	21780		
1400-1430	S	Radio Norway International, Oslo	21710			
1400-1430		Radio Polonia, Warsaw, Poland	6095	7285		
1400-1430		Radio Berlin International, GDR	6115	9730		
1400-1430		Radio Sweden, Stockholm	11905	17740		
1400-1430		Radio Tirana, Albania	9500	11895		
1400-1500		ABC, Brisbane, Australia	9660			
1400-1500	S	Radio Canada Int'l, Montreal	11955	17820		
1400-1500		Voice of the Mediterranean, Malta	11925			
1400-1500		Radio Beijing, China	5220	7405	11815	11855
			15165			
1400-1500		Radio Korea, Seoul	9570	9750	15575	
1400-1500		ABC, Katherine, Australia	2485			
1400-1500		ABC, Perth, Australia	9610			
1400-1500		All India Radio, New Delhi	11760	9565		
1400-1500		BBC World Service, London, England	9410	11750	12095	15070
			17640	17705	17790	17880
1400-1500		CBC Northern Quebec Service, Can	9625			
1400-1500		CBN, St. John's, Newfoundland	6160			
1400-1500	M-A	CBU, Vancouver, British Columbia	6160			
1400-1500		CFCF, Montreal, Quebec, Canada	6005			
1400-1500		CFCN, Calgary, Alberta, Canada	6030			
1400-1500		CHNS, Halifax, Nova Scotia, Canada	6130			
1400-1500		Christian Science World Service	9530	13625	17555	21780
1400-1500		CKWX, Vancouver, British Columbia	6080			
1400-1500		CFRB, Toronto, Ontario	6070			
1400-1500		FEBC Radio Int'l, Philippines	11850			
1400-1500		HCJB, Quito, Ecuador	11740	17890	25950	USB
1400-1500		KUSW, Salt Lake City, Utah	15590			
1400-1500		Radio Japan General Service, Tokyo	11865	11815		
1400-1500		Radio Moscow World Service	7135	7370	9655	11850
			11995	12025	12030	12050
			15320	15375	15540	15585
			17625	17815	21630	21680
			21690	21740	21745	21755
			21785	21790		
			(+11840 via Cuba)			
1400-1500		Radio RSA, Johannesburg	9555	11925	17835	

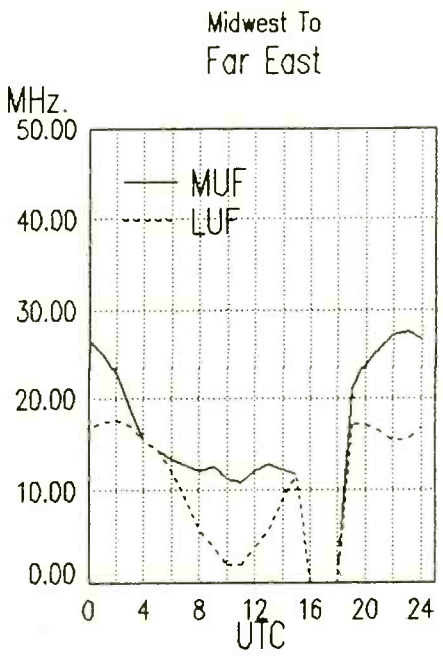


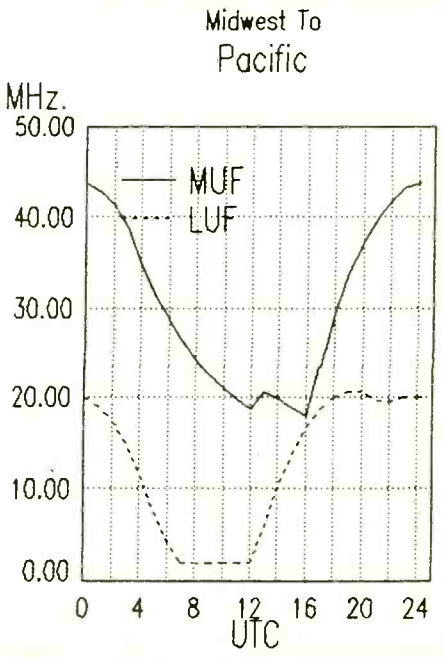
1400-1500		Voice of America-East Asia Service	6110	9760	15155	15425
1400-1500		Voice of America-South Asia Service	7125	9645	9760	15205
			15395			
1400-1500		Voice of Nigeria, Lagos	7255			
1400-1500		WHRI, Noblesville, Indiana	9465	15105		
1400-1500	S	WRNO Worldwide, Louisiana	15420			
1400-1500		WWCR, Nashville, Tennessee	15690			
1400-1500		WYFR, Okeechobee, Florida	5950	6015	11580	13695
			17750			
1405-1500		WYFR, Taiwan	11550			
1405-1430		Radio Finland, Helsinki	15185	21550	11820	
1415-1430		RCI European News Svc, Montreal	11935	15315	15325	17820
		{M-F add these:	15305	17795	21545}	
1415-1500	M-A	Radio Bhutan	5023v			
1415-1425		Radio Nepal, Katmandu	5005	7165	(alt. 3230)	
1430-1500		Radio Sofia, Bulgaria	11680	15310	17825	
1430-1500		Voice of Hope, Lebanon	6280			
1430-1500		Voice of Myanmar (Burma)	5990v			
1430-1500		Radio Australia, Melbourne	5995	6020	6036	6060
			6080	7215	9580	9710
			9770	12000	13745	
1430-1500	F	ABC, Alice Springs, Australia	2310	(ML)		
1430-1500	F	ABC, Tennant Creek, Australia	2325	(ML)		
1430-1500		Radio Austria International, Vienna	6155	11780	13730	21490
1430-1500		Radio Netherlands Int'l, Hilversum	5995	13770	15150	17575
			17605			
1445-1500		Radio Berlin International, GDR	15240	17880		
1445-1500	M,W,H,A,S	Radio Ulan Bator, Mongolia	9795	13780		
1445-1500		Vatican Radio, Vatican City	6248	7250	9645	11740

1500 UTC [11:00 AM EDT/8:00 AM PDT]

1500-1515	M,W,H,A,S	Radio Ulan Bator, Mongolia	9795	13780		
1500-1515		Vatican Radio, Vatican City	11955	15090	17870	
1500-1515		WYFR, Taiwan	11550			
1500-1525		Radio Netherlands Int'l, Hilversum	5955	13770	15150	17575
			17605			
1500-1530		Radio Berlin Int'l, GDR	15240	17880		
1500-1530		Radio Sofia, Bulgaria	11680	15310	17825	
1500-1530		Radio Sweden, Stockholm	17740	11905		
1500-1530		Radio Romania Inter'l, Bucharest	11775	11940	15250	15335
			17720	17745		
1500-1540		FEBA, Seychelles	11865			
1500-1550		Radio Pyongyang, North Korea	9325	9640	9977	11750
1500-1550		Deutsche Welle, Koln, W. Germany	9735	11965	17765	21600
1500-1555		Radio Beijing, China	11815	15165	7405	
1500-1600		Radio Jordan, Amman	9560			
1500-1600	S	Radio Canada Int'l, Montreal	11955	17820		
1500-1600		FEBA, Seychelles	9590	15330		
1500-1600		Voice of the Mediterranean, Malta	11925			
1500-1600		Voice of Hope, Lebanon	6280			
1500-1600	F	ABC, Alice Springs, Australia	2310	(ML)		
1500-1600		ABC, Perth, Australia	9610			
1500-1600	F	ABC, Tennant Creek, Australia	2325	(ML)		
1500-1600		BBC World Service, London, England	9410	11750	11775	12095
			15070	15260	17640	17705
			17780	21470	21660	21710
1500-1600		Voice of Myanmar (Burma)	5990v			
1500-1600		CBC Northern Quebec Service, Can	9625	(ML)		
1500-1600		CBN, St. John's, Newfoundland	6160			
1500-1600		CBU, Vancouver, British Columbia	6160			
1500-1600		CFCF, Montreal, Quebec, Canada	6005			
1500-1600		CFCN, Calgary, Alberta, Canada	6030			
1500-1600		CHNS, Halifax, Nova Scotia, Canada	6130			
1500-1600		Christian Science World Service	9530	13625	17555	21780
1500-1600		CKWX, Vancouver, British Columbia	6080			
1500-1600		CFRB, Toronto, Ontario	6070			
1500-1600		FEBC Radio Int'l, Philippines	11850			
1500-1600		HCJB, Quito, Ecuador	11740	17890	25950	USB
1500-1600	T-S	KNLS, Anchor Point, Alaska	11715	(or 9750)		
1500-1600		KTWR, Agana, Guam	11650			
1500-1600		KUSW, Salt Lake City, Utah	15590			
1500-1600		Radio Australia, Melbourne	5995	6020	6035	6060
			6080	7215	9580	9710
			9770	12000	13745	
1500-1600		Radio Japan General Service, Tokyo	11865	11815	21700	
1500-1600		Radio Moscow World Service	7110	9655	9755	11850
			11890	12010	15375	15435
			15540	15585	15595	17670
			17710	21630	21690	21740
			21755	21790		
			(+11840 via Cuba)			
1500-1600		Radio RSA, Johannesburg S. Africa	9555	11925	17835	
1500-1600		Voice of America-Middle East Service	9700	15205	15260	21530
1500-1600		Voice of America-South Asia Service	6110	7125	9645	9700
			9760	15205	15260	9350
1500-1600		Voice of Nigeria, Lagos	7255			
1500-1600		WHRI, Noblesville, Indiana	15105	21840		
1500-1600	IRR	WRNO Worldwide, Louisiana	15420			
1500-1600		WWCR, Nashville, Tennessee	15690			
1500-1600		WYFR, Okeechobee, Florida	5950	11830	13695	11580
			17750			
1515-1530		Radio Budapest, Hungary	15160	15220	11910	9835
			9585	7220		
1530-1540	M-A	Voice of Greece, Athens	11645	15625	17535	







Midwest

frequency section

1530-1555	M-A	BRT Brussels, Belgium	17580	21810		
1530-1600		Radio Tirana, Albania	11835	9500		
1530-1600		Radio Omdurman, Sudan	11635	9550/9540		
1530-1600		Radio Sweden, Stockholm	17880	21500	21655	
1530-1600		Swiss Radio International, Berne	13685	15430	17830	21630
1540-1555	M-A	FEBA, Seychelles	11865			
1545-1600		Radio Berlin Int'l, GDR	6080	7260	7295	9730
1545-1600		Radio Berlin Int'l, GDR	13690	15350	17780	
1545-1600		Radio Pakistan	21740	21480	17895	17580
			15605	13665		
1545-1600		Vatican Radio, Vatican City	15120	17730	21650	
1555-1600	M,A	FEBA, Seychilles	11865			

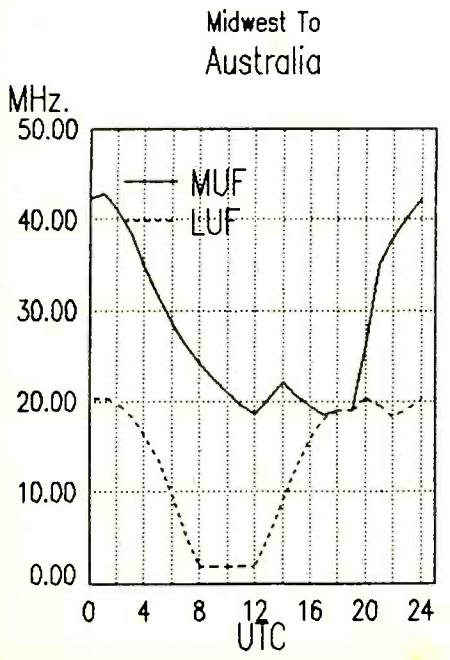
1600 UTC [12:00 PM EDT/9:00 AM PDT]

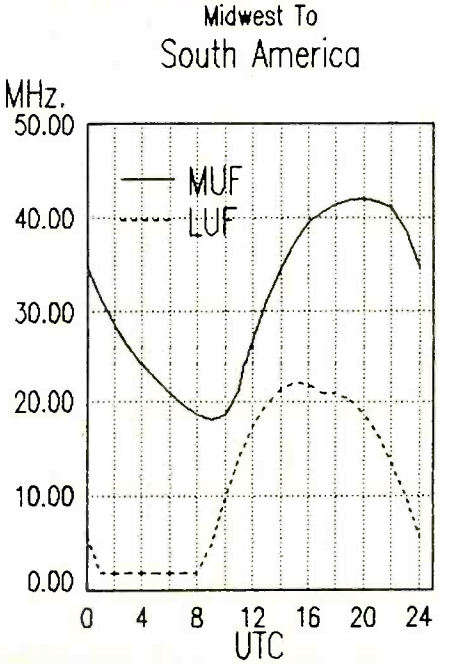
1600-1610	M,A	FEBA, Mahe, Seychelles	11865			
1600-1610		Vatican Radio, Vatican City	6248	7250	9645	11740
1600-1615		Azad Kashmir Radio, Pakistan	7268	4980	3665	
1600-1630		Radio Pakistan	13665	15605	17555	17650
			21480	21740		
1600-1630	S	Radio Norway International, Oslo	17765	21705		
1600-1630		Radio Polonia, Warsaw, Poland	6135	9540		
1600-1630	M-F	Radio Portugal, Lisbon	21530			
1600-1630		Radio Berlin Int'l, GDR	6080	7260	7295	9730
1600-1630		Radio Berlin Int'l, GDR	13690	15350	17780	
1600-1630		Voice of Vietnam, Hanoi	9840	15010	12020	
1600-1640		UAE Radio, Dubai	15320	15435	17865	21605
1600-1650		Radio Pyongyang, North Korea	9325	11760		
1600-1650		Deutsche Welle, Koln, W. Germany	6170	7225	15105	15595
			17825	21680		
1600-1700		KSDA, Guam	11980			
1600-1700		Radio Korea General Service, Seoul	5975			
1600-1700	F	ABC, Alice Springs, Australia	2310	(ML)		
1600-1700		BBC World Service, London, England	9410	11775	12095	15070
			15260	17640	17705	21660
1600-1700		Radio Australia, Melbourne	5995	6020	6035	6080
			7215	9580	9710	9770
			12000	13745		
			(+ 6060 until 1630)			
1600-1700		ELWA, Monrovia, Liberia	11800			
1600-1700		ABC, Perth, Australia	9610			
1600-1700	F	ABC, Tennant Creek, Australia	2325	(ML)		
1600-1700		CBC Northern Quebec Service, Can	9625	(ML)		
1600-1700		CBN, St. John's, Newfoundland	6160			
1600-1700		Radio Moscow World Service	7110	9655	9840	11630
			11890	12005	12010	12015
			15375	15540	17600	17670
			17710	21585	21630	21740
			(+11840 via Cuba)			
1600-1700		CBU, Vancouver, British Columbia	6160			
1600-1700		CFCF, Montreal, Quebec, Canada	6005			
1600-1700		CFCN, Calgary, Alberta, Canada	6030			
1600-1700		CHNS, Halifax, Nova Scotia, Canada	6130			
1600-1700		Christian Science World Service	9530	13625	13745	21640
1600-1700		CKWX, Vancouver, British Columbia	6080			
1600-1700		CFRB, Toronto, Ontario	6070			
1600-1700		KTWR, Agana, Guam	11650	11910	13720	
1600-1700		KUSW, Salt Lake City, Utah	15590			
1600-1700		Radio Beijing, China	9570	15110	15130	
1600-1700		Radio France International, Paris	6175	11705	12015	15360
			17620	17795	17845	17850
1600-1700		Radio Jordan, Amman	9560			
1600-1700		Radio Korea, Seoul, South Korea	5975			
1600-1700		Trans World Radio-Swaziland	15135			
1600-1700		Voice of America-Africa Service	7195	9575	11920	15410
			15445	15580	15600	17785
			17800	17870		
1600-1700		Voice of America-Middle East Service	3980	9700	15205	15260
1600-1700		Voice of America-Asia Service	7125	9645	9700	9760
			15205	15260	15395	
1600-1700		Voice of Nigeria, Lagos	7255			
1600-1700		WHRI, Noblesville, Indiana	15105	21840		
1600-1700		WINB, Red Lion, Pennsylvania	15295			
1600-1700		WRNO New Orleans, Louisiana	15420			
1600-1700		WWCR, Nashville, Tennessee	15690			
1600-1700		WYFR, Okeechobee, Florida	11830	13695	17750	15566
			11580	17612	21525	21615
1610-1625	M	FEBA, Mahe, Seychelles	11865			
1615-1630	M-A	RCI European News Svc, Montreal	11935	15305	15325	17820
			21545			
1615-1620		Vatican Radio, Vatican City	9645	11740		
1630-1655		BRT Brussells, Belgium	11695	5910		
1630-1700		Radio Netherlands, Hilversum	15570	6020		
1630-1700		Radio Sta. Peace & Progress, USSR	6110	9705	11695	11745
			11775	11850	11910	11980
			12055	12065	15330	15480
			15585	17565	17615	17635
			17655	21715		
1630-1700		Radio Austria Int'l, Vienna	11780	13730	21490	

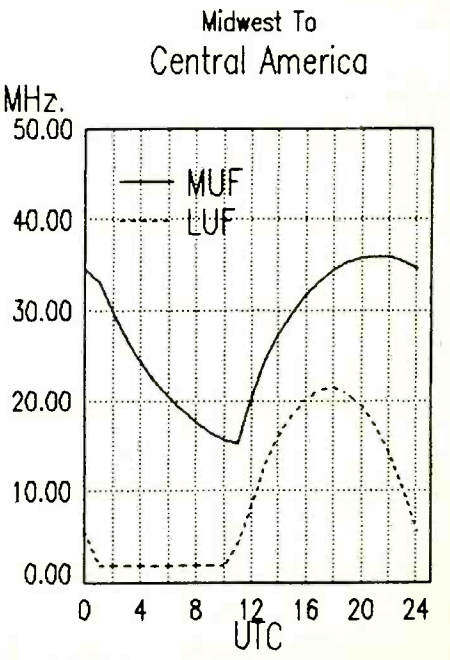
1700 UTC [1:00 PM EDT/10:00 AM PDT]

1700-1715		Kol Israel	11585	11655		
1700-1725		Radio Netherlands, Hilversum	15570	6020		

Midwest



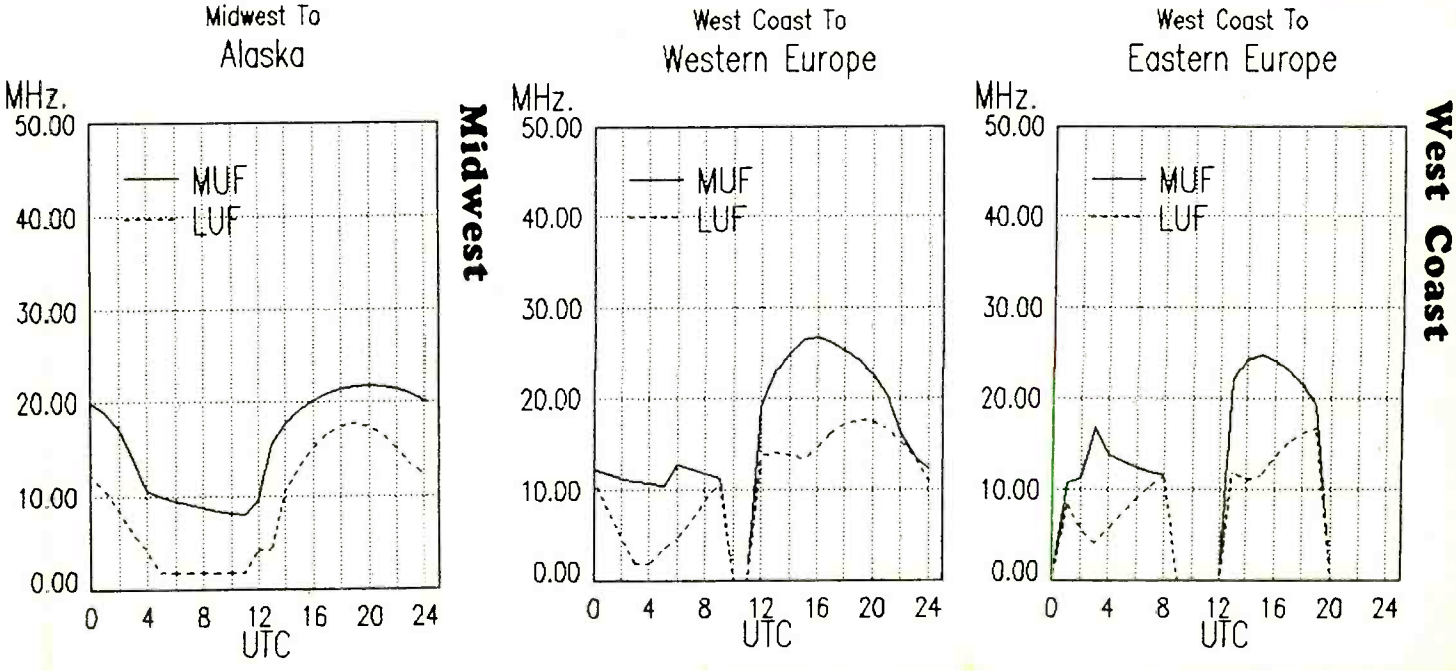




1700-1730		Radio Sweden, Stockholm	6065	9615		
1700-1730	S	Radio Norway	25730	17765		
1700-1750		Radio Bras, Brazil	15265			
1700-1800		ELWA, Monrovia, Liberia	11800			
1700-1800		Radio Beijing, China	9570	11575	15225	
1700-1800		Radio Australia, Melbourne	5995	6020	6035	6080
			7215	7240	9580	9710
			9770	11855		
1700-1800		BBC World Service, London	9410	11775	12095	15070
			15260	15310	15400	17640
			17695	21470	21660	
1700-1800		Voice of America-Africa Service	7195	9575	11920	15410
			15445	15580	15600	17785
			17800	17870		
1700-1800		Radio Moscow World Service	12005	12010	12015	15150
			15265	15540	17600	17670
			17695	21585	25375	
			(+11840 via Cuba)			
1700-1800	S-F	WMLK Bethel, PA	9465			
1700-1800		Voice of America-Middle East Service	3980	6040	9700	9760
			11760	15205	15260	
1700-1800		Voice of America-South Asia Service	7125	9645	9700	15395
1700-1800		WHRI, Noblesville, Indiana	13760	15105		
1700-1800		Christian Science World Service	9530	13625	15385	21640
1700-1800		Radio Moscow Africa Service	11690	11745	11775	11850
			11960	15230	15330	15415
			15535	15585	17565	17570
			17595	17615	17655	21565
			21630	21715		
1700-1800		CBC, Montreal	9625	(ML)		
1700-1800		Radio Surinam Int'l (via Brazil)	17750	(ML)		
1700-1800		Radio Japan, Tokyo	9535	11815	11865	
1700-1800		Radio Pyongyang, North Korea	9325	9640	9977	11760
1700-1800		KUSW Salt Lake City, Utah	15590			
1700-1800		WINB, Red Lion, Pennsylvania	15295			
1700-1800		WRNO, New Orleans, Louisiana	15420			
1700-1800		WWCR, Nashville, Tennessee	15690			
1700-1800		WYFR, Okeechobee, Florida	11830	13695	15440	17750
			17885	21500		
1700-1730		Radio Prague Int'l, Czechoslovakia	5930	6055	7345	11990
1715-1800		Radio Pakistan	11570	15605		
1730-1740		Radio Bayrak, Northern Cyprus	6150			
1730-1755		BRT Brussels, Belgium	5910	11695	13675	
1730-1800		Radio Sofia, Bulgaria	11680	15310	17825	
1730-1800		Swiss Radio Int'l, Berne	9535			
1730-1800		Vatican Radio African Service	21650	17710	17730	
1730-1800		Radio Tirana, Albania	7155	9480		
1730-1800		Radio Romania Int'l, Bucharest	15340	15365	17805	17860
1745-1800		Radio Berlin Int'l, GDR	9665	9730		
1745-1800		Radio Berlin Int'l, GDR	9760			

1800 UTC [2:00 PM EDT/11:00 AM PDT]

1800-1830		Radio Berlin Int'l, GDR	9760			
1800-1830		Radio Berlin Int'l, GDR	9665	9730		
1800-1830	M-F	Radio Budapest, Hungary	15160	11910	9835	9585
			7220	6110		
1800-1830		Radio Canada Int'l, Montreal	13670	15260	17820	
1800-1830	S	Radio Norway International, Oslo	21730			
1800-1830		Voice of Ethiopia, Addis Ababa	9660			
1800-1830		Radio Sofia, Bulgaria	11680	15310	17825	
1800-1830		Radio Sweden, Stockholm	6065	7265		
1800-1830		Voice of Vietnam, Hanoi	15010	12010	9840	
1800-1845		Trans World Radio, Swaziland	15210			
1800-1845		All India Radio, New Delhi	11935	15360		
1800-1855		Radio Mozambique, Maputo	9618	4855	3265	
1800-1900	F	ABC, Alice Springs, Australia	2310	(ML)		
1800-1900	F	ABC, Tennant Creek, Australia	2325	(ML)		
1800-1900		Radio Korea, Seoul	15575			
1800-1900		KVOH, Rancho Simi, California	17775			
1800-1900		BBC World Service, London	9410	12095	15070	17640
1800-1900		Radio Australia, Melbourne	5995	6020	6035	6080
			7205	7215	7240	9580
			11855			
1800-1900		Radio Moscow World Service	11765	11840	11890	13605
			15185	15375	15540	17570
			17670	17695	21740	
1800-1900		ELWA, Monrovia, Liberia	11800			
1800-1900	M-F	Radio New Zealand, Wellington	15485			
1800-1900		CBN, St. John's, Newfoundland	6160			
1800-1900		CBU, Vancouver, British Columbia	6160			
1800-1900		CFCF, Montreal, Quebec, Canada	6005			
1800-1900		CFCN, Calgary, Alberta, Canada	6030			
1800-1900		CHNS, Halifax, Nova Scotia, Canada	6130			
1800-1900		Christian Science World Service	9455	21780	21640	17555
1800-1900		CKWX, Vancouver, British Columbia	6080			
1800-1900		CFRB, Toronto, Ontario	6070			
1800-1900		KUSW, Salt Lake City, Utah	15590			
1800-1900		Radio Jordan, Amman	9560			
1800-1900		CBC Montreal	9625			
1800-1900	S-F	WMLK Bethel, Pennsylvania	9465			
1800-1900		Radio RSA, Johannesburg, S. Africa	17765	15270	7230	
1800-1900	A,S	Radio for Peace Int'l, Costa Rica	13630	21566		
1800-1900		Voice of America-Africa Service	7195	9575	11920	15410
			15445	15580	15600	17785

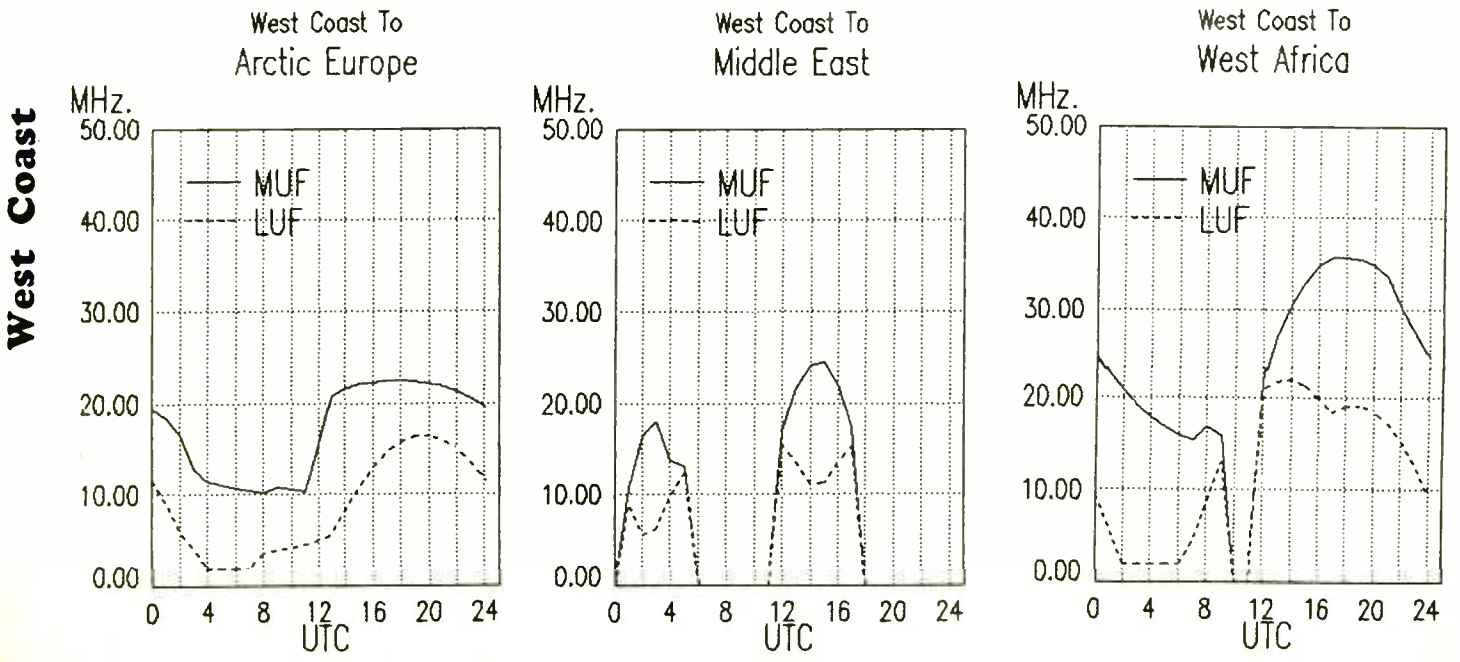


frequency section

			17800	17870	21485	
1800-1900		Voice of America-Middle East Service	6040	9700	9760	11760
			15205			
1800-1900		WHRI, Noblesville, Indiana	13760	17830		
1800-1900		WINB, Red Lion, Pennsylvania	15295			
1800-1900		WRNO, New Orleans, Louisiana	15420			
1800-1900		WWCR, Nashville, Tennessee	15690			
1800-1900		WYFR, Okeechobee, Florida	11830	13695	15440	17885
			21500			
1815-1900		Radio Bangladesh, Dacca	11860v	15255		
1830-1845		Radio Prague Int'l, Czechoslovakia	6055	7345		
1830-1845		Radio Finland, Helsinki	11755	9550	6120	
1830-1855		Radio Polonia, Warsaw, Poland	5995	6135	7125	7285
			9525	11840		
1830-1900	A,S	Radio Budapest, Hungary	6110	7220	9585	9835
			11910	15160		
1830-1900		Radio Sofia, Bulgaria	11660	11765	15330	
1830-1900		Radio Yugoslavia, Belgrade	11735	7215	5980	
1830-1900		Radio Riyadh, Saudi Arabia	9705	9720		
1830-1900	A,S	Radio Canada Int'l, Monreal	13670	15260	17820	
1830-1900	M-F	Radio Canada Int'l, Montreal	21675	17875	15325	7235
			5995			
1830-1900		Radio Afghanistan, Kabul	4915	6020	7215	9635
			11830	15440	17745	
1830-1900		Radio Tirana, Albania	7120	9480		
1830-1900		Radio Netherlands Int'l, Hilversum	6020	15560	17605	21685
1830-1900		Radio Tikhiy Okean, Vladivostok	5015	7335	9885	11870
			11995	15180	15435	15535
			15560	17645	17850	
1830-1900		Swiss Radio International, Berne	9885	11955		
1830-1900		Swiss Radio Int'l European Service	3985	6165	9535	
1840-1850	M-A	Voice of Greece, Athens	11645	12105	15625	
1845-1900		All India Radio, New Delhi	15360	11935	11620	9550
			7412			
1850-1855	IRR	Africa No. 1, Gabon	15475			

1900 UTC [3:00 PM EDT/12:00 PM PDT]

1900-1915		Sierra Leone Brdcstng.Co.,Freetown	3316			
1900-1920v		Radio Omdurman, Sudan	11635			
1900-1925		Radio Netherlands Int'l, Hilversum	6020	15560	17605	21685
1900-1930		Radio Afghanistan, Kabul	9635	7215	6020	15440
			11830	17745		
1900-1930	M-F	Radio Canada Int'l, Montreal	13670	15260	17820	
1900-1930		Radio Japan General Service, Tokyo	11865	11850	15270	
1900-1930	S	Radio Norway International, Oslo	15165			
1900-1930	M-F	Radio Portugal, Lisbon	11740	15250	21530	
1900-1930		Voice of Vietnam, Hanoi	9840	12020	15010	
1900-1930		Kol Israel, Jerusalem	15640	11605	17630	15485
			17590	12077		
1900-1945		Radio Berlin Int'l, GDR	13610			
1900-1945		All India Radio, New Delhi	7412	11620	11935	15360
			9550			
1900-1950		Deutsche Welle, Koln, W. Germany	11785	11810	13790	15390
			17810			
1900-2000		ELWA, Monrovia, Liberia	11800			
1900-2000		CBC, Montreal	9625			
1900-2000	M-F	Radio New Zealand, Wellington	15485			
1900-2000		Radio Moscow British Service	7330	11630	11890	15185
			17695			
1900-2000		Radio Moscow World Service	11765	11840	12010	12060
			13605	15405	15540	15580
			17570	17670	21630	21740
			21630			
1900-2000		Radio Moscow African Svc	11960	12035	15230	15520
			17655			
			(In English & Zulu)			
1900-2000	M-F	RAE, Buenos Aires, Argentina	15345			
1900-2000		Radio Beijing, China	9440	11515		
1900-2000		Solomon Islands Broadcasting Co.	5020			
1900-2000		KVOH, Rancho Simi, California	17775			
1900-2000		BBC World Service, London, England	9410	12095	15070	15400
			17880			
1900-2000		CBN, St. John's, Newfoundland	6160			
1900-2000		CBU, Vancouver, British Columbia	6160			
1900-2000		CFCF, Montreal, Quebec, Canada	6005			
1900-2000		CFCN, Calgary, Alberta, Canada	6030			
1900-2000		CHNS, Halifax, Nova Scotia, Canada	6130			
1900-2000		Christian Science World Service	9455	17555	21640	21780
1900-2000		CKWX, Vancouver, British Columbia	6080			
1900-2000		CFRB, Toronto, Ontario	6070			
1900-2000		GBC Radio, Accra, Ghana	6130			
1900-2000		HJCB European Service, Ecuador	17790	15270	21470	
1900-2000		KUSW, Salt Lake City, Utah	15590			
1900-2000		Radio Algiers, Alger	9510	9685	15215	
1900-2000		Radio Australia, Melbourne	5995	6020	6035	6080
			7205	7215	7240	9580
			11855			
			(+13745 from 1930)			
1900-2000		Radio Havana Cuba	11800			
1900-2000		Radio Jordan, Amman	9560			
1900-2000	A,S	Radio for Peace Int'l, Costa Rica	13630	21566		
1900-2000		Spanish National Radio, Madrid	11790	15280	15375	15395
1900-2000		Voice of America-Africa Service	7195	15410	15445	15580
			15600	17785	17800	17870

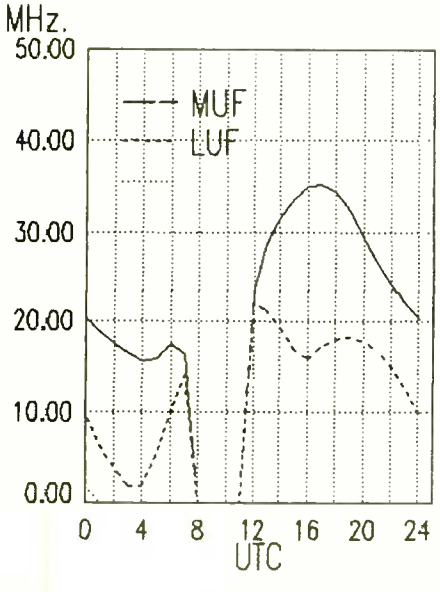


			21485			
1900-2000		Voice of America-Middle East Service	6040	9700	9760	11760
			15205			
1900-2000		Voice of America-Pacific Service	9525	11870	15180	
1900-2000		WHRI, Noblesville, Indiana	13760	17830		
1900-2000		WINB, Red Lion, Pennsylvania	15295			
1900-2000	S-F	WMLK, Bethel, Pennsylvania	9465			
1900-2000		WRNO, New Orleans, Louisiana	15420			
1900-2000		WWCR, Nashville, Tennessee	15690			
1900-2000		WYFR, Okeechobee, Florida	11830	13695	15440	15566
			17612	17885	21615	
1920-1930	M-A	Voice of Greece, Athens	9395	11645		
1930-2000	M	Radio Tallin, Estonia	5925			
1930-2000		Radio Austria International, Vienna	5945	6155	12010	13730
1930-2000		Radio Romania Int'l, Bucharest	5955	9690	9750	11810
1930-2000		Voice of the Islamic Republic Iran	6035	9022		
1935-1955		RAI, Rome, Italy	7275	9710	11800	
1940-2000	M,W,H,A,S	Radio Ulan Bator, Mongolia	11850	12050		
1945-2000		Radio Berlin Int'l, GDR	7185	9665	9730	
1945-2000		Radio Berlin Int'l, GDR	13610	15350		
1945-2000		All India Radio, New Delhi	15360	11935	9550	

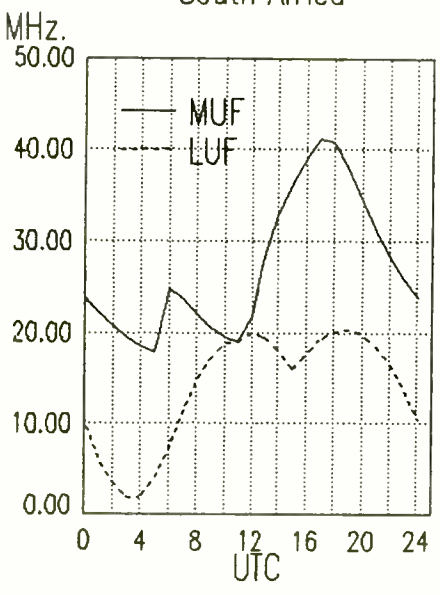
2000 UTC [4:00 PM EDT/1:00 PM PDT]

2000-2005		Vatican Radio, Vatican City	7250	9645		
2000-2010	M,W,H,A,S	Radio Ulan Bator, Mongolia	11850	12050		
2000-2010		Sierra Leone Brdcstng.Co.,Freetown	3316			
2000-2030	M-F	Radio Portugal	15250			
2000-2030	M	Radio Ljublijana, Yugoslavia	5980	7240	9620	
2000-2030		Radio Berlin Int'l, GDR	7185	9665	9730	
2000-2030		Radio Berlin Int'l, GDR	13610	15350		
2000-2030		Radio Budapest, Hungary	11910	15160	9835	9585
			7220	6110		
2000-2030		Radio Prague Int'l, Czechoslovakia	5930	6055	7345	11990
2000-2030		Radio Romania Int'l, Bucharest	5955	9690	9750	11810
2000-2030		Voice of the Islamic Republic Iran	6035	9022		
2000-2050		Radio Pyongyang, North Korea	6576	9345	9977	9640
2000-2100	M-F	Radio for Peace Int'l, Costa Rica	13630	21566		
2000-2100		Voice of Hope, Lebanon	6280			
2000-2100		BBC World Service, London, England	5975	9410	12095	15070
			15260	15400	17755	17760
			17880			
2000-2100		Radio Australia, Melbourne	6020	6035	7205	7215
			7240	9580	11855	13745
			(+6080 & 5995 until 2030)			
2000-2100		All India Radio, New Delhi	9950	11860	15360	
2000-2100	M-A	ABC, Alice Springs, Australia	2310	(ML)		
2000-2100		ABC, Katherine, Australia	2485			
2000-2100	M-A	ABC, Tennant Creek, Australia	2325	(ML)		
2000-2100		CBN, St. John's, Newfoundland	6160			
2000-2100		CBU, Vancouver, British Columbia	6160			
2000-2100		CFCF, Montreal, Quebec, Canada	6005			
2000-2100		Radio Moscow World Service	7315	11630	11670	11805
			11890	12060	13605	15185
			15315	15355	15560	17695
2000-2100		Radio Moscow Africa Service	11715	11775	11960	12035
			15520	15535	21630	21740
2000-2100		CBC, Montreal	9625	(ML)		
2000-2100		Voice of Turkey, Ankara	9795			
2000-2100		CFCN, Calgary, Alberta, Canada	6030			
2000-2100		CHNS, Halifax, Nova Scotia, Canada	6130			
2000-2100		Radio Baghdad, Iraq	13660			
2000-2100		Christian Science World Service	9455	13770	15610	17555
			15265			
2000-2100		CKWX, Vancouver, British Columbia	6080			
2100-2200		Radio Sta. Peace & Progress,USSR	9470	9820	11830	11880
			11980	15260		
2000-2100		CFRB, Toronto, Ontario	6070			
2000-2100		KUSW, Salt Lake City, Utah	15590			
2000-2100		Radio Beijing, China	9440	9920	11500	11715
			15110			
2000-2100		Radio Kiev, Ukraine	9865			
2000-2100		ELWA, Monrovia, Liberia	11800			
2000-2100		Radio Havana Cuba	11800			
2000-2100		Radio Jordan, Amman	9560			
2000-2100		Voice of America-Africa Service	7195	15410	15445	15580
			15600	17785	17800	17870
			21485			
2000-2100		Voice of America-Middle East Service	6040	9700	9760	11760
			15205			
2000-2100		WHRI, Noblesville, Indiana	13760	17830		
2000-2100		WINB, Red Lion, Pennsylvania	15185			
2000-2100		WRNO, New Orleans, Louisiana	15420			
2000-2100		KVOH, Rancho Simi, California	17775			
2000-2100		Solomon Islands Broadcasting Co.	5020			
2000-2100		WWCR, Nashville, Tennessee	15690			
2000-2100		WYFR, Okeechobee, Florida	11830	13695	15440	15566
			17612	17885	21525	21615
2000-2100	M-F	Radio New Zealand, Wellington	15485			
2005-2100		Radio Damascus, Syria	12085	15095		
2025-2045		RAI, Rome, Italy	7235	9575	11800	
2030-2100		Radio Sofia, Bulgaria	11660	11765	15330	
2030-2100		Radio Korea, Seoul	7550	6480	15575	
2030-2100		Radio Netherlands Int'l, Hilversum	9860	13700	15560	
2030-2100		Voice of Vietnam, Hanoi	9840	12020	15010	

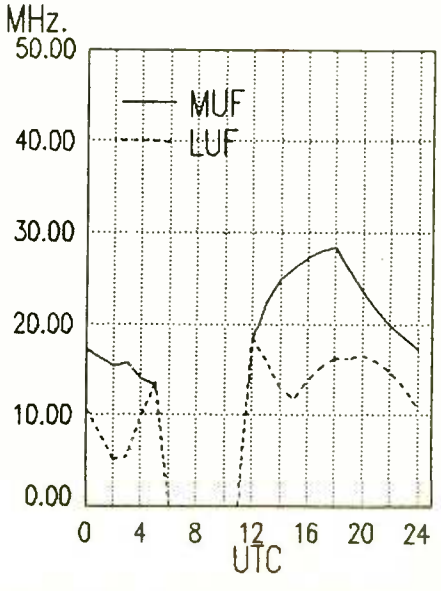
West Coast To Central Africa



West Coast To South Africa



West Coast To East Africa



West Coast

frequency section

2045-2100	All India Radio, New Delhi	7265 7412 9550 9910 11620 11715
2045-2100	Vatican Radio, Vatican City	9625 11700 11760 15120
2050-2100	Vatican Radio, Vatican City	6190 7250 9645

2100 UTC [5:00 PM EDT/2:00 PM PDT]

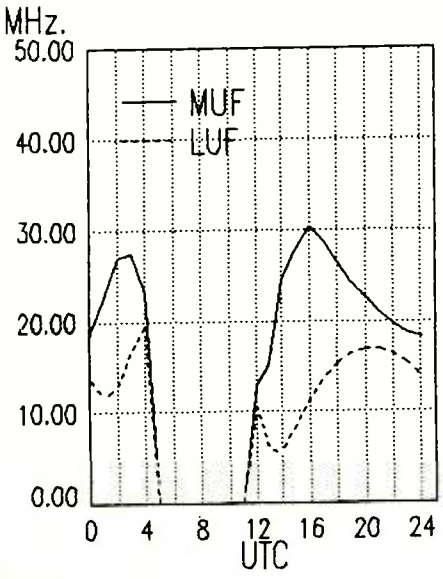
2100-2105	Radio Damascus, Syria	12085 15095
2100-2110	Vatican Radio, Vatican City	6190 7250 9645
2100-2115	Radio Prague Int'l, Czechoslovakia	5930 6055 7345 11990
2100-2125	Radio Netherlands Int'l, Hilversum	9860 13700 15560
2100-2130	Vatican Radio African Service	17730 17710 21650
2100-2130	Sierra Leone Brdcstng.Co.,Freetown	3316
2100-2130	Radio Korea, Seoul	15575 7550 6480
2100-2130	Radio Romania Int'l, Bucharest	9690 9750 11810 11940
2100-2130	BRT Brussels, Belgium	5910 9925
2100-2130	Radio Beijing, China	3985 11715 15110
2100-2130	Radio Japan General Service, Tokyo	17890 17810 15270 15230 21610
2100-2130	Radio Sweden, Stockholm	9655 11705
2100-2130	Swiss Radio International, Berne	9885 13635 15525 12035
2100-2130	Radio Finland, Helsinki	6120 11755 15400
2100-2145	Radio Yugoslavia, Belgrade	7215 9620 11735 15105
2100-2150	Deutsche Welle, Koln, West Germany	9670 9765 11785 13780 15435
2100-2200	Radio Canada Int'l, Montreal	15325 17875
2100-2200	ELWA, Monrovia, Liberia	11800
2100-2200	Radio Angola Int'l Svc, Luanda	3355 9535
2100-2200	All India Radio, New Delhi	11715 11620 9910 9550 7412 7265
2100-2200	CBC Montreal	9625
2100-2200 M-F	Radio New Zealand, Wellington	15485
2100-2200	Radio Moscow World Service	7315 9800 11615 11630 11670 11745 11775 11805 11840 11890 11985 12040 12060 13605 15185 15230 15315 15355 15425 15535 15580 21740
2100-2200	Radio Sta. Peace & Progress,USSR	9470 9820 11830 11880 11980 15260
2100-2200	CBN, St. John's, Newfoundland	6160
2100-2200	CBU, Vancouver, British Columbia	6160
2100-2200	Voice of Hope, Lebanon	6280
2100-2200	CFCF, Montreal, Quebec, Canada	6005
2100-2200	CFCN, Calgary, Alberta, Canada	6030
2100-2200	CHNS, Halifax, Nova Scotia, Canada	6130
2100-2200	Christian Science World Service	9455 13770 15610 17555 15265
2100-2200	Solomon Islands Broadcasting Co.	5020 9545
2100-2200	CKWX, Vancouver, British Columbia	6080
2100-2200	CFRB, Toronto, Ontario	6070
2100-2200	KUSW, Salt Lake City, Utah	15590
2100-2200	Radio Australia, Melbourne	11880 15465 17795 (until 2130: 7215 13745) (from 2130: 15240)
2100-2200	KVOH, Rancho Simi, California	17775
2100-2200	Radio Baghdad, Iraq	13660
2100-2200	Radio Beijing, China	9920 11500
2100-2200	Radio Jordan, Amman	9560
2100-2200	Radio for Peace, Costa Rica	13630 21566
2100-2200	Voice of America-Africa Service	7195 15410 15445 15580 15600 17785 17800 17870 21485
2100-2200	Voice of America-Middle East Service	6040 9700 9760 11760 15205 11710
2100-2200	Voice of America-Pacific Service	11870 15185 17735
2100-2200	WHRI, Noblesville, Indiana	13760 17830
2100-2200	WINB, Red Lion, Pennsylvania	15185
2100-2200	BBC World Service, London, England	5975 9410 12095 15070 15260 15400 17755 17760 17880
2100-2200	WRNO Worldwide, Louisiana	13720
2100-2200	WWCR, Nashville, Tennessee	15690
2100-2200	WYFR, Okeechobee, Florida	11830 13695 15566 17612 17885 21525 21615
2110-2200	Radio Damascus, Syria	15095 12085
2130-2200	Kol Israel, Jerusalem	15640 12077 11605 17575 17590 17630
2130-2200	Radio Sofia, Bulgaria	11660 15330
2130-2200	Radio Vilnius, Lithuania	6100 9675
2130-2200	Radio Canada Int'l, Montreal	11880 15150 17820
2130-2200	HCJB, Quito, Ecuador	15270 17790
2145-2200	Radio Berlin International, GDR	5965 7295

2200 UTC [6:00 PM EDT/3:00 PM PDT]

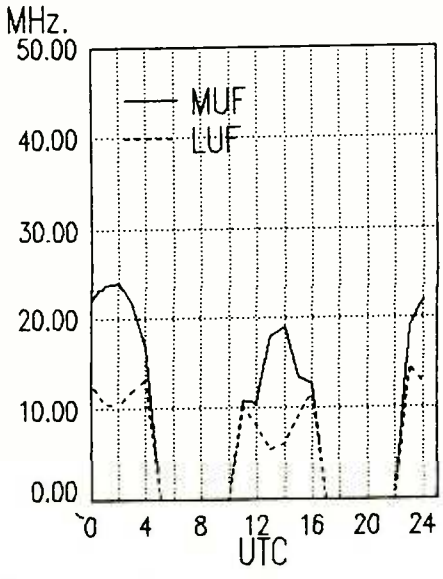
2200-2205	Radio Damascus, Syria	15095 12085
2200-2215 M-H	Radio New Zealand, Wellington	15485
2200-2215	Sierra Leone Brdcstng.Co.,Freetown	3316
2200-2215 M-A	ABC, Alice Springs, Australia	2310 (ML)
2200-2215	ABC, Tennant Creek, Australia	2325 (ML)
2200-2215 M-F	Voice of America-Caribbean Service	9640 11880 15225
2200-2225	RAI, Rome, Italy	5990 7235 9710

West Coast

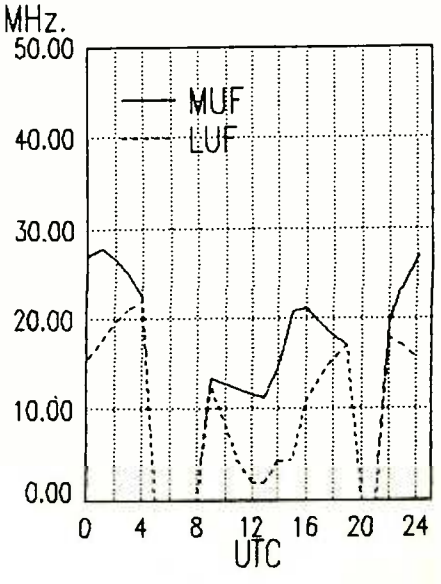
West Coast To Indian Ocean



West Coast To Central Asia



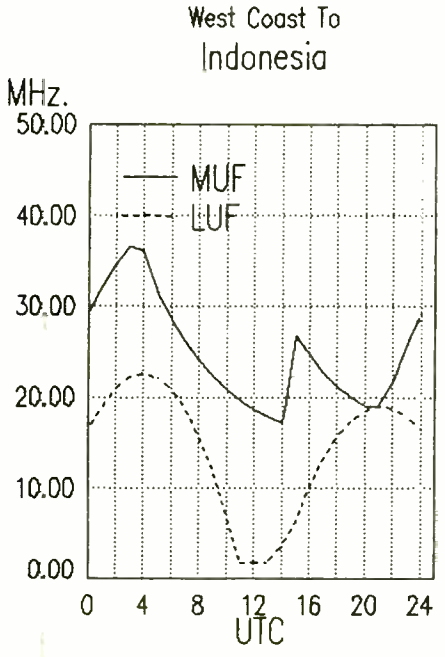
West Coast To South East Asia

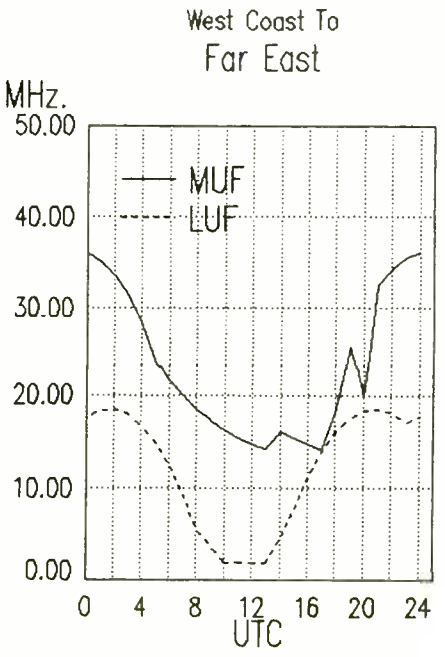


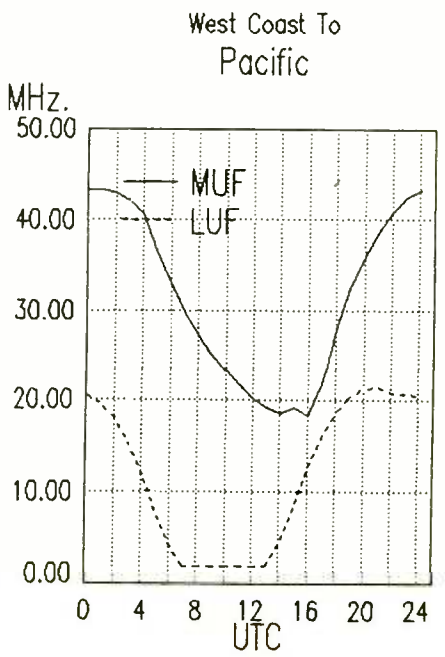
2200-2230		Radio Beijing, China	3985			
2200-2230		Radio Berlin International, GDR	5965	7295		
2200-2230		Radio Vilnius, Lithuania	6100	11790	13645	15180
			15455	15485		
2200-2230		ABC, Katherine, Australia	2485			
2200-2230		Radio Canada Int'l, Montreal	5960	9755	11905	
2200-2230		Radio Sofia, Bulgaria	11660	15330		
2200-2230	S	KGEI, San Francisco, California	15280			
2200-2230	S	Radio Norway International, Oslo	17730			
2200-2245		All India Radio, New Delhi	7412	9550	9910	11620
2200-2300		BBC World Service, London, England	5975	6005	6175	6195
			7325	9410	9590	9915
			11750	12095	15070	15260
			15400	17750	17830	
2200-2300		CBC Northern Quebec Svc, Canada	9625			
2200-2300		CBN, St. John's, Newfoundland	6160			
2200-2300		Radio Korea, Seoul	15575			
2200-2300		Radio Moscow North American Svc	11670	11690	11710	11780
			11800	12040	12050	13605
			15315	15355	15425	15580
			15595	17735		
2200-2300		Radio Moscow World Service	11615	11745	11775	11985
			15140	15560	17570	21690
		(from 2230 add: 7315	15480	17655	17850	17890)
2200-2300		Voice of Turkey, Ankara	9445	9665	9685	17785
			17880			
2200-2300		CBU, Vancouver, British Columbia	6160			
2200-2300		CFCF, Montreal, Quebec, Canada	6005			
2200-2300		CFCN, Calgary, Alberta, Canada	6030			
2200-2300		CHNS, Halifax, Nova Scotia, Canada	6130			
2200-2300		Christian Science World Service	9465	15275	15300	15405
			17555			
2200-2300		CKWX, Vancouver, British Columbia	6080			
2200-2300		CFRB, Toronto, Ontario	6070			
2200-2300		KUSW, Salt Lake City, Utah	15590			
2200-2300		Voice of Hope, Lebanon	6280			
2200-2300		Radio Australia, Melbourne	11880	13605	15240	15465
			17715	17795	21740	
2200-2300		Radio Havana Cuba	7140			
2200-2300		Radio for Peace Int'l, Costa Rica	13630	21566		
2200-2300		Radio Tonga, Kingdom of Tonga	5030v			
2200-2300		Voice of America-East Asia Service	7120	9770	11760	15185
			15290	15305	17735	17820
2200-2300		Voice of America-Eur/Pac. Service	9852	11805	15345	15370
			17610			
2200-2300		Voice of Free China, Taiwan	17750	21720		
2200-2300		United Arab Emirates R., Abu Dhabi	9600	11985	13605	
2200-2300		WHRI, Noblesville, Indiana	13760	17830		
2200-2300		WINB, Red Lion, Pennsylvania	15185			
2200-2300		WRNO Worldwide, Louisiana	13720			
2200-2300		WWCR, Nashville, Tennessee	15690			
2200-2300		WYFR, Okeechobee, Florida	11580	11830	13695	17612
			17885	21525		
2205-2230		Vatican Radio, Vatican City	9615	11830	15105	
2230-2300		Voice of Vietnam, Hanoi	9840	12020	15010	
2230-2300		Radio Polonia, Warsaw, Poland	5995	6135	7125	7270
2230-2300		Radio Tirana, Albania	7215	9480		
2230-2300		Swiss Radio Int'l, European Service	6190			
2245-2300		All India Radio, New Delhi	15110	11745	11715	9910
			9535			

2300 UTC [7:00 PM EDT/4:00 PM PDT]

2300-2310		Sierra Leone Brdcstng.Co.,Freetown	3316			
2300-2315		FEBC, Manila, Philippines	6030			
2300-2325		Radio Finland, Helsinki	11755	15185		
2300-2330		Kol Israel, Jerusalem	11605	9435	15640	
2300-2330	S	Radio Norway Int'l, Oslo	15165			
2300-2330		Radio Canada Int'l, Montreal	9755	11730		
2300-2345		WYFR, Okeechobee, Florida	5985	11580	15170	
2300-0000		Adventist World Radio, Costa Rica	9725	11870		
2300-0000		Radio Moscow North American Svc.	11670	11690	11710	11780
			11800	12040	12050	13605
			15315	15355	15425	15580
			15595	17735		
2300-0000		Radio Moscow World Service	12005	15140	15480	15550
			15590	17570	17600	17620
			17655	17730	17850	21585
			21690	21790		
2300-0000		Radio Sofia, Bulgaria	11660	15330		
2300-0000		CBN, St. John's, Newfoundland	6160			
2300-0000		CBU, Vancouver, British Columbia	6160			
2300-0000		CFCF, Montreal, Quebec, Canada	6005			
2300-0000		CFCN, Calgary, Alberta, Canada	6030			
2300-0000		CHNS, Halifax, Nova Scotia, Canada	6130	15405		
2300-0000		BBC World Service, London, England	5975	6175	6195	7325
			9410	9590	9915	11750
			15260			
2300-0000		Christian Science World Service	9465	15275	15300	17555
			15405			
2300-0000		Radio for Peace Int'l, Costa Rica	13630	21566		
2300-0000		Radio Kiev, Ukraine	11790	13645	15180	15485
			15525			
2300-0000		CKWX, Vancouver, British Columbia	6080			
2300-0000		CBC Montreal	9625			







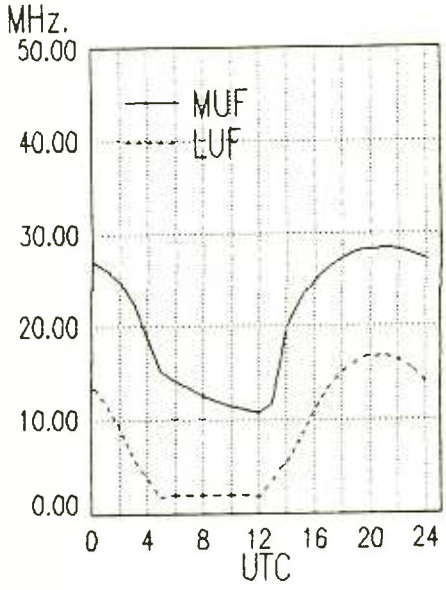
West Coast

frequency section

2300-0000		CFRB, Toronto, Ontario	6070
2300-0000		KSDA, Guam	15125
2300-0000		KUSW, Salt Lake City, Utah	15590
2300-0000		Radio Australia, Melbourne	11880 13605 15240 15465 17630 17715 17750 17795 21740
2300-0000		Radio Japan General Service, Tokyo	11835 15195 17810 21610 17765
2300-0000		Radio Luxembourg	6090
2300-0000		Radio Pyongyang, North Korea	11735 13650
2300-0000		Radio Tonga, Kingdom of Tonga	5030v
2300-0000		Voice of America-East Asia Service	7120 9770 11760 15185 15290 15305 17735 17820
2300-0000		United Arab Emirates R.,Abu Dhabi	9600 11985 13605
2300-0000		WHRI, Noblesville, Indiana	13760 17830
2300-0000		WINB, Red Lion, Pennsylvania	15145
2300-0000		WRNO, New Orleans, Louisiana	13720
2300-0000		WWCR, Nashville, Tennessee	15690
2305-2355		Radio Polonia, Warsaw, Poland	5995 6135 7125 7145 7270
2330-0000		Radio Canada International, Montreal	5960 9755
2330-0000		Voice of Vietnam, Hanoi	9840 12020 15010
2330-0000		BRT Brussels, Belgium	9925 13675
2330-0000	M-A	Radio Budapest, Hungary	6110 9520 9585 9835 11910 15160
2330-0000		Radio Korea, Seoul	15575
2330-0000		Radio Tirana, Albania	6120 9760 11825
2335-2345	M-A	Voice of Greece, Athens	9395 11645
2345-0000		Radio Berlin International, GDR	9730 13610 13690 15240

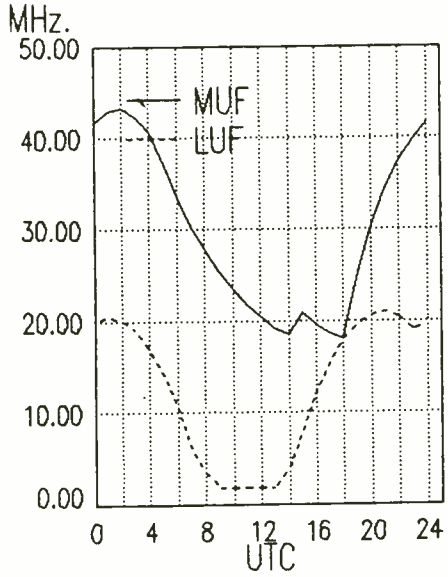
Radio Korea and Radio South Africa have consistently produced some of the most colorful verification cards. These two are from Ray Labrie of New Hampshire.

West Coast To
Alaska

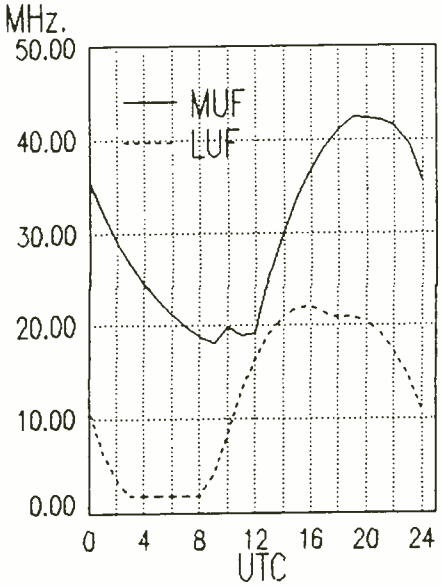


West Coast

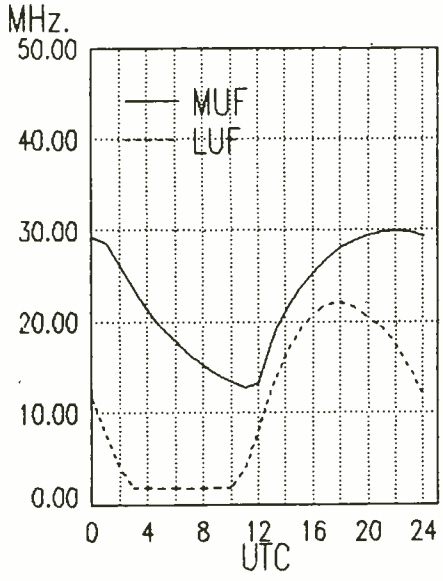
West Coast To
Australia



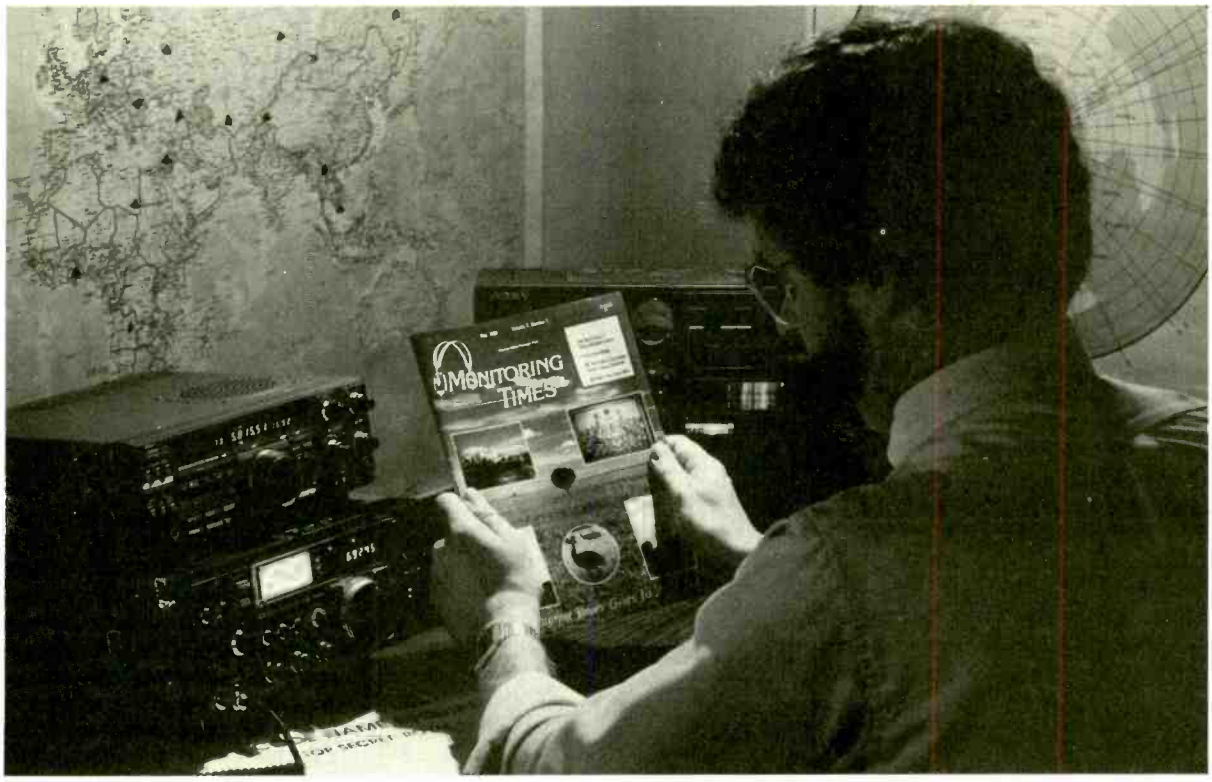
West Coast To
South America



West Coast To
Central America



THE PROS SUBSCRIBE.



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Lawrence Magne
Editor-in-Chief
Passport to World Band Radio

Electro Brand Multiband Portable

If you have a Citibank Visa card, you've almost certainly seen promotions for a Chinese-made multiband portable radio called the "Electro Brand." It covers not only AM, FM stereo and shortwave, but also TV audio, aeronautical transmissions and local U.S. weather forecasts.

As if all this weren't enough, it also comes with a cassette player, a built-in battery charger, and can be used as a public-address system and direction finder of sorts.

Very Similar to Hong Kong Product

It also looks remarkably similar in looks, features, performance and price to a Hong Kong radio sold in Western countries as the "Rhapsody" and "Venturer." For good reason. The Chinese firm that makes the Electro Brand also makes the Rhapsody/ Venturer.

Hong Kong appears as the country of origin only because the radio's Chinese innards are inserted into a Chinese cabinet in Hong Kong. The Electro Brand, which is fully assembled in the People's Republic, states clearly on its cabinet, "Made in China."

The Electro Brand looks seductive, what with a digital clock, large black plastic and stitched-leatherette cabinet, 17 knobs and buttons, two chrome plated speaker domes, a large carrying strap, and a true analog signal/battery-strength meter. It operates off either batteries or 117V AC.

Low Price, Low Performance

For all this, it's only $169.50 in the United States.

Alas, this modest price doesn't get you much in the way of shortwave performance. To begin with, the Electro doesn't cover 11, 13, 16, 19, 22, 90 or 120 meters used for world band broadcasts. Instead, it tunes continuously from about 4-12 MHz, and there's no accurate readout to tell you frequency scales, or so-called "bands" -- most of which are for non-shortwave functions. Two are for shortwave, and are labeled "SW.1" for 4-6 MHz and "SW.2" for 7-12 MHz.

But there's only one switch setting, not two, for shortwave. How can there be two "bands" -- "SW.1" and "SW.2" -- on the dial if there's no way to switch between them?

There is, in fact, only one shortwave "band." The dial is simply drawn up to make it appear as two. The "SW.1" frequency scale displays 4-6 MHz on the left side of the dial, with the right side being unnumbered. Just below is "SW.2," which reads 7-12 MHz on the right side of the dial, with the left side being unnumbered.

Generally Mediocre Performance

As to how well the Electro performs on shortwave, its sensitivity with the built-in antenna is mediocre, but not truly awful. Selectivity is quite broad, to the point where you sometimes get interference from stations two full channels away. Of course, with this degree of selectivity the set isn't up to separating stations on adjacent channels.

This low-cost radio uses a single-conversion design, so spurious signal rejection is poor. This means that not only do you hear howls and whooshes from whatever stations might be on nearby channels, but also you may very well be forced to endure an onslaught of whistles and Morse-code-type sounds that make listening even more distressing.

The Electro's performance isn't all bad, though. Its audio quality is quite reasonable, and there's even a three-slider graphic equalizer to adjust the bass, midrange and treble response. What this means is that if you find a station "out in the clear" that's also free from spurious signal interference, reception can be quite pleasant. That's a lot of "ifs," but at night there are usually a dozen or so such signals to be found in English within the world band spectrum.

Old Tea in New Bags

In all, this is a shortwave portable right out of the 1960s. If you listen to it for a few minutes, you can see why it's only in the Eighties, thanks to the elevated level of technology found in better world band radios, that shortwave listening has become popular in advanced countries.

These old-technology sets just don't perform well enough to listen to with pleasure day after day. Indeed, for listening

to world band broadcasts or ham transmissions in the Nineties, the Electro is essentially an overpriced toy.

The Bottom Line

The Electro Brand, along with its Rhapsody and Venturer multiband near-twins, are long on sizzle, but painfully short on steak.

These sets are among the worst we have ever tested ... and there's no economic justification for them, either. For a mere $30 more, you can purchase such fine world band performers as the Sangean ATS-803A and Radio Shack's Realistic DX-440. Either of these runs circles around the Electro Brand and its kin.

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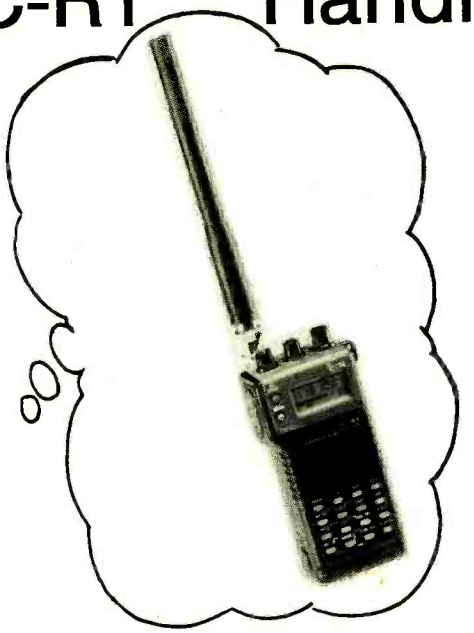
You can hear Larry Magne's equipment reviews the first Saturday of each month, plus PASSPORT editors Don Jensen and Tony Jones the third Saturday, over Radio Canada's "SWL Digest." For North America, "SWL Digest" is heard at 7:35 PM ET on 5960 and 9755 kHz, with a repeat Tuesday at 8:30 AM ET on 9635, 11855 and 17820 kHz.

PASSPORT'S "RDI White Paper" equipment reports contain everything found during its exhaustive tests of communications receivers, antennas and advanced portables. These reports are now available in the U.S. from Universal Shortwave and EEB; In Canada from PIF, C.P. 232, L.d.R., Laval PQ H7N 4Z9; in Europe from Interbooks, 8 Abbot Street, Perth PH2 0EB, Scotland, and Lowe Electronics stores; and in Japan from IBS-Japan, 5-31-6 Tamanawa, Kamakura 247. For a complete list of reports, send a self-addressed stamped envelope to RDI White Papers, Box 300M, Penn's Park PA 18943 USA.

Bob Grove, WA4PYQ

The ICOM IC-R1 Handheld Scanner

In July, Larry Magne tantalized U.S. and Canadian readers with a review of the ICOM IC-R72. This month we are going to tease you with the ICOM IC-R1. Neither of these receivers are available in the North American market. This review comes to us from Bob Sayers of Worcestershire, England.



A recent trend in scanning receivers has been not only to add additional features and frequency coverage, but also for them to get increasingly smaller. The new ICOM IC-R1, which has just become available in limited quantities in the UK, has certainly set a new record for small size, and as this review will show, is not short on features, either!

This scanner really is SMALL - 1.9 inches wide, 1.4 inches deep, and just 4 inches high when used with just its internal batteries. Just take out a ruler and look at those measurements for yourself! At this size, it is not only "handheld," but can actually be concealed within the palm of your hand. At first glance, in fact, the scanner seems to be dominated by the flexible helical antenna (supplied) which, although only inches long, is considerably taller than the receiver itself!

The second impression is gained as soon as you pick the scanner up; this unit is made, in the usual ICOM tradition, to a very high construction standard indeed.

So let's take a look at its specifications in the excellent 32-page ICOM instruction manual. Frequency coverage, on the "UK" and "US" versions at least, is 100 kHz to 1300 MHz, with specifications guaranteed from 2 MHz to 905 MHz. AM, FM, and WFM (wide) tuning modes are all available, with the tuning step increments being selected for 0.5, 5, 8, 9, 12.5, 15, 20, 25, 30, 50, or 100 kHz, or 1, 10, or 100 MHz!

The receiver is a triple-conversion superhet on AM or FM modes, or a double-conversion on wide FM. Sensitivity is quoted as 1.6 uV (AM), 0.79 uV (FM), and 6.3 uV (WFM) over the HF part of the spectrum, and figures of 0.79 uV, 0.4 uV, and 3.16 uV over the VHF and UHF parts in which I expect most readers will be interested.

100 memory channels are provided, and no less than 10 different groups of separately-programmed scan ranges.

In spite of its (very) small size, the tip and front panel layouts of the receiver are fairly conventional. The top panel has squelch, on-off/volume, and a larger, click-stop tuning knob, with a BNC antenna socket and a miniature connectors for external power, external loudspeaker or earpiece, and a "line" socket for tape recording. These latter three sockets are fitted with excellent rubber covers to exclude dust or rain splashes.

The LCD display on the front panel (which not only has excellent back-lighting, but can also have four different levels of contrast or viewing angle programmed!) can show 16 functions, including a bar-graph S-meter, in normal use; and can also be placed into a digital clock mode. Perhaps in keeping with the very small size of this unit, ICOM refers to this unit as a "watch" rather than a clock mode! Below the LCD is a 4 x 4 matrix of keys, all of which have a second function when used in conjunction with the function key on the left-hand side of the case.

It is difficult to believe on first sight that this tiny scanner also has internal (and non-accessible) nicad batteries. One of the most important features of the IC-R1, however, is its compatibility with external battery packs, and many other accessories, from ICOM's range of 145 MHz and 430 MHz amateur handheld transceivers.

This not only gives you a considerable choice of accessories, but if you have a ham license also allows you to share accessories between your scanner and your "handy." Thus by sliding off the protective cover on the base of the unit, a range of five external rechargeable battery packs, and one empty case for dry cells (ranging in capacity from 110 mAH to 1000 mAH), can be fitted.

When an external pack is fitted, the internal batters are not connected, so that in the event of a battery pack running out of power in the middle of a scanning session (and we have all had that happen!) the pack can be removed and use can be continued on the internal cells. I have not yet been able to actually measure the life of the internal pack, but it will certainly last for an evening's scanning. A wide range of "fast" and "normal" battery chargers and "cigarette lighter" DC leads are available, all of these allowing the scanner to be operated while both internal AND external battery packs are being charged.

I was particularly pleased to see that the BC-72 desktop fast charger accepts both AC, and also a 12 volt DC supply, allowing fast charging in a vehicle. ICOM seems to have missed a great opportunity, here, however, since the BC-72 manual appears to warn the user against actually using the receiver whilst it is inserted in the desktop charger, else "...malfunctions may occur..." Since the scanner fits quite firmly enough into this charger to enable it to be used as a "desktop scanner," it is a pity that the BC-72 cannot do double duty as a charger, and desk stand/power supply too.

Since I am sure that most IC-R1 purchasers will also purchase one of the range of most attractive ICOM soft carrying cases (there are a number of different models depending on which size of battery pack you purchase) to protect their investment, it would also be nice if a way could be found for the receiver to be able to be inserted into this proposed charger/desk stand whilst still in its soft case. As currently designed, this would not allow fast charging since the desk charger requires to make contact with the bottom of the battery pack. However, perhaps it could be designed with a flying lead which plugs into the top external power socket of the scanner, with a switch on the charger to enable it to be switched between fast battery charger, or desk stand/slow charger/DC power supply modes. Are you listening, ICOM?

So, what is it like in use?

Here, I must say first that I've only used the IC-R1 for five days, although it's been used fairly heavily during that time!

Since the scanner has so many functions, it is most important that the new user sits down with receiver and instruction manual, and takes the time to learn the various functions and modes available. Although well produced, the instruction manual is still not particularly clear on a few points - I can't say that I still fully understand the occasions when one would choose between "skip" and "mask."

ICOM has certainly done an excellent job with the ergonomics of this little set; it sits comfortably in one hand with the "function" key falling automatically under the left thumb.

The keyboard, although tiny, has a good "feel," and key depressions are confirmed by a (switchable) beep tone.

However, it must be said that the set is not without problems. Perhaps the worst of these is a vulnerability to cross-modulation from local strong signals. This is obviously understood by ICOM, since it is referred to in the instruction manual. At frequencies of particular interest to me, I found that the scanner had adequate, but not outstanding, sensitivity.

I had the opportunity during the test period to compare the IC-R1 on the VHF aero band alongside a Signal R535 dedicated airband receiver and, on simple antennas which would be typical of those used by hobby monitors, there were a number of occasions when the R535 heard signals which the IC-R1 did not. Obviously, the supplied helical antenna must be a considerable compromise at much of the huge frequency range which this receiver covers, but it was interesting to note that replacing it with a professional VHF airband helical antenna did not produce any sensitivity improvement.

At the LF and MF parts of the spectrum, the supplied antenna must be a considerable attenuator, since I was astonished to discover that the 500 kW BBC transmitter on 198 kHz, whose antennas can actually be seen on the horizon from the test location, cannot be heard at all on the supplied antenna.

Experienced scanner users will understand the need for appropriate antennas for the frequency in use, but this is a point not discussed in the instruction manual, which will confuse a newcomer to the hobby considerably, and probably result in units being returned to dealers under the impression that they are faulty!

Obviously, it is a simple matter to connect a long-wire antenna for LF and MF use, but this does increase the cross-modulation problem considerably. A further point which made the receiver slightly tiresome to use for long periods, was an apparent high background noise, even on strong local (fully-quieting FM) signals. This, I believe, is mainly due to the tiny internal speaker emphasizing typical "background noise" parts of the audio response, since it is partially (but not completely) improved by using a larger external speaker.

Sum-up?

If you need a scanner which is exceptionally-well designed and built, is almost unbelievably compact, has the most versatile range of facilities and accessories, can share accessories with your ham-band "handy," and you have little need for LF, MF, HF, or sideband-mode reception; then the ICOM IC-R1 is certainly for you.

If, however, your scanner remains on the bench or fixed into a vehicle for most of its life, you're happy with a simple rig with limited functions, or you are buying on a limited budget, then you may well find better value elsewhere.

Availability?

I must thank Nevada Communications, of Portsmouth, England, for the use of the IC-R1 for this review, and for providing valuable background information on the scanner. Nevada also has considerable experience of shipping rigs to the U.S. and the rest of the world - call them on 011-44-705-662145, or FAX them on 011-44-705-690626, for further details.

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catalogs

It's too early to have anything to do with Christmas. Still, there was a definite upturn in the number of catalogues arriving in our mailbox this month. Take a look at some of the "finds" we've discovered.

Mail Order Radio

Com-West Radio Systems Ltd. is a Vancouver-based ham radio radio store with a catalogue that's jam-packed with goodies. From transceivers to receivers, accessories to antennas, the good folk at Com-West seem to have it all.

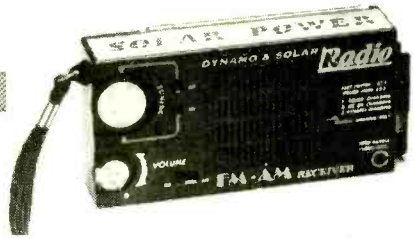
The U.S. reader might have an initial case of sticker shock when he sees the prices at Com-West. Yaesu's old workhorse, the FRG-8800, retails for $1,195.00; the Japan Radio Corporation NRD-525 an earth-shaking $1,895.00. Not to fear, though. These prices are in *Canadian* dollars.

The catalogue is well-stocked and a good read, and say its editor, if you don't see it, call 604-321-3200. There is no cover price on the Com-West catalogue. Write for your copy at 8179 Main Street, Vancouver, B.C. V5X 3LS.

Real Good Radio

We make no bones about it. We're big fans of the Real Goods Trading Company. Primarily an alternative energy outfit, they also have other interesting goodies from time to time. Take, for example, their Dynamo & Solar AM/FM Receiver. This radio with the clunky name gets its power from three sources: standard AC/DC and a small solar panel.

Perhaps the most interesting is its hand-crank dynamo. For every one minute you spend cranking the thing, you get ten minutes of listening time.



It's a neat idea and one that, if modified for television, might well cut down on the amount of time our little bug-eyed ones spend in front of the screen.

You can get your Dynamo & Solar AM/FM Receiver for $25.00 plus $6.00 shipping from Real Goods at 1-800-762-7325.

Alternative Alternative Power

We recently got a copy of the Solar Components Corporation's "Energy Saver's Catalogue." Another alternative energy firm, this one offers a wide range of interesting goodies, even if its catalogue is a bit difficult to use.

In this one you've got exotic-looking, 10 foot high tubes that are filled with water and used to store heat. And there is the usual assortment of solar panels as well.

This catalogue is free for the asking as well. Get your copy by calling 603-668-8186 or by writing Solar Components Corporation at 121 Valley Street, Manchester, New Hampshire 03103.

Pirate TV

Those of us who choose to walk on communication's wild side -- or at least entertain the idea -- always keep an eye open for gadgets with fun potential. Well, we found one in the new DAK catalogue.

The item in question is called the Pirate TV Station and it is a 910-918 MHz TV transmitter/receiver combo. The idea is simple. You hook the transmitter up to your main TV. And you put the receiver upstairs on another TV. Then, if you have only one VCR and it's on the main TV downstairs, you can still watch your favorite movie upstairs.

While we're sure that this is all well and good, we couldn't help thinking about its potential as a transmitter. The manufacturer says that its range is 100 feet but then again, the people who make cordless phones say that their product is good for 1,500 feet and I've heard cordless phones from miles away.

OK. So the idea of using one of these units as a pirate TV transmitter isn't entirely our idea. First, DAK sells the unit as a "Pirate TV Station." He even suggests that "if you have a camcorder, you can view 'live' shows" and even has an "on the air" sign accompanying the ad.

Well, if we go much further we could get ourselves in trouble. So we'll let you use your imagination. In any case, you can get the "Pirate TV Station" for $99.00 plus 6.00 shipping from DAK at 1-800-325-0800.

Specialty Scanner Store

There's no trouble at MetroWest -- only good, clean scanner fun. In fact, MetroWest specializes in accessory items for the handheld scanner owner.

Their catalogue is free for the asking -- just call 708-354-2124 or write 822 N. Spring, LaGrange Park, Illinois 60525.

The latest edition features the MetroWest Prop Power II drop-in charger, which is available for most scanner models. It offers both convenient handling and optimal NiCad battery performance.

There are other items of interest as well. If you own a handheld, it's worth taking a look.

Gadget Junky's Dream

The Sharper Image catalogue is a high-priced gadget junky's dream. Here you'll find everything from TVs, watches and motorized tie racks to sonic gopher chasers, nudie massage videos and telephones in the shape of the batmobile.

In the latest edition, Sharper Image goes snooping with a trio of "security" gadgets, manufactured in Germany.

First is the $199.00 phone guard which not only detects taps and bugs but has a "jam mode" whereby the unit varies the power on the phone line, "effectively switching off many high-impedance taps and tape recorders."

Second in the trio is the wireless transmitter kit, a $399.00 device that promises to broadcast voices and conversations up to 1,000 feet. "The clarity," says the catalogue, "will amaze you."

Third is the "Stealth Stethoscope." At $199.00, the Stealth is held against a wall, allowing the listener to hear conversations on the other side.

Why limit your fun to listening to your neighbor's cordless phone conversations when you can stick a stealth stethoscope against the outside wall of their house and hear *everything*. "What am I doing with my head against the wall of my neighbor's house at 2:00 a.m., officer? Uh, I was checking for termites."

You can reach the Sharper Image at 800-344-4444.

That's it from the world of catalogues this month. As always, we appreciate your input and look forward to finding out what you've been getting in your mailbox. Write to us at "Catalogues," c/o Monitoring Times, P.O. Box 98, Brasstown, NC 28902.

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Radio-Electronics 7MT02

Doug DeMaw

Home-Made Heat Sinks and How to Use Them

Those of us who enjoy experimenting with circuits are often faced with the need for a heat sink that is not available locally. This can slow down a project that we're anxious to fire up and test. It can take many days or weeks to obtain the desired heat sink by mail -- if we are lucky enough to find the unit we need in one of the surplus catalogs.

Experimenters are known for their innovative ability, so why not make your own heat sinks? This type of workshop activity is not only fun, but you will save money in the process: Commercial heat sinks can be quite expensive.

Why Use a Heat Sink?

Diodes, transistors and ICs must operate at predetermined safe internal temperatures. Heat is perhaps the worst enemy of a solid-state device. Keeping a transistor cool aids its performance and extends its life span. No semiconductor device should run so warm that you can't hold your finger on it for an extended period. Excessive voltage, on the other hand, will perforate the semiconductor junction and cause it to become "shorted."

There is a condition with bipolar transistors that is called "thermal runaway." This is caused by excessive heat. The hotter the transistor becomes the greater its gain, and the greater the gain the higher the operating temperature. A transistor in thermal runaway can destroy itself in seconds.

If you use a heat sink of adequate size, and if the semiconductor is bonded thermally to the heat sink, thermal runaway is not likely to occur, provided the operating current and voltage is within the manufacturer's specs.

Making Your Own Heat Sinks

Figure 1 shows four low-cost heat sinks that anyone can build. Example A illustrates how you may use a 1/2- or 3/4-inch copper pipe cap as a heat sink for T0-220 style transistors. These caps are available in most hardware stores, plumbing shops and lumber outlets. A hole is drilled in the closed end of the cap to accommodate the transistor mounting tab.

Figure 1B shows a side view of the cap with a 6/32 screw for attaching the cap to a circuit board. You may wish to clean the cap with steel wool, then spray paint it with flat black paint before using it, although this is not necessary.

Figure 1C shows how to use a piece of hardware store angle aluminum as a heat sink. It is shown with a T0-5 to T0-39 transistor, but it can be used for T0-220 types of transistors also. If used for a T0-5 device, simply drill a hole in one surface of the stock. The hole should be slightly smaller than the transistor case in order to ensure a snug fit. Use transistor heat-sink compound between all transistors and their heat sinks to aid thermal conductivity.

Figure 1D depicts a different type of heat sink for T0-5 and T0-39 style transistors. This sink is formed in a vise by compressing sheet brass, copper or aluminum around a drill bit that has a smaller diameter than the case of the transistor.

Allow sufficient excess stock to form the ears or wings of the heat sink. The larger the ears the greater the heat-sink area. This unit is press-fit over the case of the transistor after applying heat-sink compound to the mating surfaces.

Larger heat sinks are required for use with big transistors, such as those in T0-3 cases. A good home-made, large-area heat sink is shown at E in Figure 1. The example uses two U-shaped channels of brass, copper or aluminum stock. This sink can be made from pieces of an aluminum cookie sheet. The thicker the metal, the better the cooling effect. It is important that the mating surfaces of the channels be flat and smooth to aid the thermal conductivity from one channel to another.

After applying heat-sink compound to the mating areas, bolt the sections together at each end with 6/32 screws and nuts. Use a lock washer to keep the screws from becoming loose.

The center area of the inside channel provides space for the transistor or transistors. These channels can be shaped by warping the sheet metal pieces in a bench vise. A rawhide hammer can be used to form a sharp 90-degree bend.

Mounting the Transistor

When you bolt a transistor to a heat sink, it is important that you do not use excessive torque on the mounting screws. Too much tension can cause internal damage to the transistor as it heats up, then cools. Tighten the nuts until they are just a smidgen beyond being snug. Use lock washers.

In a like manner, avoid bending the leads of T0-220 transistors upward or downward to allow them to meet the PC board. The body of the transistor should be flush with the PC board to avoid stress on the leads. Mounting the transistor and its heat sink vertically avoids this problem. Otherwise, the heat sink (horizontal mounting) should be outboard from the PC board to permit the transistor leads to remain straight.

Heat-sink compound is available in small tubes at Radio Shack and other parts stores. You can make your own by mixing 1/3 clear silicone grease with 2/3 zinc oxide. Clear silicone grease may be used, but it is not as efficient a thermal agent as the former substance.

The layer of heat-sink compound should be thin. If you use too much of this material, it will impair the heat transfer from the transistor to the heat sink. The compound should just cover the surfaces.

Summary Comments

If you are willing to stroll through your electrical and plumbing supply houses you will observe all manner of low-cost items that can be used as heat sinks. Various kinds of aluminum trip molding are available, and most of them have at least one surface that is smooth and flat.

Avoid using very thin stock: It lacks the mass that is needed for efficient cooling. I suggest that any stock you select should be 16 gauge or lower. Do not use iron materials for home-made heat sinks. Not only are they poor conductors of heat, but they become rusty in humid regions.

If you aren't a person who likes to make things from metal, check the numerous surplus electronics catalogs for the availability of heat sinks. Among the list of dealers are those in Reference 1.

mt

Reference 1

BCD Electro, P.O. Box 450207, Garland, TX 75045-0207
R & D Electronics, 1224 Prospect Avenue, Cleveland, OH 44115
All Electronics Corporation, P.O. Box 567, Van Nuys, CA 91408
Hosfelt Electronics, Inc., 2700 Sunset Blvd., Steubenville, OH 43395

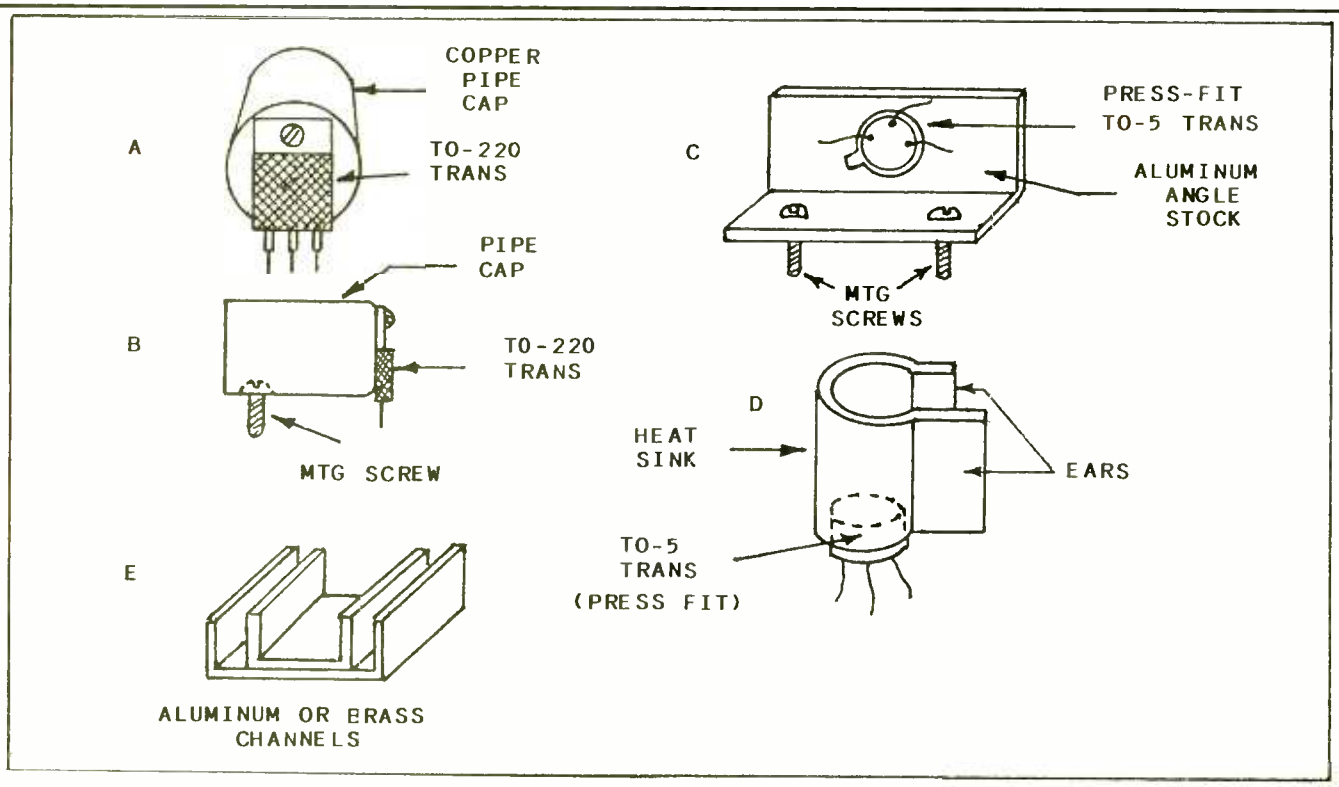

Figure 1 -- Examples of home-made heat sinks that can be fashioned from ordinary low-cost materials. See text for construction details.

Rich Arland, K7YHA

Slick Tricks for the S-120

NOTE: FOR ANYONE INEXPERIENCED WITH HIGH VOLTAGE CIRCUITS, DO NOT, UNDER ANY CIRCUMSTANCES, ATTEMPT THIS MODIFICATION. NEITHER MYSELF NOR MONITORING TIMES MAGAZINE WILL BE RESPONSIBLE FOR ANY MODIFICATIONS OR REPAIRS ATTEMPTED BY OWNERS OF PRODUCTS DISCUSSED IN THIS COLUMN.

I have a personality quirk. I like to collect older tube-type SW receivers. Not just any old tube-type receiver but ones that I have used in the past, during my early days in the shortwave game. You know, back when men were men, and radios glowed in the dark.

Receivers with exotic names like the Knight Kit Star Roamer, Space Spanner and Ocean Hopper. The Heathkit Mohican, GR-81, and GR-54. How about the Hallicrafters S-38B, C, D, E, S-20R, S-120, SX-62A, SX-71 and SX-110, along with the National HRO-5, SW-54 and NC-109?

Now these were (and still are) "classic" SW radios. Never mind that some of them took two people and a dog to lift, could heat the shack in the winter time, and featured a local oscillator that drifted 5 kHz per minute. This was REAL RADIO!

Each year I scour the local hamfest flea markets and peruse the swap-shop papers for these old rigs. Most of the time it's a bust, but occasionally I end up with a gem in the rough. Such was the case when Harold "Dr. DX" Cones called me one afternoon to inquire if I wanted an early 1960s-vintage Hallicrafters. I had used one for a couple of years in high school, so I struck a deal with Herr Doktor.

The S-120 is a four tube superhet that is attractively packaged and, when properly aligned and modified, will perform respectably even on today's crowded bands. The S-120 uses a 12BE6 high-gain heptode as the RF amp, local oscillator (LO) and mixer stage, which is followed by a 12BA6 for the IF amp.

The 12AV6 acts as a detector and feeds the demodulated signal to the 50 C5 radio amplifier.

Starting out Right

Cost of a used S-120 will run between $35-$50 depending upon cosmetic appearance and electronic condition. Stay away from any radio that has been modified. It is doubtful that you will find a manual with the radio. In the event that the seller has the manual, I would strongly recommend that you photocopy the original, archive it and use the copy to work from. If you need a manual for the receiver, write ARDCO Electronics, P.O. Box 95, Dept Q, Berwyn, IL 60402, or Hi-Manuals, P.O. Box J-802, Council Bluffs, IA 51502 (include $1 for their current catalog, as Hi-Manuals *do not quote* on their services).

In looking a prospective receiver over, pay particular attention to the main tuning capacitor as these are almost impossible to fix if the plates are bent or damaged. Replacement tuning capacitors are almost nonexistent except for similar models of the receiver.

Dial cord replacement is easy to do and dial cord, tubes, capacitors, coil forms, books and other hard to find items are available via Antique Electronic Supply, 688 W. First Street, Tempe, AZ 85281. An outstanding source of hard to find literature on early shortwave radio and other strange things is Lindsay Publications, many of which are carried by DX Radio Supply (whose catalogue is available for a quarter from P.O. Box 360, Wagontown, PA 19376.)

Without a doubt, almost any classic radio that you pick up will need one thing – electrolytic capacitor replacement. Multi-section, high voltage electrolytic caps are about as easy to find as hen's teeth. My major source of electrolytics are old tube type AM radios. Replacing a three or four section electrolytic in a shortwave receiver can be accomplished by using two dual section caps from a couple of old AM receivers, wired in place of the original. USE EXTREME CAUTION AS LETHAL VOLTAGES ARE PRESENT IN ALL VACUUM TUBE EQUIPMENT.

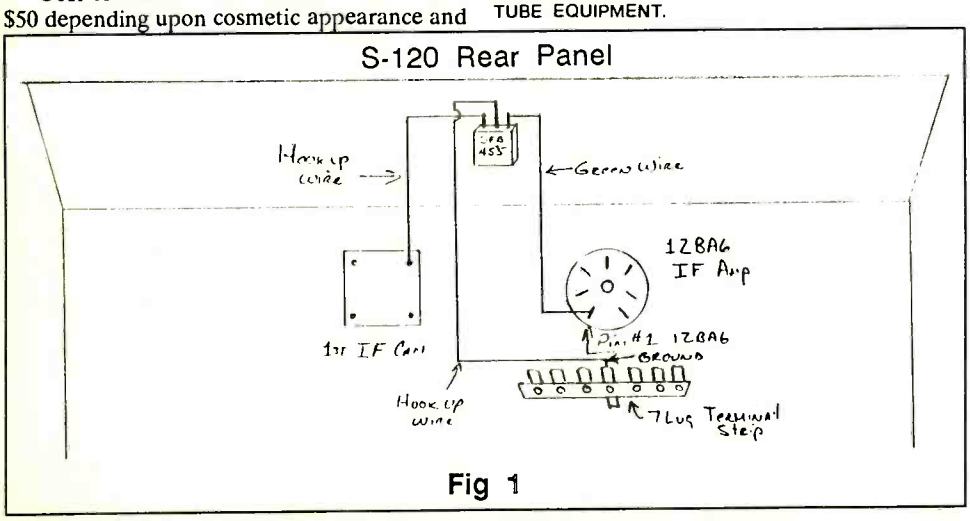

Fig 1

In order to make the S-120 into a lean, mean DX machine, it is first necessary to have a good working receiver. Go through the rig and ensure that the receiver is working as it should prior to any modifications. Do a complete IF alignment prior to any modifications. As with the majority of SW and amateur equipment, these classic receivers suffer from "optimize alignment" at the factory. Most of them have never been re-aligned in 30-40 years, so a proper alignment will do wonders to make these classic rigs play well.

Increasing Selectivity

Most of the Hallicrafters S-series receivers have no crystal or ceramic filters to increase selectivity in the IF strip. The S-120 has L/C tuned circuits in the IF and these suffer horribly when bands are crowded. Since these receivers have a 455 kHz IF, adding a 455 kHz ceramic filter between the first IF transformer and pin #1 on the 12BA6 IF amp will do a lot to tighten up the IF strip and increase selectivity.

To begin the mod, there is a green wire connected between the top of the secondary winding on the first IF can going directly to pin #1 of the 12BA6 tube. Cut the wire at the IF can end and bare about 1/8 inch of the wire. This wire will go from the output of the 455 kHz ceramic filter to the IF amp tube. Solder a two inch length of wire onto the top of the secondary of the IF can (where you clipped off the green wire). This will connect to the ceramic filter input. Connect a three inch length of wire from lug 4 (ground) of the 7 lug terminal strip that lives just below the 12BA6. This will connect to the ground lug of the ceramic filter.

Referring to Figure 1, position the ceramic filter on the rear panel of the receiver using some double-sided sticky tape. Since either end can be used as an input port, solder the wire from the top of the IF can to the filter lug closest to the IF can. Hook up the ground wire (to lug 4 of the terminal strip) to the middle lug on the ceramic filter. The green wire going to pin #1 of the 12BA6 is soldered to the third lug on the ceramic filter. That's all there is to it...quick and dirty.

Now, take the time to go back and re-align the IF strip again, now that the filter is in place. Most of the ceramic filters are NOT resonant at 455 kHz.

Figure 2 shows the frequency response of two Murata SFB-455 ceramic filters. Note that the center frequency of both is about 453

Submit your favorite projects to Experimenters' Workshop, c/o MT, P.O. Box 98, Brasstown, NC 28902. Questions requiring a reply must be accompanied by an SASE.

INPUT and FEEDBACK

When it comes from our readers, it's our favorite terminology. Send us your QSLs, pics of your monitoring post, your letters to the editor; let the columnists know your tips, experiences, and opinions! *MT* will be all the better for it.

kHz, about 2 kHz off from the desired IF frequency of the S-120. No big deal, really, but it is well worth the effort to go through the IF alignment one more time to ensure the IF strip is properly aligned and functioning at peak effectiveness with the new filter.

If one ceramic filter is good, two should be better, right? Wrong. Figure 3 shows the results of the two filters of Figure 2 when they are cascaded (placed in series). Note the double resonance peaks. This is caused by the interaction of the two filters due to improper impedance matching from input to output and capacitance of both filters in series.

In tests on my S-120 using these two filters in cascade, it was noted that a ringing occurred when trying to peak the IF strip. This is due to the extremely high Q of the dual filter configuration. In addition, once the IF strip was detuned to a point where the ringing stopped, the IF bandwidth was extremely tight and unsuited to voice reception. Bottom line: stick with one ceramic filter and retune the IF strip to obtain maximum performance.

There are some other tips that can make the S-120 and similar receivers work much better than advertised. There is a tube replacement for the 12BE6 RF amp that will really hot-up the front end of the receiver.

Unfortunately, I have lost the data and therefore, will ask the readers. Does anyone have the number of the hot RF amp tube used to replace the standard RF amp in these receivers? Addition of an S-meter and digital readout are also good mods and will be detailed in a later "Experimenter's Workshop" column.

Remember, if you write to me (via the Brasstown address) and expect an answer, include an SASE. 73s and Gud DX.

mt

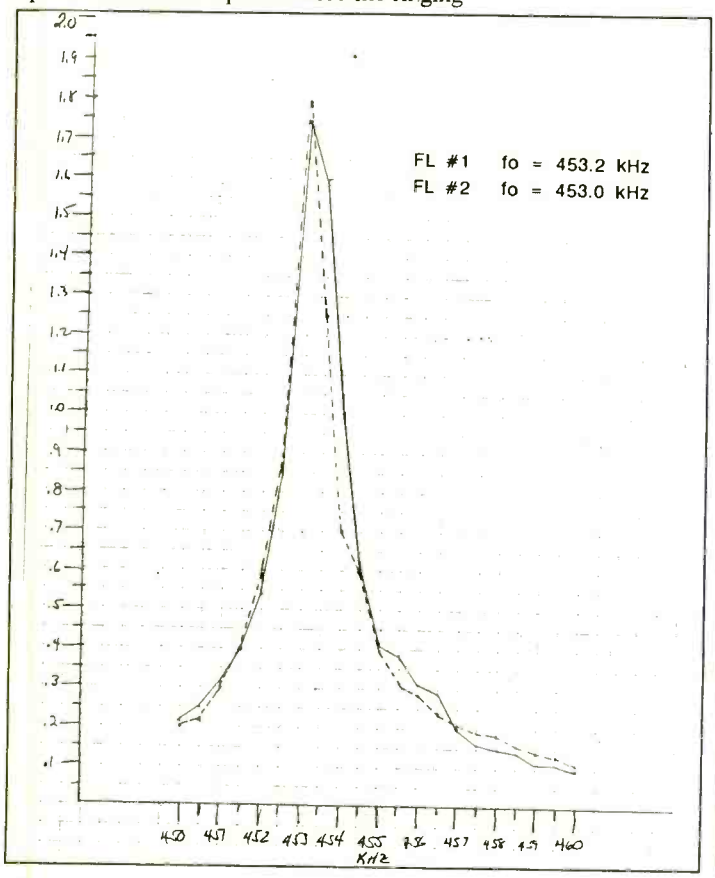

Fig 2

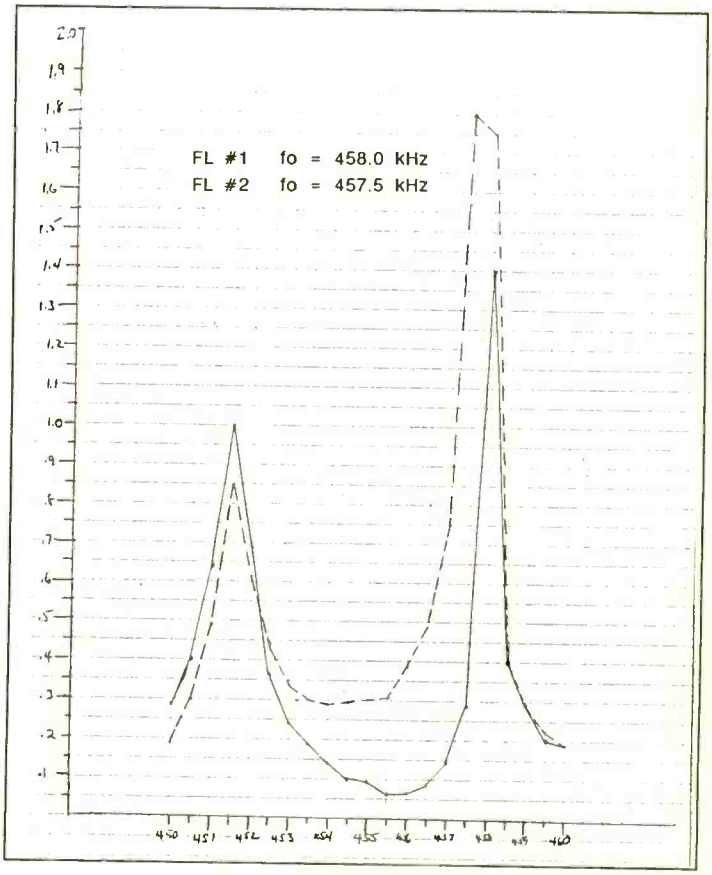

Fig 3

W. Clem Small, KR6A, CET

With this antenna,

You Can't See the Forest for the Trees

I think that I shall never see an antenna as lovely as a tree

A few columns back we discussed the fact that there are actually engineering reports dealing with successfully using the living human body as a communications antenna. Perhaps it should come as no surprise then that, in my reading, I sometimes come across reports of the use of living trees as antennas. Some of these reports even state that tree antennas have been used to support long distance two-way communications.

Since many of us have a tall tree already standing in our yards, the idea of a "tree antenna" is an intriguing one indeed. My curiosity finally motivated me to give the idea a try.

High tech tree

After a bit of experimenting, I came up with the following steps to a working tree-antenna. I put a ground rod into the earth near the base of a 60 foot maple tree in a grove behind the house. Then a two inch nail was driven into the tree at the ground level and another nail up about 30 inches above ground. The nail heads were left protruding about 1/2 inch.

A 52-ohm coax lead-in was run to the base of the tree and the coax shield was connected to the nail at ground level and also to the ground rod. See Figure 1 for details. I then connected a 4 to 1 air-wound balun between the tree and the coax. The 30 inch high nail and coax center connector went to the balun's high impedance side and the coax lead-in went to its low impedance side.

I would rate this tree-antenna as a fair performer over the entire frequency range on which I checked it out: 100 kHz to 30 MHz. I didn't have time to experiment further, but I wonder if something like a Grove MiniTuner in place of the balun would improve it even more. So, you experimentally-minded monitoring buffs, here's a wide open field to try. Be sure to let me know of your results.

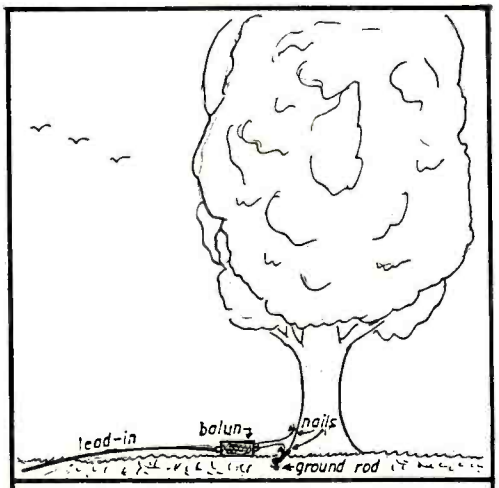

FIG. 1. MAKING AN ANTENNA FROM A TREE..

Another Unusual Antenna

We all know what the "skip zone" is, right? That's the area between the ground wave coverage and the sky wave coverage for shortwave signals as shown in Figure 2. In the skip zone, very little, if any, signal is received from a transmitting station.

You may have tried to receive a shortwave station located perhaps as close as 50 to 100 miles from your location and wondered at why it was inaudible when overseas stations were booming in on the same band. It's likely that the problem was that you were in the skip zone of the inaudible transmitting station.

Well, there is a little-used technique available for getting a communications circuit working into the skip zone. The technique is sometimes called "BLOS" communication for "beyond line of sight" communication, although the real idea is to go "beyond ground wave coverage."

In BLOS communication, transmitted signals are directed straight upwards rather than near the horizon as is done for line of sight coverage or skywave-skip DX work. Higher frequency signals aimed upward in this manner pass right on through the ionosphere and we never hear from them again.

But as the frequency of the transmitted signals is lowered, we come to a frequency that will reflect back downward similarly to what would happen if you squirt a water hose at the ceiling of a room. The signals come back down from the ionosphere in a zone all around the transmitter and can provide reliable coverage of what would otherwise be a skip zone.

Ordinarily, BLOS communications is effective at frequencies up to 8 MHz in the day and 4 MHz at night. But the upper limit can be significantly higher than that during periods of high sunspot activity such as we now have.

As you can understand, BLOS signals are called "skywaves" just as the long-haul DX skip signals are thought of as "skywaves." But BLOS signals are coming from overhead, or almost overhead rather than from just above the horizon as the DX signals are. So, BLOS signals are referred to as "near-vertical-incidence skywaves" or "NVIS."

If you want to receive NVIS signals, you will want your antenna oriented to maximize your chances of picking them up. Interestingly, an effective antenna system for this is our friend the halfwave dipole mounted horizontally from 1/10 to 1/4 wavelength above true ground. For NVIS the ground serves as a reflector, making this antenna system a beam pointing straight upwards.

Many of us already have this sort of an antenna system in place, although if we had our wish the antenna would be much higher in the air to give us better DX performance.

For the 40-meter shortwave band, which contains both broadcast and amateur radio signals, one wavelength is about 130 feet long. An NVIS antenna system here could utilize a 65 foot halfwave dipole hung as low as 14 feet or as high as 34 feet above the true ground. As true ground is often something

like five feet below actual ground, an NVIS installation would place the antenna from 9 feet to 29 feet above earth.

Use of such a system may allow you to receive a nearby shortwave broadcast station from the vertically radiated "spillover" radiated outside their main antenna beam. And for hams, a BLOS circuit may be the best bet for a way to reliably talk to those relatively nearby ham friends who live just outside groundwave coverage.

Tips from readers

Antenna Topics column reader Alan Johnson of Bethesda, Maryland, writes to comment on the G5RV design which appeared in the May column. He has been using a G5RV for shortwave listening for three years with excellent results, and tells us that the G5RV can also be mounted as a sloper (see last month's column for a discussion of slopers) and works well.

Also, he says that, in limited space situations, the required mounting space can be cut in half if one leg of the G5RV is run horizontally and the other dropped vertically to ground, and grounded where it hits the ground. Incidentally, Alan credits former *Monitoring Times* writer Ike Kerschner as the original source of these helpful hints.

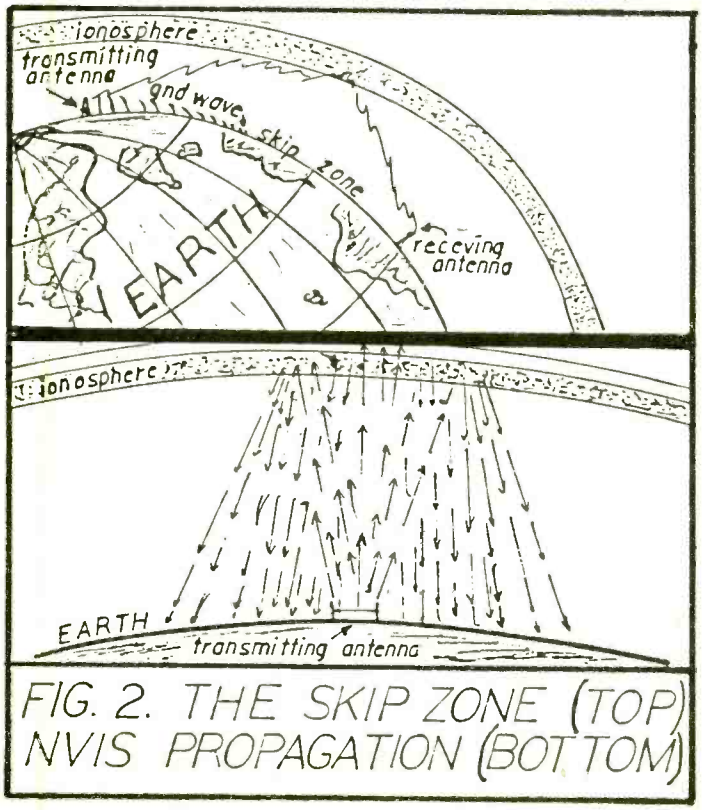

FIG. 2. THE SKIP ZONE (TOP) NVIS PROPAGATION (BOTTOM)

RADIO RIDDLES

Last month: I mentioned that antennas were once called "aerials," then asked why they were so-called, and why they are no longer called by this name?

Well, any really old-old-timer can recall that, in the good old days of radio, it was generally essential to have your antenna very high in the sky to catch enough of those elusive radio waves to insure good reception. Building a set of towers to elevate your antenna was a necessary task for any radio operator or monitoring enthusiast in those days.

Because the word "aerial" had (and still has) the meaning of "high in the air," it was natural to call those signal grabbers "aerial wires." In time this was shortened to "aerials."

Then, as technology advanced and receivers became more sensitive, the need for such high sky wires for receiving purposes diminished until today we have pocket radios with antennas completely inside their cases: such antennas can hardly be thought of as "aerial wires."

Noting the similarity to insect antennae, which help the insect "pick up" information from its environment, the name "antenna" was substituted for the no longer completely appropriate term "aerial." And that is why we now call aerials "antennas."

This month: We've mentioned the idea of a reflector element as part of an antenna system above. Where did people in radio work get the idea of using a reflector in an antenna, and who used the first radio antenna with a reflector? Check in next month for the answers.

I hope to see you in Knoxville at the *Monitoring Times* Radio Convention. 'Til then, Peace, DX, and 73.

mt

ask bob

Bob Grove, WA4PYQ

Q. *Can I increase the memory channel capacity of my Radio Shack PRO-38 hand-held scanner? (Ricardo A. Molinar, Ft. Lee, NJ)*

A. No. Since their inception, Radio Shack programmable scanners have been virtually immune to frequency and channel capacity expansion. The PRO2004 and 2005 were made to be expanded to allow follow-on models like the PRO2006 to have more features without the expense of redesign.

When the same microprocessor controller chip is used in several models, the European 66-88 MHz band may be substituted for the American 30-50 MHz range (with appropriate realignment and parts substitution), and it may read out 806-960 MHz, but there is no supportive circuitry to allow reception.

Early model Bearcat and Regency scanners could be "tricked" into extending their frequency limits somewhat by pressing certain key sequences. In fact, these techniques were designed in as part of the factory test and alignment procedure.

Q. *What frequency ranges are used aboard aircraft carriers and other naval ships? (George Zaabadick, Bangor, ME)*

A. While naval communications take place from the lowest frequencies (76 Hz VLF) through microwave (satellite comms), the most commonly reported two-way contacts are heard in the 2-30 MHz HF (shortwave) spectrum and the 225-400 MHz military aeronautical band.

Several excellent references for military communications are the *Shortwave Directory* ($19.95 plus $3 shipping); *Official Aeronautical Frequency Directory* ($21.95 plus $2.50 shipping); *Communications Satellites* ($6 closeout sale including shipping); *Air Scan* ($17.95 plus $3 shipping); and *Federal Frequency Assignment Master File* ($24.95 plus $3 shipping). All are available from Grove Enterprises and other *MT* advertisers.

Q. *With public safety agencies going to 800 MHz trunking and no scanner compatible, does this mean the end of scanner monitoring? (Mark Widerstrom, Houston, TX)*

A. No, it means a new generation of scanners is on the horizon. Tracking trunked transmissions is easier to do than to pronounce. They are distant, but on the horizon. Even so, the majority of communications will remain in the same single-channel mode for years to come.

Q. *I am hearing telephone conversations just above the standard AM band on my radio; the telephone company says it must be a fractional harmonic of their GHz microwave link since they've never heard of anything like this before. What gives? (Glendale, CA)*

A. No mystery here. Up until about four years ago, it was lawful to sell cordless telephones with base units transmitting in the 1.6-1.8 MHz range rather than the present 46.61-46.97 MHz.

While the old phones can no longer be sold, they may be used until they die a natural death. Tell the telephone engineer there's no such thing as a fractional harmonic.

Q. *My police dispatcher says "priority", then "10 speed", "20 speed" or "30 speed". What does this mean? John Hilton, Houston, TX)*

A. Different police departments adopt their own message codes, but I'd be willing to bet that this is their variant of the commonly-used priority codes one (routine response); two (expedite with caution); and three (respond with siren and lights).

Q. *Can I get more audio punch out of my Realistic PRO34 hand-held scanner by an internal modification or using an external amplified speaker? (James Harris, Corpus Christi, TX)*

A. I'd vie for the external amplified speaker; that way you won't void your warranty or overtax the amplifier and speaker in the radio. Radio Shack has several excellent amplified speakers in their catalog: 32-2031 (one watt, battery operated, $19.95); 40-1262 (six watts, AC operated, $79.95); and 30-1264 (5 watts, five-band equalizer, $99.95 per pair).

Q. *Is it possible that you will eventually put all of the frequencies published monthly in MT in one exhaustive volume? (Sherman Ellis, Ontario, CA)*

A. Possible, yes; probable, no.

Q. *What frequency range is used at a construction site between the crane or derrick operator and the supervisor? (George Zaabadick, Bangor, ME)*

A. Most likely an itinerant frequency like 151.625 MHz or a low-power industrial frequency like 154.570 or 154.600 MHz. A complete listing of itinerant and industrial frequencies is found in the frequency allocation tables of Gene Hughes' *Police Call Directory*, available from Grove Enterprises and Radio Shack outlets.

Bob's Tip of the Month:

Wide Frequency Coverage on ICOM Walkie-Talkies

Several new ICOM hand-held transceivers have the capability of incredible wide frequency coverage by executing simple keypad commands.

IC-2SA — With the power off, hold the following keys down and turn it on: CALL, FUNC, LIGHT, then release the keys.

IC-2SAT — With the power off, hold the following keys down and turn it on: LIGHT, B, #, then release the keys.

IC-24 — (new version only; old version needs diodes cut) With the power off, hold the following keys down, then turn it on: LIGHT, B, #, then release the keys after the display comes on.

With the power off, hold the following keys down, then turn it on: LIGHT, 2. This enables the 10 MHz digit.

With the power off, hold the following keys down, then turn it on: LIGHT, 3. This enables the 100 MHz digit.

Questions or tips sent to "Ask Bob," c/o MT, are printed in this column as space permits. If you desire a reply by return mail, you must enclose a self-addressed, stamped envelope.

Q. *What is the difference between a "scanning receiver" and a "scanner"? (Dale Wagner, Margate City, NJ)*

A. In practical parlance, the term "scanner" is reserved for specialized consumer radios operating above 30 MHz which have only one basic purpose: to switch rapidly among dozens of pre-established frequencies and stop on those which are active, resuming their automatic search again when the signal leaves the air.

Modern receivers made for serious monitoring in a variety of modes may have the capability to scan memorized frequencies but, because of their much greater functional capabilities, they are not called scanners, but communications receivers.

Q. *Why do the international broadcasters spend so much time transmitting awful, distorted music? (Wm. Herman, Indianapolis, IN)*

A. First, some (not all!) distortion is contributed by atmospheric distortion by the long signal path; remember, not all broadcasts are beamed to the U.S. and the signal might sound perfectly acceptable in the target area.

Second, some music is sent just to occupy the frequency like a test pattern; these so-called "interval signals" discourage other broadcasters from coming on those frequencies.

Thirdly, most shortwave broadcasters are government-funded and loaded with bureaucracy; staffers often couldn't care less about quality since they are not in commercial competition for ratings.

Finally, many emerging countries, eager to establish their own international broadcasting services, use old equipment, poorly maintained by incompetent technicians.

Q. *Are there any books available to help me identify TV signals? (Grant Gorden, Farmington, MN)*

A. No, but there is one club which specializes in domestic broadcast DXing: Worldwide TV-FM DX Association, PO Box 514, Buffalo, NY 14205. Their monthly "VHF-UHF Digest" is available for $17 a year in the U.S.; a sample is $1.

A comprehensive list of questions and answers regarding monitoring may be found in Bob Grove's "Scanner and Shortwave Answerbook," $12.95 plus $2 shipping from Grove Enterprises, P.O. Box 98, Brasstown, NC 28902.

Correction

Perry Crabill, Jr., of Winchester, Virginia, corrects an error in my July 1990 column. In attempting to explain the time zones, I said that there are 15 time zones; I meant to say there are 24 time zones, each separated by 15 degrees. Thanks, Perry.

LETTERS

continued from page 3

reader who wishes to remain anonymous: "For many years the East German STASI (Staats-Sicherheit or State Security) operated a five-digit numbers station at Willmersdorf, some 15 miles from Berlin. It transmitted daily in the German language on 3220 kHz at 0630, 1000 and 2000 UTC.

"In January of 1990, the site was occupied and partially destroyed by demonstrators. Secret papers were 'lost,' perhaps intentionally, to the Russian KGB, by the commanding officer, General Wolf, who was wanted by the West Germans.

"As you have reported, by March the transmitting schedules had been reduced to Thursdays only; now transmissions have ceased completely. It is unknown as of this writing whether another schedule with new frequencies has been implemented or whether the normalization of relations and perestroika have closed down the station permanently."

Brian Jones writes to let everyone know that there is a radio monitor's club in San Antonio, Texas. "We're called the San Antonio Knobtwisters," says Brian, "and we meet on the second Sunday of each month at Wyatt's Cafeteria, located at 8511 Tesoro Drive." That's just off Nacodoches on North Loop 410. "Meetings," adds Brian, "are primarily informal and last from 2 to 4 p.m." If anyone would like more information, call Brian at 349-1419.

Larry Flegel recently took a tour of the WYFR transmitter site in Florida and passed along a few snapshots.

Larry also suggests that everyone who is coming to the *Monitoring Times* convention in Knoxville next month should bring the QSL albums. "Maybe," he says, "we should have a contest -- cards by continent, oldest, rarest, BCB, shortwave, utility, etc. This could be a lot of fun!"

Don't forget your radios, too.

MONITORING POST PIN-UP

Larry Flegle of Woodstock, Georgia, sent the above picture after his tour of WYFR. He also sent us, some time back, a picture of himself at his Collins 51 J-3 and Hammarlund SP-600 receivers. Also pictured is a 1027 Kovash Loop antenna and Spacemagnet. Now that's wallpaper befitting a world monitor, Larry!

How about sending us a picture of you and your monitoring post? We'd like to feature YOU in this spot! Just send it to Monitoring Post, P.O. Box 98, Brasstown, NC 28902.

"Hey folks," writes John P. Myers of Spokane, Washington, "the anonymous reader who sent in the 'proper' way to program the priority channel on the PRO-2005 scanner can't follow directions well. "The manual," says John, "is correct as follows: 'Press program, then channel #, then PRI.' By using your writer's method, you are just adding an extra, unnecessary step."

After reading your "tip of the month," writes Fred Forkel of River Grove, Illinois, "I modified my Bearcat BC200XLT. It has been over a month since I performed the modification and my scanner has been my constant companion. With the longer battery life (up to 10 hours on a full 16 hour charge), I can take my scanner anywhere and not have to worry about extra battery packs or recharging. I think that the BC200XLT is the best scanner a person could want, both for sensitivity, image rejection, and now battery life.

"Thanks for your magazine and for all the help and guidance you have shared with your readers. I anxiously await every issue of *Monitoring Times* and read it cover-to-cover."

Thanks, Fred. Glad we could be of help.

You might like to get some information on the new Bearcat Radio Club. Membership includes a 6-times-a-year tewsletter and other goodies. Information is available from P.O. Box 291918, Kettering, Ohio 45429.

Robert L. Drury wants to know about Long Beach California and Los Angeles County Sheriff cars. The cars, say Robert, seem to be "sprouting an unusual array of apparently VHF-hi antennas in either triangular or diamond-shaped configurations. These are not their usual UHF communications systems. What are they?"

Check this one out. According to a reader in California, there is a way to tune in wired telephones on your shortwave radio. This reader says that he was talking to a friend on his new AT&T model 612 programmable telephone when he happened to switch on his shortwave receiver. There, to his horror, was his voice -- loud and clear!

The signals reappeared every few kilohertz from 4.5 to 8.8 MHz, but was particularly strong in the 6 to 7 Hz range. Apparently his voice was modulating the time base oscillator of the microprocessor in the telephone!

Has Ma Bell inadvertently planted bugs in homes and offices around the country? Let us know if you have been hearing strange voices on your radio!

Thomas Nichols, Sr. writes to say that he really enjoys *Monitoring Times* and that he "can't wait until the next issue." His favorite parts of *MT* are Experimenter's Workshop, the Scanning column and Larry Van Horn's Utility world. Tom saves his best praise for Larry Magne, though. "His equipment tests are the best. I also never miss his Radio Canada International show."

Larry, along with RCI *Shortwave Listener's Digest* host Ian McFarland will be appearing at the *Monitoring Times* convention in Knoxville, Tennessee October 4, 5 and 6.

Speaking of the convention, we're hoping that we'll have the chance to see many of you in Knoxville. Everyone here at *Monitoring Times* has been working very hard to make this a really memorable event. And as of this writing, virtually everyone on staff will be there with the exception of Rich Arland and John Santosuosso.

We're looking forward to having the chance to meet you. Y'all come on down, 'y hear?

See you in Knoxville!

We'd like to hear your comments and opinions on 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. Please include your name and address.*

CONVENTION CALENDAR

Date	Location	Club/Contact Person
Sep 1-2	Alamogordo,NM	Alamogordo ARC/ June Richmond K5BHE P.O. Box 276, Alamogordo, NM 88310
Sep 1-2	Shelby, NC	Shelby ARC/ Dale Mauney WA4BBN 1158 E. Marion St., Shelby, NC 28150
Sep 8	Uniontown, PA	Uniontown AC Gabfest/ John Cermak WB3DOD 36 Steel St, Republic, PA 15475 Rptrs: 147.045,.255,145.170,443,750
Sep 8	Windsor, ME	Augusta ARA/ Joseph Kozak WA1N P.O. Box 358, Manchester, ME 04351
Sep 8-9	Melbourne, FL	Platinum Coast ARS/ Gerry Wentz KC4EHT P.O. Box 1004, Melbourne, FL 32902 Talk-in 146.85/25 Club Rptr
Sep 9	Joliet, IL	Bolingbrook ARC/ Edwin Weinstein WD9AYR 7511 Walnut Ave, Woodridge, IL 60517
Sep 9	Butler, PA	Butler Co ARS/ Gerald Welzel W3DMB 784 Mercer Rd, Butler, PA 16001
Sep 9	S Dartmouth,MA	Southeastern ARA/ Bill Field WA1FYF 774 County St, New Bedford, MA 02740
Sep 9	Findlay, OH	Findlay RC/ Ronald Griffin 230 North Main, Findlay, Ohio 45840
Sep 15	Goshen, NY	Orange Co ARC/ Kevin Conero 100 Wallkill Ave, Montgomery, NY 12549
Sep 15	Wichita Falls,TX	Wichita ARS/ Valerie Thomerson 2202 Taylor, Wichita Falls, TX 76309
Sep 15-16	Peoria, IL	IL State Conv/ Richard Waldmere KA9HPT 2015 Alhambra Ct, Pekin, IL 61554
Sep 15-16	Va Beach, VA	Roanoke Div Conv/ Art Thiemens AA4AT 2836 Greenwood Rd, Chesapeake, VA 23321
Sep 15-16	VA Beach, VA	ANARCON '90/ Box 9645, Norfolk, VA 23505/804-499-1191 or 877-4969
Sep 16	Mt.Clemens,MI	L'Anse Creuse ARC/ Ralph Wilcox KA8YOJ 39610 Chart, Mt. Clemes, MI 48045-2154
Sep 16	Canfield, OH	20/9 ARC/ Richards Slutz KB8GAE 5118 Salem Unity Rd, Salem, OH 44460
Sep 16	Cincinnati, OH	Greater Cincinnati ARA, John WA8STX 10615 Thornview Dr, Cincinnati, OH 45241
Sep 21-23	Milton-Freewater, OR	Walla Walla Valley ARC/ Jack Babbitt WA5ZAY 1401 Pleasant, Walla Walla, WA 99362
Sep 22-23	York, PA	York Amateur Radio Clubs/ Ray Shaub W3AXC 2331 Locust Rd, Dover, PA 17315
Sep 22-23	Wichita, KS	Kansas State Conv/ Vern Heinsohn WA0ZWW 950 Back Bay Blvd, Wichita, KS 67203
Sep 22-23	Mobile, AL	Mobile ARC/ MARC, P.O.Box 9315, Mobile, AL 36691-0315; Info: Ed KC4BRI 649-4597
Sep 22-23	Anchorage, AK	Anchorage ARC/ Ed Bosco WL7BOR P.O. Box 101987, Anchorage, AK 99510-1987
Sep 22-24	Gaylord, MI	Michigan State Conv/ Don Roberts K4IHU 8074 Washington St., Vanderbilt, MI 49795
Sep 23	Cleveland, OH	Cleveland Hamfest Assoc/ Glenn Williams AF8C 513 Kenilworth Rd, Bay Village, OH 44140
Sep 23	Danbury, CT	Candlewood ARA/ Raoul Elton NI2B 60 Padanaram Rd, #18, Danbury, CT 06811
Sep 23	Queens, NY	Hall of Science ARC/ Stephen Greenbaum 85-10-34th Ave, Jackson Heights, NY 11372 Talk-in 144.300 simplex; 223.6, 445.225 rptr Call 718-898-5599 at night for more info
Sep 28-30	Fargo, ND	Dakota Div Conv/ Gerald Parker K0GPX 3420 Birdie St NE, Fargo, ND 58102
Sep 29-30	Louisville, KY	Gtr Louisville Hamfest Assoc/ Mike Doerhoefer WB4AJZ P.O. Box 34233, Louisville, KY 40232
Sep 30	W.Liberty, IA	Muscatine & IA City ARCs/ Tom Kramere KE0Y 905 Leroy, Muscatine, IA 52761
Sep 30	O'Fallon, MO	St. Peters ARC/ Jay Underdown W0OGS 58 Judy Dr, St. Charles, MO 63301
Sep 30	Benson, NC	Johnston ARS/ David Belcher KE4EM 1205 S. Crescent Dr, Smithfield, NC 27577
Oct 6-7,8	Columbus, OH	Columbus ARA/ Special Event Station W8TO Freqs: 7.240, 14.340, 21.375, 28.500 MHz. Certificate awarded for 10 Columbus contacts (W8TO counts for 6). Send names, QTH's and signal reports of stations to: Roger Dzwonczyk WB2EIG, 283 East Longview Ave, Columbus, OH 43202. Send #10 or 9x12 SASE and $1 postage or 1 IRC for certificate and/or QSL.
Oct 7	Huntington, IN	Huntington Co ARS/ Mike Brooker WD9JFC 3341E - 722N, Huntington, IN 46750
Oct 7	Hershey, PA	Central PA 99/4A Users Group/ Dave Ratcliffe P.O. Box 14126, Harrisburg, PA 17104-0126 717-238-5414 or 717-564-2975
Oct 12-13	Warner Robins,GA	Central GA ARC/ Jesse Kirkham WB4KQA 110 Brown Dr, Warner Robins, GA 31093
Oct 12-14	San Jose, CA	Pacific Div Conv/ Emmett Freitas, AE6Z 481 Fenley Ave, San Jose, CA 95117
Oct 13-14	Memphis, TN	Mid-South ARA/ Harry Simpson W4MI 183 D MaCauley Ave, Memphis, TN 38127
Oct 13-14	W Palm Bch, FL	Palm Beach Rptr Assn/ James Schoech WD4LHF 129 Dayton Rd, Lake Worth, FL 33467
Oct 13-14	Boxborough, MA	New Eng Div Con/ Eugene Hastings W1VRK 18 Churchill Ave, Marblehead, MA 01945
Oct 14	Maysville, NC	Maysville ARC/ JoAnn Taylor WD4JYR 220 Anita Fort Dr, Swansboro, NC 28584
Oct 14	Friendship, MD	Columbia ARA/ William Machia N3HTJ 5127 Columbia Rd, Columbia, MD 21044
Oct 20	Smithfield-Selma,NC	Triangle East ARA/ Harry Greenberg W2AC 2401 Covered Bridge Rd., Clayton, NC 27520
Oct 21	Centralia, IL	Centralia Wireless Assn/ Louis Hodges W9IL Route 1 Box 98A, Centralia, IL 62801
Oct 21	Stirling, NJ	Tri-County RA/ Bert Eldert KE2KX 1850 North Gate Rd, Scotch Plains, NJ 07076
Oct 28	Sellersville, PA	R.F. Hill ARC/ Frank Benner W3BRU 523 Vine St, Perkasie, PA 18944

Monitoring Times is happy to run brief announcements of radio events open to our readers. Send your announcements at least 60 days before the event to: Monitoring Times Convention Calendar, P.O. Box 98, Brasstown NC 28902.

STOCK EXCHANGE

NON-COMMERCIAL SUBSCRIBER RATES: $.25 per word - *Subscribers only.* All ads must be paid in advance to *Monitoring Times.*

All merchandise must be personal and radio-related.

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When readers are in the market, they look here to find your ad ... Will it be here?

Wanted: KENWOOD R-5000. Contact Chuck Robinson, 1315 Wildwood Ave. Apt. 14, Columbus, GA 31906.

KENWOOD R-5000 Standard 6 kHz AM Plug-in Filter - $15. Send check/MO: Jim Thornton, 5223 Meadowridge Court, Camarillo, CA 93012-4218.

SONY ICF-7601 in mint condition with all accessories and additional AC adapter - $125. Kannon Shanmugam [913] 841-3264.

REGENCY Turbo Scan INF-5 60-Ch. - $55; PRO-2005 Mint - $325; GROVE Skywire - $18 never used; A/S-801 Monitor-Ant. - $25. Clyde [407] 260-2937.

Wanted: Schematic for ROBYN Model HL8+8 High-Low Bander Scanner. Also Manual. Write Dan McAvoy, 13 Crooked Pond, Hilton Head, SC 29926 or call [803] 681-2205.

COLLINS R 390A/URR receiver - $250. John [716] 693-5290.

For Sale: SONY ICF-6800W "Orange Label" General Coverage tabletop/portable shortwave receiver. Excellent condition/excellent receiver - $375. P.O. Box 2316, Winter Park, FL 32790.

Wanted: If you purchased a "REID ENTERPRISES PI-5K Pan Interface" for the Kenwood R-5000, please call [503] 653-0319 after 0000 GMT, or write 10603 S.E. Home Ave., Milwaukee, OR 97222 - I need info!

AOR-900 Handheld, new, six month's use, original box, complete. Money order only - $200. Harold Ort, Box 341, HHC 2d COSCOM, APO NY 09160.

GRUNDIG 650 International receiver, ten weeks old, must sell. Mint - $750. Chris [516] 667-3139.

For Sale: COMMODORE 128D Computer, MAGNAVOX 80 column monochrome monitor and some software. Excellent for use with multi-mode data controller or for record keeping - $395. [606] 365-9042.

PC SWL for IBM PC or compatible. RTTY, FEC, CW, SELCAL and NAVTEX. Demodulator, manual and demo tape - $50. GROVE TUN-3 - $25. Free shipping. Fraser [513] 427-0297.

HAL CWR 7600 Telereader Code & RTTY decoder with manuals - $95. Jeff [708] 244-2139.

MONITORING CORPS INTERNATIONAL, a worldwide network of monitoring enthusiasts, is recruiting all interested persons on an international basis. For additional information send an SASE to P.O. Box 2100, Corona, CA 91718 USA.

Wanted: Anyone in Charlotte, NC, and surrounding areas who would like to join together to create a GMRS FM Repeater System. Contact Michael Barnette, 9135-B Beatties Ford Rd., Huntersville, NC 28078.

TENNESSEE: Let's swap information on TVA, TEMA, THP, PSC, NG, etc.; contact Steve Galyon at P.O. Box 298, Hixson, TN 37343 or at [615] 842-5872.

SATELLITE TV - NEW EQUIPMENT, SUBSCRIPTIONS, GUIDES. DISCOUNT BROKERAGE PRICING. ADDRESS TO POB 758, PORTLAND, OR 97207.

For Sale: DRAKE R-7A all filters, service manual, mint - $900. JRC NRD 515, spkr, filters, mint - $850. BEARCAT DX-1000, excellent - $200. Bob Scott, c/o Amory, 17 Powderhouse Terrace, Somerville, MA 02144. Phone [617] 625-0731.

Closing Comments

Have we unwittingly created our own time bomb?

Mankind in the Microwave

Electromagnetic pollution. The civilized world is reeling from radio wave bombardment throughout the spectrum. Power lines, broadcasting transmitters, microwave ovens, electric appliances, computers, portable telephones, CB and ham transmitters -- the list of offending devices seems endless.

The suspicion that radio waves may be harmful has been with us for decades. Early radar experiments and recent radar accidents have cooked the hapless victims. Now it is suspected that much weaker electromagnetic energy like electric power line radiation could be even more insidious.

Experts claim to have discovered a definite link between human cancer and exposure to power lines, pointing out that telephone linemen and central office repairmen have a higher incidence of cancer than their colleagues elsewhere. Reports are increasing of miscarriages, brain tumors, birth defects and cancers among residents near power lines.

Other data reveal that pregnant women who use electric blankets are more likely to induce leukemia and brain cancer into their unborn children. More indicting, young children using electric blankets have a much higher cancer and leukemia rate than non-users.

Bewildered parents in a New Jersey community are experiencing the world's highest incidence of Down's syndrome (Mongolism) in their children; the community is adjacent to a massive satellite transmitting complex.

But doesn't our government know about these potential hazards? Aren't they doing something to protect us? It was recently revealed that the White House deleted the key paragraph from a two-year EPA report which recommended that low frequency radiation be classified as a probable carcinogen, right alongside dioxin and PCBs.

Over thirty years ago, the respected editor of *Electronics* magazine, Hugo Gernsback, called for a serious reappraisal of the effects of radio waves on living organisms, citing the growing use of radar and industrial RF heating equipment. In 1962 a well-funded research project determined that radio waves caused leukemia.

Just how real is this threat? Are we gradually being cooked by our electromagnetic environment? Is there anything we can do to protect ourselves? Next month, *MT* will present a fascinating account of the human body's reactions to external signals. Don't miss MAN: THE RECEIVING ANTENNA.

-- Bob Grove, WA4PYQ
Publisher

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Replace that inefficient flex antenna with our universal 25-1300 MHz whip -- and stand back! Adjustable from 7 to 46 inches, the ANT-8 is made of chrome-plated brass and equipped with a standard BNC base to fit most amateur hand-helds and scanners. Transmits on 45-960 MHz.

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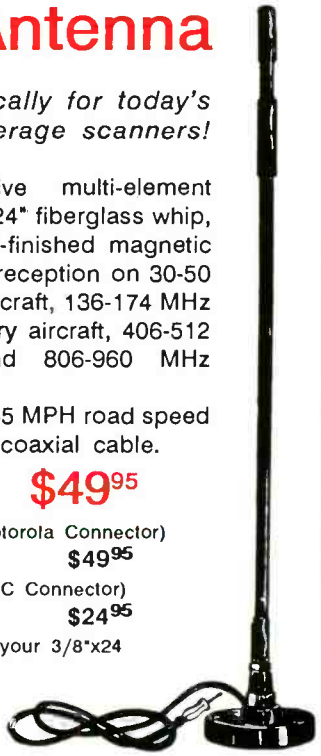

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