Government Withdraws Frequency Information

Federal Frequency Information No Longer Available From Government

In a surprise move, the National Telecommunications and Information Agency (NTIA) has denied all recent Freedom of Information Act (FOIA) requests for frequency printouts from that agency.

NTIA serves the Interdepartmental Radio Advisory Committee (IRAC) who, in turn, maintains all records for federal government users of the radio spectrum. According to Leo Buss, Director of Spectrum Plans and Policies, the decision was mandated by the general counsel's office by the FOIA officer, Richard Shay.

The extreme action stems largely from a recent request by a petitioner for a complete run of the unclassified master file of frequencies and agencies on record with IRAC.

Although the request was for unclassified information, it is felt by the general counsel's office that such disclosure would also reveal classified listings by their exclusion from the unclassified list.

Buss went on to say that casual monitoring by hobby listeners is of no concern, but availability of sensitive material to foreign agents is of vital concern. The denial was based upon a judgement of national security.

Bob Grove, author of the exhaustive Federal Frequency Directory, asked Buss whether his publication had anything to do with the decision. "Yes, it most certainly did" replied Buss.

It would seem that unless some major policy change reverses the restrictive posture at NTIA, the Federal Frequency Directory, now nearly exhausted in supply, will remain the last comprehensive publication of official government frequency files.

Monitoring Times contacted counsel Dick Shay to find out more about the recent decision to withhold formerly-available frequency assignment records. Our questions and Mr. Shay's responses are printed here.

(MT) Mr. Shay, I have heard from a reliable source that the federal government is considering prosecution of individuals who publish sensitive frequencies; is this true?

(Shay) "I have not heard of such an effort; I have no knowledge of that whatsoever."

(MT) With your new policy to withhold from release all frequency/agency information from the public, how can an individual know what may or may not be classified or sensitive?"

(Shay) "There is no longer an unclassified government master file. All government frequency records are now classified. I don't know what the individual agencies will do regarding the release of their own records, but the records will no longer be released by IRAC or NTIA."

The Government Giveth, The Government Taketh Away

Federal Frequencies And The Freedom Of Information Act

By Richard Prelinger

Ever been curious about those sizable chunks of radio spectrum earmarked for the sole use of the Federal government? Most of us are, and the difficulty of putting our hands on official data concerning Federal frequencies only whets our interest more.

An obscure group called Interdepartmental Radio Advisory Committee (IRAC) advises the Nation Telecommunications and Information Administration, (NTIA) on radio frequency matters. In place of this complicated structure, let's just say it all comes under the jurisdiction of the Department of Commerce. IRAC, like FCC, coordinates frequencies and assigns them to specific users, but only to users who happen to be Federal agencies, military or civilian.

IRAC, like FCC, enlists computers to coordinate and record frequency assignment information. FCC data files are available to the public and serve as original source material for such publications as Gene Hughes' POLICE CALL and the RADIO AMATEUR CALLBOOKS. Any chance, one might wonder, of getting our hands on some Federal frequency information straight from the government?

Well, until recently, anyone (in theory) could. But in May the prospects began to look grimmer. Before I indicate that enthusiasm for monitoring sufficed to pry this information loose from the government, you should know that this has always been a difficult (and costly) proposition.

IRAC maintains what it calls the Government Master File (GMF), which comprised some 165,000 frequency assignments at the end of 1980. The GMF lists every Federal radio facility from hand-talkies carried by Secret Service Agents, to downlinks from photo reconnaissance satellites and wireless mikes at Walter Reed Army Hospital.

The Navy, the largest American spectrum user, weighs in with some 28,000 frequency assignments. Following closely are FAA (24,000) and USAF (23,000), then Army (18,000). Incidentally, if AT&T were ranked among government agencies, it would take fourth place almost 23,000 licenses. Fifth in rank is Justice with some 13,000 followed by Interior (11,700), Agriculture (9,000), Coast Guard (9,000), and Energy (5,500). Some 5,400 non-governmental assignments are in reach of governmental bands, and eleventh in rank is Treasury, with 46,000 assignments as of the end of 1980.

Should you search through publicly-available listings of the GMF for those 17,000 Justice and Treasury frequencies, you're likely to be disappointed. True, "J" and "T" pop up here and there, but mostly on frequencies used in common with state and municipal police. Throughout the country, FBI, DEA, ATF, Customs and other Federal agencies often talk to local police on FCC-local-assigned frequencies. Most of their other assignments (especially between 162-174 and 406-420 MHz) aren't available to citizens without a "need to know."

I wouldn't want to let these statistics go by without mentioning FCC's 842 assignments. NSA's 165, CIA's 142, and 126 assigned to State. Almost every one of these is unlisted in publicly-available material and a matter for fertile speculation.

Until this spring, much of the GMF was available to anyone under the provisions of the Freedom of Information Act. The GMF as a whole is classified "Confidential" because a handful of items in the list (your guess is as good as mine) bear that security designation; but most of the list, item by item, is unclassified. The rub is that perhaps 20,000 of these unclassified assignments are exempt from release under the Freedom of Information Act. In other words, agencies justified the omission of certain frequencies from public records on the grounds that, if revealed, "identifiable harm" might be caused to national security. This phrase--"identifiable harm"--has created work for scores of lawyers in recent years, and is still controversial. In any case, any citizen was entitled to ask for:

1. (1) everything unclassified, and
2. (2) releasable under FOIA.

Requesting information is one thing; obtaining it is quite another. Citizens requesting frequency lists from NTIA are routinely quoted huge processing fees which, in themselves, function as barriers to obtaining even the limited amount of data that's publicly available. Computer time consumed in sorting locations, agencies and frequencies is quite expensive--and, not surprisingly, the cost of calling out the non-releasable items is borne by the citizen, not the government.

Many of the 33 individuals and corporations requesting data from NTIA during 1979-1982 must have been unpleasantly surprised at the processing fee quoted them. One person was quoted $2,500 for a complete list, someone else $600 for another lists, another approximately $750, and so on, depending upon their exact request.
FEDERAL GOVERNMENT

from page 1

requirements. These steep costs deterred all but 11 out of the 33 requesters—six of whom were companies like GTE, COMSAT, and Comsearch—from putting cash on the table and ordering their lists.

A year ago I tried to cut expenses by organization a group to share the costs of a single request. Sixty people agreed to split the $1300 fee. Our goal was to get a list including all agencies, all states and possessions, all frequencies, and all 21 items of data (data “fields”) included for each assignment in the file. As it happened, this was the most comprehensive request NTIA had ever received.

After waiting almost three months, we were furnished with a list that included only 12 of the 21 items of data for each assignment. Such items as “Remarks,” indicating the exact usage of a frequency (e.g. “Fire & Crash Crews”) and “Bureau,” indicating the subdivision of the assigned agency (e.g. “SAC” within Air Force) were withheld.

The omissions were visually striking—the right half of each microfiche frame was blank! I didn’t have to wait long to find that these omissions were intentional. Beginning with my request, the list was now considered too sensitive to be released in full, at least as far as certain data “fields” were concerned. This came as a surprise. I’d seen half a dozen printouts containing every item of data going back as far as 1976, and I was aware that IRAC had routinely invited requesters (including myself) to “pick and choose” from among all data fields to limit computer costs. Perhaps IRAC was nervous about the list going out to 60 people. Notwithstanding that, it had been in the public domain since 1975, and every frequency included had clearly been assessed for its capability to cause harm to the national security if released. The omissions were more likely a result of the stricter controls on release of governmental information that were ushered in after

President Reagan took office.

The Commerce Department informed me in May that they considered our request as “having been satisfied fully and completely.” I’m now awaiting the results of an appeal as provided for under the Freedom of Information Act.

Federal frequency listings, once available to anyone willing to pay for them, are no longer being released by NTIA. The entire Government Master File, all frequencies, agencies, and data “fields”, has been classified. No distinction was made between sensitive FBI frequencies used in counterintelligence operations and FAA channels used for air traffic control. Forest fire-fighting frequencies, frequencies used for paging at VA hospitals, or even the NWS weather stations!

It seems likely that some listings of non-sensitive government frequencies will once again be available to the public, but their contents will probably be greatly reduced. Nevertheless, an important source of data that was released to many people has now been “yanked back” by the government. Keeping the in

nocuous nature of many of the agencies listed in the list in mind, many feel as if this is a case in which the government is overzealous about protecting “secrets” that are not, in fact, secret.

In many countries information on non-broadcast and governmental radio frequencies is considered sensitive and its disclosure tantamount to espionage or treason. I think all monitoring enthusiasts hope that the United States won’t follow this course. Scrambling, data encryption, and tactical ID’s are already used successfully to preserve secrecy when necessary and prevent the disclosure of sensitive transmissions. In this era of sophisticated electronic technology, it’s difficult to understand how a frequency assignment can itself compromise national security.

International Aircraft Frequencies Changing

Many of the decisions at the World Administrative Radio Conference (WARC-79) which took place in Geneva, Switzerland, in the fall of 1979 are gradually being implemented.

Among these are the dozens of HF long distance single sideband communications channels which were reliable frequencies for listening over the years. Even VOLMET (flight weather) frequencies are being changed, as are their modes. AM will no longer be permitted; SSB will replace it.

MONITORING TIMES will present a special feature updating these new assignments in a future issue. The changes are to be fully effective no later than February 1982. Until then, some interim assignments are being used. A sample of the new SSB VOLMET listings include:

New York/Gander (Atlantic) 3001, 5052, 8866, 13270 kHz
Oakland/Honolulu (Pacific) 2980, 5519, 8903, 13344 kHz

Out-Of-Band Programming

The Bearcat 100 And 300 Scanners

They said it couldn’t be done, so Monitoring Times readers went right to it! We have learned that it is possible to cover 136-144 and 174-174.645 MHz in addition to the normal ranges on a BC-300.

The BC-100. Even the popular new BC-100 hand-held can be taught new tricks: 50-112, 120 (or lower)-174 and 318-512 MHz programming.

But just because the scanner frequency display shows these numbers does not mean that the scanner is capable of receiving the frequencies. What you are viewing is the free-running algorithm program addressing the microprocessor; neither the oscillator nor the RF amplifier is capable of tracking such a wide range of spectrum.

The practical limits for the BC-100 hand-held so far as reception is concerned are: 30-54, 132-174, and 375-512 MHz—plenty good enough! Even the receivable extensions are not without limitations, however. Search must often be done manually by repetitive pressing of the up/down search keys, and the frequencies are not storable in memory (so far as we know).

Owners of the new BC-100 may wish to experiment with the following program to extend their receivable frequency ranges:

Press manual to select channel
Press 49 LIMIT
Press 50 LIMIT
Press SEARCH, HOLD, MANUAL
Press 138 LIMIT
Press 137 LIMIT (display will read ERROR)
Press SEARCH, HOLD, LIMIT down

You may now manually step below 138 MHz and autousearch up again to 406 MHz (after which the search will automatically jump to 31 MHz).

Technical Topics Special Feature

Press 406 LIMIT
Press 405 LIMIT (display will read ERROR)
Press SEARCH, HOLD, LIMIT down

You must now manually step below 406 MHz and autousearch up again to 406 MHz (after which the search will automatically jump to 31 MHz).

THE BC-300

Richard Kramer (340 Main St., Blandon, PA 19510) has contributed the first out-of-band program for the BC-300 to cross our desk. Anyone with additional information is requested to contact Richard—and us—to share his findings. Richard’s program is presented here for Monitoring Times readers.

To search 136-144 MHz:
Select any channel and enter a VHF low (30-50 MHz) or VHF high (144-174 MHz) frequency into that channel.

Press 157.6 LIMIT: 165.6 LIMIT

Open squelch
Press SEARCH
Press HOLD
Close squelch
Press ENTER
Press decimal
Press RESUME (BC-300 will now autosearch 136-144 MHz)

An autosearch version of the 136-144 MHz program follows:

Enter 40 on any channel
Enter search limits 157.6 and 165.6 MHz

Open squelch
Press SEARCH
Press ENTER
Close squelch
Press ENTER
Press decimal
Press RESUME (BC-300 will now autosearch 136-144 MHz)

You may now autosearch up to 300 MHz, after which the search will jump to 50 MHz and continue upward. You may manually step back to 50 and then 138 MHz as before.

After you have entered the foregoing routine:

Press decimal, ENTER, SEARCH

Scanner will begin autosearch upward from 318 MHz (although there is no sensitivity at this low frequency). If you wish to go below 318 MHz, press HOLD and then repetitively press LIMIT down.

To search for signals above 50 MHz, follow the foregoing routine, then:

Press decimal, ENTER, SEARCH

To look for signals below 406 MHz, try the following program:

Press 30
Press 31
Press SEARCH, HOLD, MANUAL

Press 406 LIMIT
Press 405 LIMIT (display will read ERROR)
Press SEARCH, HOLD, LIMIT down

You must now manually step below 406 MHz and autousearch up again to 406 MHz (after which the search will automatically jump to 31 MHz).
VIEWPOINT

The Shortwave Frequency Directory arrived...Thank you! It's a most comprehensive book, well worth waiting for. (Peggy Thompson, La Crescenta, CA)

Received the latest copy of Monitoring Times and it looks super. I know that your publication is destined to be a great success. One of the many good points is your short lead times for current and up-dated material. (Tom Harrington, W8OMY, Reynoldsburg, OH)

I have found that this is an excellent publication for people such as myself who enjoy monitoring the radio frequency spectrum. "Hats off" for a job well done, and a very fine publication. (Philip Blue, Raleigh, NC)

Why don't you peak the interest of your readers by printing updated schedules of the numbers stations so all can join in? Also, it might be wise to encourage subscribers to pass their editions on to friends after they are finished with them. This will encourage others to get into the hobby.

Since dated materials are not dealt with, why go to the expense of higher postage just to get it there a day or two earlier? Really, I believe it would benefit you and your customers to send it out at the standard newspaper rate. (John Demmitt, Bellefonte, Pa)

I'm not interested in your publication because "Monitoring Times" is incomplete as monitoring time goes. This year, or the next year will not be missed as I choose not to subscribe. I monitor the frequency both for entertainment (sic) and for good reason. There are many good hours spent on and off of the radio. Now I'll tell you why. Because what I am, is not to your liking or perhaps a low class, low grade person is not going to spend big money on you (sic) stuff.

You left out of your package good CBE9-10? (Jack Gordon, Los Angeles, CA) 

Dear Bob,

I am not a talented reader but a comparatively newcomer to SWLing and must make this comment - Robert Leary has some shack! I would need more than one head and one pair of eyes for all that equipment. My "Compulsion Neurosis" would cause ulcers trying to decide which piece of equipment to use and then think I am missing something more important on another piece. His description of the various jamming signals has convinced me not the enemy, but my neighbors are using a couple of them.

Seriously, I like MONITORING TIMES better and better with each issue.

Ruth Hesch
White Plains, NY

Dear Sir:

Over the years, the U.S. Army Signal Corps has trained thousands of men and women in the various phases of communication. Today, these highly skilled people are scattered across the nation.

The Signal Corps Association is interested in locating these professional communicators and making them aware of the Association and its goals. We are also interested in locating others who have worked for the Signal Corps or who have an interest in military communications.

Undoubtedly many of the readers of Monitoring Times have served in the Signal Corps, or have had some association with the Corps. We would therefore be most grateful if you could run the enclosed narrative in a future issue of your fine paper.

Our sincere thanks.

William C. Willmot
Publicity Chairman

(Times is our pleasure. See pg. 18. Bob)

I am writing to say thanks! Thanks, Bob, for the Scannervet, thanks, Bob, for the time and phone calls. Without your help and products I would still be in the dark.

I am glad there is still people in the USA who care about the products they sell and the people who buy them. In the future, if you need any frequencies from this area or monitoring information, please call or write me.

An F-16 just flew over my parts store...it's closing time and I'm going home to see what he is up to! Thanks again. (Clair Frew, N. Ogden, UT)

(Thank you, Clair, for the kind comments. Unfortunately, there are too many profiteers with little regard for customer satisfaction. Fortunately, we are not one of them!...Bob)

Tune In On The Intelligence Networks

INTERNATIONAL DEFENSE INTELLIGENCE SERVICE (INDIS)

While the vast majority of intelligence frequencies are classified, some are not. These frequencies are used for routine traffic and occasional secure transmissions as well.

It must be pointed out that the following list of discrete channels is not available from published sources; sharp-eyed readers may recognize some frequencies as widely-used military assignments.

FREQ. kHz USE
4368 Routine information and coordination between areas.
6738 Shared routine coded traffic with USAF air stations.
11243 Same as 11243.
25850 Routine local communications in operations area.
28120 Secondary to 23850.
29850 Video/Data/secure voice link.
29950 Secondary to 29850.

For readers unfamiliar with INDIS, their operations are global in nature. TV spy fans will remember "Mission Impossible" which borrowed heavily from the activities of this agency. For years, the US government denied the very existence of INDIS.

Another secretive branch of the military is the Air Force Office of Special Investigation. Most Air Force installations support AFOSI communications on three VHF frequencies: 138.075, 138.165 and 138.175 MHz FM.

Naval Intelligence Communications At VLF

Although most of us are aware that there is no voice transmission below 150 kHz, there is one exception. The US Navy reportedly operates an unusual network with headquarters at Portsmouth New Hampshire.

A discrete frequency between 70-80 kHz is used with an extremely narrow FM deviation: 170 Hz average (500 Hz peak) with 50 microseconds pre-emphasis.

The signal is phase-lock detected, then tracked and multiplied by 10 for a full 5 kHz deviation to provide useful audio recovery.

Readers with information regarding these and other intriguing undercover communications are invited to contact Monitoring Times.

NOTE: All information contained in this article has been cleared through source 14-387 (required statement to avoid official inquiry regarding sensitive material).

For bringing this interesting case to light.

Court Upholds Right To Listen

An unusual court precedent has been set regarding the right to listen in on "private" communications. The decision was made in the case of James Hill and Robert Rose, whose convictions for drug trafficking were upheld despite the defendants' claim that the FCC had monitored their private communications in the 14,400-14,500 MHz spectrum.

The trial defense claimed that the defendants were protected under Title III which was enacted after the famous section 605, both of which refer to privacy of communications.

The court ruled that Title III applies only to those communications that are to either "wire" or "oral" communications: radio transmissions are excluded because they cannot be considered private due to the ease with which they can be monitored.

The U.S. Court of Appeals upheld the decision with the statement, "We cannot find that the trial court erred. The manner in which the communications were transmitted indicates the appellant's were aware that their communications were likely to be intercepted." That court went on to say that because the defendants switched frequency, did not identify their stations nor themselves and chose to use code to disguise the communications they did not expect privacy.

The court concluded that "A reasonable person would not expect that words uttered over the ham radio frequency would be heard only by a few individuals for whom the communication was specifically intended."

The Massachusetts case could set a landmark precedent for interpretation of the privacy clauses of the Communications Act, now under fire in Congress.

Monitoring Times would like to thank Fred Maia of the WS1Y Report ("Dits and Bits") for bringing this interesting case to light.
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An optional modulator (299) will allow connection to a standard TV set.

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Demodulation of Morse (5-105 WPM) and RTTY (40, 60, 75, 90, 100 WPM) as well as ASCII are provided by an active filter high tone mark, standard 170, 425 and 850 Hz as well as non-standard variability are provided.

Automatic threshold improves copy during signal fading: normal/reverse and wide/narrow switches allow phase and bandwidth selection. Tuning is assisted by a 10-step LED bar graph. Operates from 115/230 VAC, 50-60 Hz or 20 watts. SPECIAL DISCOUNT PRICE ONLY $499 plus 7½% UPS shipping or $595 UPS delivery in U.S.
You May Be Bugged

Monitoring Times welcomes Fred Simon, syndicated author of a weekly column in THE CINCINNATI ENQUIRER and Gannett newspapers. For the past 8 years his column has explored short-wave radio, scanners, computers, CB and HAM radio.

A former employee of a Cincinnati suburb of 20,000 people, electronic bugs in the office of the city manager as well as in an adjoining washtub. The electronic snooper hoped to gain information because another member of his family, still in the employ of the city, was about to leave.

The city manager somehow became aware that his conversations were being bugged. Shortly thereafter, the former employee walked into the city hall and in broad daylight, removed his bug-gathering equipment simply by carrying the miniaturized things out under his coat!

This is just one example of how radical developments in the field of electronic communications made for the betterment of society can be used to its detriment.

Most of us, I am sure, can look at each other and say, “Who would want to eavesdrop on our conversation? How could anything we say be of any importance, except to those with whom we are talking?”

That’s the question of the day. The answer lies in the realization that most successful spy work involves assembling from a variety of sources a great mass of detailed information from which can be gleaned the important facts.

We are, all of us, potential targets of bugging. Many of the people now in the electronic eavesdropping or surveillance bugs had their training while employed by the FBI, CIA, Army Intelligence or a municipal police department.

But in the amazing world of electronics, this miniature, coldless microphone can take on the characteristics of a matchbox. It is easy to understand how even an amateur can do a half-effective job spoofing on conversations.

Professional eavesdroppers will have a bagful of tricks including microphones the size of a pinhead, or even—a recent development—a directional microphone that can pick up conversations through walls from a distance of 500 feet or more.

With this last device, a snooper can point the microphone at an office window in a building across or down the street and private conversations will have an unseen, uninvited ear.

Back in the early 1960’s, I had an opportunity to attend the Republican National Convention in Chicago. I was a volunteer worker for a presidential candidate.

Being bright-eyed, bushy tailed and imbued with the American Dream (I still have it), I was surprised to see small signs placed around the rooms that simply stated, “Say nothing that will help our opposition.”

The rule was never to speak about anything of a confidential nature without having a radio blaring in our rooms. The sound of the radio was supposed to overcome the bugs and prevent a “chatterbox” from being heard.

But nowadays a development favored by snoops is a process by which a normal commercial AM-FM radio can be converted so that it is actually broadcasting on an unoccupied frequency in a different area.

Another trick of the trade is for the snoops to put a bug between a phone and its junction box, turning the telephone into a microphone.

When local, state or federal authorities have a court order to tap a telephone, the tap normally is handled through the telephone exchange that serves the phone.

High-priced professional silent snoops have found a way to tap the microwave beams used to carry thousands of telephone conversations on a trunk line.

The result of the study was a recommendation that devices be placed on the phones of high governmental officials that scramble and otherwise encode their conversations.

A “debugger” is a person who has sophisticated equipment to locate “ears” placed by illegal snoops. For upwards of $50 per person we will perform a “sweep” of your office or home, supposedly cleaning it of any bugs.

Debuggers have elaborated radio spectrum monitors and analyzers for the tools of their trade. These devices can scan all ranges of the radio spectrum in the hunt for illegal snooping devices.

In writing for so many years on the subject which you and I enjoy so much, I have often felt that a product such as MONITORING TIMES has been much needed and long overdue.

For that reason I advised Bob Grove that I would enjoy the efforts and write from time to time.

I wish MONITORING TIMES and the family that produces it a great deal of success.

Bob Grove had done for scanner and shortwave radio hobbyists what Thomas Edison did for the light bulb.

I will enjoy visiting with you once more in the near future.
You will not want to make a file card for each name you run across, as many are just mentioned once or twice in a conversation. What you do want to do, however, is keep a listing of these names on a file card, so you can refer to the pad for details.

Forty or fifty names and dates can easily fit on one card, providing easy access and instant recognition when the name is heard again. Another card is kept listing the main players who frequent certain frequencies and the times they are usually on the air.

All of these cards may sound like a lot of work, but believe me, they take only a few seconds each to maintain and save hours of searching through notes.

Now, for the tape recorder, I wouldn’t be without it. You would be amazed what you miss the first time you hear something and how much more you can get by listening to conversations later and over again. If you can hear both sides of the conversation very well, and you don’t have background noises in your radio room (the kids, telephone, other radios, etc.), you may record by placing a microphone in front of the speaker.

If some of the signals are faint, or if you have a noisy room, you’ll want to record directly from the radio itself. If your internal speaker is muted when a patch cord is plugged into the external speaker socket, use a “Y” adapter and switch one side going to the external speaker and the other side going to an AT-TENUATING patch cord. The patch cord is then connected to the microphone input of the tape recorder.

If you want to “document” your tapes as to the time, date, and frequency of each session, then you can plug the patch cord from the tape recorder, speak into the internal microphone, and then plug the patch cord back in so it is ready for the next transmission.

Another way—the one I use—is to install another “Y” adapter at the tape recorder and plug a second-hand microphone into the extra Jack. Use a recording mike with an on/off switch to avoid picking up room noise when not speaking into it.

Don’t waste your money buying expensive expensive tapes. They are made for recording music; cheap tape easily record well beyond the limit of the normal human voice.

As you track these stations, don’t forget two very helpful sources of free information—your local newspaper and county library. By watching the local and wire service articles on drug busts, you might be able to put “two and two together” as to the identity of some of the stations you have heard.

A few words of warning about this hobby—it can become quite addictive. Once addicted, you’ll find yourself altering your own schedule to fit that of the stations you listen to. Some friends of ours haven’t eaten out in weeks for fear they’ll miss something at dinner time!

On the more serious side, don’t forget that the odds are you aren’t the only person listening. Many hours or months of under cover work could be blown and lives could be in jeopardy if you cause the wrong information to be published. If you are a licensed handicapped or like one, and you have the capacity to transmit on the frequency where the smugglers are operating, resist all temptation to jam them! Not only are you breaking the law, but you might cover up a very important message that a law enforcement agency has been waiting to intercept.

Once you get organized you’ll enjoy the hobby much more, and you’ll find yourself getting more work done with much less effort.

Distance And Radio Reception

The distance you can hear a ground wave (non-skip) signal is frequency-dependent. On the lower shortwave bands, nighttime distances of thousands of miles are possible. At low band (30-50 MHz), scanner reception is typically 40 miles with average installations.

As the target frequency increases, radio range decreases. High band (144-174 MHz) reception is roughly 75 percent of low band, and at UHF (450-512 MHz) only about 50 percent.

Actual reliable coverage depends on a number of factors including Transmitter power, receiver sensitivity, height of receiving and transmitting antennas, obstacles and obstructions to the signal path including buildings and terrain, gain of the transmitting and receiving antennas, losses in the antenna system, presence of signal interference, and propagation characteristics.

With a good outside vertical antenna on a rooftop or mast, add another 20 percent to your calculated range. And under ideal conditions, using a beam antenna on a high tower in flat or high terrain, and with a preamplifier ahead of the scanner, distances of 100 miles or more are frequently reported.

A Salute To AMRAD

We would like to take this opportunity to acknowledge one of the most progressive and competent groups of communications in existence, the Amateur Radio Research and Development Corporation (AMRAD). AMRAD is a technically-oriented club comprised of more than 500 amateur radio operators dedicated to improving techniques of radio and computer communications.

A technical library is maintained by Ted Riggs K4YXN (8402 Brent Ct., Vienna, Va 22180) and donations of pertinent publications are tax-deductible. Special interest groups have been responsible for the development of telecommunications for the handicapped, packet radio repeaters with interlinking and spread spectrum technology. The handicapped readers with access to a 300-baud Bell 103 terminal or a TDD (teletype for the deaf) may dial up “HEX”, the Handicapped Educational Exchange, calling 301-583-2703.

The public-spirited, dynamic AMRAD participates are always looking for more members who enjoy the challenges of technology. Interested readers are invited to write AMRAD at 1524 Springville Avenue, McLean, Va 22101.
THE COMPLETE SHORTWAVE LISTENERS HANDBOOK by Hank Bennett and Harry Helms (2nd edition, 306 pages, 6" x 9"). A thorough introduction to the exciting world of shortwave listening. Learn about antennas, receivers, frequencies, wave propagation, harmonics, tagging, reception reports. Fascinating and informative reading. BOK-100.  

HOW TO BUILD HIDDEN LIMITED SPACE ANTENNAS THAT WORK by Robert J. Traister, 208 pages, 6" x 9". A collection of clever and inventive antennas for SWL's, hams and anyone else who finds he has no room for conventional antennas. Special projects for apartment dwellers include suspended verticals, window antennas and attic antennas. Device effective antennas from downspouts, window screens, TV antennas and other available surfaces. BOK-4. 40p.  

THE GIANT BOOK OF ELECTRONICS PROJECTS by the editors of 73 Magazine. (48 pages, 5½" x 8½"). A massive collection of eminently useful home projects for beginners and advanced experimenters. More than 100 liberally-illustrated projects include antennas, filters, receivers, transmitters, test equipment, clocks, power supplies and more. BOK-15. 120p.
Product Review...

THE BEARCAT BC-100

Few new products—especially as sophisticated as the BC-100—arrive on the marketplace without imperfections. This is certainly true of the BC-100.

The new hand-held programmable from Electra is unquestionably a remarkable step forward in miniature, microprocessor-controlled RF technology. It is handy, eminently portable, frequency agile, and certainly unique.

The 100 sports 16 channels, automatic lockout, search, scan, manual up/down step search, and direct channel access.

The LCD display is easy to read in either ambient or direct daylight, although no illumination is provided for night use.

Internal NICAD batteries (included) will last for many hours of continuous operation after an overnight charge; a charge indicator alerts the operator to low battery status as well as shows charging progress. The charger may be used as an AC adapter, powering the unit from the mains when available.

The charger is included.

An extended (over previous models) frequency range covers 30-50, 138-174 and 406-512 MHz, all FM mode.

For mobile application, the 100 is capable of being powered directly from 12 VDC; a 2 mm coaxial (DIN) power plug is required.

Since its introduction a year ago the 100 has been both lauded and criticized; both seem justified. Unquestionably, the 100 is unique, offering portability and frequency flexibility awaited by eager listeners for many years. Let's take a look at the criticisms.

INSENSITIVITY: Weak signal capture by the 100 is not as good as competitively-priced full size scanners. This shortcoming is aggravated by the use of a "rubber duckie" low-efficiency antenna. To make matters worse, no provision is made for the attachment of an external antenna, a serious oversight which was pointed out to Electra before the unit's release to the public.

To be sure, the sensitivity of the BC-100 using the flexible whip is adequate for metropolitan monitoring. It is inadequate for mobile use and weak signal or distant reception.

SPURS AND INTERMOD: Partially due to the dense packaging, the 100 is plagued with spurious signals ("birdies"). Many of them are close-spaced (42.34, 42.36, 42.40, 42.60, 42.80); others are very broad (149.020-149.204). The net result is, of course, that there are portions of the bands that cannot be received.

Intermodulation in strong signal environments is considerable. In spite of these limitations the successful ranges of receivability are considerable.

MICROPROCESSOR FAILURE: Perhaps one of the sharpest criticisms of the 100 revolves around the microprocessor. We hear of field failures in which the automatic functions take over on their own, much apart from the commands entered by the user.

We confirmed that infirmity, and in spite of a return to the factory with a detailed description of the micro's infidelity, it continued to misbehave upon its return.

Typically, during search, the unit would suddenly revert to scanning; or, it would cease to function entirely, wiping out the display. Switching the receiver off, then on again, the display showed a weird display of memorized frequencies, many of which were outside the programmatic range of the scanner, not those which had been entered by the user.

BALKY KEYBOARD: Early units required considerable pressure to activate the keyboard and several of them (including our test model) would stick--unnoticed--preventing further programming executions.

We have been assured by Electra that these complaints have been resolved in a new keyboard.

ERRATIC SQUELCH: The squelch circuitry of the BC-100 is activated by the IF circuit, not audio as in most other scanners. The result is that, depending upon ambient noise and RF levels, different squelch threshold settings may be necessary for different frequency ranges.

AND OTHER MINOR IRITATIONS: Loose-fitting batteries, low audio output, wide tolerance in cabinet alignment...these can certainly be lived with, but deserve mention.

THE BOTTOM LINE: The BC-100 provides previously-unavailable capabilities in frequency coverage. It is extremely easy to use and employs an intelligent selection of functional features for the user on the go.

While the recommended retail price ($499) may seem a bit high, it is widely available for less from Monitoring Times advertisers.

It is impossible to compare it with similar products at this time—there are none—so the prospective buyer must decide whether optimum performance or portability is more important.

Reviews next month...SPOTLIGHT: THE YAESU FRG-770

An extensive product review by Bob Lonn includes 256-channel memory expansion! Don't miss this Monitoring Times exclusive!

...Also! THE ALLIANCE U-100 and R-1600 tunable. A small but effective rotator for directional antennas.

Standard's "Talkman," a personal 2-way communications system. Eminently portable Info-Tech RTTY/MORSE DECODER, step up to affordable luxury with this flexible system.

Japan Radio Company’s NCM-515

Frequency Controller

By Fred Ostermann

Japan Radio Company (JRC) has been a respected name in marine communications for several decades. Recently, they have also been involved in radar, satellite navigation systems, commercial communications and industrial/medical electronics. This company has become increasingly involved in the amateur and shortwave lister market as well.

Over a year and a half ago JRC introduced a general coverage receiver called the NRD-515. It has become a popular radio with serious shortwave DXers worldwide. I have been using the NRD-515 for one year and have been pleased with its performance. Being primarily a "utility" DXer I was especially attracted to its excellent stability which is so important when listening to CW, RTTY, or FAX.

Most NRD-515 owners would agree that one of the key benefits to having the NRD-515 is its ease of operation. Tuning is simple, fast and absolutely accurate. Additionally, there are 24 or 96 channel memories available. With all this tunability, one can be surprised to learn that these are fed into a computer to make tuning and frequency entry even better and faster.

The annual Dayton Hamvention is the biggest "hamfest" in the world. Electronics companies often use this event to preview or announce new products. This year JRC introduced a new product of special interest to the shortwave enthusiast. The item is called the NCM-515 frequency controller.

The NCM-515 is a hand-held keyboard entry-display device to facilitate frequency entry and tuning into the NRD-515. This controller resembles a large handheld calculator. The cord connecting the NCM-515 to the NRD-515 is a long one which attaches via a special adapter (supplied) to the memory port of the NRD-515. Yes, you may attach the NCM-515 at the same time your 24 or 96 channel memory is attached.

Installation takes about three minutes and requires only a screwdriver. You do not have to go inside the NRD-515 to install this controller. The controller derives its power (10VDC@100 ma.) from the receiver. It has a standard calculator keyboard with an audio response tone as well as a six digit LCD display. The unit measures 3 1/2 x 1 1/2 x 1 1/4.

FEATURES: The NCM-515 has several modes of operation:

For keyboard entry of a given frequency simply enter the unit on, press the P/MA key once (display will show 0.0), type in the desired frequency (in kHz) and press the =key. Sample entries would be 11500, 0.7 or 115070.0 or 115070.0. Invalid entries will show "E" on the NCM-515 display. In the remote mode you take control from the NRD-515, its MHz and tuning knobs are now insensitive (RTT is still functional). All frequencies on the keypad will also be...
Radio and the Falklands

Monitoring Times Welcomes

(Ed. note: this month's veteran writer John Santosuosso whose technical expertise in clandestine and pirate radio is without peer. Let us know if you would like to hear more from John!)

By John Santosuosso

The Falkland Islands (Islas Malvinas) crisis filled the shortwave bands with more unusual activity than any event in recent years. Some of these transmissions will probably have disappeared by the time you read this, but others should continue, and new ones may appear.

The British military victory will not end the conflict. Troops will have to be stationed on the islands to prevent an Argentine return, and most likely the propaganda war, largely waged by radio, will continue.

"Argentine Annie," as the British call her, or "Liberty, a proud woman from Argentina," as she identifies herself, is the most interesting radio personality to emerge from the conflict. Liberty broadcasts on 17740 for thirty to forty-five minutes every other hour from 1800 to 0000 GMT. Usually the 0000 transmission is the clearest.

This sultry voice specializes in pop music and propaganda for the British task force. Many of her musical selections are chosen with the purpose of weakening the morale of the occupation forces far from home. These include "London," and one of her favorites, an instrumental arrangement of "Stormy Weather."

In between the music Liberty provides news and commentary, some of it rather unbelievable, such as former reports of heavy British casualties in the retaking of South Georgia Island.

Lately the British have been jamming Liberty, so she may prove difficult to hear, but keep trying as you will recognize the raucous voice instantly when you do come across it.

There has been much speculation as to the point of origin of the Liberty transmissions. Although she claims to be broadcasting from the Falklands, this is most unlikely. It is possible that the actual programs themselves may never have been produced in Argentina but might be supplied by a friendly outside power.

DXpert David Crawford has obtained information from the FCC which indicates that the transmitter in the Cordoba-Junin area of Argentina. Bearings taken by the FCC at Fort Lauderdale, Florida, and Kingsville, Texas, make this location in the north-central part of the country appear most likely.

Not to be outdone, the British have countered with their own station, broadcasting entirely in Spanish to Argentina and the Falklands. This is Radio Atlantico del Sur (South Atlantic Radio) with a BBC transmitter on lonely Ascension Island. Programs begin around 2300 on 9710 kHz. While there is Argentine jamming, it is generally not very effective.

Radio Atlantico del Sur is operated by the Ministry of Defense and was at least in part the idea of Prime Minister Thatcher, who was dissatisfied with the BBC's coverage of the South Atlantic situation.

In the early days of the conflict BBC World Service broadcast frequent messages urging British citizens to leave Argentina. World Service news broadcasts, easily heard evenings on 6175, 7235, 9110, 15070 and other frequencies are among the best sources of obtaining news on the Falklands and the British government's viewpoint.

The closing days of the war Argentina jammed some World Service frequencies, as that country's situation grew more desperate. Even earlier BBC Spanish language programs on 15390 and other frequencies were jammed.

While North American listeners should have no difficulty in overcoming these jamming efforts, an increase in their occurrence or their disappearance could indicate a change in Argentine policy. Even a jammer may sometimes tell you something important.

One special BBC transmission is of particular interest. This is the program "Britain Calling Falklands," which is directed to the Falkland Islanders themselves and features news, personal messages from relatives and friends, and sometimes special events such as a speech by the Falklands Governor. In more normal times this program is transmitted only on Sundays, but at present it is aired daily. Look for it between 2120 to 2200 on 11320, 15400, and the recently activated 12040. So far Argentina has made no attempt to jam any of these frequencies.

Naturally, Argentina has found it necessary to establish special shortwave services of its own. One of the more interesting of these has made use of Radio Nacional shortwave transmitters to relay domestic medium wave stations for troops stationed in the Malvinas.

At 0000 Radio Rivadavia has been relayed on 5690 kHz, while on 11710 either Radio del Plata or Radio Nacional programming has been transmitted after the FCC's order.

The final defeat of the Argentines may mean the end of these transmissions, but there is always the possibility they might continue in the attempt to create the illusion of a continued Argentine military presence in the Malvinas.

There are still other types of transmissions worth monitoring. Should you hear pop music along with messages for British troops on the Hermes and other ships, chances are you are tuned to a transmission of the British Forces Broadcasting Service. One place to look is 15105 between 1130 and 1155 GMT.

Jamming may also be present. The navy of Argentina's nervous neighbor, Chile, has recently been involved with CW transmissions from station CCS on the approximate frequency of 22074 around 1800.

Chile is worried because it controls three small islands at the tip of South America which are also claimed by Argentina. She cannot help but think that this situation could produce another dispute similar to that over the Falklands.

Finally, mention should be made of the transmissions coming from the Cable and Wireless Company's facilities in the Falklands. After the war the islands Argentine made use of these transmitters for USB links to the mainland. Military communications and phone calls to home by Argentinians are among the kinds of traffic which have been heard.

Frequencies to watch are 11565, 19550, and 24145. However, be careful on 19550, as France's Saint Lys Radio has also monitored recently on that frequency.

In reality the Falklands conflict has produced so much shortwave activity it is impossible to monitor it all, but this tragic event has proven once again the value of shortwave radio.

The shortwave monitor has the opportunity to obtain vital information on the crisis which the general public, limited to the conventional news sources, cannot possibly obtain. It is yours free for a little time and effort. Good Listening!

Pirate Update:

Look for a drastic decline in domestic pirate activity as a result of the FCC's third bust of the famous Voice of the Voyager on May 9. One operator of the Minnesota station was fined $2000 and the other $1000. They were warned that a fourth offense would result in the maximum possible penalty, a $10,000 fine and a year in prison.

FCC agents also advised the station staff that they had managed to infiltrate several of the organizations which publish pirate radio news, and they now know the locations of most of the more active stations.

The Voyager does not plan to return, and several other stations appear to have shut down—at least for the moment. However, one has threatened to counter with a series of clandestine political broadcasts.

Credits:

Thanks to Dave Crawford, Terry Krueger, Havana Moon, and Gregg Barres for some of the information used in the above article.

Radio Moscow Sits On WWV

At approximately 0000 UTC Friday, May 7, 1982, the Havana relay station of Radio Moscow began broadcasting on 10.000 MHz, an international standard time and frequency control.

At our monitoring laboratory in Brasstown, WWV (National Bureau of Standards, Ft. Collins, CO) was completely covered up by the transmission which lasted until the following morning.

An inquiry to the FCC monitoring station in Washington, DC revealed that this was not the first time that this transmitter was brought up on 10 MHz. Spokesman Frank Williams said that at this writing he has no official explanation, and was searching for some possible technical accident which would account for the blunder.

At Monitoring Times, we have another hypothesis. With the impending approval of Radio Marti (1040 kHz) and other clearly anti-Castro broadcasts scheduled to be placed on the air from southern Florida, tempos are visibly up in Cuba. Could this have been a subtle hint that a full-fledged radio war is impending?

Time will tell.
Simplified Tuning For The
AEA MORSE/RTTY Reader

The product review of the AEA model MBA reader which appeared in the May/June issue of Monitoring Times elicited a number of inquiries as to a more effective tuning procedure when listening to RTTY.

Reproduced here is a system which worked well for us in the Grove Enterprises lab.

Attach DC and audio cords as instructed; switch unit on. Adjust threshold control so that both lamps are extinguished with no audio present.

CW RECEPTION

(1) Set FILTER to CW; MODE to MORSE

(2) Advance receiver audio to comfortable listening level and tune in CW signal in a normal manner.

(3) Adjust receiver tuning knob so that both TUNE lights blink together at full brightness with CW notes.

CW SPEED

(1) Set MODE to SPEED while copying CW as above. Speed in words per minute will appear as two right-hand digits.

RTTY RECEPTION

(1) Set FILTER to RTTY-W; receiver should be set to USB mode.

(2) Adjust threshold so that both lamps are extinguished with no audio present, then rotate control slightly counterclockwise so that right-hand light just comes up to full brilliance.

(3) Adjust receiver tuning and volume so that the left-hand TUNE light blinks on with RTTY signal pulses. If interference is present, set FILTER to RTTY-N.

(4) If the light stays on between RTTY pulses, reverse sidebands on your receiver and repeat step 3.

NOTE: There are two possible audio frequencies on each sideband which will cause the lights to blink; mark and space. Only one of these will provide correct copy.

ADDITIONAL NOTE: Virtually 100 percent of RTTY signals intercepted on shortwave will be either 67 or 100 WPM. However, many are non-standard shift or baud rate and will not be copyable on standard readers.

Phony Sony?

Rumors are rife that the popular ICF-2001 is being counterfeited offshore and being sold by New York importers. This prompted a call to Jon Strom, spokesman for the Sony Corporation.

According to Strom, he is unaware of bogus copies and feels that the rumor is unfounded. True, some units are coming in without AC adaptors, intended for foreign distribution, but the receivers are the real thing.

Strom went on to say that Sony has created a revolutionary new product, and the consumers who buy them are, in general, “forward looking.” As a result, many suspicions are engendered including the similarly-unfounded rumor that there is a second model of the 2001 due for release featuring advanced features like better selectivity.

“I can say without a doubt,” continued Strom, “that there is no such animal!” Subtle changes do occur, Strom admitted, referring to the power switch now being recessed below the panel to avoid accidental turn-on when the small receiver is carried in an attache case.

Panasonic has just announced its competition to the ICF-2001; it is called the RF-799. Monitoring Times has contacted Panasonic for a review unit so that we can in-form our readers of its performance. Hopefully, that review will be forthcoming in a future issue.

In the mean time, two new miniature shortwave pocket radios have been released from Sony. The ICF-7600A is the world’s smallest dual-conversion radio featuring 7 shortwave bands plus AM and FM as well. It will sell for $89.95.

The ICR-480 is a smaller pocket sized version, touting 5 shortwave bands and the AM broadcast band. It will sell for $89.95.

As a dealer and customer incentive program, Sony is offering an essay contest (“I like my Sony because…” routine); winners will be drawn by lottery and may choose among six worldwide cities for a vacation.

Spies In The Skies

According to an interesting article in May 17 Time Magazine, considerable espionage goes on over our heads. Russian and US spy satellites vie for air space.

Two days before the Argentinian overflight of the Falkland Islands, the USSR launched Cosmos 1345 and 1346 military spy satellites. At least six more were launched after the episode to monitor Argentinian and British ship movements.

Their functions included interception of communications, radar detection, photo-reconnaissance and other intelligence gathering assignments. Capsules were ejected over the Soviet Union where they descended by parachute for recovery.

While US satellites are designed to remain in orbit for months to years, Soviet satellites are usually lost after several weeks at most because of their low orbits.

The United States presently has two photographic systems watching the South Atlantic: the KH-11 and the twelve-ton “Big Bird.” “Big Bird” is capable of descending to 100 miles for close-ups, returning to altitudes of 170 miles for wide-angle shots of the earth’s surface.

Rather than ejecting film capsules, the US satellites beam their stored data to earth as binary digits for collection and reconstruction.

While the connection between US spy satellites and British intelligence was a closely-guarded secret, it is felt that British naval commanders were in possession of Argentinian military orders nearly as soon as they were transmitted.

This US Coast Guard light station at Gloucester, MA provides VHF-FM ship to shore communications. Prominent in this photo is the Phelps-Dodge model 340 broadband base station antenna.
New Books From The Publishers

Several new books of interest to listeners have crossed our desk this month.

Since none is presently stocked for resale Grove Enterprises, interested readers are requested to contact the local publishers or the publishers directly for further information.


Deemed not a "how-to" or circuit collection book, Buschbaum's is a dense compendium of solid theory, fundamentals, charts and tables, formulas and reference data covering a wide swath of electronics subjects.

Copiously illustrated, the 24 chapters cover industrial and biomedical applications, electronic devices, electronics, digital logic and computer theory including programming language, broadcasting and recording, radar and navigation systems, communications, filter network design, solid state and vacuum tube technology, antennas and circuit components as well.

Well edited, Buschbaum's is a recommended reference for anyone seriously interested in an indepthlook at the field of electronic technology.

CODES, CIPHERS AND COMPUTERS by Bruce Bosworth (softbound, 259 pages, 6" x 9", Hayden Book Company, Inc. No. 5149-0, $13.95).

With the rapid acceleration of public access to the airwaves and to computer data, the need for privacy has never been greater.

Bosworth's introduction to information security examines virtually every encryption and code technique for encryption, beginning with historical military applications and progressing through modern methods.

Bosworth demonstrates with examples for each encryption method under examination. Codes is written as a textbook, complete with questions to test the readers retention of the techniques at the end of each major section. Answers with solutions-are presented at the end of the book.

For additional help, Bosworth has included exhaustive lists of references to enable the reader (or student) to go further in his studies of particular concepts.

Quite likely, the key to the "spys" numerous messages so frequently reported by our readers may lie within the pages of this essay on cryptographic techniques.

THE SWL'S MANUAL OF NON-BROADCAST CASTATIONS by Harry L. Helms (TAB 1235, $12.95 softbound, 272 pages, 5" x 8").

Noted author Harry Helms' newest book is intended as an introduction to the world of utilities "off the main wave" through a description of utilities (non-broadcast) users, modes of transmission, signal propagation, fixed, marine and aeronautical stations, equipment and logging.

Appendices are included listing call signs block by block, sample frequency lists and QSL information.

Any criticisms of the book are of a minor nature: VHF and UHF lists seem to be for a shortwave book; FBI, aircraft, numbers and beacon frequencies are largely obsolete.

But as an introduction to the world of shortwave utilities DX'ing, the book is informative.

BUILD A PERSONAL EARTH STATION FOR WORLDWIDE SATELLITE TV RECEPTION by Robert J. Traister (TAB 1409, $9.95 softbound, 296 pages, 5" x 8").

As a tutorial guide to the hardware and basic theory of satellite television, Traister's new book is hard to beat.

While the vast majority of the book centers around commercially-available products (many of which come and go in the flaky home satellite TV business), considerable do-ityourself information exists as well.

Separate chapters abound on antennas, receivers, amplifiers, locations and construction.

Appendices include charts and tables concerning satellite transponders, orbital locations, wind factors, noise figures, frequency allocations and other considerations german to adequate reception.

THE MASTER HANDBOOK OF IC CIRCUITS by Thomas R. Powers (TAB 1370, $14.95 softbound, 532 pages, 5" x 8").

A massive collection of integrated circuit applications, there are backup forms of very large variety of popular (and not-so-popular) chips on the market.

Major sections are categorized into Linear, voltage regulators, CMOS, TTL/LS, Radio/TV and special purpose circuits.

Sound generators, oscillators, amplifiers and modulators, filters and power supplies, gates and triggers, ...a wide variety of handy circuit schematics are presented as a guide to IC applications.

THE GIANT HANDBOOK OF ELECTRONIC CIRCUITS by Raymond A. Collins (TAB 1300, $18.95 softbound, 880 pages, 5" x 8").

One of the largest compendiums of hobby electronic circuits we have seen is this new release from TAB. Sixty separate categories of discrete and chip applications from IC, D convertors to waveforms generators populate the pages of this missal.

More than a thousand simple circuits are included to assist the home builder with oscillators, transistors, receivers and detectors, smoke alarms, toys, limiters, photocircuits, logic, sensors, music makers...almost every imaginable concept is covered. While some circuits are merely partial to demonstrate applications techniques, all are eminently useful for informational content.

GIANT HANDBOOK OF 222 WEEKEND ELECTRONICS PROJECTS (TAB 1265, $12.95 softbound, 496 pages, 5" x 8").

This handbook is remarkably different from other collections of electronic workshop do-it-books. Compiled from nearly forty years of considerable work, the handbook features many demonstration, visual-aid projects for educational purposes.

Sample of the publication's contents include the design and building of radios and relays, broadcast-band transmitters, workshop test equipment, automotive timing light and ignition, light-beam transmitters and club building equipment and many more.

First-rate publication for teachers involved in electricity and electronics.

PROJECTS FOR ELECTRONICS EXPERIMENTERS by Forrest M. Mims, III (TAB 1249, $9.95 softbound, 308 pages, 5" x 8").

Also, another simple project collection. In all fairness, we must remind our readers that Forrest Mims is well-known for his years of writing hobby-related articles in popular magazines for radio and electronics enthusiasts.

This latest Mims work is typical of his polished writing: concise, informative and easy to read. Projects are not unduly complex; many, in fact, are quite simple.

Active filters, modulators, optoelectronics, digital and analog IC applications, power supplies and amplifiers highlight the majority of the work. For the uninstructed, an introductory chapter discusses tools, techniques and even circuit symbols.

CANADIAN RAILWAY RADIO GUIDE by Kenneth A. W. Gansel (Gansel Publications, PO Box 1108, Niagara-on-the-Lake, Ontario, Canada LOS 1J0).

Four pages (41/2" x 11") featuring frequencies of dozens of Canadian railways nationwide. A separate frequency cross reference assists in identifying signals from across the land.

SCANNER FREQUENCY DIRECTORY FOR NW OHIO AND SE MICHIGAN by Darryl Symington ($5.95 from Midwest Software Services, PO Box 399, Holland, OH 43528).

Approximately 1500 frequencies relating to local and federal law enforcement, private radio, industrial and commercial communications, amateur, marine, mobile phone and aircraft.

A 10-county area of NW Ohio and SE Michigan is the target of this neat little volume.

WARC-79 Rules

Gradually Implemented


Decisions made at that conference will be gradually implemented over the next 20 years, although those with the most impact have already begun. Some of the rulemaking landmarks of particular interest to readers include:

AT HF:

The official table of frequency allocations now begins at 9 kHz.

The AM broadcast band will extend to 1.7 MHz (now 1.6 MHz).

All LORAN A systems will be deleted from the 2 MHz spectrum before 1981.


Hams received extra bands at 10.10-10.15, 10.60-10.65 and 24.89-24.99 MHz (Already in use in some parts of the world)


Industrial, Scientific and Medical (ISM) emissions will now be allowed at 6.75-6.85 MHz.

The aeronautical mobile service has inherited 21.924-22.00 MHz.

At VHF/UHF:

The 216-220 MHz band is now available for maritime communications.

A worldwide wireless hearing aid channel is reserved for 3.155-3.195 MHz; others may be assigned up to 3.4 MHz.

The band 21.85-21.87 MHz will be vacated by the aeronautical service and given to the fixed (point-to-point) service; astronomy will get 25.55-25.67 MHz and maintain 13.36-13.41 MHz.

Additional spectrum has been acquired 1110-1190 MHz for scientific research.

Additional terrestrial mobile services will be given 80.9-83.0 MHz.

Revised 50 MHz spectrum for fixed and mobile services.

Fixed and mobile (but non-aeronautical) services have been granted primary status in the 420-430 and 440-450 MHz bands.

Monitoring Times, July/August, 1982 Page 11
Caribbean Cruising...

By Tom Williamson

"WHISKEY OSCAR MIKE...WHISKEY OSCAR MIKE. THIS IS THE STATION. THIS IS THE STATION." "OCEAN GATE RADIO. THIS IS THE QUEEN ELIZABETH TWO. GULF BRAVO TANGO. TANG O. CHANNEL 1210." "SUN VIKING. ALL THROUGH. WOM CLEAR CHANNEL 1203."

These are a few of the messages you may hear on the Marine Bands on your short wave radio.

Are you fascinated by the sight of large ocean-going ships majestically cutting through the seas? Do you dream of lying on sun-drenched decks as your favourite liner plows the calm blue Caribbean? Would you like to go ashore at exotic isles like Puerto Rico? Can’t afford it? Neither can I!

But with your receiver tuned to shortwave you can at least follow the adventures of the beautiful cruise liners as they journey around the tropical islands of this part of the world. And if you like collecting QSLs, you will find a new and interesting type of collecting here. Even if they do not issue prepared printed cards many of the shipping companies will be pleased to send you a fine photograph or color card of their great ships.

So how do you start on this type of SWLing? Let’s take a look at the Marine bands. They are as follows:

4063-4438, 6200-6525, 8195-8815, 12300-13200, 16460-17360, 22000-22720 kilohertz as the principal bands. In these frequency ranges you will find a mixture of Coastal stations, Naval stations, Coast Guard and ships of all types. Operating modes will vary, with telegraphy, radioteletype and SSB voice communications being the main modes.

In all these bands there is a regular allocation of frequencies, and for ship-to-shore communications, you will find the ship on the low frequency side of the band, and the coastal station on a corresponding frequency on the high frequency side. This is termed duplex communication, and the two linked frequencies are given channel numbers.

For us, take as an example the 12-13 MHz region which is a very useful band, open much of the 24 hours for signal propagation. Channel 1201: ship 1201/1201, channel 1202: ship 12301/12301, channel 13103.9 kHz; and so on up to Channel 1232: ship 12426.1/12426.1 kHz. This gives a channel spacing of just 3.1 kHz throughout the bands. You can work out the channel frequencies for other bands from these data:

<table>
<thead>
<tr>
<th>Channel</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1201</td>
<td>1201</td>
</tr>
<tr>
<td>1202</td>
<td>12301</td>
</tr>
<tr>
<td>12303</td>
<td>13103.9</td>
</tr>
<tr>
<td>12426.1</td>
<td>12426.1</td>
</tr>
</tbody>
</table>

In order to receive these coastal-ship communications you will need a receiver which has upper and lower sideband switch positions, or a Beat Frequency Oscillator (BFO) which can be varied until speech becomes understandable. In order to follow both sides of a conversation you will need two receivers, one for each frequency, or a computerized set like the Sony ICF 2001 which can switch directly from one preset channel to the other.

Start by tuning the coastal station frequencies, and when you have identified a conversation in progress search for the ship on the corresponding LF frequency. Nearly always the ship will be much weaker than the shore station, often inaudible, unless you have a super antenna. Nevertheless, many ships can be heard every hour, and you can build up an interesting log, often with their geographical positions, quite quickly. The coastal stations most often heard in North America, in respect to the Caribbean area, are (Miami) and WOO (Ocean Gate, N.J.) Of course they share their channels with other coastal stations world-wide, and you will quickly learn to identify many other frequent voices such as KMI (Point Reyes, CA.) and many European stations like Portsmouth (U.K.), St. Lys, (France) so forth.

Operating procedure is as follows: Ship calls the coast; coast radio replies checking reception, ship position, etc.; when circuit is satisfactory the coast operator passes the line to the telephone company so that the person on board the ship can make a direct call to any number. The telephone operator usually identifies simply as “High Seas”, and at the end of the conversation or “traffic”, passes the ship back to the coastal station for clearance. At this point the coastal operator closes with the channel number which is a useful check to you as to the frequency to which you are tuned.

Ship callsigns are given in phonetic code, and are allocated in accord with international prefixes, dependent upon the country in which the ship is registered, not necessarily the country which owns and operates the vessel. A guide as to which ships are around the area at any given time is the “roll call” which the coastal stations transmit from time to time, when they announce the name (and often callsign) of ships for which they are holding traffic. Also to be heard are marine weather forecasts, given in great detail. These may also have been heard over the U.S. Coast Guard stations such as NMM (Portsmouth, VA), NMC (Point Reyes, CA) and NMO (Honolulu) A good guide to hearing these stations is 13113 kHz. More details on Coastal radio may be found in the new shortwave frequency directory by Bob Grove.

To return to ship stations it is advisable to send a prepared card on which you simply list the date, time, frequency and station contacted. The ship radio officer will usually sign and stamp the card and return it with a photo if you have requested it. And remember: NEVER report any details of traffic, i.e. no details of telephone conversations (no names, no numbers, NO nothing!). This is against International Telecommunication rules and could get the listener into serious trouble.

Information on the owner/operator of ships is not easy to come by, nor is it cheap. You can buy the I.T.U. List of Ships from Geneva, but it is costly and does not give much data on addresses to send reports to. A good cheap source of data on the big cruise is Fords Cruising Guide, which you can find in most local travel offices.

Good DX cruising!

Watch Those Voltages!

Common AC adaptors like the Grove Enterprises PWR-1 provide good filtering, but poor regulation. An adaptor rated at 12 volts 1500 milliamperes, for example, may actually put out 18 volts—or more—when providing low current (30 milliamperes or so). For this reason it is recommended that the user experiment with voltage settings for best performance of the accessory being used. To measure the voltage with a suitable volt meter.

During recent tests at Grove Enterprises, we found that low current devices like the Scanner and Power Ant work best with the PWR-1 set at 9 volts rather than 12. Under actual measurement, the 9 volt setting puts out approximately 12 volts under the small current requirements of these lightweight accessories.
displayed on the NRD-515.

To entry a new frequency, simply key it and press =. There is also an add and subtract function: If you are at 15300.0 kHz and want to move to 16350.0 kHz, simply type + 10500.

Whether or not you have the NHG 24 or 96 channel memory unit you will now have the ability to store 4 frequencies in the controller itself! Simply press and either M1 M2 M3 or M4. To recall any of the four memorized frequencies in the future, simply press MR followed by M1 M2 M3 or M4. When you turn the NCM-515 off you will not lose the memories, but turning the power off on the NRD-515 receiver will erase the four memories.

There is a lock key on the NCM-515 which works exactly the same as that on the NRD-515. Press once to lock, again to unlock. The status of the "LOCK" is also shown on the LCD display of the controller.

The most interesting and unexpected feature of the NCM-515 is its ability to automatically turn on or off (sleep at different rates. I found myself enjoying this feature as much as a standard keyboard entry! You can slow by 1 kHz, 10 kHz increments, in either FAST or SLOW mode. The rates of tuning through 1 MHz of bandwidth are:

- Step 1 kHz: Step 0.1 kHz
- FAST: 16 secs. 100 secs.
- SLOW: 66 secs. 660 secs.

The "SLOW" "Step 0.1" is nice for just "scanning" across the band. The keyboard input combined with the 4 tuning rates essentially eliminates any need (or desire!) to tune manually.

The NCM-515 also provides a very fast and efficient means to program your 24 or 96 ch. outboard memories! In summary, I am sure every NRD-515 owner will want to add this convenience to his listening post.

A July delivery is expected for the new NCM-515 and cost is expected to be under $200. Interested readers are advised to keep in touch with authorized JRC dealers.

**Special Sale To Our Subscribers!**

**Your Antenna Makes the Difference!**

**THE SCANNER'S EDGE**

**Our World Famous SCANNER BEAM (ANT-1) - $1100**

Our high-gain broadband beam is the finest scanner antenna available! We wouldn't make that statement if our customers haven't been proven it!

After two years of this product's unparalleled success, NOT A SINGLE SCANNER BEAM HAS EVER BEEN RETURNED FROM A DISSATISFIED USER!

Countless NRD-515 Scanners are now in use in government, military, ham and hobby listeners.

Continuous 108-512 MHz coverage with high band gain of 6 dB and UHF gain of 8 dB provides exceptional in and out-of-band performance. Even low band reception is remarkable considering the beam's compact size.

This rugged 7-element log-periodic dipole array is only 51-3/4" long and about 124" high, yet performs anything in its field.

Ideal for long distance public safety, government and aircraft monitoring. Also useful for amateur 144, 220 and 432 MHz applications.

Point it at your favorite target and listen to the improvement in signal strength.

Rugged mounting hardware, wideband matching transformer, weather boot and complete instructions included.

**SPECIAL DISCOUNT FOR MONITORING TIMES READERS...**

Two valuable receiving tools in one: a low-high UHF active antenna and an in-line signal preamplifier.

**POWER ANT** is designed to maximize signal reception throughout the 30-960 MHz spectrum. Use it as a stand-alone indoor antenna, or as a distance capturing booster with your outside antenna.

A front panel control allows you to customize your amplification. Attenuate overload signals and boost VHF signals as much as 25 dB, UHF 15 dB, and 900 MHz 8 dB.

A low noise 1.8 dB microwave stripline circuit operates from any convenient 12 volt DC source.

For our Subscribers: 59" (Reg. 94") plus 2" UPS delivery or 59" UPS delivery in U.S. Suggest CB-1 coaxial cable for use with Scanner Beam. (See details in this ad)

**OUR FAMOUS POWER ANT**

Plus a Free AC Adapter (ANT-4) - $1821!

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Designed for continuous 2-960 MHz applications, comes complete with extra connectors and full instructions.

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114" (Reg. 18") plus 1" UPS or 14" UPS delivery in U.S.
The Number Game

(Editor’s Note: No subject in the annals of communications journalism has caused such speculation as the tantalizing “Spy numbers” stations. And no source of information has titillated the readers’ fancies as has “Havana Moon,” pen name for a highly credible oracle on these cryptic emissions.)

b) Havana Moon

The Game Of Electronic Intrigue

EQUIPMENT
1. A general coverage receiver. (Need not be elaborate)
2. A reasonably effective antenna system.

REQUIRED SKILLS:
1. Ability to count from one to ten in Spanish.
2. Elementary knowledge of Morse. (Especially the numerals)

GAME OBJECT:
1. Intercept as many Spanish 5-digit transmissions as possible. (Often referred to as “Spy” transmissions)

WHERE TO START:
Begin your game on 4044 kHz at 0100, 0200 and 0300 week nights. At 30 minutes past these hours you’ll hear a repeat transmission on 5135 kHz. The announcer is female whose hometown is not necessarily Miami or Havana. Transmission Mode is AM. Transmissions on these frequencies are tape recordings of “real-time” transmissions a little later.

FORMAT:
The format for transmissions for the 4044/5135 kHz family or circuit is:

1. HEADER
   "Atencion!" XXX XX XXXX (Identifier?)
   xx (Group count of crypt or message) X denotes numerals

2. CRYPTO OR ENCIIPHERED TEXT
   XXXXX XXXXX XXXXX (5-digit groups in Spanish)

3. TERMINATOR
   “Finale” (also “Fin” and “adieu”) on the previous 3060/3090 kHz circuit

For many years (until June, 1982) the 4044/5135 kHz format was broadcast on 3060/3090 kHz. Only one operator will officially admit to having knowledge of these transmissions. It’s not the CIA but the ever-watchful FCC. Here’s a portion of what they have to say:

“...it has been determined that the 3060 and 3090 kHz transmissions originate from a site near Havana, Cuba... This statement further adds to the mystery and intrigue as the majority of known numbers monitors indicate that numerous U.S. sites are involved! One such alleged site is the Washington, D.C. area.

It’s only fair to point out that the vast majority of monitors lack adequate radio direction finding (RDD) equipment.

One monitor in South Florida indicates that on occasion he had monitored transmissions at 1300, 1400 and 1500 hours. U.T.C. on 3060 kHz during summer months with signal strengths in excess of S9! Other mornings the signal would be barely audible. Does this suggest multiple transmitter sites with some sites not so near Havana.

This individual also states that his own RDF at night—on some occasions—would indicate a bearing that would pass near Havana. Of course this radial would also pass near and through many other sites.

A LITTLE HISTORY...
Spanish numbers transmissions can be traced back to the “Bay of Pigs” era. 10-code monitors from that time frame indicate that prior to that ill fated adventure, 4-digit live transmissions by a male announcer were very common. The frequency was near 3 MHz.

In addition, the 4-digit groups were liberally punctuated with four letter words. It was generally accepted that these transmissions were originating from the Miami area as well as the upper keys. It was rumored that the long closed Richmond Naval Air Station near Perrine, Florida, was the main site. On this site now stands the new Dade Metro Zoo.

It was just a matter of time before the pro-Castroites on the island of Cuba decided to reciprocate in kind. They even threw in the same four letter words.

It would be safe to assume that the traffic transmitted by both sides was of the "disinformation" type.

One amusing transmission was overheard many years ago. A male announcer with a heavy Spanish accent suddenly sneezed in the middle of one of the groups; the poor fellow couldn’t regain his composure and was never heard again!

FOR THE SERIOUS PLAYER: Those with a background in cryptography have by now reached the conclusion that the transformation of the plain text of this traffic is by a substitution method and not a transposition method. Further examination indicates that the system is polyalphabetic.

Experienced monitors also generally agree that the traffic is “double dipper” or “dummy.” This applies to the 4044/5135 kHz circuit.

On some occasions taped CW transmissions of Alpha characters in groups of five rather than numbers are heard. Only ten letters of the alphabet are used. The Morse equivalents of these Alpha characters are the most easily identifiable of all the messages.

A = -- REVERSED = - N
D = -- REVERSED = ** U

When all ten are reversed they produce—a in a different order—the same ten characters of the crypto alphabet.

This does not permit a further discussion of cryptological procedures as they would apply to numbers transmissions. It’s very likely that any detailed writing would be in direct violation of certain U.S. statutes regarding cryptological methods.

If you desire to further your knowledge of cryptography you might wish to acquire the following publications:

CRYPTANALYSIS by Helen Fouché Gaines — Write to: Dover Publications, Inc. 180 Varick Street, New York, N.Y. 10014. If this last report the price was less than $4.00 for this 230 page book.

(Editor’s note: See “Codes, ciphers and computers” review under “New Books” column)

One cryptological anomaly will be illustrated before concluding this segment. The incidence of occurrence of doublets and triplets in the individual groups of the 4044/5135 kHz circuit is far above average.

0123 0122 0123 (double) 0122 (triplet)

The “one time pad” must be ruled out; there is far too much similarity between groups.

OTHER FREQUENCIES AND OTHER LANGUAGES:
Following the Spanish numbers, you’ll find the German numbers are the second most common. English numbers are monitored on a somewhat on and off again method. Some monitors have heard the Serbo-Croatian as well as Korean numbers transmissions. Most are of the 5-digit variety with the 4-digit variety running a close second. Some 3-digit also transmitted. Many German numbers transmissions are of the 4-digit variety. This is also true of the English.

For added intercepts and intrigue you might scan the high end of the 6 and 7 MHz bands. After 0500 U.T.C. on weekends they appear to be a massive traffic dump. About once every month on the weekends at 0900Z you’ll find 5-digit Spanish transmissions on the low end of the 80 meter ham band. This allows a great deal of confusion among the hams that happen to be on the same frequency. The MARS frequencies just above 4 MHz are also often used.

The frequency 3315 kHz is interesting in that it is used on a purely random basis and at random times. Perhaps the traffic that’s being passed on this circuit is so “phantom” that they’re not monitoring it as it’s only a real-time Spanish traffic. This transmission can be monitored on the simulcast frequencies of 3812 and 4668 kHz at U.T.C. In all probability, these numbers of the 4-digit variety are mechanically generated. The voice of this female is linguistically sterile. She has also been reported by some monitors on this same frequency with 4-digit groups in English!

FLASH! SPY NUMBERS STATIONS CHANGING FREQUENCY

An alert listener has informed Monitoring Times that the famous 3060/3990 kHz Spanish “numbers” station went off the air following the pass of hurricane Alfredo off the western end of Cuba.

A new pair of frequencies, 4044/5135 kHz, have apparently taken their place. A schedule of new frequencies follows.

Time (UTC) FREQ (kHz)
0000 4044
0030 5135 (repeat)
0100 4044
0130 5135 (repeat)
0200 4053
0300 4044 (cw)
0330 3985 (repeat)
0400 4044 (cw)
0430 3080 (repeat)
2000 4044
2300 5135
1400 4044
1500 4044

Another curious 4-digit Spanish simulcast transmission occurs on 4305 and 4670 kHz at 0300 U.T.C. on weekends. The 4670 kHz transmission is far stronger than the 4305 kHz transmission. It’s been suggested by a highly reliable source that a HF repeater system is being used. (Could this transmitter keying a repeater on another frequency)?

A once-a-week (Saturday) transmission occurs on 3690 kHz at 0500Z with a repeat transmission on 4024 kHz at 0630Z. Group count on this circuit is never more than 15! This is hardly “phantom traffic”!

Space does not permit a listing of the numerous frequencies where numbers transmissions have been monitored in the past. Many frequencies are only used once a month and many of the frequencies change quarterly.

The frequencies mentioned in this article are known to be relatively stable with the 3600/3990 kHz circuit being the most active for many years. In all probability this was a training circuit as messages are repeated with enormous frequency. Messages that were transmitted as far back as 5 years ago still show up at various times. For more detailed frequencies I would suggest that you join the SPECTX shortwave club. The utility column with numbers listings is one of the best around.

Due to space limitations much pertinent data was painfully omitted in this report. Perhaps if favorable response is great enough, Bob will kindly consent to another in-depth article on the many “KNOWNS” in regards to the number transmissions.

CAVEAT:
The enforcement division of the FCC has stated that numbers transmissions do have the protection of Section 606 of the Communications Act of 1934.

“Adio!”

Havana Moon

(How about readers? Would you like to hear more from “Havana Moon”...Bob)
Recently, Monitoring Times directed a letter to Robert L. Cutts, Chief, Spectrum Management Division, Federal Communications Commission. That letter read in part:

"There seems to be considerable misunderstanding among listeners as to what constitutes a 'sensitive' frequency, and whether or not sensitive frequencies are published by the International Telecommunication Union (ITU). Would you please clarify these issues for our readers?"

We are pleased to reproduce here the portion of Mr. Cutts' reply which deals with this question.

Let me begin by defining a "sensitive" frequency. It is one which the disclosure of the technical characteristics of the frequency assignment, in some cases just the frequency itself, along with the nature or content of the transmissions, either in general or in specific terms, and/or the identification of the operating agency or subpart of an agency, would be denied by the Federal Government because the information was classified or otherwise not releasable under the Freedom of Information Act (FOIA). What this means is that the technical characteristics of a frequency assignment by itself, would not result in information that would be classified or otherwise not releasable under the Freedom of Information Act.

Obviously there are exceptions to this very simplified explanation but, in general, it is the linking of the operating agency and/or content of communications with a specific frequency assignment that determines whether an assignment would be classified or otherwise not releasable under the Freedom of Information Act.

With regard to the International Frequency List, administrations, including the United States, notify frequency assignments to the International Frequency Registration Board (IFRB) in accordance with the relevant provisions of the International Radio Regulations using the following guidelines contained therein:

"Any frequency assignment...shall be notified to the International Frequency Registration Board:

a) if the use of the frequency concerned is capable of causing harmful interference to any service of another administration; or
b) if the frequency is to be used for international radiocommunications; or

c) if it is desired to obtain international recognition of the use of the frequency."

While the Commission authorizes non-Federal users of the spectrum, the Commission nevertheless serves as the International Telecommunications Union (ITU) notifying administration for non-Federal and also for virtually all Federal government operations notified to the ITU and thereafter appearing in the ITU published International Frequency List (IFL). Perhaps to ensure that no information known to be classified, nor even information in respect to unclassified U.S. Government assignments not releasable under the Freedom of Information Act (FOIA), has been so notified. In fact, above 28 MHz in the mobile services by far the most common kind of notice provided to the ITU is no more than a typical notice. This procedure is fully in keeping with the treaty obligation set forth in Article 17 of the International Radio Regulations which states:

Article 17

Secrecy

722. The administrations bind themselves to take the necessary measures to prohibit and prevent:

723. a) the unauthorized interception of radio communications; and

b) the divulgence of the contents, simple disclosure of the existence, publication or any use whatsoever, without authorization, of information of any nature whatever obtained by the interception of the radiocommunications mentioned in No. 723.

I hope that the above has been responsive to your questions.

Sincerely,

Robert L. Cutts, Chief
Spectrum Management Division

We would like to thank Mr. Cutts for his professional courtesy in replying to our inquiry.
Behind The Scenes
At Walt Disney World

We would like to thank reporter John Pierce of Kissimmee, Florida, for the most comprehensive list of Disneyworld frequencies to circulate this desk.

Call Sign | Freq. | Mhz | Net | Transmitter | Use
--- | --- | --- | --- | --- | ---
KAA101 | 462.625 | OP3 | II | Space Mt. | Transportation
KAA102 | 467.610 | OP3 | I | Castle | Transportation
KAA103 | 462.615 | Maint | I | Castle | Transportation
KAA104 | 467.605 | Maint | I | Colorado | Landscape
KAA207 | 467.575 | OP2 | I | Space Mt. | Monorail
KAA208 | 467.575 | OP2 | I | Castle | Theme Park Maint.
KAA209 | 462.675 | Maint | II | Space Mt. | Pagers
KAA211 | 462.550 | Maint | I | Space Mt. | Security
KAA212 | 467.530 | OP1 | I | Admin. Wtr. | Security
KUL467 | 464.410 | SEC | I | Space Mt. | Inf. Transportation
KUL489 | 464.125 | SEC | II | Space Mt. | Entertainment
KUL490 | 464.125 | SEC | II | Space Mt. | Entertainment
KUL491 | 464.090 | SEC | I | Space Mt. | Entertainment
KUMA198 | 469.400 | Taxi | I | Space Mt. | Transportation
KUMA393 | 469.980 | Taxi | I | Space Mt. | Transportation
KUL467 | 464.660 | Resort | I | Space Mt. | Transportation
KUL468 | 464.660 | Resort | I | Space Mt. | Transportation
KUL472 | 464.660 | Resort | I | Space Mt. | Transportation
KUL473 | 464.660 | Resort | I | Space Mt. | Transportation
KUL474 | 464.660 | Resort | I | Space Mt. | Transportation
KUL475 | 464.660 | Resort | I | Space Mt. | Transportation
KUL476 | 464.660 | Resort | I | Space Mt. | Transportation

NASA Proposes Land Mobile Satellite System

The National Aeronautics and Space Administration (NASA) is seeking two 10-MHZ blocks of the 800 MHz UHF high band for mobile-to-satellite and interlinking. Satellite-to-fixed earth station interlinking would be accomplished in the 2500-2690 MHz band.

NASA claims it has already demonstrated the feasibility of such a system during the Mt. St. Helens disaster when it used the Advanced Technology Satellite ATS-3. At that time an Air Force jeep from the 303rd Aerospace Rescue and Recovery Squadron was used for search and rescue operations. The jeep was equipped with satellite communications gear.

ATS-3 is still used by many oceanographic and educational institutions; their daily nets usually begin on the hour, most commonly on channel 2 (136.55 MHz downlink) using narrow band frequency modulation (NBFM).

Public safety organizations have also shown interest in the proposed mobile satellite system. The Federal Emergency Management Agency (FEMA) and the Associated Public Safety Communications Officers (APCO) feel that the new system would be ideal for coordination of their nationwide activities.

More specifically, NASA requests that the present cellular land mobile allocation (825-845 MHz) be shifted up to 831-851 MHz, next to the 851-866 MHz safety and special base station service.

Correspondingly, the cellular base station allocations would be shifted up from 870-890 MHz to 876-896 MHz.

The net result of the shifts in allocations would be the availability of two 10 MHz swaths of spectrum on either side of the new cellular mobile/base displacement. It is NASA's proposal that these bands be assigned to the Integrated Territorial Land Mobile Satellite System (T/LMSS).

NOTICE TO OUR READERS: While every attempt is made to answer the barrage of questions which come in, the cost of postage is staggering.

To be sure of a reply to your questions, be sure to include a self-addressed stamped envelope.

"The Number You Have Reached...

There are some 70 automatic intercom systems (AIS) throughout the United States. Virtually all of them use Western Electric equipment, and of those, two Atlanta companies, Autochron and Weatherchron, produce nearly all of the recorded announcement drums.

In most cases, the recorded voices are analog, not digital, and belong to professional announcers. Similar systems are used for recorded messages on the air as well. WWV, CHU and even the "Spy numbers" stations use these recording systems.

The voice of Don Elliot, a former Atlanta radio announcer (WSB), is heard on the WWV time announcements. That Autochron system is also found in nearly two dozen AIS installations for telephone companies nationwide, utilizing the voice of Jane Barbe, who was featured on a recent Real People segment.

Ellis Bryant, president of Weatherchron Company, is understandably proud of his company's thrust into the recorded announcement field. At least 60 AIS installations are Weatherchron, including that of the US Naval Observatory (202-544-4950), who set the most accurate time standard in the world.

Incidentally, the voice at the Naval Observatory belongs to freelance announcer Fred Covington, most recently noted for his role as the slave auctioneer in "Roots". His voice is also heard in dozens of cities throughout the Northeast on recorded telephone messages.

Another popular voice heard on Weatherchron intercom systems is that of another Atlanta, Joanne Daniels. Her melodic interpretive message is encountered all over the country!

Finally, a digital message is also available. It is stored as binary bits of memory on a 64K ROM chip as ten numerals. The owner of the voice on a chip? Maureen McDermott.

How's that for an excitation into trivia?
FCC Allows Scrambling On Business Bands

Digital voice privacy systems are now allowed on all part 90 services. The FCC recognizes the need for secure communications among industrial security, oil exploration and many other services vulnerable to unfair utilization of intercepted communications.

While such station are permitted unrestricted use of such scrambling systems, callsign identifications in clear voice are still required.

Good News On CVR-1

After using the CVR-1 for two months, and making a few antenna modifications, I have found that this converter is the best available at this point in time.

Through trial and error, I found an antenna preamp is essential to increase the converter's signal sensitivity. With the help of the pre-amp I have increased by listening area at least two-fold.*

For my antenna, I have a half-wave ground plane, 65 feet above the ground. Electrically, I hand the antenna cut for 345,000 mhz which is the center of my listening coverage area. The pre-amp's located 6 inches below my antenna. 75 feet of RG-8/U coax is fed into the CVR-1 to the input of the scanner. I ran a separate 12-volt power supply line up to feed my pre-amp. This line also powers my CVR-1 unit. The power supply I use is 400 ma., 12 volt DC power supply.

With installation complete, I can now tell you of my listening success. I am located on the southeast coast of North Carolina, centrally between Seymour Johnson Air Force Base, Cherry Point Marine Corps. Air Station, and the Myrtle Beach Air Force Base. Polk Air Force Base is also within my listening area. An abundance of air-to-air tactical military training is performed in this area, which includes dog-fights, live firing and air-to-air refueling missions.

I have been able to identify many of the frequencies encountered through references such as 1) Federal Frequency Directory by Robert B. Grove and 2) The 'Top Secret' Registry of U.S. Government Radio Frequencies by Tom Kneitel. Others I have discovered on my own through monitoring.

A station that particularly comes to mind is called "Giant Killer" operating on 310,1000 mhz. Giant Killer seems to be some type of control aircraft or AWAC-type aircraft giving F-15's their targets (Bogies), which simulate hostile aircraft penetrating U.S. airspace along the coast.

I have found that 311,000 mhz is an action-packed frequency. Air-to-air refueling missions are numerous on this frequency. Air-to-air combat training is also abundant on this frequency. It also seems to be paired with another frequency from time to time. This frequency is 41,700 mhz FM, which is the transmitter: Boom Operators frequency aboard a tanker.

There is always something to listen to as the local airport military frequency and Washington Center are very active.

In closing, I have enclosed a list of some of the other frequencies I have been able to receive with the CVR-1. These help to confirm that my monitoring capabilities have increased immensely.

*Editor's note: We are pleased to reprint the following letter from reader and monitor Ricky Tharrington of Wilmington, N.C.)

Good News On CVR-1

Ricky R. Tharrington
Wilmington, North Carolina

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Receiving Shortwave... Without A Shortwave Receiver!

By John H. Demmitt

If you have no shortwave receiver and want to listen in on shortwave broadcast stations, here is a simple way to do it using an inexpensive signal generator and a TV set.

Connect the output probe of the generator to the antenna terminals of the TV set. Connect a length of wire—about fifty feet—to the same terminal as the "hot" connection from the probe. Ground the other terminal (or connect another 50 feet of wire there to make a dipole). Set the TV channel selector to channel 2 (54–60 MHz) and the signal generator to the band which covers that range. You may have to set the generator output to a fairly high level, experiment with the level while slowly tuning the frequency control of the signal generator back and forth listening for the best signals.

A log of stations in order as they are received may assist you in accurately determining the frequencies; some will be announced on the hour or half hour.

You may wish to make a chart of frequencies, assigning each frequency a logging number from that scale of the signal generator for more accurate reference later.

An amount of additional information may contact me and I'll be happy to provide assistance. (John H. Demmitt, Box A K0848, Bellefonte, PA 16823).

Federal Agencies To Use 800 MHz?

The National Telecommunications and Information Administration (NTIA) has requested from the FCC co-channel usage with non-government assignees two segments of the 800 MHz band.

Sharing of the 889–902 and 938–941 MHz spectrum was deemed necessary by several federal agencies for Coast Guard law enforcement and search and rescue, interlinking of other law enforcement agencies, flood warning monitoring systems for the US Army Corps of Engineers, and power line monitoring by the TVA. Even the Department of Defense is considering the band for data transmission at test sites.

Still to be ironed out, assuming that federal users get their way, are technical and administrative decisions such as frequency pairing, emission standards, interference protection and assignment coordination.

Monitoring Times will alert our readers as to progress on this new swath of spectrum.

Air Force UFO Investigation Still Active

Any anonymous tip from Wright-Patterson AFB, home of the historical Project Bluebook, says that UFO investigation is still proceeding under a new code name.

Additionally, a radio network exists for the coordination of sighting information. Any of our readers have details that might help fill in the gaps in this intriguing report?

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Every wonder what UHF TV frequencies go with which channels? Reader Allan Nesteruk shares this list with us.
CLUB NEWS

NASWA (North American Short Wave Association) is pleased to announce the publication of a new newsletter. NASWA, a non-profit organization dedicated to the promotion of shortwave listening, has been in existence since 1953. The new publication, called "NASWA Newsletter," will be published quarterly and will feature articles on various topics related to shortwave listening, including technical tips, news items, and personal stories from NASWA members.

For more information or to subscribe, please contact the NASWA Newsletter at PO Box 26524, San Francisco, CA 94126.

ARCTIC DX

One of the most exciting aspects of DXing is the thrill of discovering new frequencies and stations from around the world. ARCTIC DX is a group of Arctic Circle communications enthusiasts who share a common interest in DXing. The group meets regularly to discuss their latest discoveries and to exchange information on how to improve communication techniques.

For more information, contact ARCTIC DX at PO Box 1234, Twin Falls, ID 83301.

MAYOR MIAMI DOWNTOWN

The Mayor of Miami Downtown is pleased to announce the establishment of the Miami Downtown DX Club. The club will be open to all DXers interested in exploring Miami's diverse broadcast landscape.

For more information or to join, contact the Miami Downtown DX Club at PO Box 5678, Miami, FL 33124.

EMERGENCY NOTIFICATION ASSOCIATION OF METROPOLITAN NEW YORK (ENANY)

ENANY is a non-profit organization that provides serious emergency notification systems to communities across New York City. The association is dedicated to ensuring that critical information is delivered to the public in a prompt and effective manner.

For more information, contact ENANY at PO Box 1234, New York, NY 10013.

SCANNING DALLAS/FT. WORTH

DSDW (Dallas/San Antonio) is a non-profit organization dedicated to promoting emergency notification systems in the DFW area. The association is committed to ensuring that all residents have access to critical information in times of crisis.

For more information, contact DSDW at PO Box 1234, Dallas, TX 75201.

INTERNATIONAL RADIO CLUB OF AMERICA (IRCA)

IRCA is the largest and oldest medium-wave listening club in the world. The club is dedicated to promoting the appreciation and enjoyment of medium-wave radio.

For more information, contact IRCA at PO Box 1234, Chicago, IL 60660.

Listen In On VHF/UHF Press Relays

By Mike Cooper, Atlanta, Ga.

My colleagues in the news-gathering field of broadcasting would no doubt be surprised to hear me say that the press relay is the most exciting thing I have learned in years. The new relay system is a way to share information with the public in a fast and efficient manner.

The system works as follows: When an event occurs, the police, fire, and other emergency services are notified. They then relay the information to the press relay center, where it is broadcast to the media. This allows the public to stay informed about the situation in real-time.

For more information, contact the press relay center at PO Box 1234, Your City, Your State 12345.

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CUT HERE
Meeting the LF Challenge

By John Edwards, K12U

Where do you look for your challenges in monitoring? If you’re like many, you’re probably headng up in frequency—VHF, UHF, SHF, satellites, TVRO and all the rest. But have you ever thought about the other end of the spectrum? That’s where I began tuning after run-of-the-mill short-wave listening began to lose its thrill for me.

Until recently, the biggest challenge facing the potential LF listener existed in finding a receiver that would tune the frequencies in question. Since most conventional receivers covered nothing lower than the standard broadcast band, most LFers were forced into converting old military gear or homebrewing their own equipment. Today, the situation is considerably brighter. An entire new range of receivers and converters are on the market that not only cover the frequencies in question, but run rings around the equipment of only a few years ago.

I got my first taste of low frequency radio about five years ago when I picked up a vintage Hammarlund Superpro at a local fleamarket. A proverbial boat anchor, the Superpro wasn’t the world’s prettiest receiver, but it did do a remarkable job of covering the spectrum all the way down to 10 kHz. Today, my rig of preference is Sony’s space-age ICF-2001 digital receiver. Although it only goes down to 150 kHz, it’s a lot more sensitive than my tube-driven Hammarlund. And since most LF activity lies above 100 kHz anyway, I find the rig a dream.

Listening on the LF bands has always been a hit or miss proposition. Problems that SWLs take in stride can cripple their LF brothers. Consider, for example, the problem of noise. Whether it’s natural or man-made, the noise on these frequencies can blow the headphones off of a listener’s head. Even on crisp winter evenings (the best time for LF DXing) power line interference, AM broadcast images and other howlings and squeals can make the LFer’s life pure hell—all a part of the LF challenge.

Still, the rewards are worth the misery. Literally thousands of stations use these frequencies, and since LF listening remains a relatively untapped field, the mystery that so often seems lacking up on HF still exists here in abundance. Unlike HF, you’ll find stations broadcasting news or music on LF. What you will hear, however, are maritime and aviation weather stations, standard time broadcasters, radiolocation beacons and even the occasional coded military transmission.

Perhaps the most intriguing part of LF are the frequencies between 160 and 190 kHz (1750 meters). This is the FCC’s “Part 15” band where experimenters may operate unlicensed radio transmitters as long as power is kept within one watt and antenna length is limited to 50 feet. Within recent years, an entire subculture of LF operators has developed, all intent on seeing how far their meager signals can carry. For the listener with a lot of patience and a keen ear, many DX treasures lurk within the noise.

Antennas for the LF bands pose a particular problem. After all, very few of us have the five or so square miles of land needed for even a quarter-wave dipole resonant to these frequencies. As a general rule, string out as much wire as you can, or wrap it around a ferrite bar. For many valuable tips on LF antennas and LF listening in general, you’ll want to consult the book that has become the LF listener’s bible: Ken Cornell’s Low and Medium Frequency Radio Scrapbook (Ham Radio Books, Greenville, N.H. 03048).

Another superb source of LF info is the newsletter of the Longwave Club of America (P.O. Box 33188, Granada Hills, CA 91344).

See you down under!

Stock Exchange

NOTE: Monitoring Times assumes no responsibility for misrepresented merchandise.

SUBSCRIBER RATE: $1.00 per word, prepaid. All merchandise must be listening related.

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J.I.L SX-100 scanner, 16 channels, 30-54 MHz, 140-174 MHz, 410-412 MHz, FM Dual seek and scan; variable scan delay; AD/DC power, clock, 0.1 microvolt sensitivity, new, $260. Call Dom Isabella 215-627-5073 after 5 PM or write 806 South 7th Street, Philadelphia, PA 19147. Check OK.

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Hammarlund HQ-140A receiver. Good Condition. $130 Ed (919-489-2154)

1962 NC Radio-TV guide. An alphabetical listing of all NC radio-TV stations by cities and call letters, including dial location, power, network affiliation and music format. Send $2.50 to: Radio Guide (Ed Best), 2004 University Drive, Durham, NC 27713