Radio–Internet Media–Computers & Radio–Family & Hobby Communications

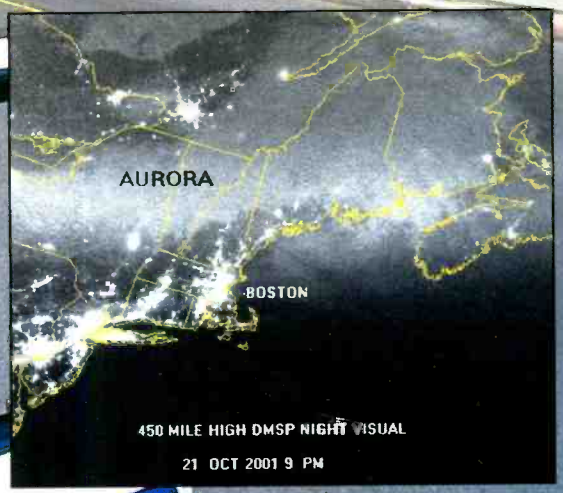
45635

POPULAR COMMUNICATIONS

FEBRUARY 2002

When Seconds Count, Will You Hear The Action?

Interpreting Scanner Specs: Pg. 26



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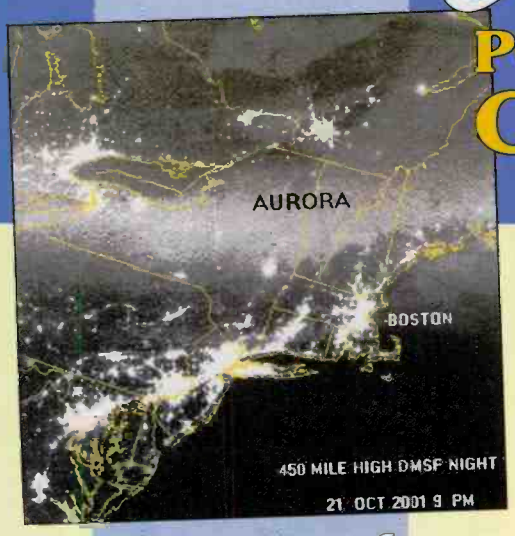

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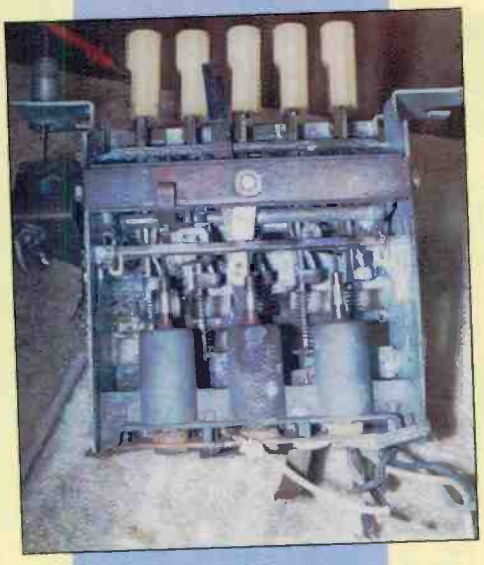

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Departments

On The Cover

Hearing Sergeant Chris Kielich of the Anaheim, California Police Department, or your local public safety pros is a snap if your scanner is up to the task. Get the inside scoop on scanner specs in this month's "Overheard" column by Ken Reiss on page 26. (Photo by Larry Mulvehill)

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tuning in

by Jeff Reinhardt, AA6JR

an editorial

Would Listening Have Made A Difference?

Editor's Note: Once again, we turn the keyboard over to a very capable member of our radio community, Jeff Reinhardt. Soon we'll also have the FCC's Riley Hollingsworth sharing his thoughts on where enforcement stands today, and where it's headed in the future.

Stay with me through this one, because I'm going to ask some questions to which I do not know the answers. As I write this, it is just a few days past the infamous terrorist attack on our country.

The difficult question I raise for radio hobbyists is this: Would more monitoring on our part have made a difference? Were there any radio hobbyists listening to the aircraft frequencies that fateful day? If so, what would they have heard? Maybe nothing. Maybe some of the desperate mic clicks reported to have come from one of the hijacked aircraft? Was the doomed pilot sending Morse Code? Maybe some of the reported communications on "company" frequencies about aircraft that had been hijacked? Might any of this have lead to earlier warnings to the FBI and others? I don't know. We never will.

What about cell phone traffic? Most are aware of communications industry sponsored legislation making it illegal to monitor cell phone calls. As a result, the Communications Act of 1934 was amended. The airwaves no longer belonged totally to the people. Scanners sold in the USA must now have the cell phone segments of the spectrum blocked. The matter came into the media spotlight because a prominent politician was reported to have said some things on a cell phone that were monitored by third parties who later disclosed the conversation to the press. The fact that this was illegal under existing law was not enough. The uproar led to the enactment of more rigid scanner regulations, making the airwaves safe for congressmen once again.

It is reported that the terrorists who victimized our country made extensive use of wireless telephone communications. If those conversations had been conducted "in the clear" and monitoring cell phone conversations was legal, could radio hobbyists, the FBI, or others have helped avert one or more of the tragedies?

There has been an increasing concern about privacy for some time. We are told by some that we (the people) have none. Our financial records and other personal data are freely shared by just about everyone with whom we do business. The Internet is a cesspool of snooping, cookies, hacking, and more, much of it targeted at extracting as much information about you as possible.

Concerns about privacy led to the cell phone monitoring ban. We've also seen the proliferation of digital phones geared toward ensuring secure communications. The question is, how much privacy is too much — and how much is too little?

I liked the original Communications Act of 1934. It said the airwaves belong to the people. From that point on, most RF rules were developed on that premise. In the '90s cell phone privacy became a concern and the government realized it could reap billions by selling off vast segments of the RF spectrum that formerly belonged to all the people. The need for some secure communications was addressed by the old Secrecy of Communications Act, which essentially said you could monitor any communication but you could not disclose a non-broadcast communication to a third party.

The media came to make something of a mockery of the Secrecy Act, monitoring police, fire, and other public service frequencies as a means of gathering news, which to a point was OK, provided they verified the information they obtained through other parties before reporting it. Unfortunately many did not. Then, the wireless industry lobbied for security, the congressman got caught doing something, and everything changed.

An Easy To Grasp Concept

Under the old rules, you had a reasonable expectation that your radio communications were NOT secure, that anyone COULD be listening to anything, public safety frequencies, aircraft frequencies, and yes, wireless phones. I took that to

POPULAR COMMUNICATIONS

EDITORIAL STAFF
Harold Ort, N2RLL, SSB-596, Editor
(Internet e-mail: PopularCom@aol.com)
Tom Kneitel, K2AES/SSB-13, Senior Editor
(Internet e-mail: tsktsktsk@juno.com)
Alycia Nicholsen, Assistant Editor
Richard S. Moseson, W2VU, Online Coordinator
(Internet e-mail: W2VU@amsat.org)

CONTRIBUTING EDITORS
Peter J. Bertini, K1ZJH, Restoration/Electronics
Bruce Conti, AM/FM Broadcasts
Joseph Cooper, Utility Radio & Comp. Assisted Radio
Gerry L. Dexter, Shortwave Broadcast
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On Shortwave And The Internet: How To See Meteorological Spacecraft Photos

by Hank Brandli

Meteorological satellite imagery can be an important weather tool for all aspects of satellite communications. This imagery/data consists of visible (day/night), infrared, microwave, and water vapor pictures. In addition, weather satellite vertical temperature atmospheric sounding information can also help a communications operation from the initial sighting of the antenna to the day-to-day procedures.

These high-resolution space photos are available as frequently as every half-hour from geostationary satellites, or as often as six to 10 times a day from polar orbiting satellite systems. The pictures, combined with radar, lightning detection systems, surface and upper air observations along with programming techniques can produce accurate weather forecasts up to 72 hours in advance.

The key to effective weather prediction is acquisition and analysis of the weather satellite images. Wind, rain, hail, sleet, and lightning on antennas or associated radomes are the most commonly known weather affects on communication. However, the degrading effect of precipitation and moisture in the transmission paths of radio wave propagation is a major concern in satellite communications, particularly above 10 gigahertz. At these frequencies, absorption scattering caused by rain, hail, ice crystals, or wet snow can cause a reduction in transmitted signal amplitude (attenuation) that lowers the reliability and performance of the space communications link.

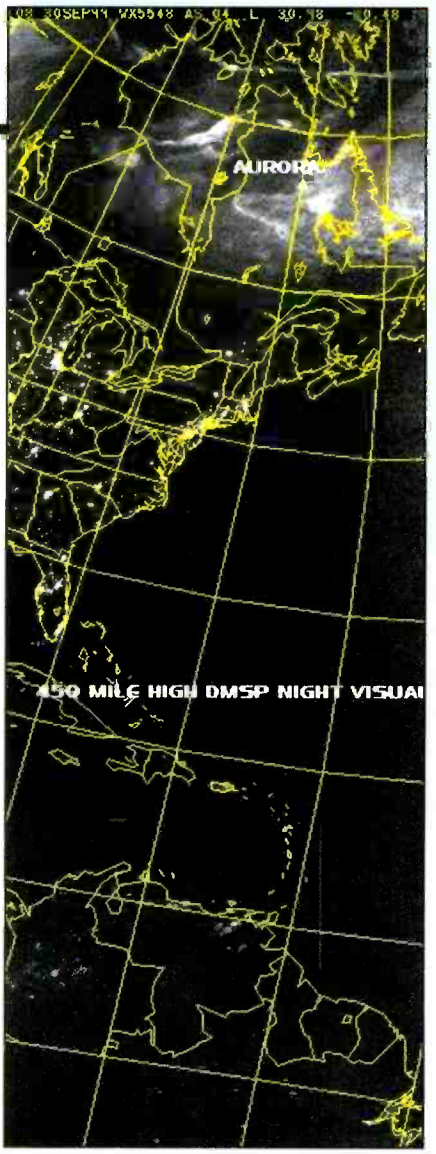
Other effects include depolarization, rapid amplitude and phase fluctuations, antenna grade degradation and bandwidth coherence reduction. Even apparent clear sky conditions can produce propagation effects that can degrade or change the transmitted radio wave. Constituent gases in the Earth's atmosphere, particularly oxygen and water vapor, interact with the radio wave and reduce the signal amplitude by absorption. Turbulence or rapid temperature variation in the transmission path can cause amplitude and phase simulations or depolarize the wave. Clouds, fog, dirt, sand, and severe air pollution can cause absorbable propagation effects, as well.

Movin' On Up

As present-day frequencies move beyond 10 gigahertz, the influence of weather between the ground stations and the satellite and back to the Earth's surface becomes a major problem. With the collection of worldwide weather satellite data, ideal locations for sighting communications systems can be easily achieved. The best way to make this information available is with weather satellite collection archiving. Although this has been done for about 10 years, it hasn't been put into a format that would benefit the communicator.

One of the newest weather satellite images available is water vapor imagery. The information on the photos directly affects satellite communications in many ways. The grey shaded patterns detail motions in the atmosphere (including jet stream location and strength) that enable forecasts to be made. This data affects movement of storms with its rain, severe weather (such as lightning), systems with strong winds, and also provides other parameters such as moisture concentration for the present day communications systems, as well as future systems operating above 10 gigahertz.

Particles in the atmosphere, such as dust and haze, can be determined from sensors aboard both high- and low-level satellites orbited by the U.S., Japan, Europe, China, and Russia.



DMSP visual image clearly showing cities and aurora over northeast USA and Canada..

Another unusual feature that affects communications is the bending of signals caused by warm air over cold air. This propagation problem even in remote regions of the world, can be detected

using water vapor, infrared and visual photography along with vertical sounding techniques.

Most of the interference to satellite communications systems comes from the Earth's atmosphere up to 70,000 to 75,000 feet and somewhat above with factors like ozone, water vapor and extremely high thunderstorm tops. This is where all the "weather" should be studied and used for the operational communicator. Satellite communicators should also be aware of the size of drops of ice crystals in the atmosphere. A good satellite meteorologist can make a reasonable estimate as to the drop size distribution and how much it would affect the power or signal strength received or actual loss of signal.

A recent report by NASA details this problem. The report, called *Radiowave Propagation for Space Communications Systems* details some of the performance characteristics obtained from direct measurements on satellite links operation at 30 gigahertz. It is available for reference.

Another piece of information, only available on polar orbiting satellites, is the location of the aurora borealis and australis. Only the 450-mile high polar orbiting Defense Meteorological Satellite Program (DMSP) can accomplish these aurora pictures and the mapping of such. Blackout, loss and absorption of signals are only some of the effects of the aurora, which can be mapped instantaneously every night on the polar orbiting satellites. As we approach the 11-year solar maximum sunspot cycle, increased flares will occur, resulting in expanded auroras and ionospheric disturbances. DMSP images and other solar storm information are on the Internet. I went to YAHOO and looked at "astronomy" and *Astronomy* magazine and found current information.

Wefax On Shortwave

I want to introduce fellow radio enthusiasts to the technology for receiving and displaying radiofax transmissions, specifically those transmissions know as High Frequency Weather Facsimile. This is more commonly called **HF Wefax.**

We've all had the experience of wondering about those strange electronic sounds that seem to appear all over the shortwave spectrum. In the ham bands we recognize many of those sounds. But there are many more, unfamiliar sounds heard in between the ham bands. Many of those odd sounding signals are radiofacsimile transmissions, and today most ham shacks and SWL listening stations can easily capture and decode their mysterious messages.

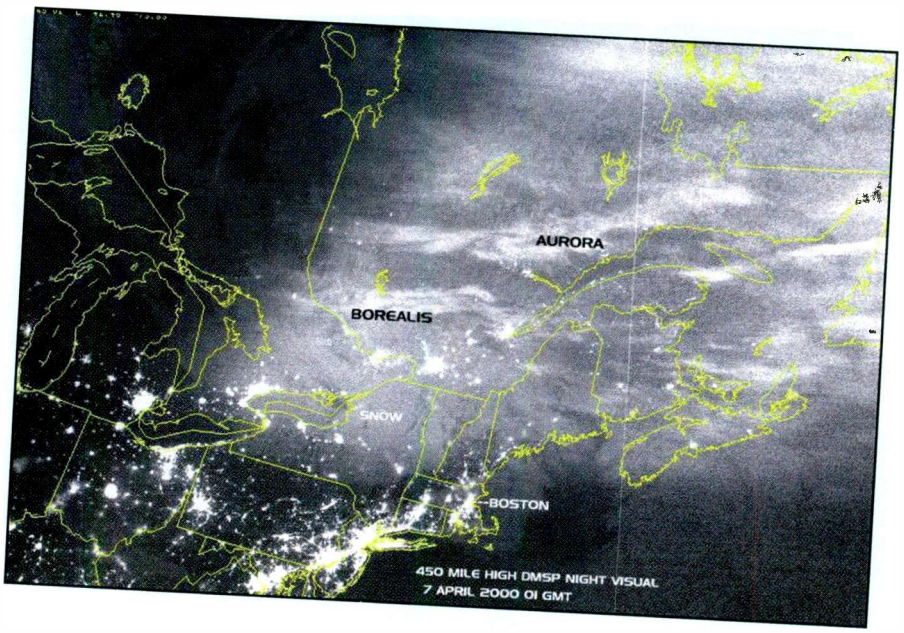


Image of aurora over southeast Canada.

Radiofacsimile is a technology which permits sending maps, charts, and photos to a distant point using radio waves. The technology has been used by news organizations and the military since the first half of the 20th century. Today, its use is critical for the maritime community where the safe passage of ships upon the world's oceans is dependent upon oceanographic and weather forecasts and warnings. The high seas are not an environment where Internet access is practical. HF radiofacsimile allows the transmission of graphical information in the form of detailed weather and sea surface maps, and retransmission of satellite photos. For the radio amateur and SWL alike, decoding and studying these transmissions can be a fascinating aspect of the radio hobby.

Weather charts originate with the National Weather Service, which collects and analyzes weather and oceanographic data for dissemination to the maritime community. Current conditions and forecasts are assembled into a suite of maps, charts and satellite photos, which are transmitted to ships at sea throughout the day and night. The United States Coast Guard provides transmitting facilities.

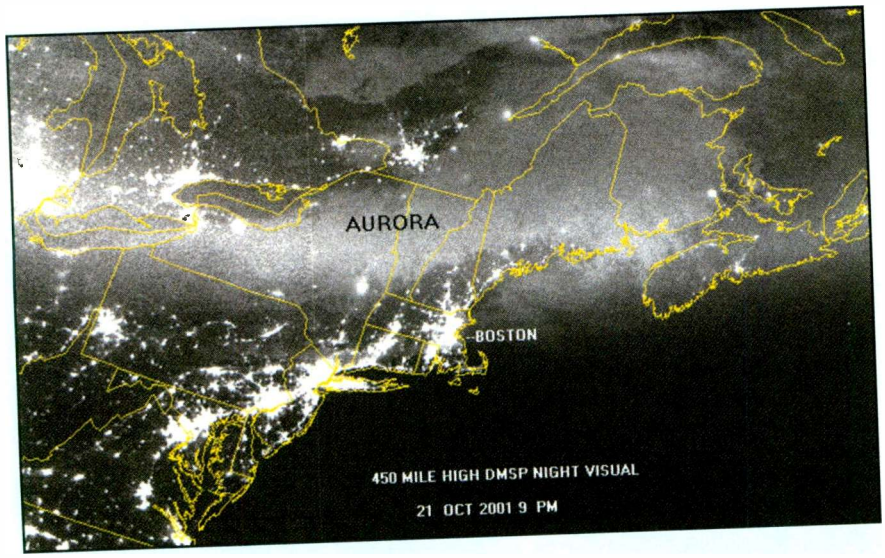
How It Works

The high frequency AM transmission contains a frequency-modulated audio tone subcarrier. It is the subcarrier which contains the image data for displaying the weather charts on a Drake or other typical shortwave desktop receiver. The subcarrier is frequency modulated between a 1500 hz tone, which represents black, and a 2300 hz tone which represents white. Tones will be modulated between these two extremes when it is necessary to convey gray-scale graduations, such as for displaying satellite photos. Software running on your PC works with the sound card to convert the received tones into gray-scale values, which are then used to print the image on your monitor.

When radiofacsimile is transmitted over HF, frequency modulation of the subcarrier is used in order to immunize the image data against the effects of signal fading which is common on HF. If amplitude modulation were used to convey data, false gray-scale values would result due to unpredictable conditions in the atmosphere, which normally vary the amplitude of short wave signals. Image data at the receiving station would be too corrupt to be useful. FM modulation of the subcarrier avoids this problem by relying on tones, rather than amplitude, to convey image data.

In order to receive the FM audio subcarrier, your receiver is set to USB mode and is tuned 1.9 kHz below the published frequency. That is, you take the published frequency in kilohertz, and subtract 1.9. The difference is the frequency to which your VFO is tuned.

When you are listening for a radio-



DMSP image of aurora over New York and New England.

facimile transmission, you will hear the following transmit format:

1. 300 hz start tone for 5 seconds — alerts receiving equipment that a frame is coming;

2. Phasing interval for 5 seconds where the 1500 hz black tone is interrupted by pulses of the 2300hz white tone — this allows the decoding system to synchronize to the upcoming frame;

3. Frame — this is the image transmission, which lasts from 10–16 minutes, depending on the image. Weather charts are transmitted in less time than a satellite photo;

4. 450 hz stop tone for 3 sec — this signals the end of the transmission.

The start tone, phasing interval, and stop tone described above allow automated, unattended reception and storage of weather charts when using software such as WXsat.

The HF Wefax Receiving Station

Most amateur and SWL radio stations with a late model computer can become Wefax receiving stations. Here are the components you need for the HF Wefax receiving station.

1. A general coverage shortwave receiver with an antenna suitable for shortwave reception;

2. A Pentium class PC with a soundblaster compatible sound card;

3. A shareware program called WXsat. WXsat is a pc/Windows-based program that listens to the PC sound card. It converts digital image data from the sound card to the image you see on the screen;

4. A cable that connects the receiver's audio-output to the sound card's microphone or line-level input. This most likely will be a two-wire cable with miniplugs on either end- center-pin connects to center-pin; shield connects to shield. PSK31 operators already have this cable in place.

A Word About WXsat

WXsat may be downloaded in the following manner. Locate the transcript for this presentation on the 6-Meter Millennium Net web site. The URL is WWW.QSL.NET/KB2ZPE. There you will find a link to the WXsat download site. It takes only several minutes to download and install WXsat. It comes with a comprehensive, easy-to-read, online user guide. This software will allow manual and unattended fax reception.

Here are the steps to listen:

1. Adjust the soundcard receive audio level using the testing tool built into WXsat. The audio level is adjusted by tweaking the windows mixer and RF gain (or vol.) control on the receiver. WXsat will tell you when you have set the correct audio level;

2. Put WXsat into the proper decode mode. There are 12 modes. The correct mode for HF Wefax is FM120;

3. Put WXsat into the recording mode;

4. Tune the VFO to the radiofacsimile frequency and wait for a transmission. As you listen to the fax being received by your radio, you will see the weather chart appear on your monitor as WXsat turns each line of data into an image.

Where To Listen

Here are four frequencies used by the USCG to transmit weather data to vessels navigating the North Atlantic Ocean. Transmissions on these frequencies are made from station NMF in Boston, and are easy to copy throughout the day. Tune your VFO to these frequencies: **6338.6, 9108.1, 4233.1, and 12748.1 kHz**.

The following frequencies are used by the Canadian Forces Metoc Centre and are transmitted from Halifax, Nova Scotia: **4269.1, 6494.5, 10534.1, and 13508.1 kHz**.

I suggest that you store these frequencies into memory channels on your receiver. This way you can quickly toggle between each frequency and determine which is active and which is delivering the strongest signal.

Once you are a committed HF radiofacsimile listener, you may find additional frequencies used by stations from all over the world on the Internet.

In summary, of course, space weather such as solar flares, ionospheric disturbances, etc., as well as Earth weather including thunderstorms, lightning, heavy precipitation, strong winds, auroras, etc., that affect your communication plans can also be found on the Internet at many Web sites (on YAHOO at Environment and Nature: Weather, go to Univs of Purdue, Michigan.Wisc (SSEC) or NOAA and get satellite images worldwide). It's up to you to learn how to observe and forecast the "weather" to fit your locale and needs. Good luck! ■

Other Space Weather Sites

www.kalbach.com/astro/html
http:sec.noaa.gov/pmap/index.html
http://www.bbso.njit.edu/
http://windows.engin.umich.edu/spaceweather/

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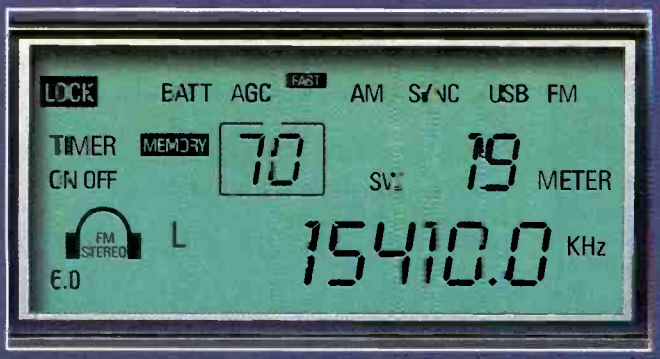
GRUNDIG

The



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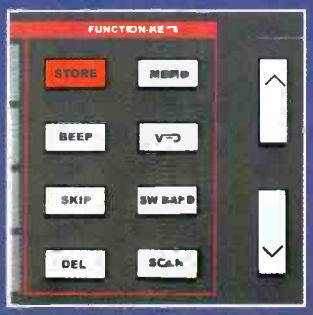

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It's Time To Bring Back Applause Cards!

How To Give Your Favorite Shortwave Stations Feedback

by Gerry Dexter

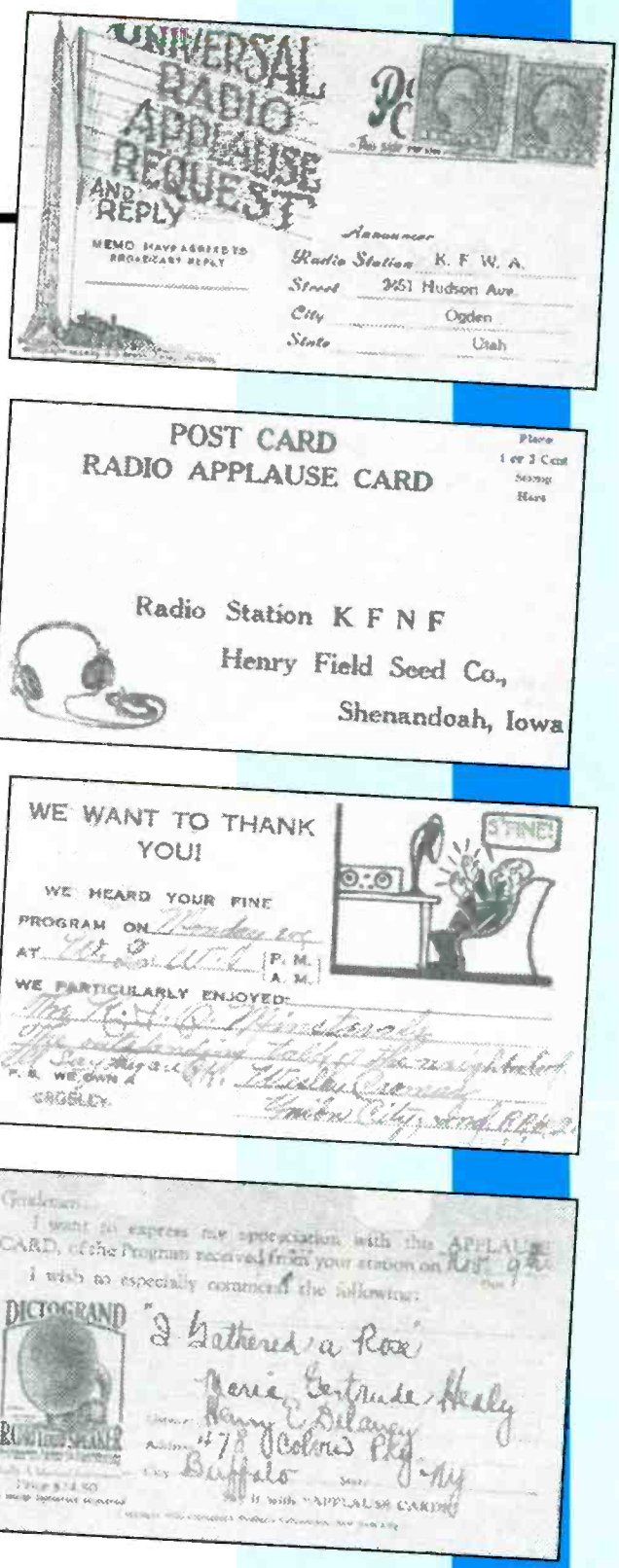
It's hard to believe today, but there really *was* a time when hardly anybody owned a radio! Back in the early 1920s, those who operated the few stations that were on the air sometimes felt no one was listening to the words and music they were sending out into space. They had no listener feedback. They hadn't a clue as to who was listening, or how many were listening or where they were listening. And if someone *was* listening, the stations often didn't have any feel for whether the programs were liked or not.

And thus was born the "applause card" — which was basically nothing more than a postcard which a listener could send to a particular station to let them know their program had been received and enjoyed. Some cards were supplied by stations and were sent in response to those listener comments they did receive. Others were issued as advertising gimmicks by various firms, usually companies which were in some way associated with radio manufacturing or broadcasting. Some listeners even designed their own cards.

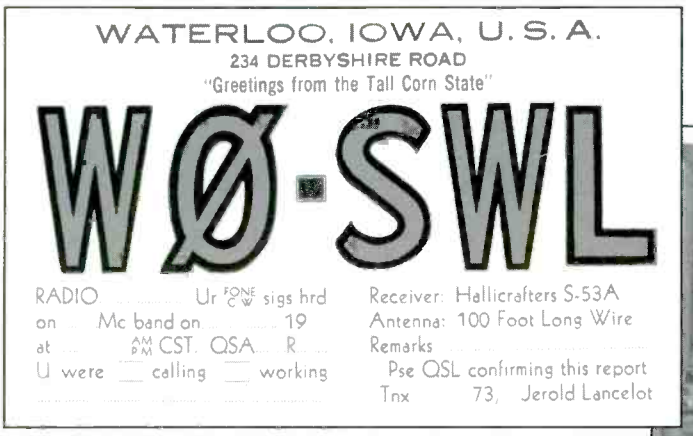
Fast-forward from those early "we're not sure we know what we're doing" 1920s to the early years of the 21st century and what do we find? Shortwave broadcasters frequently have to deal with the same lack of feedback as the early mediumwave stations did some 80 years ago! And to make matters worse, with no cold war to wage, the need to "get our message out" has come into question and the money changers in charge of their budgets are no longer friendly — therefore the average station is likely to have a greater hunger for audience mail than ever before. And we, the listeners, aren't doing our part! So why don't we bring back applause cards?

How It Works — Or Could Work

There are any number of ways and approaches that could be taken, none exclusive of the others. Commercial shortwave firms — the people who make the radios we use, as well as the people who sell them to us — could create applause cards advertising their firms. Grundig, for example, could produce a color postcard showing off their newest Yacht Boy model, along with a line or two of small print advertising on the back. The rest of the card would be left blank for the listener to use for the note



Applause cards from radio's early days. Courtesy of Jerry Berg (http://www.ontheshortwaves.com) and author of the superb book "On the Shortwaves" — 1923–1945) MacFarland Publishing — $42.95 (www.Macfarlandpub.com) →



A typical SWL card, complete with ham radio QSO information. A printer can change this to read whatever you like. The other side is left blank.

Shack photos are perfect illustrations for an applause card.

to the station. The cards could be given out as promotional items at hamfests and listener conventions, and/or sold at cost in batches of 50 or 100.

SWL and DX clubs could also print and provide cards to their members. One side of the card could trumpet the many benefits of being a member of the club and the other for left for the listener's use. There are a number of shortwave stations that are particularly friendly to listeners, and offer numerous QSL card designs. It shouldn't be a big deal for them to design a special card for this purpose. It doesn't seem likely that Adventist World Radio, for example, would get uptight if one of their cards ended up on the desk of someone at Radio Prague.

Individuals could also design their own cards. Some ideas along this line include:

• SWL cards normally used to send reports to hams (the ham magazines are full of people who print SWL cards and most will send samples.) The reverse side is usually blank, leaving room for a message. Incidentally the post office has been known to get

fussy and refuse to treat a post card like a post card if the words "post card" aren't on the post card! So it's probably a good idea to include this — usually in the lower center of the reverse side.

• A photo of the radio shack. This could then be printed by a regular printer with the listener's name and address overlaid on the photo or on the back.

• Or, you could take it to a photocopy store such as Kinko's create a "masteR" by having the photo copied three or four times on an 8 1/2 x 11 inch piece of cardstock. Then have the master photocopied enough times to give you the number of cards you want after they're cut out.

• A scenic photo from your location, with description of the view on the front or as part of the back copy. Produce as many as you want, as noted above.

• Design your own applause card on your computer (if you have the software and the talent!) and print them out as needed — assuming your printer will handle card stock.

• Buy airmail cards at the post office and use them. They're not fancy and you have to add your name and address each time, but it gets the job done.

• Use locally made picture postcards. These cards, however, have gotten quite expensive in recent years, so if you send a lot of them the costs will add up fast.

Scenes from your local area — especially when you include identification — are also excellent choices.

Whichever format you decide on is really of secondary importance. The main thing is to use them! If you do any program listening, as opposed to spending your radio time strictly and solely on DXing, you might consider setting up a schedule to ensure that you send out cards on a regular basis. Your notes don't need to be long — they can't be on a card — but a line or two can tell the station when and where you heard them and that you enjoyed the broadcast. Or just say "thank you for your broadcast." By the way, hand-written cards probably pack more personal punch than if you type them.

Another point to consider is whether to put the card in an envelope or just send it out. Some station addresses are rather long which means you won't have a lot of room to write. On the other hand, airmail letters are a lot more expensive than post cards. That's a determination you'll have to make. (All the station addresses you'll ever need are in the current year's edition of *Passport to World Band Radio*, available from shortwave dealers or at larger bookstores.)

If you sent just two cards per week you'd spend less than you would for a cup of coffee at Starbuck's, and over a year's time you'd put more than 100 cards in the hands of your favorite shortwave stations. Multiply that by 10 listeners — or a hundred — and we listeners can have a significant impact on something we all care a great deal about. So what are you waiting for? ■

better than ever, all digitally photographed, and still 15 months of value.

The new 2002/2003 CQ Radio Classics Calendar features fifteen magnificent photos of some of the memory-jogging, heart-tugging gear that so many of us treasure or aspired to years ago. (Publisher's Note: They're making antiques a lot newer than they used to!) This year's Radio Classics Calendar features some of the great equipment of the '50s and '60s, with a smattering of the 1940s and 1930s.

Here's what's featured this year:

Collins 75S-3 Receiver, 1961; Lakeshore Bandhopper VFO, 1957; Gonset Commander II Mobile HF Transmitter, 1955; Gonset 913A 6 meter amplifier, 1964; Technical Materiel Corporation (TMC) GPR-92 Receiver, 1964; Hammarlund HQ-170 Receiver, 1958; McElroy Model 100 Straight Key, 1941; Sonar XE-10 Modulator, 1947; National NC-300 Receiver, 1955; Hallicrafters S-85 Receiver, 1954; Heathkit SB-500 VHF Transverter, 1969; Sideband Engineers SB-34 Transceiver, 1965; Swan 400 Transceiver, 1964; Drake TR-3 Transceiver, 1963; Utah UAT-1 Transmitter, 1937.

How many do you recognize? How many did you own? How many did you wish you owned?

The 2002/2003 CQ Amateur Radio Calendar brings you fifteen spectacular digital images of some of the biggest, most photogenic Amateur Radio shacks, antennas, scenics, and personalities. These are the people you work, the shacks you admire, the antenna systems you dream about having, all digitally captured by the talented Larry Mulvehill, WB2ZPI, CQ's own roving cover photographer. Larry's travels this year took him to Colorado, Montana, Wyoming, Texas, Florida and New York, capturing some of the greatest Amateur Radio photos of the year especially for this annual favorite calendar. From winter scenes of the frosty northeast to pedestrian mobile in the Rockies, you'll love this traveling Amateur Radio photo show.

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a look behind the dials

by Peter J. Bertini, <radioconnection@juno.com>

Your Father's Chevrolet, Part II

Last month we started on our restoration of a 1950 Delco car radio. Most of that column dealt with vibrator power supply — important info on bringing these interesting radios back to life. Many of the electrical restoration steps will parallel those we've used on early home radios, but there a few unique twists and pitfalls for radios operating in an hostile automotive environment.

This Delco was unique with the self-contained speaker housed in the radio housing. **Photo 1** shows the external front view of the restored radio; and a rear view is shown in **Photo 2**. Although the customer didn't request it, I ended up spending some time making the enclosure look decent. These sets are fairly resistant to corrosion, but after 40 years living in a junkyard some light surface rust was evident on the exposed metal box. The rusted areas were lightly sanded, followed by a few coats of gray Rustoleum enamel. The original enclosure had a protective metal plating that would be expensive and difficult to duplicate, so the paint serves as a cosmetic touchup to make the radio presentable and more than suitable for its intended use. The front panel was treated in a similar manner, except black enamel was used there as I felt it would help make the set's grille less visible through the dashboard grille work. I also retouched the vibrator power transformer using the black enamel. To avoid removing the transformer for painting, I used masking tape to protect those areas that I didn't want to paint. There was a large rubber gasket that seals and directs the speaker audio around the perimeter of the speaker grille, which was coming loose. It was reglued using an industrial adhesive. Again, these steps were mostly cosmetic; once the radio is installed under the dash most of this handiwork is far from sight and out of mind. These steps are more a matter of personal pride in one's workmanship than a necessity. This is one of the main differences contrasting what we have done in the past with early broadcast sets, where maintaining the original outward appearance is of paramount concern! In any event, the customer was left with the impression that everything that could be done was done in a professional manner. Appearances matter.

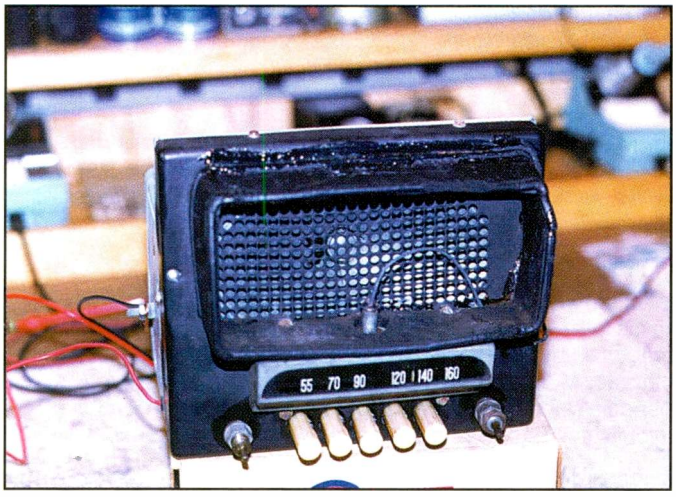


Photo 1. The restored Delco automobile radio sports a new paint job and general cleanup.

Photo 2. Rusted areas on the rear case and cover were sanded clean and sprayed with two coats using a gray protective enamel primer.

The pilot lamp was replaced with a new one as a matter of course — you don't want to have to pull this chassis just because someone tried to save 70 cents earlier. Use a good NOS American made pilot lamp whenever possible in *any* radio; most of the new lamps being sold these days are imports from Pacific-rim countries, and they reputedly have a very poor operating life. While things are apart, it's also a good time to inspect the power leads, including the flying lead going to the pilot lamp socket. **Photo 1** shows how the lead travels from the pilot lamp to a point just above the center of the tuning dial where it enters the chassis. The original cloth wire was becoming frayed and friable due thanks to dry rot, and was replaced with a new length of cloth wire to avoid a potential short in the future.

Most lamp holders are simply a metal tube that the lamp's bayonet base will mate with, and inside you'll find a spring (to maintain tension and electrical contact) behind a phenolic washer (insulator) with a rivet in the center that the wire attaches to. The metal shell of the tube is fitted with a ring of spring fingers so it will snap mount to the dial bezel, and also supply the electrical return path for the lamp voltage. Disassemble the lamp holder by pushing the wire forward, which will push the phenolic washer out the front where it can be grasped. Heat the solder connection at the rivet and remove the old wire. I usually prep the replacement wire, by carefully removing the insulation, and pretinning the lead. I also, if space permits, add a one-inch length of shrink tubing over the end of the wire where it exits the metal lamp assembly for addition insulation and abrasion protection for the cloth covered lead where it exits the bushing at the rear of the lamp holder. Insert the tinned end into the rivet, solder, and trim any excess wire. Assemble the lamp in

Photo 3. Peeking inside the front of the radio shows the various sub assemblies. This is not a first-time project for beginning restorers!

the reverse order, while carefully checking for clearances and potential shorts!

Inside The Radio

Here's where it gets interesting! **Photo 3** shows the radio with the rear cover removed, and the front cover also opened for servicing. The vibrator power pack sub chassis is shown at the lower right. The RF sub chassis is visible at the far left, and the large 6 x 9 oval speaker and the tuning assembly is just below the speaker. The only restoration done so far was to the vibrator supply. **Photo 4** is another view of the inside of the radio; at this point work on the RF deck is evident. Note the metal shield is back in place over the vibrator and rectifier tube socket on the power supply sub chassis. This is about as far apart I advise taking these radios unless you want to give yourself a lot of extra work, or unless you are planning on doing a lot of case restoration such as sanding and painting. At this point all of the wax capacitors, filter caps and resistors can be reached and replaced.

The RF Deck

Photos 5 and **6** shown the RF deck before and after restoration was completed. At least seven wax caps need to be changed, five are located on the chassis, and the remaining two are located on the volume/tone control. Note the two Sprague *Black Beauty* style capacitors about 1/3 from the left — despite the plastic shell these caps are very prone to leakage and should always be changed. All of the resistors should be checked to see if they are still within tolerance; replace as needed. I ended up changing most of the resistors since it easy to replace them as I was recapping the radio.

Going back to the restored RF deck, shown in **Photo 6**, note that how the replacement parts are dressed using the shortest possible leads with insulating PVC *spaghetti* over the exposed leads. The original three-section filter can style capacitor was replaced with three discrete components; I added a terminal strip to make things easier. The caps are also glued in place, a precaution taken because the vibration the radio will encounter during use in a moving vehicle. I also removed and discarded the old filter can. In a home set it would be left in place or rebuilt to keep the original outward appearance of the chassis, in a car radio is a potential leakage problem that could cause problems *down the road*. One other problem we don't need is a scratchy volume control, pulling the chassis and taking the radio apart for a trivial problem is something we don't want to do for some time! Wash out the controls using inexpensive spray tuner or contact cleaner; and rotate the controls while you are spraying them. This helps burnish and clean the carbon tracks. For the final step, follow with an application of Caig's *DeoxIT D5*. It's sold in 5 oz. spray cans and it isn't cheap, but a little goes a long way. That's why it's more economical to use a more inexpensive product to do the initial cleaning and flushing of the controls. Most consumer-grade variable pots have a slot opening just below the terminals where you can insert the spray tube for maximum effect.

This set, as did most car radios, used cheap wafer tube sockets, so it pays to check each of the pins to see if they may have spread apart enough to cause intermittent connections with the

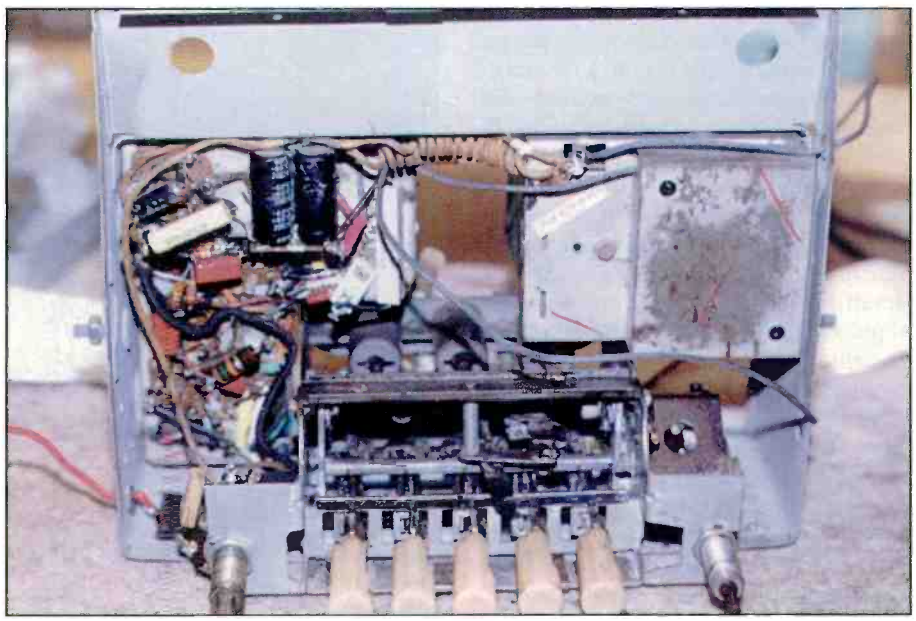


Photo 4. Another view looking in the front of the radio.The RF deck is at left, vibrator deck at upper right, and the tuner assembly is in the lower center.

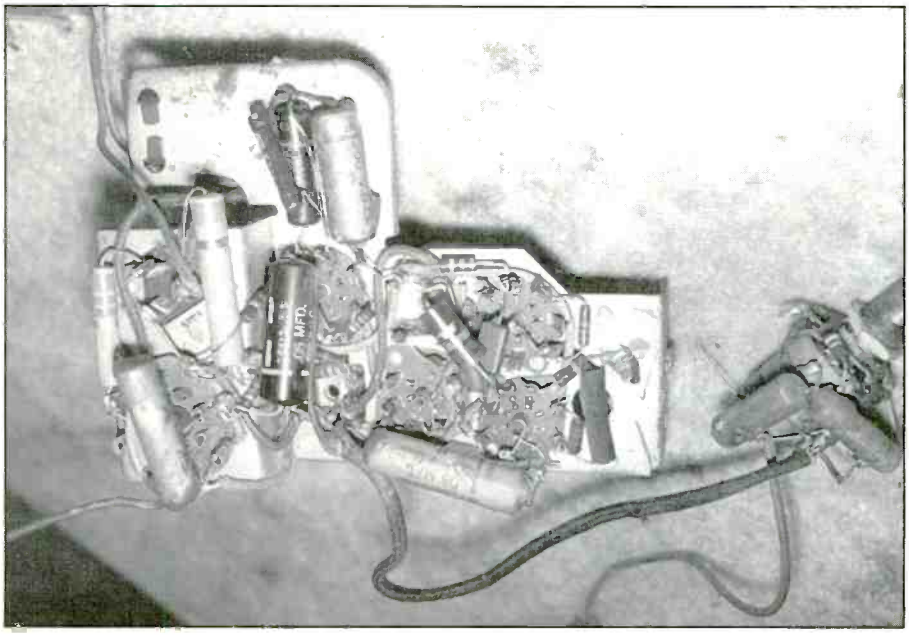


Photo 5. The RF deck before restoration. Note the numerous wax capacitors that must be replaced.

tube pins. Tighten as needed. All of the tubes should be checked in a good tube tester. Now is the time to ferret out weak or gassy tubes. Many tube testers offer a *life test* feature, which gauges the remaining cathode emission life by lowering the filament voltage by a certain percentage. This is a good test to ferret out tubes that might become erratic due to a car's poor voltage regulation. The 6BA6 IF tube was very weak, and replacing it made a big improvement!

A Bad Speaker

The biggest problem was the speaker. Finding a suitable replacement held up the restoration for several months. The original 6 x 9 speaker had a frozen voice coil, and the speaker cone was at the end of its serviceable life. I could have had the speaker reconed, but that would have cost around $30 and would have decimated the budget allocated for this project. It would also have been a waste, since it would not have no effect on the value of the restored product. These 6 x 9 speakers are neither rare nor expensive, but 6 x 9 speakers with small magnets are! Alas, most modern replacements are sold based on magnet weight, the bigger the magnet equates (supposedly) to how good a speaker will sound. In this Delco, the speaker magnet has to fit in a small opening between the power supply and RF deck sub chassis. Modern speakers just wouldn't fit. As luck would have it, a friend located a slightly larger 6 x 10 vintage NOS Quam replacement in an electronic junk store for three bucks! It barely fit — see **Photo 7** — although I did have to drill new mounting holes to accommodate it. One other problem was that the Quam speaker was eight ohms instead of the four ohms the set was designed for, so I probably lost a little audio power as a result.

The RF Tuner

With some very early exceptions, all car radios use *permeability* tuning — a rack-driven set of variable inductors to perform the tuning and tracking for the RF and LO stages, instead of the variable capacitors usually found in home sets. Some BCB home radios did use permeability tuning (Silvertone made some), and while not especially scarce, their numbers are overrun by the more popular capacitor tuning method. Still, don't be surprised if you happen to stumble across one at a flea market one day!

Photo 8 offers a good view of the top of the coil tuning mechanism. As the radio is tuned the dial pointer is driven from left to right, and the rotational motion is changed into a linear motion by two cams which in turn moves the rack so the three slugs move in and out of the coils. The cams are just visible at each end of the tuning shaft. This shaft is driven by the tuning knob, via a short flexible shaft attached to a worm gear, which engages a gear at the end of tuning shaft. The gearing arrangement can be seen at the lower left in **Photo 3**, and to the upper left of **Photo 8**.

Servicing The Clutch

Those pearly white preset push buttons were cleaned with a toothbrush and dish detergent until they shined like new. They still have a gorgeous patina and a deep luster. Now, mechanically what is important at this point is the clutch mechanism, a device that performs two important tasks. First, the clutch per-

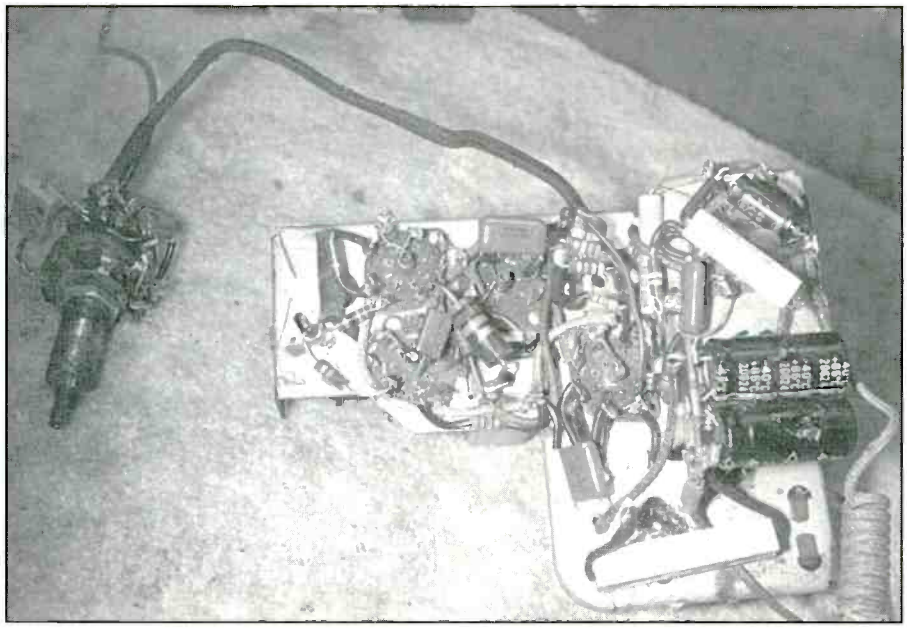


Photo 6. Restored RF deck sports new capacitors and resistors.

mits slippage when the tuning knob is forced beyond the mechanical end stops preventing damage. Secondly, the clutch is disengaged whenever a station preset is depressed; this prevents the tuning shaft from attempting to turn the worm gear, which it cannot do. The clutch ***should not be adjusted*** unless it needs adjustment! Carefully disengage the clutch by depressing and holding a preset button and flush out dirt and dust between the clutch plates and pad using alcohol or video head cleaner. A non-lubricating cleaner must be used in the clutch! If the clutch is worn out, and cannot be adjusted to work, the clutch pad can be replaced with a pad cut from an old bicycle inner tube. You'll need to fiddle with the clutch throw so the tuning works reliably, and so that the drive is disengaged whenever a preset is selected. The outside clutch plate is spring loaded, and is moved away (disengaged) by a pawl controlled by the preset tuning. The pawl arm, clutch assembly, and worm gear are visible in the lower left of **Photo 3**. The outer clutch plate can be adjusted (moved along the shaft) by loosening a setscrew. This permits setting the point at which it engages or releases. Despite warnings, I found this clutch style was easily set up and adjusted, but others may be more problematic.

Lubrication

These mechanisms are designed to be run *dry*, without lubrication. You might note areas where I applied white lithium grease during restoration — once the mechanisms were freed up and working smoothly I removed most of the grease and other lubricants before returning the set to its owner. In a dusty environment, the grease would attract and hold dust, and the lubricants could cause more problems than they might initially appear to solve. You might have to use them to get things working smoothly at first, however. Just keep lubricants away from the clutch plates!

Electrical And Mechanical Alignment

Tracking and alignment for the tuner is performed at the low end of the dial by the mechanical positioning of the slugs in the coils. Each slug has a drive rod, which attaches to the rack, and where each rod attaches to the rack it is possible to adjust the exact positioning for each

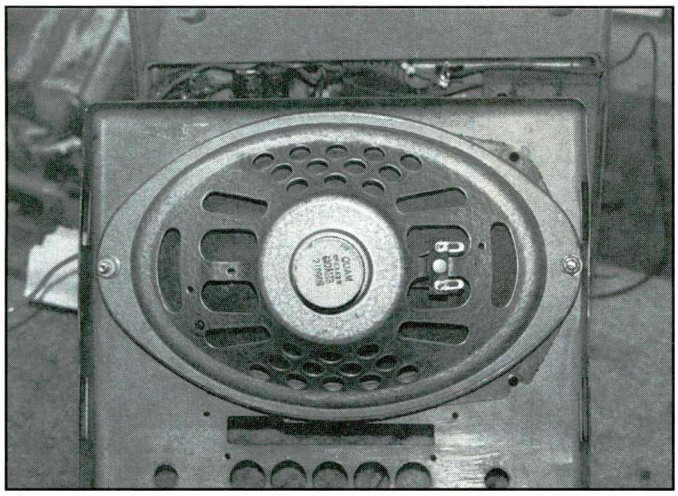


Photo 7. Here's a close-up view of the tuning assembly. Like most car radios, the set uses permeability tuning, and features a tuned RF stage.

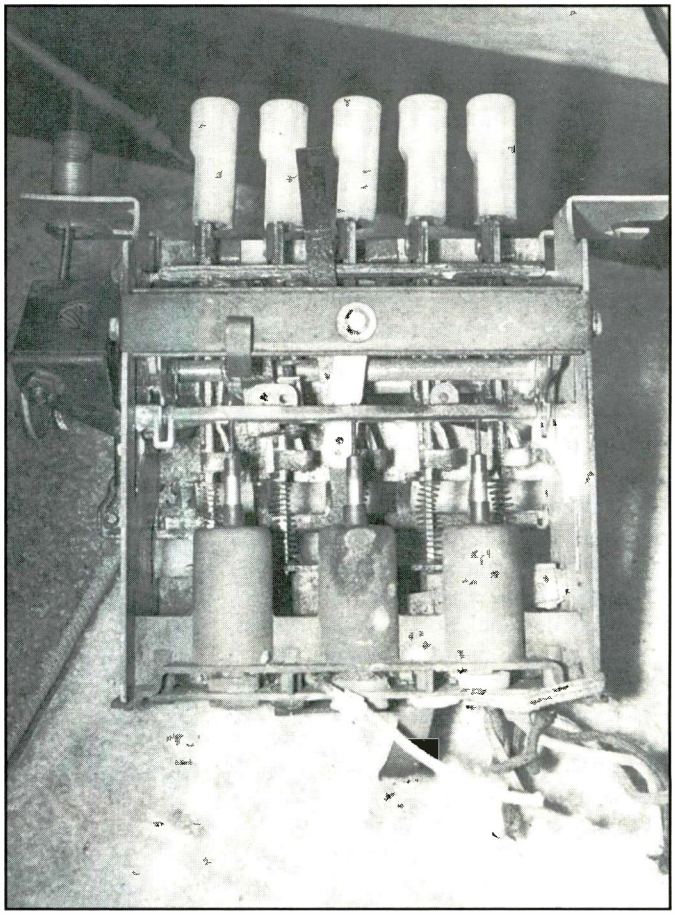


Photo 8. A nice close-up of the tuning assembly, and the mechanics that make it all work! ⟶

slug. This can be seen in **Photo 8**. The rods in this set are threaded — turning them will move the slug in or out as needed to perform the alignment. The slug alignment is performed at the low end of the dial range (lowest frequency). *Resist any temptation to casually play around with the slug alignment.* ***Unless*** there is physical damage that needs to be repaired, or ***unless*** someone played with the mechanical alignment, I've be told by wiser sages that these things never go out of alignment on their own accord.

The coils are lined up so that the LO coil is in the center, with the Antenna coil at the far right (rear view), and the RF amplifier coil at the far left. There are usually three mica compression trimmers that should be touched up once restoration is completed. The mica trimmer for the LO should be set so a station at the high end of the dial (as close to 1600 kc as possible) is aligned with the dial scale marking. Next, the trimmers for the antenna and RF stage should be peaked, using a weak station at the high end of the dial, for maximum volume. The antenna trimmer will have to be repeaked once the set is in the car, since the antenna becomes part of the input tuning capacitance. The antenna trimmer normally is mounted so it can be accessed via an alignment hole provided on the covers. The IF can be peaked using a signal generation and while monitoring the AGC bus with a high impedance meter. The IF is normally at 262 kc for automotive receivers. I've found the IF stages rarely go out of alignment, and the IF transformers don't have the internal mica capacitor failures common to similar vintage home radios.

That about covers the restoration for the 1950 Delco Automobile receiver. Other sets may have two boxes, with the RF stages in one box, and the audio, power supply, and speaker in another. Others had intricate and involved auto tuning or solenoid driven preset mechanisms. It would be hard to cover them all in these pages, but the basic information presented so far will get you started! ■

Commercial Restorers

Where can you find someone to restore your classic car radio? Several auto radio restorers are listed in the *Pocket Resource Guide* mentioned in past columns. However, Gary Tayman seems to be the man of choice when it comes to vintage car radios! Besides vintage restorations, Gary can professionally convert a vintage set over so it hides a modern FM/AM radio while looking like it did on the dealer's lot. Gary offers stereo conversions (replacing the old electronics with modern), or adding FM to an existing AM radio with a simple add-on internal module. Check out Gary's website at www.gate.net/~gtayman/, or contact him at Tayman Electrical, 244 Shopping Avenue PMB #268, Sarasota, FL 34237, or by telephone at (941) 371-8924 or via E-mail at gtayman@gte.net.

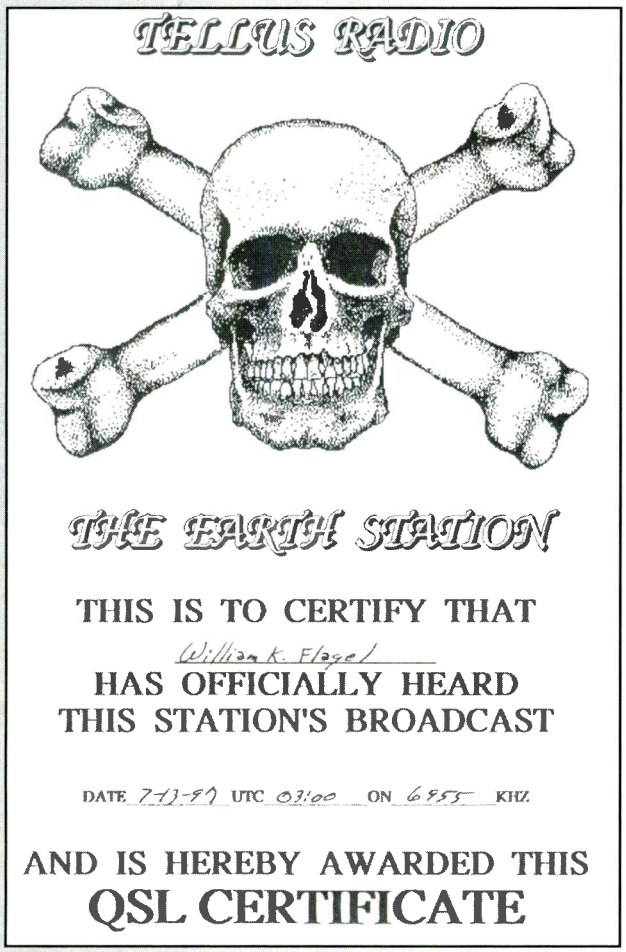
For a free copy of the *pocket resource guide* send a large SASE to Mr. Bill Turner, 1117 Pike Street, St. Charles, MO 83301.

pirate & alternative radio

free radio broadcasting

by Edward Teach

Pirate Operator Urges 'Em On The Air As Symbol Of Freedom



Most pirate stations aren't known for classy, professionally done QSL designs, and that includes the late Tellus Radio, active back in 1997.

So what have 6955 and its environs produced lately? Here's what we have!

Sycko Radio, 6955 at 0418 with Black Betty and giving Yahoo E-mail address. (Jerry Coatsworth, Ontario) *(Is there a correct spelling of this station's name? — Ed)*

WHYP, 6953 at 1445, 2107, 2217 with Let Me Be Your Chaperone, Rockefeller Skank, Lovesick Blues, ID, She Blindfolded Me with Science, Dukes of Dixieland, Joe Fingers Car, Huey Lewis, mentions of ibeacon of freedom, "You can still rock in America, Ready to kick some terrorist ass," "more American-style music from a free radio station." James Brownyard also urged all pirate operators to go on the air as a symbol of their freedom. Box 28413, Providence, Rhode Island 02908 for letters. (Bill Finn, PA) *(Bill, sometimes I can't tell whether it's a song or the name of a group! — Ed)*

United Patriot Militia Bingo Radio, 6955 at 0255 with clips from Steve Anderson, Alan P. Masyga. Also an interview with (?) Woods. Something about a bingo fund raiser. (Lester Casey, OH) *(They don't have Steve Anderson to pick on anymore! — Ed)*

Take It Easy Radio, 6955 USB at 0250 with old time radio show, then hellos and greetings to its listeners and also several other broadcasters. Signed off with a song called "Take it Easy." (Casey, OH)

Classic Rock Radio, 7470 at 0430 with a wide variety of numbers. I'm not old enough to remember or recognize any of them. (Casey, OH)

Unidentified — 6955 closing with the Radio Netherlands interval signal at 0257. (Coatsworth, ON)

KBFA, 6954 LSB briefly at 0459 with music ending, an ID and off. (Bob Werner, IL)

Shadow Radio, 6950 USB at 0650 with a broadcast of an old-time Dick Tracy radio show to closing just past 0700. E-mail address announced as: the shadow6950@hotmail.com. *(Funny the program wasn't "The Shadow." — Ed)*

Pretty sickly collection of loggings this time around. Have you folks all quit listening, or is there really that little activity? Probably the latter because, come to think of it, I don't find much when I nose around 6955 either.

Anyway, please don't forget to pass along whatever logs you do manage to take during your listening sessions. You can send them to Harold at popular-com@aol.com. And illustrations are much needed, too. Copies of any pirate QSLs you receive would really be welcome. Thanks!

To close it out this month, here are a few of the most often used mail drop addresses:

Box 1, Belfast, NY 14711

Box 109, Blue Ridge Summit, PA 17214

P.O. Box 69, Elkhorn, NE 68022

Box 11522, Huntsville, AL 35814

Box 24, Lula, GA 30554

Box 293, Merlin, ON N0P 1W0, Canada

Box 25302, Pittsburgh, PA 15242

Box 28413, Providence, RI 02908

Box 422, Wellsville, NY 14895

Back with more next month! Until then, keep after 'em and 73 — Ed

by Gordon West, WB6NOA

X-Band Ham Excitement

The amateur radio X-band has been allocated a whopping 500 MHz; 10,000 through 10,500 MHz. This band is abbreviated 10 GHz, and sometimes is listed as the 3-cm band. Wideband FM, narrowband single sideband, CW, and phase shift keying, along with amateur wideband television, are just a few of the emissions you might find on this relatively secluded microwave band.

Alaskan hams get their first look at 10,000 MHz radios. (Photo by Ray Solomon).

Until The Moon Comes Up . . .

Amateur radio operators throughout the world bang out successful contacts off of the moon using dish antennas and hot dog cooking power levels from traveling wave tube amplifiers that feed waveguide that terminates to a feed horn precisely positioned for the best pattern coming from the dish. To these ham radio moonbouncers, a 10,000-MHz contact over thousands of miles of space is an almost everyday deal.

But there is plenty of excitement at 10,000 MHz without a huge dish, nor any significant power levels above a half-watt output. Last September in Southern California, a new world record terrestrial contact that lasted several minutes was exchanged between a maritime mobile station off of Baja, California, to a relatively small low-power dish system, mountain topping, in Southern California. When conditions are just right on 10,000 MHz, range enhancement from tropospheric ducting may easily carry these radar band signals well in excess of 500 miles. In fact, the August and September 10,000 MHz operating contests regularly posted operators using just a few hundred milliwatts of equipment and logging narrowband and wideband voice contacts in excess of 300 miles with simple horn antennas connected to flexible waveguide.

License Requirements

All levels of amateur radio licenses may operate on the 10,000-MHz X-band, including no-code Technician class operators. The simple Element 2 Technician class test is easily passed by studying the actual test questions and multiple-choice answers, along with a brief description of why the test question is relevant to the world of ham radio. Any RadioShack will have the **Element 2 West book,** which takes about 45 days for a thorough reading and understanding to pass the 35-question, multiple-choice exam. And you don't have to pass the Tech test 100 percent — you can miss up to nine questions and still squeak through. It usually takes only seven days to receive your call letters.

If you're eager to get on the air at 10,000 MHz, you can go with a complete wideband FM X-band transceiver, fully tuned and assembled, from Advanced Receiver Research (www.advancedreceiver.com). Just add 12 volts and a simple crystal microphone, and you are on the air to any other wideband FM station. (Easier said than done!) The little ARR transceiver has both an S-meter for measuring signal strength to assist in aiming the horn, plus a voltage readout of the voltage-controlled oscillator so you can begin linking up with another FM X-bander.

Since the X-band microwave operating weekends are still months away, ask around at your local club or get onto your favorite 2-meter repeater and see who else has wideband 10 GHz gear. Then go to a club meeting, and turn on your rigs while one station transmits and the other station tunes around for best reception. Even with as little as 1/10th of a watt, always observe RF safety by never looking into the open horn, or putting your body in front of the waveguide feed system. It's also best to point your equipment away from the other system so as not to create overload.

Once you have made an FM contact across the room, try your luck at a block away, then five blocks away, but don't expect to see much more range on wideband FM than 10 blocks away. It's not that the signals don't go any further than 10 blocks, but rather the major amount of foliage and building absorption at this microwave band.

Ten blocks range on X-band STINKS! I couldn't agree more, especially after spending several hundred dollars for your ARR X-band transceiver. So your next move is for you and your buddy with similar wideband FM equipment to do a little mountain topping — say 20 miles apart. Twenty miles will be an easy shot on FM, but it will underscore the need for 2-meter simplex

Hawaii's KH6HME 10,000 MHz beacon station. (Photo by Gordon West).

The Alaska aurora provided an exciting 10,000 MHz buzz echo! (Photo by The Mockermans).

or FRS liaison radio equipment. I like 2-meter simplex the best because I always know if I can hear a low-power 2-meter signal on my 2-meter handheld to the other 2-meter low-power handheld. I most likely will be able to establish the 10-GHz path. But if I can't make it on 2 meters, low-power simplex, forget about even looking for the 10,000-MHz path — it just won't be there, probably due to something in between like a tall building or a big tree.

On wide-band FM with 200 milliwatts, you could easily get tropospheric ducting between mountaintops in excess of 70 miles. I once did an over-the-water path on 10,000 MHz, wideband FM, using just the small horn and flexible marine radar waveguide to a slightly larger equipped station over 250 miles away — well over the horizon.

Your wideband FM station could also transmit and receive amateur TV signals, point-to-point FM repeater linking, and almost any other type of full duplex simultaneous talk and listen system you want to set up. The ARR equipment is sometimes seen at swap meets, and if you can buy them as a pair, you now have full duplex intercom capabilities at 10,000 MHz without many eavesdroppers!

Narrowband For More Range

Upper sideband is the usual mode for narrowband, 10,000-MHz range extension. Unlike FM running full duplex, your SSB X-band system will be conventional you-transmit and then unkey and listen for a reply on the same frequency. The calling frequency is **10,368.100**, and again, we normally use the 2-meter band as liaison to decide who's going to do the calling first, and who will do the listening and rotation of the horn or dish looking for the signal.

I thought we might see some all-in-one, 10 GHz, narrow-band, SSB transceivers with the launch of AO-40 satellite, but alas the phase 3D satellite 10 GHz system became victim of the onboard major malfunction, so 10 GHz equipment providers are sticking with TRANSVERTERS that take your 2-meter or 10-meter, multi-mode, SSB radio and pop them up to 10,000 MHz on transmit and receive. Check out:

SSB Electronics: www.ssbusa.com

Down East Microwave: 954 Route 519, French Town, NJ 08825

Directive Systems: Rural Route 1, Box 282 Dixon Road,

Lebanon, ME 04027

Jerry at SSB Electronics (570-868-5643) makes it a point to work with newcomers in lining up the right transverter for equipment already owned. If you have an FT817 from Yaesu, Jerry will have a specific recommendation for a transverter, and he will also let you know easy steps to interface the transverter to your existing rig to lead to push-to-talk SSB and CW capabilities on X-band. Jerry also will talk you through what it takes for the right horn or dish to achieve some spectacular results.

How much further will you talk on X-band when you go from wideband FM to SSB? Hundreds of miles! Hams all over the country running less than a watt *routinely* log 200 and 300 miles QSOs.

Last September I attended the Anchorage and Fairbanks, Alaska, Hamfests. AMSAT's Ed Cole, AL7EB, and I gave many Alaskan hams their first look at 10,000 MHz excitement. He has converted an 18-inch DSS dish that works 10,000 MHz quite nicely. During our demos, Alaska hams heard the effects of Doppler shift quite noticeably with signals bouncing off of big rig trucks speeding down an expressway several hundred feet away. They could also hear the characteristics of 10 GHz rock bounce when we both aimed our antennas at the distant Alaskan snow-capped mountains. We were also gearing up to work well-known Alaskan microwave expert KL7FZ who agrees with us that we need more hams on microwaves in order to hold these frequencies from other radio services claiming squatters rights.

In Southern California and Hawaii, N6CA and KH6HME will try this summer for the ultimate DX, 2,500 miles. The path from California to Hawaii has been worked on lower microwave bands, but not yet at 10,000 MHz.

Ed Cole, AL7EB, (right) is helping Alaska hams learn about 10,000 MHz. (Photo by Ray Solomon).

Gordo demos aircraft scatter, harmlessly bouncing 10,000 MHz off a low-flying Alaska floatplane. The green box on top of the Kenwood radio is the transverter.

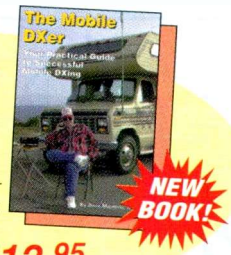
If you think 10,000 MHz is way up there, members of the San Bernardino Microwave Society (247 Rebel Road, Ridgecrest, California 93555) and North Texas Microwave Society (www.ntms.org) plus the Central States group all agree that life above 10 GHz flourishes — 47,088.1 as the 12-millimeter band calling frequency, and even higher-than-this microwave bands propagating well over many kilometers.

So if you are a ham and looking for a whole new world of microwave excitement, transvert on up to X-band and set up a schedule with a fellow operator just a few hundred feet away. Then go for blocks, miles, and ultimately hundreds of miles! ■

books videos calendars

The Mobile DXer

by Dave Mangels, AC6WO



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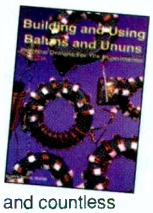

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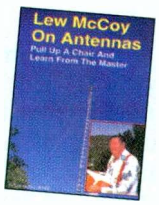
by Lew McCoy, W1ICP



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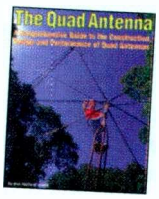

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overheard

by Ken Reiss, <armadillo1@aol.com>

strategies and techniques to keep YOU informed

Interpreting Scanner Specifications

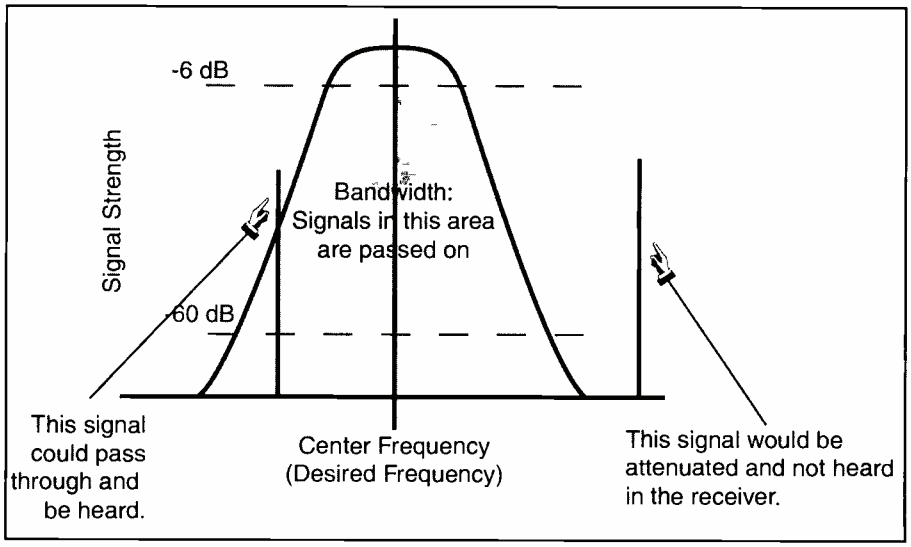
Last month we talked about buying your first scanner. If you're in the market to upgrade your scanner, or if you're still having trouble deciding after all the excellent advice last month, you might get the idea to review the published specifications. That's probably bad advice, as we'll see, but it's worth spending a little time to understand what you can and cannot read from those published numbers.

One of the major problems is that getting those numbers is difficult at best. Radio manufacturers are publishing fewer and fewer of them as customers rely on them less and less. Unfortunately, it's a sign of the consumer economy, but particularly in the scanner end of the radio listening hobbies, they are bought pretty much like toasters and computers. Whichever looks the best or has the longest list of features is likely the winner. As radio hobbyists spend less and less time with the electronics and really trying to understand the unit, interpreting the specifications has become a lost art. Besides, we're not likely to open the cover and try to repair or modify anything that detailed information would be needed for. In fact, newer scanners have the guts "sealed" in epoxy muck so that you *can't* tamper with them!

There are some basics, however, that are still available on some models, and often published in more technical reviews. Let's take a look at what those things are trying to tell us so that if you become interested, you can get meaning from the numbers.

Scanner Specs: Is It Really In The Numbers Or Ears?

Scanner specifications are the most important part of choosing a new scanner. Or at least some folks would make you feel that way. In reality, detailed specifications are not available on most consumer grade scanners, and the ones that are can be misleading. My advice is to look at scanner specs if you're interested, but as far as picking the radio, you should use *Popular Communications* Editor Harold's Official Radio Test Procedure. Let your ears make the decision about what radio works best for you. Regardless of the fancy numbers and information, different radios work differently for people in various situations, and with differing needs of the radio. Your ears, particularly if you can arrange a side-by-side test of the models you're interested in, are in fact the best evaluation method.



Having said that, if you're not interested in what all that stuff means, you can stop reading here and we'll see you next month. However, if you're curious about what all those numbers refer to, and just what your receiver is up to, keep reading.

So what's all the hype? Well, it turns out, of course, that there are a multitude of ways to get the signal decoded and out the speaker, with slightly different results based on the choices of the designer. By choosing slightly different components in the design of the circuitry, there can be a major impact on the performance of the overall receiver. Or a major impact on the cost of manufacture, which has a major bearing on most of the component and design choices that are selected. It's a hobby for us, but serious business for the radio manufacturers.

The specifications are a way of measuring and calibrating how successfully a radio can achieve the objective of extracting signals from the ether. But the problem is that all specs are not created equal. The specifications of one manufacturer may or may not be based on the same criteria as another, and therein lies the real problem with using specs to make any kind of comparison between consumer receivers. To make things worse, some specs (like filters in particular) may be published as the specs of the original component manufacturer based on the stand-alone component, not how it performs in the circuitry of your radio. Depending on how the surrounding electronics are configured, there may or may not be any relevance to the original manufacturer specs.

There are, however, some basics of receiver operations and specifications that are useful to understand. Once you have a feel for what the radio is up to, it can help in reading specifications if you can get them, or in evaluating by ear any radio that you may be considering. After all, it's ultimately how the receiver works that is important. If you can get detailed specs, great. By all means, use specifications as a tool to help your evaluation. But don't be too upset if you can't. It's still a radio receiver.

Receiver Performance

Your scanner is a radio receiver. That shouldn't surprise anyone, but it does get forgotten as we start looking at the myriad of information that is published on various models. What we want the radio to do is receive signals that are coming through the air, process them in some fashion and turn that into audio that's not too harsh on the ears to listen to, right? So what we need to know is what makes for a really good radio, versus features and other hype that goes along with marketing scanners and other receivers.

The basic function of the radio is to pull a signal out of the air, convert it down from radio frequency energy to something manageable by the internal circuitry of the unit, and finally, extract the audio. Simple. Well, it's not quite as easy as it sounds.

Antenna Crowding

If you think about it for a second, your antenna is the gateway to the whole process. Lots of radio energy is arriving at the antenna all the time. Some of it is from the VHF/UHF public safety channels that we want to hear, but a lot comes from other sources as well. The AM and FM broadcasters in town are putting out fairly strong signals that arrive at your antenna too. Of course, it's up to the receiver to pick out what we want to hear and ignore the rest, but this can be a major accomplishment if you're in an area of dense RF with lots of strong signals to sort through.

Your antenna is actually the first line of defense too. We make scanner antennas so that they are more sensitive to the frequencies that we want to hear. So hopefully, it will also be less sensitive to the frequencies we don't want to hear, and less likely to pass those signals on to the receiver. Depending on the antenna, however, this may not be exactly the case. Many of us use discones precisely because they perform over a broad frequency range and allow us to listen to lots of signals in the different bands. Guess what? That same discone is also passing energy you don't want into your receiver, precisely because it's so broad banded. The antenna can't tell what's important and what's not, so it passes along everything it hears. Now, I'm not trying to pick on discones, I use a few myself. But if you're having trouble with AM and FM broadcasters (or TV signals too), you might consider a more "tuned" antenna to help out the situation a bit.

Double Conversion, Triple Conversion-Whatever It Takes

One of the main specifications you'll see discussed regarding scanners is this notion of double conversion or triple conversion reception. This isn't really a "specification," but rather a short summary of how the receiver is built. It can be pretty important in certain circumstances, but there's a lot of confusion. Let's take just a minute (OK, half a column) and discuss exactly what this is, and why is it so important.

Simply put, once the signal enters your receiver through the antenna jack, it has to go through a lot of processing to convert it back into the audio signal that we're interested in hearing. If you'll remember, that's our primary objective. In order to do this, most modern receivers (99.99%) use a system called superheterodyne reception. This fancy term is a lot like saying that most cars use gasoline engines.

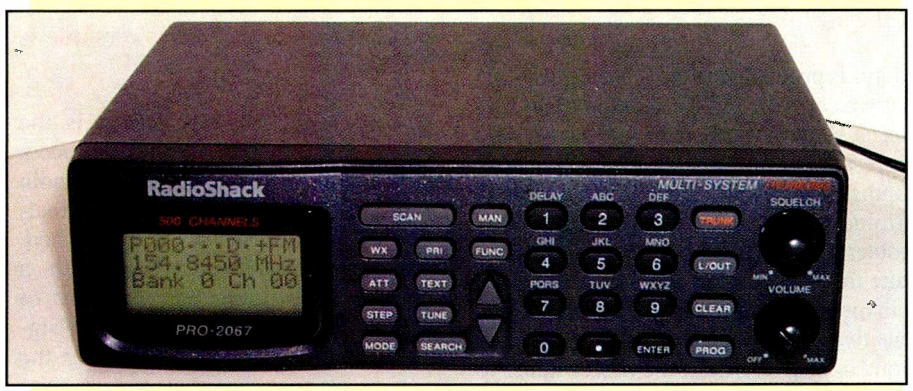
The first thing that usually happens is to amplify the weak signal that is coming from the antenna. This stage is called RF or Radio Frequency amplification. I said usually happens because there are some receivers designed without this "front end" handling. They tend to be much more susceptible to overload and other forms of interference, but also are much cheaper to build.

Once we have the signal amplified up to the point where we can begin to work with it, we then have to set about the task of extracting the audio from it. To accomplish this, we send the amplified signal to a mixer. This mixer takes the RF signal, mixes it with something called the local oscillator, and produces a new frequency called an Intermediate Frequency or IF. There are numerous advantages to processing the signal through this intermediate frequency, but the main one that concerns us is that we can build a circuit that filters and otherwise processes this IF frequency because we know exactly what it should be, regardless of the frequency being received. This process that we just described is called a "**conversion**."

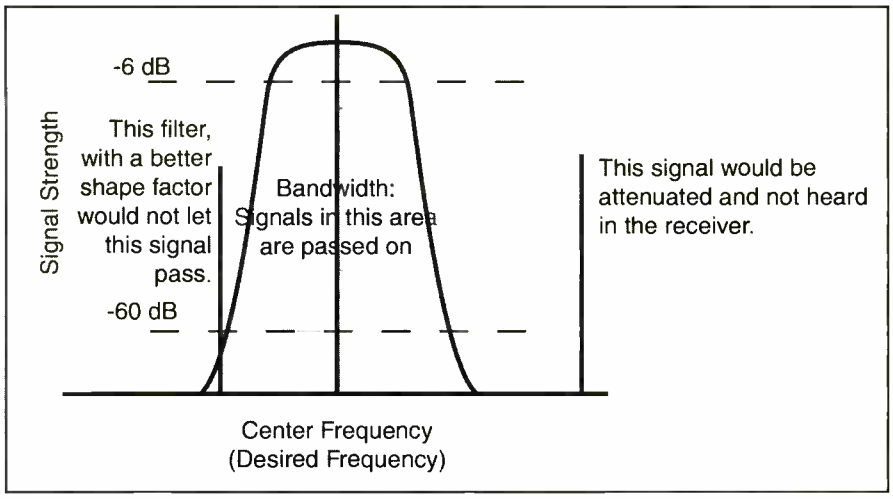
So, if you think about it for a second, what you'd expect to happen in a double conversion receiver is that we go through this process again. And that's exactly right. The second mixer produces what's called the second IF, and if we stop there, we have a double conversion receiver with a processed signal that's ready to send on to the discriminator (part of the circuit that actually extracts the audio signal from the last IF circuit).

If we do this whole thing one more time, we get a triple conversion receiver. Why bother? Well, it turns out that one of the problems with the superheterodyne design is that in these mixer stages we get not just the IF that we want, but also another stray frequency as a result of the mixing. If you're up for a bit of math, we'll try to explain.

The local oscillator, which we mentioned earlier, has to be tuned along with the frequency that you're actually trying to receive. We need to extract the IF remember, so we don't tune the local oscil-



In their 2002 catalog, RadioShack lists the following specifications: Frequency coverage, power requirements, and external connections. Of course the descriptive text tells you about its trunking and alphanumeric capabilities, but there just isn't a lot of information about the receiver itself. We're not picking on RadioShack here at all! This is typical of the information you will find on scanners. Harold's Official Popular Communications *Radio Test Procedure is your best option!*



lator to the same frequency, but rather a different one. Some designs tune the IF lower than the actual frequency, and some tune it higher. By tuning the local oscillator to a frequency that is different than the actual frequency we are trying to receive, we can make sure that the intermediate frequency we're trying to extract stays constant — let's say 10.7 MHz for instance.

So, following our example, if you're trying to receive a signal on 450.000, the local oscillator would be tuned to 460.700 (assuming a receiver that converts 10.7 MHz higher, it could also be 10.7 lower), and the mixer would look for the difference. However, a strong signal 10.7 MHz above the local oscillator might also find its way into the circuit, and produce a difference of 10.7 MHz — the exact frequency we're looking for — oops. So in our example, the local oscillator is at 460.700, a strong signal on 471.400 (10.7 higher than the Local, or 21.4 higher than the desired) would also produce a difference of 10.7, which the radio could not tell apart from our desired signal. This is called image reception, and sometimes is used on purpose to receive things the radio wasn't supposed to, but more often than not is a problem.

So the answer to our original question of why bother with triple conversion is that the more stages of mixing and filtering the signal is put through, the more likely it is that the image frequency will be eliminated before the audio is extracted. If the math works, it is still possible for stray frequencies to enter the triple conversion receiver at various points and make it through, but it is much less likely. Of course, triple conversion means more parts, and therefore more cost in the manufacture of the receiver.

Just as a point of information, you can go further. Many high-end communications receivers and government equipment where performance is the most important factor (that's a polite way of saying "Cost is NOT a factor") are quadruple conversion. Add some expensive and high-quality filtering and a few other things and you have a very high-performance receiver, with the appropriate high price tag to go with it.

Having said all that, and outlined the basics of the design, we can now begin to understand a little bit more of where these specifications come from. They are all just measurements of how effectively the receiver is doing the jobs that were outlined above.

The Big 3

• How well can it pull the signals out of the air?

This is probably the most basic question that we can ask, and the measurement for this is sensitivity. Sensitivity is usually expressed as so many microvolts (millionths of a volt of signal at the antenna terminal). Most modern scanners have no problem in the sensitivity range. In fact, quite the opposite can be true, particularly in metropolitan areas. A radio that is too sensitive (if there is such a thing) can be prone to interference if the other circuitry in the receiver can't process the signals correctly.

• Can it pick out just one signal?

This is **selectivity**, and probably causes more problems than sensitivity for most of us. Selectivity is the ability of the receiver to pick out just the one signal that we are interested in from all of those that are arriving at the antenna at once. Selectivity is largely a function of the IF filters and frequently you'll see a specification for the width of the filters, or the shape factor.

The job of the filter is to allow the signals that we're interested in to pass on to the next stage of the receiver, but to block any signals outside of that range. Filters have a certain "bandwidth" which specifies the range of frequencies that will be passed through them. If you're listening to normal FM broadcast signals, that filter needs to be about 150 kHz wide. In that same width with narrow band FM commonly used in two-way radio transmission, 10 signals would fit. So we need a narrower filter to pick out the one of the 10 we're interested in. A filter of about 15 kHz is more appropriate in this case.

The reality is that filters are not on/off switches that can stop a certain frequency signal, but allow one just a few hertz higher to pass through. Digital signal processing shows some promise for being able to do this, and the Watkins Johnson shortwave receiver is an excellent example of this technology implemented in a receiver. However, for scanners, we're still using analog systems. And analog filters are not nearly this selective.

Most analog filters have a shape that looks more like a triangle on each end of the desired box shape we discussed before. Signals that are very strong can get through the filter even at some distance away in frequency. The measure of how sloped the lines are is called shape factor, and the closer to 1:1 the shape factor is, the better the filter.

• Dynamic Range: How versatile is the receiver?

Specifically, Dynamic Range is the weakest signal that the radio can process versus the strongest signal that the radio can process, expressed as a ratio. In reality, you'll probably never see it published. Most manufacturers don't publish a dynamic range figure because most of them are relatively poor. The range of signals a scanner can encounter over the range of frequencies it covers is quite extensive.

Very weak signals can tax the ability of the amplifiers to even detect the signal, and then the circuitry must pull that signal out of the noise. Very strong signals can lead to overloading, which can make signals appear in places where they don't

exist. It can also cause the receiver to shut down its amplifier circuitry so that weaker signals are lost, or cause distortion somewhere in the process that leads to noise coming through the speaker that you can't understand. Of course, none of these is a good thing. Metropolitan listeners are more likely to have problems at this end than at the other.

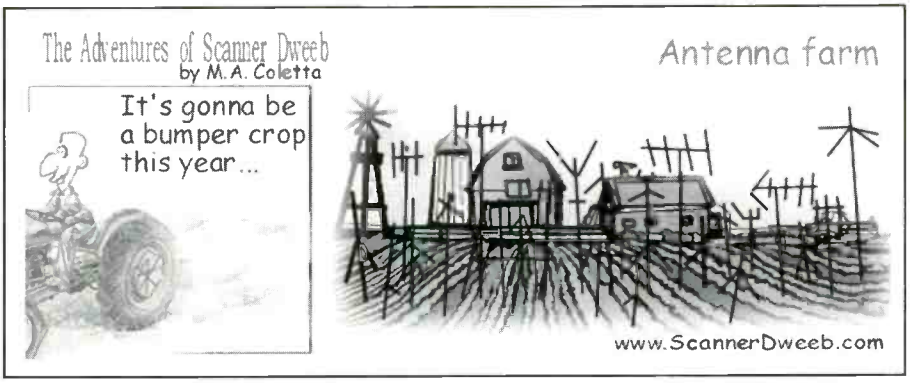
Where this becomes an issue is when you're trying to listen to a weaker signal in the presence of strong ones. Let's say you have a frequency that you're interested in listening to and the scanner has stopped on that frequency because it detected activity there. Then, only a few kHz away, a big strong signal comes on. Since the strong signal is overpowering your receiver, the tendency will be for the amplifiers to reduce their sensitivity a bit so as not to overload the receiver with the stronger, but undesired signal. As that amplification drops, however, your weaker signal that you are trying to listen to falls below the noise, and it's gone. That's dynamic range. How well can the receiver handle this situation and still allow reception of the weaker signal that you wanted?

That's it. Those three specifications will tell you more about the makeup of a receiver than any of the rest of the gobbledygook that you are likely to encounter. This is not to say that some of the other specs aren't relevant, but they tend to be more like gravy than essential specs. Pay attention to frequency coverage, number of memories, audio output, and those things that you can touch and feel. There is merit to looking at the specifications if you can get them, but the numbers won't tell you nearly as much as a few minutes with the receiver listening to the frequencies you like to listen to. Good luck!

Frequency Of The Month

Our frequency for this month is **154.130**. See what's on it in your area and send me an E-mail or post card. Make sure you note the frequency in the subject of the E-mail, or on the front of the card/envelope so it can be entered for our drawing. Next month, we'll be picking another winner of a year's subscription to your favorite radio magazine (as long as you like *Pop'Comm*).

Of course, your questions are always welcome via E-mail or through the post office. You can reach me at armadillo1@aol.com, or at Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126. Until next month, Good Listening! ■



By Bill Hoefer <flacap388@prodigy.net>

plane sense your link to global aviation communications monitoring

Notices To Airmen Affect Scanning!

I'm writing this in the light of over two months of post-attack aviation rules and regulations. Just yesterday, residents of New York City felt their hearts drop once again as an American Airlines Airbus jumbo jet crashed just minutes after take-off from JFK, killing all aboard and a handful on the ground. Of course the entire city, and indeed the entire country, went on alert. It is, of course, too early to say what happened, but there does not appear to be any terrorist activity bringing it down. I guess it will be quite a while before we are not so antsy and looking under every rock for some terrorist to blame for each and every tragedy.

Last month I stated that I'm going to return to the basics of air traffic control (ATC) and what each does. I'll also attempt to discuss changes in the ATC system in the shadow of the 9-11 terrorist attack.

My option of ATC, Flight Service, was affected the least. Or at least it appears that way so far. As with all ATC facilities physical security of the flight service stations (FSS) is of utmost importance. Years ago, before the advent of the Automated Flight Service Station, many airports had their own FSS and it was quite common for pilots to come in for a face-to-face briefing. Today, most briefings are done with a phone call from the pilots to the FSS by calling 1-800-WX-BRIEF (1-800-992-7433). Normally this would place the pilot in contact with the FSS that corresponds with the airport/area the pilot is calling from. However, it is not uncommon to get an FSS far away from your airport of departure, especially if using a cell phone. Just last year while working in St. Petersburg I talked to a pilot calling from Montana who requested a briefing to Seattle. That was a unique call.

Since all FSS's are located at airports many pilots would come by and request an old-fashioned face-to-face briefing. Since the attack in September all automated FSS's have been closed to these walk-in briefings. There are few non-automated FSS's still in existence, such as the seasonal FSS in Northway, Alaska. I have not heard how these few are affected. The majority of these are primarily in Alaska, such as Barrow (BRW), Nome (OME), and Deadhorse (SCC), where I understand it is quite snowy and cold nowadays.

Probably the biggest change we've had to deal with is the continual flight restrictions. These are found in the FDC NOTAMs (Flight Data Center Notices to Airmen). The primary restrictions deal with aircraft flying under VFR (Visual Flight Rules) conditions. Many of you may have noticed there are flights that we've taken for granted that, for the most part, no longer exist, or at the least, been scaled back immensely. These flights include, but are not limited to:

1 — News gathering
2 — Traffic reporting
3 — Banner towing
4 — Blimp operations.

In recent weeks there have been additional restrictions placed on many pilots, including flying in the vicinity of various military installations, dams, and nuclear power plants and the prohibition of international VFR flying. This included grounding of aircraft at airports within 10 nautical miles of the nuclear power plants — such as Crystal River, Florida (CGC). Most of these groundings and international VFR flight restrictions have been lifted in recent weeks.

Let me quote some of the current FDC NOTAMs that may affect what you're scanning. In addition, I will quote one that I was quite surprised to see concerning interference that cordless phones may be emitting on the aviation bands in the Bahamas and Michigan. If anybody notices any instances of interference while monitoring in the Bahamas or Michigan please contact me at flacap388@hotmail.com or mr-atc@att.net.

A0015/01 ATTENTION INTERNATIONAL OPERATORS: ✈ INTERFERENCE IMPACTING AERONAUTICAL AIR TRAFFIC FREQUENCIES CAUSED BY ILLEGAL HIGH POWER CORDLESS TELEPHONES.

THE MIAMI AIR ROUTE TRAFFIC CONTROL CENTER (ZMA ARTCC) HAS EXPERIENCED RADIO FREQUENCY INTERFERENCE (RFI) ON FREQUENCIES 134.2, 134.6 MHZ RESULTING FROM THE UNAUTHORIZED USE OF HIGH POWER CORDLESS TELEPHONES IN THE BAHAMAS AND ON FREQUENCY 133.85 MHZ FROM THE USE OF HIGH POWER CORDLESS TELEPHONES IN MIAMI. THE CLEVELAND AIR TRAFFIC CONTROL CENTER ARTCC (ZOB) OPERATIONS WERE ALSO IMPACTED DUE TO RFI ON FREQUENCY 134.65 MHZ, FROM THE UNAUTHORIZED USE OF HIGH POWER CORDLESS TELEPHONE LOCATED IN HARRISON, MICHIGAN.

HIGH POWER CORDLESS TELEPHONES ARE BEING USED ILLEGALLY IN THE U.S. AND THE BAHAMAS. THESE PHONES CAN INTERFERE WITH THE FREQUENCIES USED FOR AIR TRAFFIC CONTROL WORLDWIDE AND CAN POSE PROBLEMS TO ATC NAVIGATION AND COMMUNICATIONS. THE FAA IS WORKING WITH OTHER GOVERNMENT AGENCIES WITHIN THE UNITED STATES AND OTHER COUNTRIES TO CURTAIL ILLEGAL USE OF THESE PHONES AND IS APPROACHING VENDORS TO CEASE DISTRIBUTION AND PRODUCTION OF UNITS THAT OPERATE IN OR CAUSE INTERFERENCE TO CRITICAL AERONAUTICAL RADIO SPECTRUM.

USERS OPERATING ON THESE FREQUENCIES SHOULD BE AWARE THAT NAVIGATION AND COMMUNICATION COULD BE SEVERELY IMPACTED DUE TO RFI OF THESE HIGH POWER CORDLESS TELEPHONES. USERS OF AERONAUTICAL RADIO NAVIGATION AND COMMUNICATION SERVICES WHO EXPERIENCE THIS TYPE OF INTERFERENCE SHOULD REPORT ANY EVENT IMMEDIATELY TO THE AIR TRAFFIC FACILITY PROVIDING AIR TRAFFIC SERVICES. IF THIS IMMEDIATE REPORT IS UNACHIEVABLE, THE USERS SHOULD MAKE A REPORT TO THE NEAREST AIR TRAFFIC

FACILITY AT THE EARLIEST TIME POSSIBLE AFTER THE RFI EVENT.

✈ **A0099/01 - ZZZ U.S. NATIONAL AIRSPACE SYSTEM INTERCEPT PROCEDURES.** UNTIL FURTHER NOTICE ALL AIRCRAFT OPERATING IN THE U.S. NATIONAL AIRSPACE, IF CAPABLE, WILL MAINTAIN A LISTENING WATCH ON VHF GUARD 121.5 OR UHF 243.0. IT IS INCUMBENT ON ALL AVIATORS TO KNOW AND UNDERSTAND THEIR RESPONSIBILITIES IF INTERCEPTED.

✈ **A0128/01 — SPECIAL NOTICE** —EFFECTIVE IMMEDIATELY UNTIL FURTHER NOTICE, IN THE INTEREST OF NATIONAL SECURITY, ALL PILOTS OPERATING IN ACCORDANCE WITH VISUAL FLIGHT RULES ARE STRONGLY URGED TO NOT CIRCLE OR LOITER OVER THE FOLLOWING SITES: NUCLEAR/ELECTRICAL POWER PLANTS, POWER DISTRIBUTION STATIONS, DAMS, RESERVOIRS, REFINERIES, OR MILITARY INSTALLATIONS, UNLESS OTHERWISE AUTHORIZED BY ATC OR AS REQUIRED TO LAND AND DEPART AT TOWERED/NON-TOWERED AIRPORTS. ANY VFR AIRCRAFT OPERATING IN CLOSE PROXIMITY TO THE ABOVE INDICATED AREAS, IF CAPABLE, ARE TO MAINTAIN A LISTENING WATCH ON VHF 121.5 OR UHF 243.0 EMERGENCY FREQUENCIES.

✈ **1/0298 — FLIGHT RESTRICTIONS EFFECTIVE IMMEDIATELY UNTIL FURTHER NOTICE.** PURSUANT TO 14 CFR SECTION 91.137A(1) TEMPORARY FLIGHT RESTRICTIONS — FOR REASONS OF NATIONAL SECURITY ALL AIRCRAFT OPERATIONS ARE PROHIBITED WITHIN A THREE NAUTICAL MILE RADIUS/3,000 FEET AGL AND BELOW OVER ANY MAJOR PROFESSIONAL OR COLLEGIATE SPORTING EVENT OR ANY OTHER MAJOR OPEN AIR ASSEMBLY OF PEOPLE. UNLESS AUTHORIZED BY ATC FOR PURPOSES OF CONDUCTING ARRIVAL/DEPARTURE OPERATIONS.

✈ **1/0609 — SPECIAL NOTICE — RESTRICTED/PROHIBITED AREA ENFORCEMENT** EFFECTIVE IMMEDIATELY, COMMERCIAL AND PRIVATE AIRCRAFT FLYING INSIDE, OR IN CLOSE PROXIMITY TO NEWLY ESTABLISHED OR CURRENTLY EXISTING RESTRICTED OR PROHIBITED AREAS OF THE UNITED STATES WILL BE SUBJECT TO BEING FORCED DOWN BY ARMED MILITARY AIRCRAFT. IF NECESSARY, THE MILITARY HAS INDICATED THAT DEADLY FORCE WILL BE USED TO PROTECT THESE AREAS FROM UNAUTHORIZED INCURSIONS. THESE MEASURES ARE NECESSARY IN RESPONSE TO THE TERRORIST ATROCITIES OF SEPT. 11, 2001, WHICH CAUSED THOUSANDS OF INNOCENT CIVILIAN CASUALTIES. THE MILITARY WILL USE DEADLY FORCE ONLY AS A LAST RESORT, AFTER ALL OTHER MEANS ARE EXHAUSTED. THIS NEW POLICY IS IN EFFECT UNTIL FURTHER NOTICE. OFFICIAL CHARTS OUTLINING THE NEW RESTRICTED OR PROHIBITED AREAS WILL BE MADE AVAILABLE AS SOON AS POSSIBLE. THESE AREAS WILL BE PERIODICALLY REVISED AND WILL THEREFORE REQUIRE THAT EACH PILOT RECEIVE AN UP TO DATE BRIEFING ON THE STATUS OF THESE AREAS PRIOR TO EVERY FLIGHT. IN ADDITION, ALL AIRCRAFT OPERATING IN THE U.S. NATIONAL AIRPSACE AND IN CLOSE PROXIMITY TO THE SUBJECT AREAS, IF CAPABLE, WILL MAINTAIN A LISTENING WATCH ON VHF GUARD 121.5 OR UHF 243.0. IT IS INCUMBENT ON ALL AVIATORS TO KNOW AND UNDERSTAND THEIR RESPONSIBILITIES IF INTERCEPTED.

✈ **1/0617 — ATTENTION ALL OPERATORS — SPECIAL NOTICE EFFECTIVE IMMEDIATELY** UNTIL FURTHER NOTICE. PURSUANT TO 14 CFR 91.139, THE FOLLOWING EMERGENCY AIR TRAFFIC RULES ARE IN EFFECT: PART I. DEFINITIONS: A. "TERRITORIAL AIRSPACE OF THE U.S." MEANS THE AIRSPACE OVER THE U.S., ITS TERRITORIES AND POSSESSIONS AND THE AIRSPACE OVERLYING THE TERRITORIAL WATERS BETWEEN THE U.S. COAST AND 12 NAUTICAL MILES FROM THE U.S. COAST. B. "OVERFLY/OVERFLIGHT" MEANS ANY FLIGHT DEPARTING FROM AN AIRPORT/LOCATION OUTSIDE THE U.S., ITS TERRITORIES OR POSSESSIONS, WHICH TRANSITS THE TERRITORIAL AIRSPACE OF THE U.S. ENROUTE TO AN AIRPORT/LOCATION OUTSIDE THE U.S., ITS TERRITORIES OR POSSESSIONS. C. U.S. "PUBLIC AIRCRAFT" IS DEFINED AND DESCRIBED IN 49 USC, SECTION 40102(a)(37) AND INCLUDES U.S. FEDERAL, STATE AND LOCAL GOVERNMENT AIRCRAFT. D. "FLIGHT TRAINING" MEANS THAT TRAINING, OTHER THAN GROUND TRAINING, RECEIVED FROM AN AUTHORIZED INSTRUCTOR IN FLIGHT IN AN AIRCRAFT. E. AIRSPACE 1. CLASS B AIRSPACE AS DEFINED IN 14 CFR SECTION 71.41. 2.

"ENHANCED CLASS B AIRSPACE" REFERS TO THE CLASS B AIRSPACE AND THAT AIRSPACE UNDERLYING AND OVERLYING THE CLASS B AIRSPACE FROM THE SURFACE TO FL180. THIS DEFINITION DOES NOT CHANGE THE ASSOCIATED RULES AND/OR SERVICES PRESCRIBED FOR CLASS B AIRSPACE. ADDITIONALLY, THIS DEFINITION DOES NOT CHANGE THE ASSOCIATED RULES AND/OR SERVICES PRESCRIBED FOR THE UNDERLYING/OVERLYING AIRSPACE. PART II. U.S., MEXICAN OR CANADIAN REGISTERED AIRCRAFT CONDUCTING VFR OPERATIONS ARE AUTHORIZED IN THE TERRITORIAL AIRSPACE OF THE U.S. IN ACCORDANCE WITH APPLICABLE REGULATIONS AND NOTICES TO AIRMEN SUBJECT TO THE FOLLOWING PROVISIONS: VFR — OPERATIONS WITHIN THE TERRITORIAL AIRSPACE OF THE U.S.

1. IN THE INTEREST OF NATIONAL SECURITY, AND TO THE EXTENT PRACTICABLE, PILOTS ARE ADVISED TO AVOID THE AIRSPACE ABOVE, OR IN PROXIMITY TO, SITES SUCH AS NUCLEAR POWER PLANTS, POWER PLANTS, DAMS, REFINERIES, INDUSTRIAL COMPLEXES, AND OTHER SIMILAR FACILITIES. PILOT SHOULD NOT CIRCLE AS TO LOITER IN THE VICINITY OF SUCH FACILITIES.

2. PART 129 OPERATORS REQUIRED TO HAVE A SECURITY PROGRAM, PART 129 OPERATORS NOT REQUIRED TO HAVE A SECURITY PROGRAM WITH A MAXIMUM CERTIFICATED TAKEOFF GROSS WEIGHT OF 95,000 POUNDS OR LESS, AND PART 121 AND 125 OPERATIONS, INCLUDING FERRY FLIGHTS ARE AUTHORIZED TO OPERATE BETWEEN U.S. AIRPORTS/LOCATIONS.

3. PART 121 CARGO OPERATIONS ARE AUTHORIZED.

4. PART 133 OPERATIONS ARE AUTHORIZED TO OPERATE WITH AN AIR TRAFFIC CONTROL ASSIGNED DISCRETE BEACON CODE.

5. PART 135 OPERATIONS ARE AUTHORIZED TO OPERATE WITH AN AIR TRAFFIC CONTROL ASSIGNED DISCRETE BEACON CODE. PART 135 AIRCRAFT THAT DO NOT HAVE A COMPANY CALL SIGN MUST FILE A "T" PRIOR TO THE AIRCRAFT TAIL NUMBER.

6. U.S. REGISTERED AIRCRAFT CONDUCTING PART 137 OPERATIONS ARE AUTHORIZED TO OPERATE OUTSIDE "ENHANCED CLASS B AIRSPACE."

7. U.S. REGISTERED AIRCRAFT CONDUCTING PART 91 OPERATIONS ARE AUTHORIZED TO OPERATE OUTSIDE "ENHANCED CLASS B AIRSPACE".

8. PIPELINE/POWERLINE OPERATORS ARE AUTHORIZED TO CONDUCT IFR/VFR OPERATIONS IN ALL AIRSPACE EXCEPT THE TFR AIRSPACES OF NEW YORK, WASHINGTON D.C. AND SPORTING EVENT-OPEN AIR ASSEMBLIES, AND THE "ENHANCED CLASS B AIRSPACE" IN BOSTON.

✈ **1/1225 — SPECIAL NOTICE — NEW NOTAM RE VFR INSIDE ECB FOR REASONS OF NATIONAL SECURITY**, EFFECTIVE OCTOBER 15, 2001, UNTIL FURTHER NOTICE, PURSUANT TO TITLE 14 CFR PART 91.139 THE FOLLOWING EMERGENCY AIR TRAFFIC RULES ARE IN EFFECT: U.S. REGISTERED AIRCRAFT CONDUCTING PART 91 AND PART 137 VFR OPERATIONS ARE AUTHORIZED TO OPERATE INSIDE "ENHANCED CLASS B AIRSPACE" AS SPECIFIED IN THE FOLLOWING PROVISIONS:

1) DEFINITION REPEATED: "ENHANCED CLASS B AIRSPACE" REFERS TO THE CLASS B AIRSPACE AND THAT AIRSPACE UNDERLYING AND OVERLYING THE CLASS B AIRSPACE FROM THE SURFACE TO FL180. THIS DEFINITION DOES NOT CHANGE THE ASSOCIATED RULES AND/OR SERVICES PRESCRIBED FOR CLASS B AIRSPACE. ADDITIONALLY, THIS DEFINITION DOES NOT CHANGE THE ASSOCIATED RULES AND/OR SERVICES PRESCRIBED FOR THE UNDERLYING/OVERLYING AIRSPACE.

2) THE FOLLOWING OPERATIONS ARE NOT AUTHORIZED UNDER THIS PROVISION AND REMAIN PROHIBITED FROM OPERATING VFR IN "ENHANCED CLASS B AIRSPACE." NEWS REPORTING, TRAFFIC WATCH, CIVIL AIRCRAFT BANNER TOWING, SIGHTSEEING (IN ROTORCRAFT AND AIRPLANES) CONDUCTED FOR COMPENSATION OR HIRE (UNDER PART 91, PURSUANT TO THE EXCEPTION IN 119.1(E)(2)), AND AIRSHIP/BLIMP OPERATIONS.

3) AIRCRAFT MUST OPERATE USING A CODED RADAR BEACON TRANSPONDER AT ALL TIMES WITHIN THE "ENHANCED CLASS B AIRSPACE," USING NORMAL VFR CODES, I.E. 1200.

4) CAPABLE AIRCRAFT MUST MONITOR THE GUARD FREQUENCY ON 121.5/243.0 AT ALL TIMES WITHIN THE "ENHANCED CLASS B AIRSPACE."

5) APPROVAL/ WAIVER TO OPERATE WITHOUT A CODED RADAR BEACON TRANSPONDER MUST BE OBTAINED PRIOR TO THE FLIGHT, AND ON A FLIGHT-BY-FLIGHT BASIS, FROM THE LOCAL AIR TRAFFIC CONTROL FACILITY CONTROLLING THE AFFECTED "ENHANCED CLASS B AIR- SPACE."

6) EFFECTIVE MONDAY, OCTOBER 15, 2001, AT 1100 UTC, OPERATIONS ARE APPROVED AS DESCRIBED ABOVE IN THE FOLLOWING "ENHANCED CLASS B AIRSPACE": HOUSTON, TX; KANSAS CITY, MO; MEMPHIS, TN; NEW ORLEANS, LA, AND; ST. LOUIS, MO.

7) EFFECTIVE TUESDAY, OCTOBER 16, 2001, AT 1100 UTC, OPERATIONS ARE APPROVED AS DESCRIBED ABOVE IN THE FOLLOWING "ENHANCED CLASS B AIRSPACE:" CLEVELAND, OH; DALLAS-FORT WORTH, TX; HONOLULU, HI; MINNEAPOLIS, MN, AND; PHOENIX, AZ.

8) EFFECTIVE WEDNESDAY, OCTOBER 17, 2001, AT 1100 UTC, OPERATIONS ARE APPROVED AS DESCRIBED ABOVE IN THE FOLLOWING "ENHANCED CLASS B AIRSPACE:" CHARLOTTE, NC; CINCINNATI, OH/ COVINGTON, KY; SALT LAKE CITY, UT; SEATTLE, WA, AND; TAMPA, FL. VFR PILOTS IN "ENCHANCED CLASS B AIRSPACE" ARE ENCOURAGED TO OPERATE THEIR AIRCRAFT IN A NORMAL MANNER, AVOIDING AEROBATICS, LOITERING OR CIRCLING, AND UNPREDICTABLE FLIGHT PATHS. PILOTS ARE URGED TO CHECK NOTICES TO AIRMEN (NOTAMS) AND CALL THE LOCAL FLIGHT SERVICE STATION AT 1-800-WX-BRIEF PRIOR TO EACH FLIGHT.

✈ **1/1474 — SPECIAL NOTICE —VFR INSIDE ECB ... FOR REASONS OF NATIONAL SECURITY, EFFECTIVE** OCTOBER 22, 2001, UNTIL FURTHER NOTICE, PURSUANT TO TITLE 14 CFR PART 91.139 THE FOLLOWING EMERGENCY AIR TRAFFIC RULES ARE IN EFFECT: U.S. REGISTERED AIRCRAFT CONDUCTING PART 91 AND PART 137 VFR OPERATIONS ARE AUTHORIZED TO OPERATE INSIDE "ENHANCED CLASS B AIRSPACE" AS SPECIFIED:

1) THE FOLLOWING OPERATIONS ARE NOT AUTHORIZED UNDER THIS PROVISION AND REMAIN PROHIBITED FROM OPERATING VFR IN "ENHANCED CLASS B AIRSPACE:" NEWS REPORTING, TRAFFIC WATCH, CIVIL AIRCRAFT BANNER TOWING, SIGHTSEEING (IN ROTORCRAFT AND AIRPLANES) CONDUCTED FOR COMPENSATION OR HIRE (UNDER PART 91, PURSUANT TO THE EXCEPTION IN 119.1(E)(2)), AND AIRSHIP/BLIMP OPERATIONS.

2) AIRCRAFT MUST OPERATE USING A CODED RADAR BEACON TRANSPONDER AT ALL TIMES WITHIN THE "ENHANCED CLASS B AIRSPACE," USING NORMAL VFR CODES, I.E. 1200.

3) EFFECTIVE MONDAY, OCTOBER 22, 2001, AT 1100 UTC, OPERATIONS ARE APPROVED AS DESCRIBED ABOVE IN THE FOLLOWING "ENHANCED CLASS B AIRSPACE:" ATLANTA, GA; LOS ANGELES, CA; LAS VEGAS, NV; MIAMI, FL; SAN FRANCISCO, CA.

4) EFFECTIVE TUESDAY, OCTOBER 23, 2001, AT 1100 UTC, OPERATIONS ARE APPROVED AS DESCRIBED ABOVE IN THE FOLLOWING "ENHANCED CLASS B AIRSPACE:" DENVER, CO; PITTSBURGH, PA; PHILADELPHIA, PA; DETROIT, MI; SAN DIEGO, CA.

5) EFFECTIVE WEDNESDAY, OCTOBER 24, 2001, AT 1100 UTC, OPERATIONS ARE APPROVED AS DESCRIBED ABOVE IN THE FOLLOWING "ENHANCED CLASS B AIRSPACE:" ORLANDO, FL AND CHICAGO, IL. VFR PILOTS IN "ENHANCED CLASS B AIRSPACE" ARE ENCOURAGED TO OPERATE THEIR AIRCRAFT IN A NORMAL MANNER, AVOIDING AEROBATICS, LOITERING OR CIRCLING, AND UNPREDICTABLE FLIGHT PATHS. PILOTS ARE URGED TO CHECK NOTICES TO AIRMEN (NOTAMS) AND CALL THE LOCAL FLIGHT SERVICE STATION AT 1-800-WX-BRIEF PRIOR TO EACH FLIGHT.

Granted all of these look a little confusing, but are necessary to today's flight safety. FDC NOTAMs are updated not just daily, but on an as needed basis. I hope to keep you updated on any NOTAM updated for each issue. Just be advised that there is a two month lead time on my articles, and as such may be outdated by *Pop'Comm's* publication date. If you wish to see today's NOTAMs visit https://www.notams.faa.gov/.

Next month, changes in tower procedures, more FDC NOTAMs, and a little aviation humor (Lord knows we need some!) Keep scanning, keep praying, and keep giving blood (I'm working on my 8th gallon). ■

Pop'comm Survey-February 2002

Circle Reader Service #

1. Since September 11 I've listened to international shortwave broadcasters:

Every night at least an hour	1
During the day and night at least an hour	2
More than two hours daily	3
More than four hours daily	4
No change after September 11 – I listen as time permits	5
No change after September 11 – I listen as world events unfold	6

2. My primary shortwave receiver is:

Less than a year old	7
More than two years old	8
Brand new receiver costing more than $1,000	9
Brand new receiver costing less than $1,000	10
Portable receiver I take from room to room	11
I don't listen much to shortwave	12

3. In my opinion, the BBC's recent decision to eliminate short-wave broadcasts to North America was:

A smart move because even I don't listen to them on shortwave	13
Irrelevant, because I listen to them on the Internet	14
Irrelevant, because I can still hear them strongly on shortwave	15
It doesn't matter to me, as I don't listen to the BBC anyway	16

4. I use my scanner more since September 11.

Yes	17
No	18

Circle Reader Service #

5. I have a separate NOAA weather/emergency receiver in my house.

Yes	19
No	20

6. I'm considering purchasing a new NOAA weather/emergency receiver.

Yes	21
No	22
Maybe	23

7. I'd like to see a column similar to Alice Brannigan return to *Popular Communications*.

Yes	24
No	25
Don't remember Alice Brannigan	26

8. If *Popular Communications* were available online as a subscription, I'd subscribe.

Yes	27
No	28
Maybe, it depends on the price	29

9. I'd like to see more articles on the technical aspects of propagation.

Yes	30
No	31

ham discoveries

connecting as a radio amateur

by Kirk Kleinschmidt, NTØZ

The Code is Still Cool in the 21st Century!

Now that the FCC has finally slashed Morse code license-requirement speeds, revamped Amateur Radio license classes and basically gutted Morse code as a viable licensing hurdle, why bother with dits and dahs at all? And why bother with a column aimed at boosting Morse code performance and enjoyment?

Well, friends and fellow hams, Morse code, ancient though it is still has a lot to offer, even in this age of Internet chatting, speech compressors and DSP. You see, CW is real radio. It's basic. It's primitive. And when you get tired of QSOs that are broadcast quality and digitally enhanced, don't forget about ham radio's founding mode - the one that started it all: Morse code!

Benefits, you're wondering? Morse code blows away SSB when conditions are poor, you're running low power, you have a crappy antenna, you're running a home-brew rig, you're operating portable in the field, you just have to work DX, and so on. And because the code benefits the most from that little-used DSP processor between your ears, it really involves you in the process. You're the most important part of a Morse code QSO, and no other mode requires so much of your nervous system involvement.

And don't worry about the code disappearing just because the FCC has mostly done away with it as a licensing requirement. When the code barrier falls completely, the CW subbands will be populated by true believers for decades to come. You'll always have plenty of fellow dit slingers to chat with.

Now, I know that Morse code isn't for everyone, but I've also noticed that most ops' frustration with the mode comes from not really knowing how to use it effectively. Maybe they didn't give it enough time, or maybe they didn't become proficient enough to "get into the groove."

If you're willing to give it a go, this month's column is full of CW operating advice gleaned from expert ops. Practice makes perfect of course, but practicing correct techniques right from the start can reduce the time it takes you to perfect your Morse code skills and reduce the time it takes to actually *enjoy* the experience.

On The Air With Morse Code

First, forget about calling CQ for a "good long while." Until your confidence and proficiency are suitable, you should look for big, fat CQ calls from someone else - someone with a good fist who is sending at a speed that's comfortable for you to copy.

If you think keyer paddles and even straight keys take up too much precious space on your shack's desktop, think again. Well, with the new German-engineered Mini Paddle from Palm Radio (www.mtechnologies.com/palm/), misplacing your paddles may be more of a problem than where to put them! These nifty keyer paddles feel like the real thing and are perfect for QRP junkets or anyone with space restrictions (or ops who simply like funky paddles). Check out the entire line. These things are slick!

Once you've replied to the other guy's CQ, you're almost home. If there were no other hams you'd be the only game in town! But what happens if others respond, too? Your biggest challenge is to be the caller the CQer responds to. And don't think that having a big signal is all it takes. In fact, timing and knowing exactly where, when and how to transmit makes all the difference.

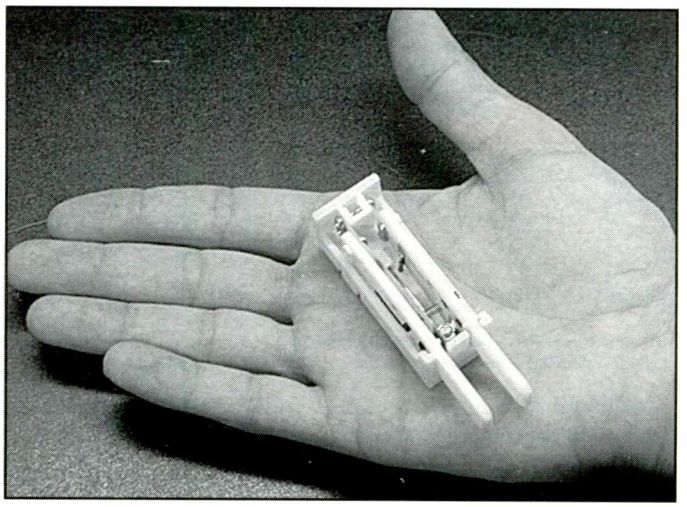
Transmit With The Beat

Where to transmit is almost always exactly on the same frequency as the station calling CQ. This is called zero beating, as the audio tone produced in each receiver is at the same pitch. Most stations tune only 1-2 kHz when listening for replies to their CQs, so if you're too far away, the CQer won't hear you. If you're right on frequency from the start, the CQer will hear you right in the center of his receiver's passband. And chances are good that he'll hear you instead of some other caller who is slightly off frequency. (DX stations sometimes prefer off-frequency replies to manage the sheer volume of callers.)

Transmit at the Right Time

Now that we know where to call, it's time to talk about when to call. This is pretty simple. As soon as the CQing station finishes calling and signs K, immediately start your reply. If you hesitate, another station might jump in. If you transmit first, the other station may wait, not wanting the competition. As long as you're on frequency, the CQer will start copying the first reply he hears, which is hopefully yours.

Here's an old-timer's trick that still works today. Many ops use full break-in keying (QSK) while they're calling CQ. That is, they can hear receiver audio between the dits and dahs they're



sending. If you send something to get their attention - a string of dits, perhaps, or a long dah - the QSK CQer usually stops to hear what's going on. Quickly, just after the CQer pauses, give the op a quick call (his callsign DE your callsign AR) and you've snagged him! There might have been a half-dozen ops waiting to reply to the same CQ! Don't abuse this tactic and be discreet. If the CQer isn't QSK, you'll simply interfere with his call - and that's not a display of good manners.

Transmitting Tips

How to send is more complex than where and when to send. Let's break it down into simpler parts:

☛ Send at the same speed the CQing op is using. He's sending at a speed that's comfortable for him, and he'll want your reply to be in the same ballpark.

☛ Learn to adjust the length of your reply. If the CQing op sounds savvy (good fist, strong signal), a short reply will usually do the trick (his callsign once and your call sign once or twice). If conditions are poor or if the sending op sounds less sure of himself, send both callsigns two or three times. Experience will help you to get the feel for this.

☛ Your Morse code should be crisp and accurate. Nobody wants to answer calls from sloppy senders. In fact, many sloppy calls are ignored! And these callers thought the bands were dead or that their signals were weak. Practice sending code off the air until yours sounds good. Have a friend who's a good CW op listen to your code. Work toward excellence! This one point makes all the difference when conditions are less than ideal.

☛ Make sure your signal is clean. Don't overdrive your rig or do anything foolish. And don't run out and buy a linear amplifier. Keep your rig tuned and adjusted properly and put up the best antenna system you can manage.

More Info

☛ Learn from your on-air experiences. Carefully see what works and what doesn't, and always stay in the realm of good behavior.

☛ Learn to copy Morse code in your head without having to write it down. This makes Morse code more fun and less work.

☛ Don't just copy what the other op is sending. Learn to anticipate - within reason - what he's thinking and try to understand what he's hearing on his end of the radio path. That kind of approach will help you become a successful CW op that has successful contacts.

I hope to hear you on the CW subbands sometime soon. Keep your photos (perhaps a close-up of your favorite key?), letters and column suggestions coming to Ham Discoveries, Popular Communications, 25 Newbridge Road, Hicksville, NY 11801. ■

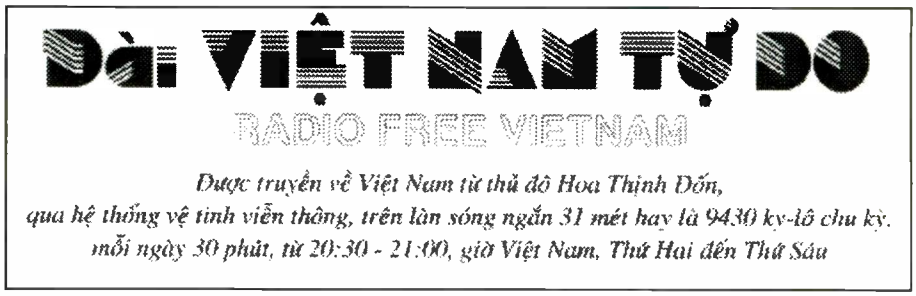
clandestine communiqué

tuning in to anti-government radio

by Gerry L. Dexter

Voice Of Biafra Back On Shortwave

Although we've heard nothing to indicate that any plans are afoot, it wouldn't surprise us a bit if, by the time you read this, the United States has added some sort of surrogate broadcast to Afghanistan or perhaps to countries hosting terrorists in general as one of its weapons in the new war. And when it comes to psy-war possibilities, we think it would be a great idea to distribute a couple of million computer-enhanced photos of bin Laden, sans beard!



Radio Free Vietnam is one of several anti-Vietnam programs that have popped up on shortwave in the past few months.

Some folks never give up. A generation or so ago the Nigerian province of Biafra declared its independence from Lagos and there ensued a year long war, which ended in Biafra's defeat and return to the fold. Many heard the breakaway state's Radio Biafra on shortwave at the time, even when it had to move two or three times to escape advancing Nigerian forces. Now, Biafra again has a voice on shortwave. **The Voice of Biafra International** (also heard as Radio Biafra International) is a weekly hour-long program produced by the Washington-based Biafra Foundation and aired on Saturdays from 1900–2000 on **12125** via a transmitter in Russia. The station — which seeks an independent Biafra — can be reached online at biafraland@biafraland.com or via USPS to Voice of Biafra International, 733 16th St. NW #3700, Washington, DC 20005.

Colonel R.C. Watts in Kentucky has heard the **Radio Free Vietnam** program, via KWHR in Hawaii on **9930** at 1100 and notes the KWHR schedule shows the program airing from 1100–1200 Monday through Friday. The address is 1275 Brookhurst St., #104, Garden Grove, CA 92840.

R.C. also notes another anti-Vietnam broadcast on KWHR — **Que Houng Radio** at 0830 on **9930**. Both shortwave broadcasts are in Vietnamese.

In most cases only listeners in the eastern part of the eastern time zone really have much of a shot at most of these exotic Kurdish clandestine stations, not to mention those involved with Ethiopia and the Sudan. One recent exception has been occurring on **6985**.

Recently, with the appearance of what some experts think is the anti-Sudanese **Voice of Freedom and Renewal**, which has actually made it as far as our base in Wisconsin. Check for something signing on some minutes after 0315 and beginning actual programming by sounding trumpets briefly at 0300. If it isn't this station it is definitely some sort of anti-Sudanese operation. This is believed to be running about 10 kW and to be operating from a site near the border with Eritrea. The address is Sudan Alliance Forces, Secretariat of Culture and Information, Asmara, State of Eritrea.

One Ethiopian-targeted station, which most has a reasonably good chance to hear, is the **Voice of the Tigray Revolution** (supporting the province of Tigray, which would like greater independence from Ethiopia). Before it gets into doing its own thing it relays programming of the **Voice of Peace and Democracy of Eritrea** from 0315 to 0400. The Tigray broadcast comes on at 0400. Both broadcasts use **5500 and 6315**. The former frequency usually provides better reception.

Another Tigray-focused broadcast is the **Voice of the Tigrayans** from North America, which is airing from 1700–1800 on **12110** via a Russian transmitter site.

And still another new one is **Voice of the Martyrs**, which is being carried over one of WWCR's transmitters at 0500 on **3215** — but this probably isn't a permanent time slot, so you may have to do some spot check in hopes of catching it.

WRMI, Miami, continues to carry some anti-Castro programs and, for its troubles, continues to be jammed by Cuba, sometimes quite effectively. Listen for **La Voz de Fundacion** from 1000–1200 Monday to Friday on **9955** and again from 2300–0000. Also Saturday from 1000–1200. (P.O. Box 440069, Miami, FL.)

Foro Militar Cubano is scheduled Tuesdays to Saturdays from 0000–0100 and 0900–1000 (Saturday only) on **9955**. This one can be reached at P.O. Box 140305, Coral Gables, FL.

The Democratic Voice of Burma is now on the air in Burmese from 1400–1455 via Madagascar on **5945** via Tashkent, **15405** via Kvitsoy, Norway and **17485** via Madagascar. Then 1500–1530 on **5945** (Tashkent) and **15405** (Julich). Also from 2330–2355 on **9495** (Julich) and **11590** (Madagascar).

The Voice of Palestine/Voice of the Palestine Islamic Revolution is heard from sign-on at just before 0330 on **9610**. **11870** is also in use at this hour.

Another new station is **Radio Barabari**, airing from 1700–1730 via an Israel transmitter on **7480**.

Voice of the Khmer Krom (anti-Cambodia) is now using **15690**, scheduled on Fridays from 1400 to 1500.

The Voice of Iran (Sedya-ah-Iran) is being well heard on **17520** from 1530 to 1730. Also known as KRSI, the transmitter site, once known to be from Moldova's Grigoriopol location is now thought to be perhaps from RFI's site at Issoudun in France. Certainly, the signal is much improved lately so perhaps there has been a change in location.

Please keep us informed about what you are hearing on the clandestine radio front and remember that we are always in great need of copies of QSLs from these stations. Many thanks for your continued interest and cooperation! ■

Tap into *secret* Shortwave Signals

Turn mysterious signals into exciting text messages with the MFJ MultiReader™!

Plug this self-contained MFJ *MultiReader*™ into your shortwave receiver's earphone jack.

Then *watch* mysterious chirps, whistles and buzzing sounds of RTTY, ASCII, CW and AMTOR (FEC) turn into exciting text messages as they scroll across an easy-to-read LCD display.

You'll *read* interesting commercial, military, diplomatic, weather, aeronautical, maritime and amateur traffic . . .

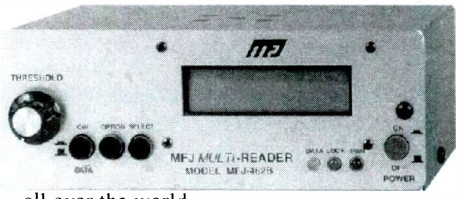
Eavesdrop on the World

Eavesdrop on the world's press agencies transmitting *unedited* late breaking news in English -- China News in Taiwan, Tanjug Press in Serbia, Iraqui News in Iraq -- all on RTTY.

Copy RTTY weather stations from Antarctica, Mali, Congo and many others. Listen to military RTTY passing traffic from Panama, Cyprus, Peru, Capetown, London and others. Listen to hams, diplomatic, research, commercial and maritime RTTY.

Listen to maritime users, diplomats and amateurs send and receive *error-free* messages using various forms of TOR (Telex-Over-Radio).

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime



-- all over the world -- Australia, Russia, Japan, etc.

MFJ-462B **$179.95**

Printer Monitors 24 Hours a Day

MFJ's exclusive *TelePrinterPort*™ lets you monitor any station 24 hours a day by printing transmissions on an Epson compatible printer.

Printer cable, **MFJ-5412**, $9.95.

MFJ *MessageSaver*™

You can save several pages of text in an 8K of memory for re-reading or later review.

High Performance Modem

MFJ's high performance *PhaseLockLoop*™ modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference -- greatly improves copy on CW and other modes.

Easy to use, tune and read

It's easy to use -- just push a button to select modes and features from a menu.

It's easy to tune -- a precision tuning indicator makes tuning your receiver easy for best copy.

It's easy to read -- the 2 line 16 character LCD display with contrast adjustment is mounted on a brushed aluminum front panel for easy reading.

Copies most standard shifts and speeds. Has MFJ *AutoTrak*™ Morse code speed tracking.

Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, $14.95. 5¼Wx2½Hx5¼D inches.

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You get MFJ's famous one year *No Matter What*™ limited warranty. That means we will repair or replace your MFJ *MultiReader*™ (at our option) *no matter what* for one full year.

Try it for 30 Days

If you're not completely satisfied, simply return it within 30 days for a prompt and courteous refund (less shipping). Customer must retain dated proof-of-purchase direct from MFJ.

Super Active Antenna

"World Radio TV Handbook" says MFJ-1024 is a *"first-rate easy-to-operate active antenna ...quiet... excellent dynamic range... good gain... low noise... broad frequency coverage."*

Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz-30 MHz.

Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED. Switch two receivers and auxilary or active antenna. 6x3x5 inches. Remote has 54 inch whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, $14.95.

MFJ-1024 **$139.95**

Indoor Active Antenna

Rival outside long wires with this *tuned* indoor active antenna. *"World Radio TV Handbook"* says MFJ-1020B is a *"fine value... fair price... best offering to date... performs very well indeed."*

MFJ-1020B **$79.95**

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as a preselector with external antenna. Covers 0.3-30 MHz. Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip. 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312, $14.95.

Compact Active Antenna

Plug this *compact* MFJ all band active antenna into your receiver and you'll hear strong, clear signals from all over the world, 300 KHz-200 MHz including low, medium, shortwave and VHF bands.

MFJ-1022 **$49.95**

Detachable 20 inch telescoping antenna. 9 volt battery or 110 VAC MFJ-1312B, $14.95. 3⅛x1¼x4 in.

Eliminate power line noise!

MFJ-1026 **$179.95**

New! Completely eliminate power line noise, lightning crashes and interference *before they get into your receiver!* Works on all modes -- SSB, AM, CW, FM, data -- and on all shortwave bands. Plugs between main external antenna and receiver. Built-in active antenna picks up power line noise and cancels undesirable noise from main antenna. Also makes excellent active antenna.

MFJ Antenna Matcher

MFJ-959B **$99.95**

Matches your antenna to your receiver so you get maximum signal and minimum loss.

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Select 2 antennas and 2 receivers. 1.6-30 MHz. 9x2x6 in. Use 9-18 VDC or 110 VAC with MFJ-1312, $14.95.

Dual Tunable Audio Filter

MFJ-752C **$99.95**

Two separately tunable filters let you peak desired signals and notch out interference at the same time. You can peak, notch, low or high pass signals to eliminate heterodynes and interference. Plugs between radio and speaker or phones. 10x2x6 in.

High-Gain Preselector

MFJ-1045C **$99.95**

High-gain, high-Q receiver preseletor covers 1.8-54 MHz. Boost weak signals 10 times with low noise dual gate MOSFET. Reject out-of-band signals and images with high-Q tuned circuits. Push buttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18 VDC or 110 VAC with MFJ-1312, $14.95.

CW, RTTY, ASCII Interface

MFJ-1214PC **$149.95**

Use your computer and radio to receive and display brilliant full color FAX news photos and incredible WeFAX weather maps. Also RTTY, ASCII and Morse code. Frequency manager lists over 900 FAX stations. Auto picture saver.

Includes interface, easy-to-use menu driven software, cables, power supply, manual and *JumpStart*™ guide. Requires 286 or better computer with VGA monitor.

High-Q Passive Preselector

High-Q passive LC preselector boosts your favorite stations while rejecting images, intermod and phantom signals. 1.5-30 MHz. Preselector bypass and receiver grounded positions. Tiny 2x3x4 inches.

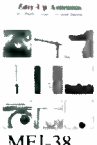
MFJ-956 **$49.95**

Super Passive Preselector

MFJ-1046 **$99.95**

New! **Improves** any receiver! Suppresses strong out-of-band signals that cause intermod, blocking, cross modulation and phantom signals. Unique Hi-Q series tuned circuit adds super sharp front-end selectivity with excellent stopband attenuation and very low passband attenuation and very low passband loss. Air variable capacitor with vernier. 1.6-33 MHz.

Easy-Up Antennas



How to build and put up inexpensive, fully tested wire antennas using readily available parts that'll bring signals in like you've never heard before. Antennas from 100 KHz to 1000 MHz.

MFJ-38 **$16.95**

MFJ Antenna Switches

MFJ-1704 **$64.95**

MFJ-1702C **$24.95**

MFJ-1704 heavy duty antenna switch lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection. Good to 500 MHz. 60 dB isolation at 30 MHz. **MFJ-1702C** for 2 antennas.

World Band Radio Kit

Build this regenerative shortwave receiver kit and listen to signals from all over the world with just a 10 foot wire antenna. Has RF stage, vernier reduction drive, smooth regeneration, five bands.

MFJ-8100K **$69.95** *kit*
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world band tuning tips

your monthly international radio map

This listing is designed to help you hear more shortwave broadcasting stations. The list includes a variety of stations, including international broadcasters beaming programs to North America, others to other parts of the world, as well as local and regional shortwave stations. Many of the transmissions listed here are not in English. Your ability to receive these stations will depend on time of day, time of year, your geographic location, highly variable propagation conditions, and the receiving equipment used.

AA, FF, SS, GG, etc. are abbreviations for languages (Arabic, French, Spanish, German). Times given are in UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST.

UTC	Freq.	Station/Country	Notes
0000	3280	La Voz del Napo, Ecuador	SS
0000	11734	Radio Tanzania-Zanzibar	Swahili
0000	9715	Radio Tashkent, Uzbekistan	unid
0000	9720	RTT Tunisienne, Tunisia	AA
0000	11885	Voice of Turkey	TT
0000	15135	Radio Ukraine Int'l	
0000	13655	Voice of Turkey	
0030	13675	UAE Radio, Dubai	
0030	13610	Radio Damascus, Syria	
0100	15265	Radio Taipei Int'l, Taiwan	
0100	12085	Radio Damascus, Syria	AA
0100	9575	Swiss Radio Int'l	
0100	15395	Radio Thailand	
0100	9885	Swiss Radio Int'l	
0100	15220	Swiss Radio Int'l, via Germany	
0100	15425	Sri Lanka Broadcasting Corp.	
0100	17780	Channel Africa, South Africa	
0130	17770	Channel Africa, South Africa	
0130	15545	Voice of America, via Sri Lanka	
0130	17550	Radio Slovakia Int'l	
0130	12000	Voice of Russia	
0130	17860	Deutsche Welle, via Rwanda	GG
0130	15445	Far East Broadcasting Assn., Seychelles Is.	unid
0130	6150	Radio Singapore	
0130	15435	BS of the Kingdom of Saudi Arabia	AA
0130	7210	Voice of Russia	RR
0200	7285	Radio Tashkent, Uzbekistan	
0200	12689.5	AFRTS, Florida	USB
0200	17560	Radio Exterior de Espana, Spain	AA
0200	15170	Radio Exterior de Espana	SS
0200	11945	Adventist World Radio via UAE	unid
0200	15435	Radio Jamahiriya/Voice of Africa, Libya	AA/EE
0200	11895	Radio Sweden, via Canada	
0200	15400	UAE Radio, Dubai	AA
0200	7170	Radio Singapore	unid.
0200	11825	Voice of Russia	
0200	15345	BS of Kingdom of Saudi Arabia	AA
0230	17740	Voice of America, via Philippines	
0230	6458.5	AFRTS, Puerto Rico	USB
0230	3385	Radio East New Britain, Papua New Guinea	
0230	17520	Radio Pakistan	EE/Urdu
0230	11570	Radio Pakistan	unid
0230	15485	Radio Free Asia	unid
0230	11580	KFBS, Saipan, N. Marianas	CC
0230	15240	Voice of America, Tinian, N. Marianas	
0230	15120	Voice of Nigeria	various
0230	6050	Radio Nigeria, Ibadan	
0230	9850	Voice of Korea, North Korea	
0230	17720	Radio Pilipinas, Philippines	unid
0230	9945	Radio Norway	NN
0230	11675	Radio New Zealand Int'l	
0300	21590	Radio Netherlands via Bonaire	
0300	15220	Radio Netherlands, via Canada	
0300	15345	RTV Marocaine, Morocco	AA
0300	6185	Radio Educacion, Mexico	SS
0300	17895	Voice of America via Morocco	
0300	3315	Radio Manus, Papua New Guinea	
0300	3365	Radio Milne Bay, Papua New Guinea	
0300	15355	Radio Sultanate of Oman	AA/EE
0300	13700	Radio Netherlands	
0315	4725	Radio Myanmar (Burma)	vern.
0330	6532	Radio Union, Peru	SS
0330	9740	BBC Relay, Singapore	
0330	11665	Voice of Tartarstan, Russia	RR
0330	15465	Far East Broadcasting Co., Philippines	Tagalog
0330	9705	Radio Mexico Int'l	SS/EE
0330	15365	Radio Romania Int'l	
0330	17705	Danmarks Radio, via Norway	DD
0330	6010	Radio Mil, Mexico	SS
0345	9795	Voice of Vietnam, via Canada	
0400	11770	Radio Mexico Int'l	SS/EE
0400	3305	Radio Western, Papua New Guinea	
0400	12065	Vatican Radio	
0400	21800	RDP Int'l, Portugal	PP
0400	12020	Voice of Vietnam	VV
0400	11945	RDP Int'l, Portugal	PP
0400	15190	Radio Pilipinas, Philippines	
0400	7305	Vatican Radio	Latin
0400	6957	Radio La Voz del Campesino, Peru	SS
0400	4890	NBC, Papua New Guinea	
0400	15495	Radio Kuwait	AA
0430	7295	Radio Malaysia	
0500	4800	Radio Lesotho	
0500	11990	Radio Kuwait	

UTC	Freq.	Station/Country	Notes
0600	21670	Radio Japan/NHK	
0700	9505	Radio Japan/NHK	
0700	13640	Radio Telefis Eireann, Ireland, via Canada	
0730	9595	Radio Tampa, Japan	JJ
0800	11690	Radio Jordan	
0800	9575	RAI Int'l, Italy	
0900	3250	Radio Luz y Vida, Honduras	SS
0900	7265	Sudwestfunk, Germany	GG
0900	11800	RAI Int'l, Italy	II
0900	11585	Kol Israel	HH
0930	15615	Kol Israel	
0930	15150	Voice of Islamic Rep. of Iran	Koran
0930	15075	All India Radio	Hindi
1000	17545	Kol Israel	
1000	15084	Voice of Islamic Republic of Iran	Farsi
1030	3095	Radio Republik Indonesia, Merauke	II
1030	9570	Radio Budapest, Hungary	
1030	4753	Radio Republik Indonesia, Makassar	II
1030	13700	All India Radio	Hindi
1030	4819	La Voz Evangelica, Honduras	SS
1030	4050.5	La Voz de Verdad, Guatemala	SS
1100	3360	La Voz de Nahuala, Guatemala	SS
1100	9835	Voice of Islamic Republic of Iran	
1100	9925	Radio Croatia, via Germany	
1100	17635	Adventist World Radio via Guam	Mandarin
1100	3300	Radio Cultural, Guatemala	SS
1100	17510	KWHR, Hawaii	
1100	15475	Radio Salama, England, via Germany	
1100	17705	Voice of Greece, via Delano, CA	Greek
1130	9745	Adventist World Radio, via Germany	
1130	21645	Radio France Int'l, via Fr. Guiana	SS
1130	13610	Radio France Int'l	FF
1130	17670	YLE/Radio Finland	Finnish
1130	9915	BBC, England	
1200	5500	V. of the Tigray Revolution, Ethiopia	unid.
1200	9704	Radio Ethiopia	unid.
1200	9930	KWHR, Hawaii	
1200	9745	HCJB, Ecuador	
1200	12050	Radio Cairo, Egypt	AA
1200	9745	Radio Cairo, Egypt	EE
1200	15435	Radio Jamahiriya, Libya	AA/EE
1230	17605	Radio France Int'l	
1230	6115	Radio Tirana, Albania	
1230	11710	Radiodifusora Argentina al Exterior	
1230	11920	RTV Marociane, Morocco	AA
1230	6249	Radio Nacional, Equatorial Guinea	SS
1300	15485	Radio Africa Int'l, USA, via Germany	
1400	12085	Voice of Mongolia	
1400	7160	Radio Tirana, Albania	
1430	11615	Radio Prague, Czech Republic	
1430	4782	Radio Oriental, Ecuador	SS
1430	7345	Radio Prague, Czech Republic	
1500	17660	HCJB, Ecuador	
1500	15195	Adventist World Radio, via Austria	unid
1500	6000	Radio Havana Cuba	
1530	15820	Radio Continental, Argentina/USB relay	SS
1600	21470	BBC relay, Cyprus	
1600	6115	La Voz del Llano, Colombia	SS
1600	9737	Radio Nacional, Paraguay	SS
1600	17550	China National Radio	CC
1600	17720	China Radio Int'l	
1630	15305	Radio Canada Int'l	
1630	9925	China National Radio	
1630	15375	Voz Cristiana, Chile	SS
1700	17500	Radio Bulgaria	
1700	9400	Radio Bulgaria	
1730	11830	Radio Anhanguera, Brazil	PP
1800	9565	Radio Universo, Brazil	PP
1800	11915	Radio Gaucha, Brazil	PP
1800	7375	Voice of America relay, Botswana	
1830	9710	Radio Australia	Pidgin
1830	4845	Radio Fides, Bolivia	SS
1830	9870	Radio Austria Int'l'	GG
1900	9690	Radio Nacional, Argentina	SS
1900	3240	Trans World Radio, Swaziland	
1900	3985	Echo of Hope, S. Korea (clandestine)	KK
1930	4800	Radio Buenas Nuevas, Guatemala	SS
1930	4824	La Voz de la Selva, Peru	SS
1930	4845	Radio Mauritania	AA
2000	4950	Radio Nacional, Angola	PP
2000	4965	Christian Voice, Zambia	
2000	4991	Radio Apinte, Surinam	vern
2000	5020	Solomon Islands Broadcasting Commission	
2030	5100	Radio Liberia	
2030	4760	ELWA, Liberia	
2030	5770	Radio Miskut, Nicaragua	SS
2030	6082	Radio San Gabriel, Bolivia	SS
2030	6973	Galei Zahal, Israel	HH, USB
2100	7100	Radio Ethiopia	Amharic
2100	7175	Radiodue, Italy (Sicily)	II
2100	7210	Radio Minsk, Belarus	
2100	7260	Radio Vanuatu	
2130	9735	Radio Sultanate of Oman	AA
2130	9960	Voice of Armenia	
2200	11720	Channel Africa, South Africa	
2200	11870	Radio Yugoslavia	
2200	11895	Far East Broadcasting Co. Philippines, via Germany	Tagalog
2230	11956	Radio Nacional, Angola	PP
2230	11980	KSDA, Adventist World Radio, Guam	
2230	12579	AFRTS, Diego Garcia	USB
2230	21680	Christian Voice, Australia	
2230	6995	Voice of the People of Kurdistan (clandestine)	Kurdish
2230	7365	Radio Marti, USA	SS
2230	9450	Voice of Russia	
2300	9495	Radio Sweden	
2300	9570	Qatar Broadcasting Service	AA
2300	9610	Adventist World Radio, Italy	
2300	9665	Voice of Russia, via Moldova	
2300	7125	RTV Guineenne, Guinea	FF
2315	9870	Trans World Radio, Monaco	
2330	11787	Radio Baghdad, Iraq	AA/EE
2330	11765	KNLS, Alaska	RR
2330	11820	Radio Polonia, Poland	
2330	15345	Radiodifusora Argentina al Exterior	SS
2330	9525	Voice of Indonesia	
2330	4992	Radio Ancash, Peru	SS

power up:
radios & high-tech gear

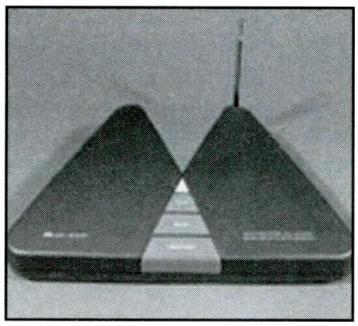
by Harold Ort and R.L. Slattery

review of new, interesting and useful products

New Midland Weather Radio Includes AM/FM Reception

Most people know that every home, school, and business should have a weather alert radio, but adding a new radio to your desktop or counter usually means more clutter and less space for something else. Midland Radio's new model WR-10 saves space by combining a standard AM/FM radio with their high-quality Weather/Hazard Alert monitor.

The WR-10 allows you to listen to your favorite AM or FM radio broadcast as it continues to silently monitor the local NOAA Weather Service broadcast in the background. The instant it receives a thunderstorm, tornado, flood, fire, or other severe weather or hazard alert, it automatically alerts you with a flashing LED and/or high volume warning tone, then switches reception to the NOAA broadcast for more details.



Instant 24-hour access to your local weather information is also available at your fingertips. Just tap the "Weather" button to hear your local NOAA broadcast. A backup battery allows operation during a power outage or outdoors (9-volt battery not included). An optional 12 Vdc adapter is available for use in any vehicle with a standard lighter/power plug, so you can take it along when traveling or camping. Convenient accessory jacks allow the addition of an extended range antenna or external devices such as strobe lights and pillow vibrators (sold separately).

Features include:

- All NOAA and Canadian weather/all-hazard channels up to 50 miles from transmitter for use almost anywhere
- Automatically switches to alert mode even when listening to AM/FM broadcasts
- User selectable 10 sec. 90 dB siren, flashing LED or voice-only alert
- Weather command button provides instant access to 24-hour-a-day weather information
- Operates on 110 V (wall adapter included); or 9 Vdc back-up battery (not included)
- Jacks for external antenna and external devices (not included)
- Size: 8-5D 8" W x 1-1D 2" H x 6-1D 4" D

The new Midland WR-10 is in stock and available for imme-

diate shipment, with an expected street price of $34.95. Midland Radio is a world leader in wireless two-way and weather/hazard alert radios. Midland carries an extensive line of weather monitor alert radios, CB, GMRS and FRS handheld and mobile radios. The oldest manufacturer of CB radios in the U.S., they have been making quality two-way radios since 1959. Midland also offers itinerant and professional Land Mobile radios and a line of quality antennas and accessories. Midland is an international company with affiliates in Europe, Asia, and the U.S.

For more information or personal assistance please contact Midland Radio Corporation, 1120 Clay Street, North Kansas City, MO 64116 or phone 816-241-8500. Visit their website at www.midlandradio.com. Dealer inquiries are always welcome. Please tell the folks at Midland you read about their new WR-10 in *Popular Communications*. Hazard warning service may not be available in all areas.

Jensen Tools Offers Platt Guardsman® Shipping Cases

These new cases from Platt are perfect for shipping electronic instruments, and your radios. They're constructed of HMW polyethylene thermoplastic with a continuous industrial frame to form strong, but lightweight shipping cases.

All hardware is recessed for easy stacking and protection during shipping. The cases are available as foam-lined (two-inch lining of foam on all sides) or foam-filled (filled with layers of dense 2 lb. foam). Each case features a full-length piano hinge, heavy-duty twist draw latches, a combination lock, and a spring-loaded handle. Models 373-107 and 373-108 (pictured) each come with four ball-bearing wheels and a telescoping handle.

Jensen Tools now offers Platt cases — ideal for storing or shipping your radio gear.

Jensen Tools, a division of the Stanley Works, is a premier tool kit designer and a leading full-line distributor of tools and test equipment. For more information, contact Jensen at 800-426-1194 or visit them online at jensentools.com. Be sure to tell them you read about the Platt shipping cases in *Pop'Comm*.■

by Bruce Conti <baconti@aol.com>

The Ewe: A Unidirectional Mediumwave Antenna

Because of the long wavelengths of mediumwave radio, it can be difficult to find the space for resonant unidirectional outdoor wire antennas. Wavelengths are anywhere from 579 feet at 1700 kilohertz to 1857 feet at 530 kilohertz. Unidirectional antennas of one-quarter wavelength to Beverage length (equal to one wavelength) are optimal, but open space is usually a limiting factor. Shorter antennas can perform well but won't exhibit the same unidirectional characteristics. A loop antenna is a good alternative to achieve bi-directional reception but it can be susceptible to indoor RF noise sources. A number of advances in wire antenna designs have provided mediumwave DXers with some viable options. An eighth to quarter wave sloping wire is a simple solution. Non-resonant Pennant and K9AY antennas can provide outstanding almost Beverage-like unidirectional reception. However these options still require an outdoor space where wires won't be a nuisance or attract attention. For anyone having to deal with such issues, the Ewe antenna just might be the perfect **unidirectional mediumwave antenna**.

The Ewe antenna was first introduced by Floyd Koontz, WA2WVL, in *QST* magazine, February 1995. Designed for amateur radio operation in the 80 to 160-meter bands, it wasn't long before mediumwave DXers discovered its usefulness. Unidirectional reception can approach Beverage standards with Ewe antenna front to back ratios of greater than 30 dB known to be possible. Even better, the Ewe is unimposing on the landscape if you have a couple of trees available to support the wire.

An Upside-Down U

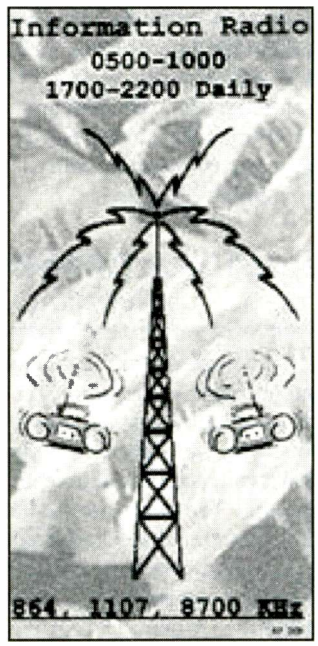
The Ewe is so called because the antenna wire takes the shape of an upside-down letter U. It consists of two vertical sections and a horizontal section. From the coax lead-in and appropriate RF matching transformer, the antenna wire runs vertically 20 to 50 feet high, then across horizontally 50 to 100 feet, and back down vertically to ground where it is terminated with 680 to 1000 ohms and a ground rod or radials. The vertical sections can run up and down tree trunks to conceal the antenna. For mediumwave reception the dimensions are very forgiving, although the greater the distance between the two vertical sections the better. The vertical sections are what produce the unidirectional characteristics. Think of the verticals as similar to two AM broadcast antennas with a phase relationship that reinforces signal strength in one direction while canceling the opposite direction. The Ewe directional reception is parallel the horizontal section following the path from the vertical connected to the lead-in to the terminated vertical.

Ewe Impedance Matching

The Ewe is a non-resonant short antenna for mediumwave, thus the antenna impedance should be relatively high with respect to the low impedance 50-ohm coax input of many communications receivers. Therefore an RF impedance matching transformer should be installed between the antenna and coax lead-in for peak efficiency and low noise. Antenna impedance can vary for any number of reasons including antenna size, ground conductivity, and surroundings. Some experimenting with transformer ratios might be necessary to obtain the best match. 2:1 to 4:1 ratios with the high impedance to the antenna are typical.

Termination Resistance

Determining the optimum termination resistance will also require some experimentation. Any resistance 680 to 1000 ohms will work, but some fine-tuning will maximize the front to back ratio. Like impedance matching, the value is dependant upon ground conductivity and other factors. Temporarily install a ceramic potentiometer in place of the terminating resistor. During daylight hours check any graveyard frequencies (1230, 1240, 1340, 1400, 1450, and 1490 kHz) where two or more radio stations are received.



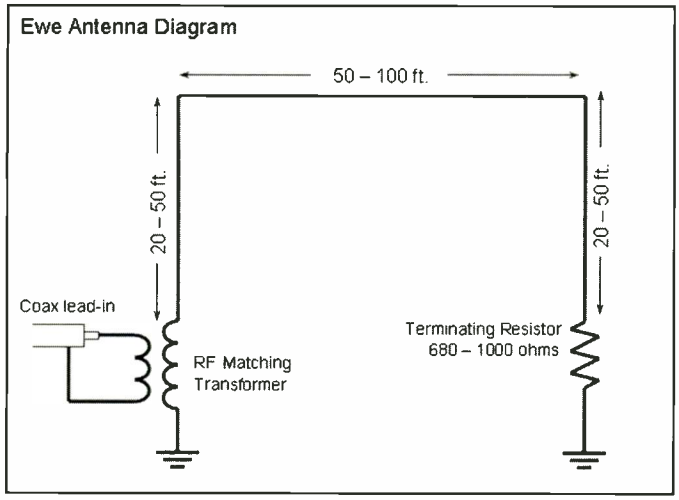
Leaflet for U.S. military information radio broadcasts to Afghanistan on 864, 1107 and 8700 kHz.

Determine the bearings of each station in relation to the direction of your Ewe antenna. Adjust the potentiometer for peak signals from radio stations in the direction of the antenna. Remove the potentiometer, measure the resistance, and replace with a carbon resistor of approximately the same value. Note that a wire-wound potentiometer or resistor should not be used because the windings can add impedance.

Testing is best during daylight hours when steady ground wave signals are available for measurements. The Ewe antenna is sensitive to ground conductivity. If the antenna doesn't seem to be providing a satisfactory degree of unidirectional reception, then try reinforcing the ground system with additional rods and radials. DXers living in desert or arid locations may need an extensive grounding system for a successful Ewe installation.

DX Test

Monday, January 7, 2002, **KTNS 1090**, Oakhurst, California, will conduct a DX



Ewe antenna diagram.

test from 12 to 1 a.m. Pacific Time. KTNS ("Kittens AM 1090") will broadcast using a power of 1,000 watts non-directional. Tones and Morse Code IDs identifying KTNS will be broadcast, along with their regular Music of Your Life format of adult favorites from Jones Satellite Audio. Reception reports (with return postage) may be sent to: Larry Gamble, General Manager, KTNS-AM, P.O. Box 2020, Oakhurst, CA 93644. E-Mail: mtkaat@sierratel.com. (Lynn Hollerman, IRCA)

Attention radio stations: If you would like your station's DX test listed, a minimum of two months advance notice is required to meet publication deadlines here. You may send info to *Popular Communications* c/o Broadcast Technology or by E-mail to BAConti@aol.com.

QSL Information

639 CNR Beijing, China, received QSL cards for 639 and 945 kHz in 30 days for a taped report and $1 U.S. return postage, not signed, just China National Radio. Address: P.O. Box 4501, Dept. Audience, China National Radio, Beijing, China. (Martin, OR)

870 KRLA Glendale, California, QSL card in 155 days, signed by CE Bill Sheets, KF6SC. Address: 701 North Brand Blvd #550, Glendale, CA 91202. (Martin, OR)

1010 KCMJ Thousand Palms, California, QSL forms verifying KCMJ, KNWZ, and KXPS along with a KCMJ 1140 mug, KXPS cups, KNWZ key chains, KXPS and KNWZ fridge magnets, in 27 days after three follow-ups, signed by new CE Jay White of The Desert Radio Group. Address: 1321 N. Gene Autry Trail, Palm Springs, CA 92262. (Martin, OR)

1160 WAMB Donelson, Tennessee, QSL letter and stickers in 48 days, mentioning that my tape was indeed them under KSL and that they were surprised as WAMB protects KSL at night, running 1 kW, signed W.C. Baird Jr., VP. Address: 1617 Lebanon Rd, Nashville, TN 37210. (Martin, OR)

1180 WJNT Pearl, Mississippi, full data letter with IRCA logo and station sticker in 12 days for special DX test, signed Stan Carter, CE. Address: P.O. Box 1248, Jackson, MS 39215-1248. (Griffith, CO)

1630 WTEL Augusta, Georgia, after several follow-ups and over a year of waiting I finally received a QSL letter, signed Harley Drew, Op Director. Address: P.O. Box 211045, Augusta, GA 30917. I only need KYEA 1680 to have all of the x-band stations QSL'd again. (Martin, OR)

88.7 WERN Madison, Wisconsin, heard at my home in Streamwood, Illinois (30 miles west of Chicago) when the local station was off the air, using a folded dipole antenna in the attic of a single-level home; was a 9-10 a.m. Sunday morning band opening (by comparison, typical range is from here to 98.3 WCCQ in Joliet, Illinois). Contact information for WERN: Peter Kingslein, Director of Engineering, Educational Communications Board, 3319 W. Beline Hwy, Madison, WI 53713. (Spies, IL)

Your Broadcast Loggings

Auroral conditions and DX tests are producing some interesting results, and pirate or Part 15 activity is heating up not only in Massachusetts, but now in Connecticut. First Paul McDonough of BADX updates questionable Haitian broadcasts:

"This is a listing of Haitian-Creole radio stations in the Boston, Massachusetts, area as listed in the *Boston Haitian Reporter* (page 17, Oct 2001). I'm listing only 24-hour Haitian stations as there are many Haitian-Creole programs listed that are on regular (licensed) stations. I'm not listing any FM stations due to short range."

1580 kHz — Radio Concorde
1620 kHz — Radio Energy
1620 kHz — Radio Soleil
1640 kHz — Radio Nouveaute
1670 kHz — Radio RCB
1700 kHz — Bel Ayiti (Beautiful Haiti)

"Note the clash on 1620 kHz. I haven't heard Radio Soleil or ID'ed the 1670 station." (McDonough, MA) Radio Soleil is located in Brockton, Massachusetts.

Now this month's selected logs, all times are UTC.

570 KLAC Los Angeles, California, at 0730 with weather for the southland and mention of KLAC, totally topping KVI, which is rare with very auroral conditions. (Martin, OR)

620 WTMJ Milwaukee, Wisconsin, heard as far south as Joliet, Illinois, in a car (using the standard Nissan radio & antenna)! (Spies, IL)

690 KTSM El Paso, Texas, at 0520 a super loud signal, wonder if they were on day pattern? Dreamland program with ID following commercial break at 0534, "News/Talk 690 KTSM, a Clear Channel station." (Griffith, CO)

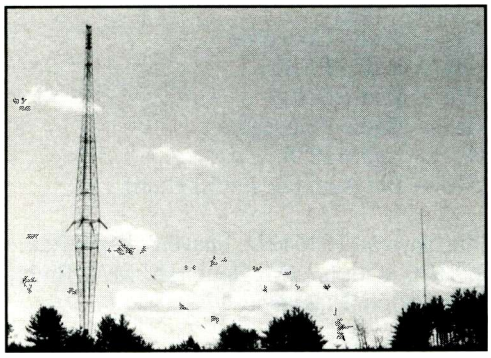
820 R. Paradise/Trinity Broadcasting, Charlestown, St. Kitts & Nevis, at 2326 no ID, but very likely this is Nevis on a new frequency with U.S.-accented religion. 830 kHz had R. Sensaciun from Caracas, Venezuela. (Burnell, NF) At 0308 fervent preaching clearly parallel 7510 kHz, was over/under WNYC. The move to 820 from 830 kHz improves audibility of this in the metro-Boston area since, at least during aurora; interference from WNYC 820 is nowhere near as tough as that from

Pending

New Call	Location	Freq.	Old Call
WXMT	Conway, NH	1050	WBNC
KBRE	Merced, CA	106.3	KIBG
WYPR	Baltimore, MD	88.1	WJHU

Changes

New Call	Location	Freq.	Old Call
KYAA	Soquel, CA	1200	KOQI
KATJ	Victorville, CA	1590	KROY
WWGA	Waycross, GA	1230	New
WXNT	Indianapolis, IN	1430	WMYS
WDND	South Bend, IN	1620	WHLY
WNZT	Hermon, ME	1230	New
WNZS	Veazie, ME	1340	New
WWNZ	Veazie, ME	1400	New
KOZN	Bellevue, NE	1620	KAZP
KWUD	Woodville, TX	1490	KVLL
WHFA	Poynette, WI	1240	WIBU
WBPT	Birmingham, AL	106.9	WODL
WODL	Homewood, AL	97.3	WRLR
KOAS	Dolan Springs, AZ	105.7	KBYE
KWDO	Waldo, AR	99.1	New
WJZY-FM	Gray, GA	96.5	WRNC-FM
WXVV	Peachtree City, GA	96.7	WLDA
KBYR-FM	Rexburg, ID	91.5	KPRI
WXTW	Auburn, IN	102.3	WXTE
WAMW-FM	Washington, IN	107.9	WYER
KSMA-FM	Osage, IA	98.7	KWMM
WBVX	Carlisle, KY	92.1	WSTL
WUBT	Russellville, KY	101.1	WZTO
KNSN	Atlanta, LA	106.5	New
WWZP	Freeland, MI	90.9	New
KCLH	Caledonia, MN	94.7	KSFF
KSMW	West Plains, MO	90.9	New
KLTC-FM	Superior, MT	107.5	KREO
KOLT-FM	Bridgeport, NE	101.3	KAWQ
KOZY-FM	Gering, NE	103.9	KOLT-FM
KVUW	Wendover, NV	102.3	KOAS
WCFR-FM	Walpole, NH	96.3	WLPL
KZNM	Los Alamos, NM	106.7	KKPL
WAOZ	Hazleton, PA	97.9	WXBE
WEOZ	Olyphant, PA	95.7	WXAR
WBUZ	Shelbyville, TN	102.9	WZPC
WLOD-FM	Sweetwater, TN	98.3	WDEH-FM
KLSN	Hudson, TX	96.3	New
WXKK	Springfield, VT	93.5	WCFR-FM
WDBS	Sutton, WV	97.1	WCKA



WFEA Manchester, NH, on 1370. The phase relationship between the main tower and short stick antenna creates a directional pattern.

WCRN 830. With the new arrangement, the slop from local WEEI 850 is also less of a problem. (Connelly, MA)

910 WSTK Jacksonville, North Carolina, at 0158 fair with a break for station identification during North Carolina Hurricanes hockey play-by-play. (Conti, NH)

910 LR5 La Red, Buenos Aires, Argentina, at 2206 sports talk, as always many "en La Red" mentions. (Burnell, NF)

940 XEQ Mexico City, Mexico, at 0555 good with telephone talk about President Fox, then national anthem and full ID, "Enamorada 940, escuchando XEQ . . ." over WMAC with CINW knocked out by aurora. (Conti, NH)

1000 RCN Cartagena, Colombia, at 0320 good; "Nocturna RCN, la ultima en noticias," futbol promo, and "RCN la radio de Colombia" jingle. (Conti, NH)

1000 R. Caribena, Morun, Venezuela, at 0403 "Radio Caribena, la seoal del Caribe" and classic salsa fading in and out of RCN Colombia. (Conti, NH)

1060 KDUS Tempe, Arizona, at 0400 sports talk with "The valley sports authority, AM 1060, The Deuce" ID, Tempe/Phoenix dual ID at 0505, good in null of local KLMO. (Griffith, CO)

1060 WIXC Titusville, Florida, at 0625 with nostalgia, "Great American classics. . .Wix-cee 1060" at even level with KYW. (Conti, NH)

1070 KFTI Wichita, Kansas heard briefly on top of KNX with older C&W music and "KFTI weather" for Wichita at 0315, then "AM 1070, KFTI" into Coat of Many Colors by Dolly Parton. (Martin, OR)

1110 XEWR Ciudad Juarez, Mexico, at 2250 a remarkable signal with '50s and '60s oldies, frequent "Classic 1110" IDs, and "More Music" jingles in English but all other announcements in Spanish. They were S+12 on the loop with few slight fades showing another Spanish station weak underneath, S+3 on a 20 foot indoor wire that I use for locals. These guys must have gotten a power increase! No sign of usual KFAB at all. (Griffith, CO)

1130 CKWX Vancouver, British Columbia, at 0522 solid with no competition, frequent "News 1130" IDs, weather with temperature 12 degrees "in the valley." (Griffith, CO)

1150 LT9 R. Brigadier Lopez, Santa Fé, Argentina, at 2249 ads and fanfare, "LT9" ID. (Burnell, NF)

1160 WBOB Florence, Kentucky, at 0245 good with ad string and promo, "It's Mike, Monday morning at six on ESPN 1160

Bob" in WMVI null, first time heard. (Conti, NH)

1200 KSRK Soquel, California, heard with talk and ID at 0059, "You're listening to KSRK AM 1200 and KYAA AM 540," formerly KYAA, KOQI. (Martin, OR)

1220 WHK Cleveland, Ohio, at 0300 fair, "1220 WHK Cleveland, 1440 WHKW Warren, Youngstown," and SRN news, through CJUL and unidentified stations. (Conti, NH)

1230 WODI Brookneal, Virginia, special DX test at 0500 with Morse code IDs. I was barely able to pick out their code signal in the hash, but I indeed managed to do so this morning! This was my first test broadcast and I was glad I was able to get this one! Thanks for the heads up in *Pop'Comm*! (Wilden, IN) Thanks for the heads up on the DX test. It worked for me, I really enjoy them. Received E-mail reply to report with QSL to be sent shortly. (Line, MI)

1290 KAZA Gilroy, California, finally after years of trying logged this with old Spanish romantic ballads and "Kaa-Za" announcement at 0140, soon lost to KPAY. Listed as 88 watts at night directional south, so not much signal this way. (Martin, OR)

1530 WSAI Cincinnati, Ohio, heard in my car and at home, most nights after the local station signs off, reception reports sent. (Spies, IL)

1620 Radio Avivamiento, Hartford, Connecticut, is really putting out a very strong signal with both their AM & FM stations. The AM signal covers about 10 to 15 miles including all of Hartford, East Hartford, West Hartford, and parts of Farmington, Bristol, and Glastonbury (it doesn't even suffer driving by the AM towers for WLAT 910 or the TV towers for WTIC Fox 61), the signal coverage and strength is excellent! The FM signal at 89.7 MHz covers at least 25 miles, between Hartford and Meriden. (Walker, CT)

Thanks to Jean Burnell, Mark Connelly, Patrick Griffith, Lynn Hollerman, Rich Line, Patrick Martin, Paul McDonough, Klaus Spies, Paul Walker, and Sue Wilden. 73 and good DX! ■

on-the-go radio

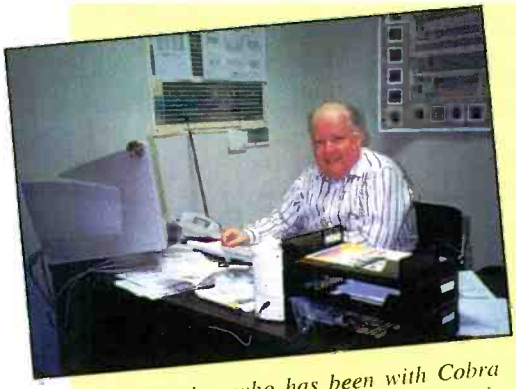
around the block, around the world-personal radio keeps YOU in touch

by Harold Ort

Inside Cobra Electronics Corporation

Over the past few months you've asked for a peek inside Cobra and other radio manufacturers and dealers, so this month we present a special, exclusive look inside Cobra Electronics. Cobra Electronics Corporation is one radio company that's been around as long as I can remember, and then some — more than 40 years to be exact. Its track record of innovation has resulted in many market "firsts" and award-winning products. One of my favorite CBs is its old 142 GTL base, which I still use today; it's never been in the shop, and I've never had occasion to open the cabinet to do something stupid with a screwdriver or soldering gun. I recently took a grand tour of Cobra's Chicago facility, met the Cobra team, and frankly was impressed with the quality of the operation, but the people as well. Let's face it; a company can't be around as long as Cobra without doing a lot right!

Cobra is a leading global manufacturer of two-way mobile radio products designed to keep you in touch at home and on the road. Products include Family Radio Service (FRS) two-way radios, radar detectors, the new line of microTALK GMRS transceivers, power inverters, and of course CB transceivers. They lead the CB radio and radar detection markets, and are a leading FRS provider around the world. Cobra's Senior Vice President, Marketing and Sales, Tony Mirabelli, proudly told us, "When many thought CB was dead, we continued to innovate and introduce new products." True statement, for sure. Cobra continues to make CB a viable communications tool for professional drivers and families wishing to stay in touch, get directions, and traffic and weather reports. Cobra's innovative features include 10-channel NOAA weather reception, dual watch (which allows a user to monitor two different stations simultaneously), SoundTracker noise reduction system and last channel memory. It still offers the larger, classic mobile CBs with AM and sideband, as well as newer models, including the 19 DX II which fits in almost



Bob Mudra, who has been with Cobra Electronics since 1998, is the company's engineering manager.

David Oliva, Cobra's Director, Microwave Engineering holds the ESD 9850 and XR 1010 radar detectors.

Here's Senior Project Engineer Charles Warner evaluating a CB rig.

Meet Quality Assurance Manager, Reggie Pollard, checking radar detectors returned for service.

Working on that beautiful 29 LTD NW Limited Edition is Senior Quality Assurance Inspector, Sochenda Taing.

Cobra's FRS-117 with detachable faceplate.

Cobra Products Sampling And Suggested Retail Prices

Product	Suggested Retail	Basic Features
Citizen's Band (CB)		
18 WX ST II	$109.95	NOAA weather reception, weather alert
19 DX II	$69.95	Compact and sleek design
25 LTD WX	$129.95	
29 NW ST	$199.95	
148 NW ST	$289.95	
75 WX ST	$159.95	
29 WX NW ST	$219.95	
29 Nightwatch Classic	$219.95	
25 WX NW ST	$179.95	
25 LTD Classic	$129.95	
Citizen's Band Handhelds		
HH37ST	$89.95	
HH38 WX ST	$119.95	
Family Radio Service (FRS)		
microTALK FRS 110-2	$89.95	
microTALK FRS 115	$89.95	
microTALK FRS 120-2	$89.95	Removable SNAP faceplates in 30 colors
microTALK FRS 220 & 220-2	$59.95 (single) & $119.95 (pair)	
microTALK FRS 225-2	$119.95	Water resistant, SNAP removable faceplates and 38 sub channels
microTALK FRS 117	$79.95	Includes FM radio, SNAP removable faceplates, 38 sub channels
microTALK FRS 305	$79.95	
microTALK FRS 315WX	$109.95	
General Mobile Radio Service (GMRS)		
microTALK PR1000	$139.95	Call alert, roger beep to signal end of transmission. Professional.
microTALK PR 2000WX	$179.99 each	NOAA weather reception, weather alert, call alert, roger beep, dual watch
PR900-DX	$109.95 each, $149.95 per pair	
Radar Detectors		
ESD 9000	$109.95	
ESD-9100	$129.95	
ESD-9200	$159.95	
ESD-9550	$219.95	
ESD-9850	$249.95	
XR-1050	$399.95	Digital data readout, high-speed processor
ESD-9220WX	$189.95	NOAA weather reception, weather alert
ESD-9150	$139.95	Electronic compass
XR1010	$329.95	
Power Inverters		
HG PI150	$94.95	One grounded AC receptacle, 150 watts continuous, 300 peak, hooks to cigarette lighter
HG PI300	$79.95	Two grounded AC receptacles, 300 watts continuous, 500 peak, hooks to cigarette lighter or direct to battery with supplied cables
HG PI500	$139.95	Three AC receptacles, 500 watts continuous, 1000 peak, hooks direct to battery terminals with supplied eight-gauge cables
HG PI1000	$309.95	Three AC receptacles, 1000 watts continuous, 2000 peak, hooks direct to battery terminals with supplied four-gauge power cables
HG PI2000	$549.95	Three AC receptacles, 2000 watts continuous, 4000 peak, hooks direct to battery terminals with supplied four-gauge power cables (two sets)
CPI 150	$29.99	
CPI 300	$49.99	
HighGear Products		
High-Power center-load Antennas	$79.95	
Fiberglass Whip Antennas	$24.95 to $29.95	
External Speakers	$24.95 to $29.95	
High-Quality CB Microphones	$79.95	

2002 COBRA ON TOUR SCHEDULE
(All stops are tentative at press time)

Jan. 3	FJ Travel Plaza	St. Augustine, Fl
Jan. 7	FJ Travel Plaza	Fort Pierce, Fl
Jan. 8	Pilot Travel Center	Fort Pierce, Fl
Jan. 10	Pilot Travel Center	Fort Myers, Fl
Jan. 14	FJ Travel Plaza	Dade City, Fl
Jan. 16	Petro Stopping Center	Ocala, Fl
Jan. 17	Speedway	Ocala, Fl
Jan. 21	FJ Travel Plaza	Lake Park, Ga
Jan. 23	Williams Travel Center	Tallahassee, Fl
Jan. 24	FJ Travel Plaza	Tallahassee, Fl
Jan. 28	Pilot Travel Center	Marianna, Fl
Jan. 30	Pilot Travel Center	Warner Robins, Ga
Feb. 1	FJ Travel Plaza	Jackson, Ga
Feb. 5	Williams Travel Center	Temple, Ga
Feb. 7	Petro Shopping Center	Bucksville, Al
Feb. 8	Williams Travel Center	Priceville, Al
Feb. 13-14	Tiffin Motor Homes	Red Bay, Al
Feb. 18	FJ Travel Plaza	Fairview, Tenn
Feb. 21	FJ Travel Plaza	Franklin, Ky
Mar. 4	Pilot Travel Center	Pendleton, Ky
Mar. 9-17	Home	
Mar. 21-23	Mid-America Show	Louisville, Ky
Mar. 26	Pilot Travel Center	Columbus, Ohio
Mar. 27	FJ Travel Center	Berskshire, Ohio
Mar. 29	Pilot Travel Center	Lodi, Ohio
April 1	FJ Travel Plaza	Carlisle, Pa
April 2	Petro Stopping Center	Carlisle, Pa
April 4	Petro Stopping Center	Elkton, Md
April 5	Petro Stopping Center	Ruther Glen, Va
April 9	Pilot Travel Center	Dubois, Pa
April 10	Petro Stopping Center	Milton, Pa
April 12	Pilot Travel Center	Scranton, Pa
April 15	Petro Stopping Center	Scranton, Pa
April 17	Pilot Travel Center	Kirkwood, NY
April 19	FJ Travel Plaza	Preble, NY
April 23	Pilot Travel Center	Syracuse, NY
April 25	Pilot Tavel Center	Milford, Ct
April 27-May 4	Home	
May 7-8	New Haven E. Travel Center	Branford, Ct
May 12	Make A Wish Convoy	Lancaster, Pa
May 14	Williams Travel Center	Beverdam, Ohio
May 16	Petro Stopping Center	N. Baltimore, Ohio
May 20	Pilot Travel Center	Dexter, Mi
May 22	Petro Stopping Center	Stony Ridge, Ohio
May 28	Williams Travel Center	Lowell, In
May 29	FJ Travel Plaza	Indianapolis, In
May 30	Pilot Travel Center	Indianapolis, In
May 31	FJ Travel Plaza	Spiceland, In
June 3	Pilot Travel Center	Greenfield, In
June 5	Williams Travel Center	Brazil, In
June TBA	New Lisbon Travel Center	New Lisbon, In
June TBA	I-69 Travel Center	Gasion, In
June TBA	Hoosier Heartland T/C	Remington, In
June TBA	Ross Point T/C	Greensburg, In
June TBA	Indy 500 Travel Center	Whitestown, In
June 21	Pilot Travel Center	Minooka, Ill
June 24	Pilot Travel Center	Princeton, Ill
June 26	FJ Travel Plaza	La Salle, Ill

July 9-10	Petro Stopping Cemter	Rochelle, Ill
July 11-12	1-80 Walcott Jamboree	Walcott, Ia
July 15	FJ Travel Plaza	Davenport, Ia
July 17-18	Kwik-Trip	Wilson, Wi
July 19	Petro Stopping Center	Racine, Wi
July 22	Petro Stopping Center	Portage, Wi
July 23	Pilot Travel Center	Mauston, Wi
July 24-25	Kwik-Trip	Mauston, Wi
July 26	Truckers Inn	Sauk Centre, Wi
July 29	FJ Travel Center	Fargo, ND
July 30	Petro Stopping Center	Fargo, ND
Aug. 1	Pilot Travel Center	Sioux Falls, SD
Aug. 2	FJ Travel Plaza	Sioux Falls, SD
Aug. 6	Pilot Travel Center	Council Bluffs, Ia
Aug. 8	Pilot Travel Center	Des Moines, Ia
Aug. 9	FJ Travel Plaza	Clive, Ia
Aug. 13	Wilco Fast Break	Palmyra, Mo
Aug. 14	Petro Stopping Center	Oak Grove, Mo
Aug. 16	Williams Travel Center	Hayti, Mo
Aug. 19	FJ Travel Plaza	Matthews, Mo
Aug. 22	Pilot Travel Center	Troy, Ill
Aug. 26	Huck's Travel Center	Mt. Vernon, Ill
Aug. 28	Dixie's Trucker's Home	Effingham, Ill
Aug. 29	Petro Stopping Center	Effingham, Ill
Aug. 31-Sept. 7	Home	
Sept. 10	FJ Travel Plaza Bargan Show	S. Beloit, Ill
Sept. 23	Petro Stopping Center	Joplin, Mo
Sept. 24	Petro Stopping Center	N. Little Rock, Ar
Sept. 25	Pilot Travel Center	N. Little Rock, Ar
Sept. 27	FJ Travel Center	Texarkana, Ar
Sept. 30	Williams Travel center	Russelville, Ar
Oct. 2	Pilot Travel Center	Roland, Ok
Oct. 3	FJ Travel Plaza	Checotah, Ok
Oct. 7	FJ Travel Plaza	Dallas, Tx
Oct. 8	Pilot Travel Center	Dallas, Tx
Oct. 9	Williams Travel Center	Dallas, Tx
Oct. 11	FJ Travel Center	Greenwood, La
Oct. 14	Petro Stopping Center	Shreveport, La
Oct. 15	Williams Travel Center	W. Monroe, La
Oct. 17	Pilot Travel Center	Rayville, La
Oct. 19-26	Home	
Oct. 28	Pilot Travel Center	Jackson, Ms
Oct. 29	FJ Travel Center	Pearl, Ms
Oct. 30	Petro Stopping Center	Jackson, Ms
Oct. 31	Williams Travel Center	Flowood, Ms
Nov. 4	FJ Travel Plaza	Bessemer, Ala
Nov. 5	Pilot Travel Center	Birmingham, Ala
Nov. 8	Petro Stopping Center	Atlanta, Ga
Nov. 11	Petro Stopping Center	Carnesville, Ga
Nov. 12	Williams Travel Center	Madison, Ga
Nov. 14	Pilot Travel Center	Augusta, Ga
Nov. 18	FJ Travel Plaza	Columbia, SC
Nov. 20	FJ Travel Center	Dillion, SC
Nov. 22-29	Home	
Dec. 2	Petro Stopping Center	Florence, SC
Dec. 3	Pilot Travel Center	Florence, SC
Dec. 4	Williams Travel Center	Florence, SC
Dec. 6	FJ Travel Plaza	Brunswick, Ga
Dec. 9	Pilot Travel Center	Brunswick. Ga
Dec. 11	Williams Travel Center	Kingsland, Ga
Dec. 12	TA Travel Center W.	Jacksonville, F
Dec. 13	TA Travel Center E.	Jacksonville, Fl
Dec. 15-28	Vacation	

any vehicle on the road today and is super easy to install.

Forbes' 200 Best Small Companies

Cobra Electronics is ranked among Forbes' 200 Best Small Companies, and has attained the number two position in every market in which it is currently doing business. It's currently the only manufacturer offering GMRS products in pairs, sold at national and regional retailers such as Sears, Best Buy, Ace Hardware and Amazon.com.

For more information about Cobra Electronics Corporation, visit them online at cobra.com or write to Cobra Electronics Corporation, 6500 W. Cortland St., Chicago, IL 60707, phone 773-889-8870. Tell them you read about Cobra in *Popular Communications* magazine! ■

Compact, yet great audio — it's the Cobra's 18 WX ST II mobile CB.

With a suggested retail price of $179.99 each, the PR 2000 WX is a full-featured GMRS handheld.

Here's Emily Lopez, a Cobra customer service representative.

Cobra's huge warehouse in Chicago is chock full of radio gear.

washington beat

Capitol Hill and FCC actions affecting communications

by Laura Quarantiello <lauraq@cts.com>

President Signs Anti-Terrorism Surveillance Bill

President Bush has signed into law a bill giving law enforcement new powers to fight terrorism. The bill, which quickly passed through both the House and Senate, makes terrorism a valid reason for federal officials to obtain a wiretap order (roving wiretap) and apply that order to any phone a suspect uses, as well as allowing federal officials to obtain nationwide search warrants for terrorism investigations, including warrants for computer information such as billing records. The new wiretapping and surveillance powers are only in place until December 31, 2005, when they are set to expire. Privacy proponents who are concerned about the new law should rest easier knowing that a provision has been added which allows people to sue the government if information gained through the new wiretapping and surveillance powers are leaked. For a 30-page summary of the new laws, see Field Guidance on New Authorities (redacted)enacted in the 2001 Anti-Terrorism Legislation at www.epic.org/privacy/terrorism/DOJ_guidance.pdf.

Priority Access To Wireless Networks Proposed During Emergencies

The White House has entered into an agreement with Verizon Wireless to allow federal officials priority access to its New York and Washington networks during emergencies. According to the *Washington Post,* similar agreements are being sought with other wireless companies nationwide. Priority access would have helped in the hours following the September 11 terrorist attacks, when cellular networks were overloaded and many calls could not be completed. Under the new plan, up to 500 federal officials could dial a special code that would give their calls priority on wireless networks. Following an FCC waiver, which is expected, Verizon claims it will have the system in place quickly for initial rollout in Washington, New York, and Salt Lake City. A nationwide rollout is expected by the end of 2002 with up to 50,000 officials given priority status during emergencies.

Monitoring Terrorists

Is it time to repeal the Electronic Communications Privacy Act? That's what a Michigan ham radio operator claims we must do to help combat terrorism. Lloyd Ellsworth, NE8I, recently circulated a letter to Congress saying that the events of September 11, 2001, warrant giving the public the ability to again **monitor cellular communications** and report possible security threats. Currently, the ECPA restricts anyone from using a receiver to listen to cellular telephone calls, as well as forbidding the importation or sale of equipment capable of easily monitoring those signals. "If you have an area [of spectrum] — for example 800 to 900 MHz — where cell phones operate — a terrorist could also conveniently operate there and not easily be caught. You would (need to) have someone specialized who had that [monitoring] equipment to receive him," according to Ellsworth.

FCC To Auction TV Channels For Wireless Spectrum

The Federal Communications Commission is set to auction a slice of spectrum currently being used by TV stations. The spectrum, **used by channels 60 through 69**, will be put on the block in June 2002 and is expected to be snapped up by wireless companies. Use will be subject to private arrangements between the broadcasters and the bidders, a fact that has some displeased. Senate Commerce Committee chairman Ernest Hollings (D-SC) voiced his disappointment with the deal to FCC Chairman Michael Powell, saying "Under no circumstances should the FCC turn this authority over to others. . . Simply put, spectrum is a public resource that is to be used according to the laws prescribed by Congress and not based on the dictates of industry." The FCC was petitioned by some TV broadcasters to allow deals in which wireless companies could pay broadcasters to vacate the spectrum sooner than the end of 2006 (or when the penetration rate for digital TV in the U.S. reaches 85%, whichever comes later), when TV stations currently residing in that part of the spectrum should be transitioned to digital. In a letter to Hollings, Chairman Powell was quoted as saying: "I do believe that, by these efforts, the United States Treasury and American consumers will ultimately be compensated with greater auction returns and more valuable service offerings, respectively."

ARRL: No Commercial Users In 2390–2400 MHz

The ARRL has petitioned the FCC to forego making any commercial allocations in the 2390–2400 MHz Amateur Band (ET Docket 00-258). The League did suggest that hams share the band with government services displaced by advanced wireless systems, but only if it's absolutely necessary.

S.1438: Military Surplus Radios Taboo?

A new Senate bill focusing on Department of Defense appropriations has collectors of military surplus radios concerned. The legislation, S.1438, contains a provision (Sec. 1062) which would create governmental authority to **"ensure demilitarization of significant military equipment"** formerly owned by the Depart-ment of Defense. Could this mean that hobbyists who own military surplus "boat anchor" radios need to have them demilitarized or return them to the government for demilitarization? According to ARRL Legislative and Public Affairs Manager Steve Mansfield, N1MZA "We did contact one of the top lawyers for the Senate Committee on Armed Forces, where the provision was added to the bill, and he assured us that it would not be an issue unless a ham somehow had custody of some kind of top-secret and highly sophisticated military radio gear." The bill is mainly aimed at controlling export of firearms to foreign countries. ■

by Keith Stein <kstein@erols.com>

space monitor

how to hear voices from the cosmos

NASA Plans Uninhabited Aerial Vehicle Flights

NASA's Wallops Flight Facility, Va., is planning their first flight of a BAI Aerosystems "Tactically Expendable Remote Navigator" Uninhabited Aerial Vehicle (TERN UAV) early this year, according to a Commerce Business Daily announcement released recently.

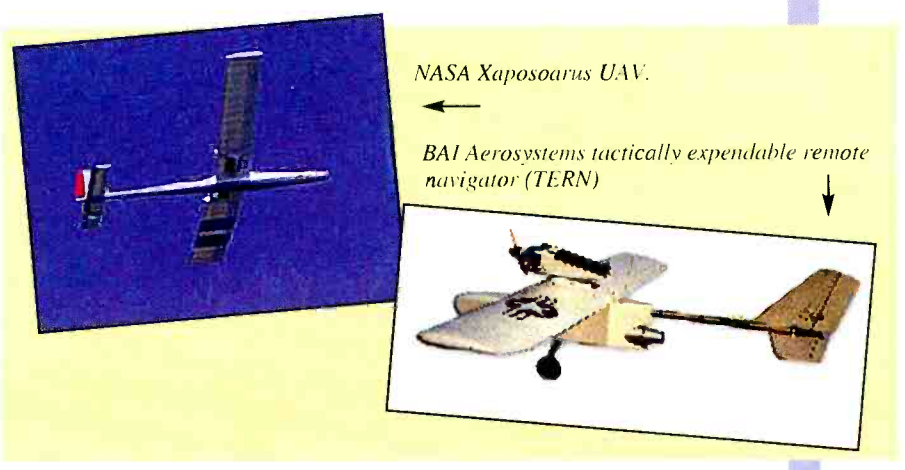
The three separate test series will be conducted on the following dates: Test Series One — Jan. 7 through Jan. 31; Test Series Two — Feb. 1 through Feb. 28; and Test Series Three — March 1 through March 29.

Geoff Bland, a scientist in the Observational Science Branch of the NASA's Goddard Space Flight Center, Greenbelt, Md., told *Popular Communications Magazine*, that three flights will be performed in January without a payload, three flights in February will carry a $10,000 micro spectrometer, and three flights in March will carry a $100,000 27-pound hyper spectral imager provided by Goddard. One back-up flight will complete the 10 flight series.

NASA program managers began holding technical information, and documentation meetings in mid-December to prepare for these test flights. BAI Aerosystems, Inc., of Easton, Md. will perform flight operations from Ragged Island, Md., and Wallops Island, Va., according to the programs schedule obtained from NASA Wallops.

The TERN is designed to carry a scientific payload of instruments weighing up to 35 pounds during each flight operating within a 125 nautical mile radius, Bland said.

NASA has been flying research spectrometers onboard aircraft in order to validate and calibrate results obtained from Earth orbiting satellites. Both satellite and aircraft instruments measure the sunlight reflected from the oceans and from those color spectra measure chlorophyll and other substances in the world's ocean. These measurements are important in monitoring global carbon levels, and in studying global warming.

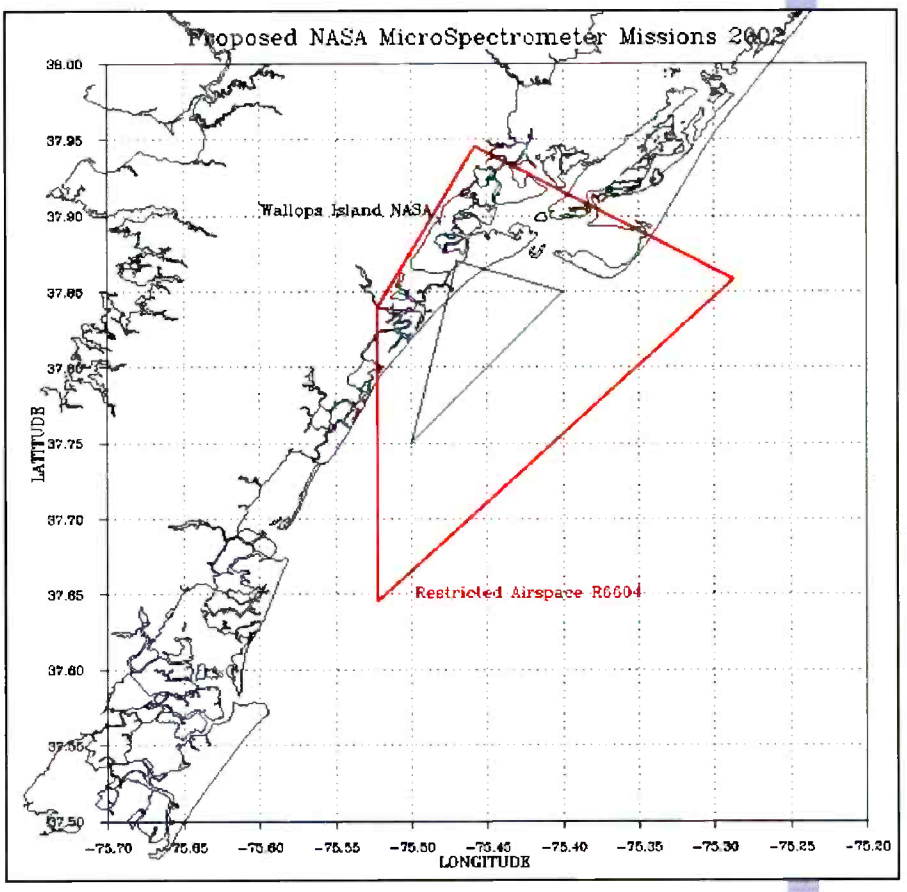


NASA Xaposoarus UAV.

BAI Aerosystems tactically expendable remote navigator (TERN)

The NASA Airborne Oceanographic Lidar project at Wallops Island, Virginia. has been test flying a small spectrometer using a laptop computer as a data collection system onboard a Twin Otter aircraft in order to compare the data quality with other research spectrometers.

Now NASA is investigating flying



Proposed NASA micro spectrometer mission 2002.

Keith Stein is the editor of Space & Missile Defense Report (http://www.kingpublishing.com). You can contact him via E-mail at kstein@erols.com.

Preliminary Wallops UAV Airborne Science Schedule

2003 — Over-the-horizon test (Satcom/Autopilot)
2004 — Super TERN development
2005 — Micro Spectrometer (Gulf Stream) and VIFIS Hyperspectral (Beltsville, Md.) science missions.
2006 — Permanent UAV science capability at Wallops

NASA Wallops Flight Facility Area Frequency List

121.700 — AM mode — Patuxent Clearance Delivery
121.950 — AM mode — NASA Contractor Range Surveillance Aircraft
126.500 — AM mode — Common Traffic Advisory Frequency/Tower
127.950 — AM mode — Patuxent Approach/Departure Control
132.550 — AM mode — Washington Center
134.100 — AM mode — Patuxent Approach/Departure Control
311.200 — AM mode — NASA Contractor Range Surveillance Aircraft
314.000 — AM mode — Patuxent Approach/Departure Control
353.600 — AM mode — Washington Center
394.300 — AM mode — Tower

Automated Weather Observation Station used by Ragged Island — AM mode on 124.475 MHz.

micro spectrometers on UAVs. In order to minimize the size of the system, so that the micro spectrometer could be flown on a UAV, a palmtop computer has replaced the laptop as a data collection device. The micro spectrometer weighs 2.5 pounds; it's self-powered, and can collect data for approximately four hours. This will allow installation on a BAI Tern UAV, or NASA's Xaposoarus UAV. The initial test missions scheduled for this year will occur in the restricted airspace over the Atlantic Ocean east of Wallops Island Va, with future missions extending to the Gulf Stream.

The first flights will be line-of-sight from Wallops Island. Should these flights return successful results, procedures for over-the-horizon flights would be developed and tested in the Wallops restricted airspace, eventually resulting in advanced science UAV missions to the Gulf Stream east of the Outer Banks, North Carolina.

Down The Pike

Future efforts are focused on achieving altitudes of 30,000 feet as well as enabling flights into storms. NASA hopes to use these UAV platforms for science instruments, providingexpanded opportunities for science missions.

Present manned aircraft science missions are fairly cost effective, however the logistics of scheduling manned aircraft, installing and testing remote sensing instruments, standing by for clear weather, and flying the missions, is generally in conflict with the need for aircraft to fly frequently to be cost effective. The result is present manned aircraft missions are rigidly scheduled during specific times over a year. Many good opportunities for collecting data are missed when those occasions occur outside the manned aircraft schedule.

NASA Wallops currently has a P-3B/Orion (tail number N426NA, call sign NASA426), C-130Q (tail number N427NA, call sign NASA427) in their inventory of airborne science aircraft. As a side note, NASA Wallops has retired its range surveillance Fokker-27 aircraft (tail number N432NA, call sign NASA432). According to information obtained from NASA Wallops website, the operating cost for their P-3 aircraft is approximately $3,000 an hour. "We want to get the cost down to $500 per hour, or approximately $3,000 per day by using the TERN," said Bland. He made it clear, the objective in using UAVs is to expand airborne science operations, not replace the P-3 or C-130 aircraft.

It is hoped that the development of UAV science packages can permit dedicated UAVs (with much lower capital investment) to be almost continuously available for science missions.

NOAA Weather Radio Maintenance

The National Oceanic and Atmospheric Administration (NOAA) was

preparing to award a contract in December to provide routine and emergency maintenance for NOAA Weather Radio (NWR) transmitters and control sites at five locations in North Carolina.

Maintenance is required on the narrowband, VHF-FM transmitting equipment (100-1,000 watts) on one of seven frequencies, ranging from 162.400 to 162.550 MHz.

NWR broadcasts are tailored to weather information needed by people within the receiving area (approximately 40 miles) and transmitted 24 hours a day. The National Weather Service on an as-needed basis would furnish specialized test equipment. The contract period is from Jan. 1 through Sept. 30 this year with four one-year option periods.

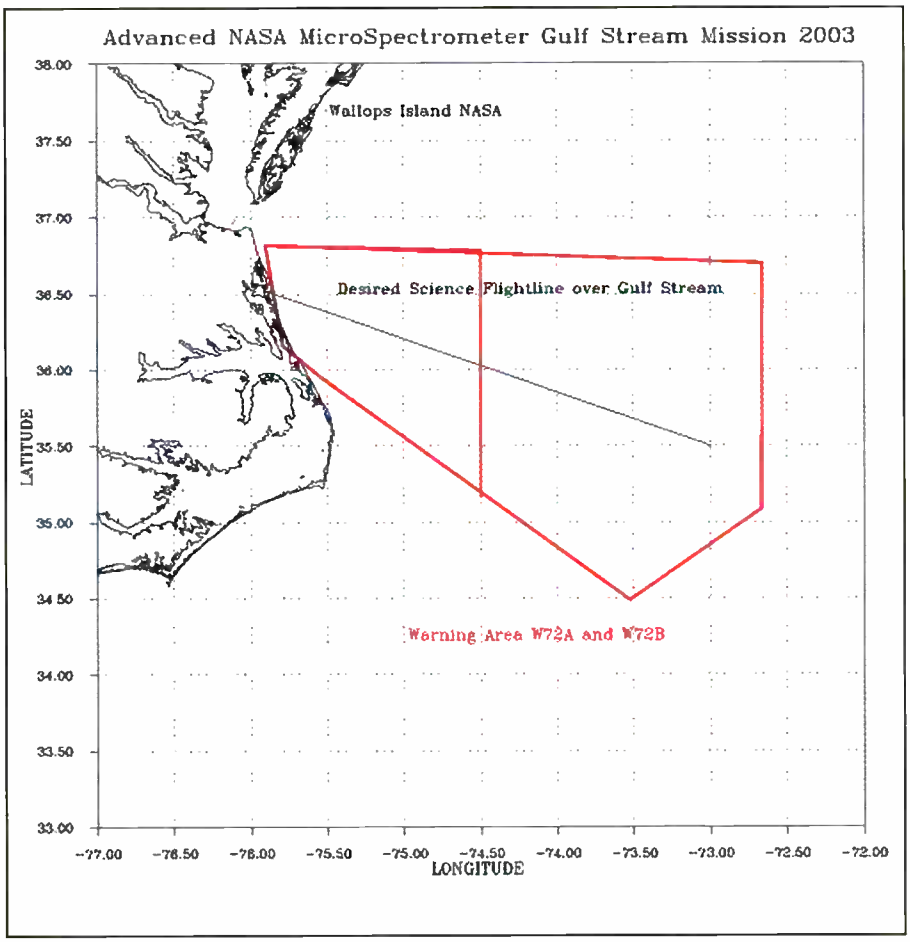
What would you like "Space Monitor" to do for you? What articles and information would be of particular interest to you? Let us know. We look forward to hearing from you.

Monitoring Reports

All times in UTC. All voice transmissions in English unless otherwise noted.

North Carolina Transmitters [all NFM mode]

162.400	WXL56	Asheville [250 watts]
162.425	WWF60	Badin [1,000 watts]
162.475	KIG77	Cape Hatteras [1,000 watts]
162.475	WXL50	Fayetteville [250 watts]
162.475	WXL70	Gastonia (Charlotte) [200 watts]
162.450	WWG33	Margaretsville
162.400	KEC84	New Bern [1,000 watts]
162.550	WXL58	Raleigh/Durham [1,000 watts]
162.475	WXL59	Rocky Mount (Tarboro) [1,000 watts]
162.550	KHB31	Winnabow (Wilmington) [1,000 watts]
162.400	WXL42	Winston-Salem [100 watts]



Advanced NASA micro spectrometer Gulf Stream Mission 2003.

128.550: NASA 915 (T-38N, based at Ellington Field, TX) landed at NASA Shuttle Landing Facility (SLF), 1900, AM mode, departs at 2030. NASA948 (Gulfstream II, Ellington) landed at SLF at 2205, and departs at 2303. NASA966 (T-38N, Ellington), 2210, lands at SLF (Al Stern-Satellite Beach, Fla.).

133.750: NASA948 (Gulfstream II, Ellington), 2303 lands at Patrick Air Force Base, Fla. NASA3 (Gulfstream I, based atHuntsville, Ala.) lands at Patrick Air Force Base at 2215. SEARCH3 (NASA UH-1 based at NASA SLF) lands at Patrick AFB, 2200, AM mode (Stern-Fla.).

164.500: Kennedy Space Center Environmental Health, NFM mode (Al Stern-Satellite Beach, Fla.)

170.125: Security, NFM mode (Stern-Fla.)

170.175: Kennedy Space Center Rail Transportation, NFM mode (Stern-Fla.)

251.250: NASA901 (T-38N based at Ellington Field, Texas) heard talking with Langley Air Force Base, Va. inbound for fuel, 1934, AM mode (Duke Rumley-N. Central, N.C.). ■

computer assisted radio monitoring

information, ideas and suggestions for the computer oriented radio listener

by Joe Cooper

Getting Started With Some Basics: "Measure Twice, Cut Once"

Welcome to a new column for *Popular Communications* readers. Each month I will be providing you with practical information on how to use a personal computer to assist you in your radio monitoring. Everyone who uses radios will benefit from the information that will be provided here, as no one type of monitoring will be emphasized at the expense of any other. I will also write with the beginner in mind, while not ignoring the needs of the more experienced computer user.

So what exactly do I mean by "computer assisted radio monitoring?" Really, it is anything that you can do through the use of a personal computer that helps you achieve better results when monitoring. The assistance that I am talking about can be anything from looking up monitoring frequencies on the Internet, logging a station using computer software, filtering the sound of a weak station so it can be heard, to the direct control of a radio with your PC.

Each month I will be providing you with some practical information from four main topic areas. Those will be: computer software, computer hardware, the Internet, and computer theory. Don't be too afraid of the last one, as I promise not to make it to complicated or dull. What I want you to be able to understand is why you are doing something, rather than simply pushing a button and hoping for the best. I also want to provide as many "hands-on" projects as I can. There are many things that you can put together that will help your computer "talk" to your radio so that you can use a wide range of software products to help you monitor better.

In this regard I will be introducing many interesting software packages that can be used to decode and display a wide range of digital signals. This can include Morse code (CW), Radio Teletype (RTTY), Facsimile (FAX), and many other methods of transmission. What is best about this subject is that you do not have to have a powerful or expensive computer to perform this kind of decoding. Using either a soundcard or inexpensive serial modem you can display text and graphics on many older computers that can be purchased for a small amount of money on the used market.

And Direct Control Of The Receiver

I'm also going to be looking at the direct control of a radio with a personal computer where the radio is designed for such a thing. There are many available on the market today that come with provisions to do this, and in general the radio's performance is greatly enhanced. In addition to the control of such things as frequency, bandwidth, and volume, these software packages also allow you to access databases of frequencies so that you can find a radio station, or scan a set of frequencies, almost instantly. Likewise many of these packages allow you to log the station that you are listening to with almost the push of a button.

Radio has a long history, and is still undergoing many changes. The center of many monitoring stations is the personal computer with specialized software installed for logging, decoding, and the direct control of radios.

For better or for worse, radio monitoring has now entered the computer age, and skills using both technologies are going to become increasingly important if you are going to get the most out of the hobby. Yes, I too started out with tube based radios with big analog dials and more knobs and buttons than I knew what to do with. I even keep a few of such sets around today and enjoy restoring and listening to them.

I have to say that personally I have come to find that taking the computerized approach has put a lot of the fun back into listening to radio. I find that I spend less time trying to find a signal, or understanding it once I have it captured. Likewise, I also have an easier time keeping track of my logs and other housekeeping tasks because they are all in one place, and easy to find.

So do take the time to drop by and check out what I have to offer each month. And do take time to write or E-mail me with your questions, comments, and suggestions. To send snail mail, either write c/o *Popular Communications*, or use my mailbox at: "Computer Assisted Radio Monitoring" (CARM)

c/o Joe Cooper
PMB 121
1623 Military Rd.
Niagara Falls, NY 14304-1745

Or E-mail me at ur-review@provcomm.net

More than anything, the availability of the PC sound card (shown standing up) and the serial port demodulator (in foreground) has made the monitoring of digital modes (CW, RTTY, PACTOR, FAX and more) easier than ever before. This column will be examining how to install, configure, and use these devices.

The Game Plan

The best way to show you how to effectively use a personal computer to help you monitor your favorite radio service is to have a goal and a plan on how to get their successfully. To do this I'm going to be showing you how to set up a successful monitoring station from scratch. The target service in this case will be shortwave broadcasters. The goal will be to create this station for a reasonable amount of money, and to make it as versatile as possible.

Part of the goal will be to show you how to plan your computer assisted monitoring station, chose the right products, and be able to assemble and operate it successfully. By doing the tasks step by step, and understanding why each step is taken, you will be able to have better control over the equipment that you are using. Likewise you will also be able to better deal with any problems that you may encounter along the way.

So where do we start? Well, the first question is **what do we want to listen to?** The monitoring target is going to be a simple one, which is the "big name" shortwave stations (BBC, Voice of Russia, Deutsche Welle, etc). What the goal of the project will be is to be able to find these stations quickly on the dial, listen to them, log what we hear, and then send off a report for a QSL card. As a bonus you also want to be able to record a broadcast at a time when you are not at home, such as when you are working. So how do we do all this?

Assuming that we are starting from scratch, the first thing to do is work out a basic station and suitable computer to go with it. The computer is actually the easier choice today, given the reasonable prices that are being asked for both new and used systems.

You can get a re-conditioned Pentium I based computer with 8 Meg of RAM and 500 Meg of hard drive storage for as low as $50. From there you can move up the line of used Pentium III based computers, through to a new system costing several thousand dollars. In upcoming columns I will outline what you should be looking for based upon the type of monitoring station that you wish to set up and operate. Remember though, you get what you pay for, and a bargain computer that does not work is no bargain at all.

A monitoring radio that is suitable for computer control is more critical choice. Remember — unless the radio's design allows it to be controlled by a personal computer it will not be suitable for this project. Fortunately there are many different models to choose from, and not all of them have to be expensive in order to be useful.

The main brand name choices that you have when looking for a good monitoring radio that can be computer controlled are, AOR, Drake, Kenwood, Lowe, ICOM, Japan Radio, RadioShack, Ten-Tec, and Yaesu, to name only a few. In general, a good used radio of this type will cost you between $500 to $1000, depending upon make and model. Certainly nothing is stopping you from going out and buying a new model if you can afford it. Over the coming months I will be outlining how each model is connected to a personal computer, and what features you can control when you do.

Which Software?

The next set of questions focuses on the type of software that you want to use to control the radio with the computer, which becomes more complicated. There are many different packages available today. Some are made and distributed by software developers who are very commercially oriented. There are others that have been made by people as a part time occupation or sideline. These are often distributed over the Internet, and can be sold as "shareware." In those cases the software may either work for a limited time before a registration "key" needs to be purchased in order to keep it working, or it may depend upon someone having the good grace to send the programmer some money. There is a final type called "freeware," where the software developer simply gives the package away because they either don't want to be bothered supporting it, or truly believe that such things should be free.

Not all computer control software is the same, and great variations are to be found in their design, performance, operation, and price. Different software packages also have a wide variety of uses as well. Some simply change frequencies and control certain functions, such as bandwidth and tuning rate. Others packages have many more features, such as the ability to create databases of logged frequencies, or display propagation conditions at a given time. Some software packages allow you to used lists of shortwave or commercial stations that are updated on a regular basis as radio schedule changes.

There is a wide range of accessory software and hardware packages that you can use to make your radio monitoring more productive. A number of software packages allow you to digitally process the audio that comes out of your radio in order to reduce noise or customize the size of the listening bandwidth. The packages can also be used to decode digital signals, as mentioned before, and also display faxes or slow scan TV. Hardware containing microprocessors can also be used to perform many of the same functions, but in a self-contained package.

All in all, the bottom line is to balance out what you want to accomplish in your radio monitoring pastimes against the cost and skill needed to assemble a computer assisted monitoring station. The real guide here is common sense. Frankly, going out and buying nothing but the most expensive of everything is *not* going to give you the best. Unless you plan properly, and balance everything out so that no one product outperforms the other, then you are going to be facing some real frustrations.

This column is going to try and help you prevent those frustrations from happening by looking at each of these components, and matching them up properly. This is definitely a case of "measure twice and cut once." Think it out, plan it out, and then think about it again. Truly there is nothing more satisfying than sitting down to a well thought out computer assisted monitoring station and have everything work for you, rather than against you.

Wrapping It Up

Next month I'll begin the process of bringing our computer assisted monitoring station together in earnest. We will begin to look at what basic configurations you should look for in a suitable personal computer, and take a look at some good candidates for the radio. I will also begin to introduce some of the software packages that are worth considering for the actual control and operation of the radio.

There are a lot of choices to be made out there, but with a little research and knowledge, it will not be difficult to make the best one for your particular monitoring needs. Until next month, start thinking about the type of monitoring station you would like to create based upon your own listening needs. ■

global information guide

listening to what your world says every day

by Gerry Dexter

Northern Alliance Plans Extensive Radio Coverage, And Argentine Antarctic Station STILL Active!

Point of Order!
Mainland China's domestic shortwave stations, formerly known as China People's Broadcasting Station(s) (CPBS) — are now called China National Radio.

Afghanistan's official broadcaster — The Radio Voice of Shari'ah — was blown off the air fairly early in the air war against that country — not that anyone in North America was hearing them before the fact. Three weeks later the station was back on the air from a truck or van, but only managing to get a signal over Kabul, so shortwave is probably not involved in this comeback effort.

If the preliminary news is correct, The Northern Alliance is planning an extensive national radio service that would cover all of Afghanistan. It would attempt to speak for all factions except the Taliban. We don't know yet whether this will involve any use of shortwave. An international group is putting another Afghanistan-related station together. This one would not have any political affiliation, but would be more along the lines of those UN stations which provide essential information and pitch unity. Again, no word on whether shortwave is involved.

Forget about that item we ran a couple of months ago regarding the coming demise of the Argentine Antarctic station. **Radio Nacional Archangel San Gabriel** is still active on **15476**. In fact, it appears that Argentina's Antarctic bases are not being closed down after all.

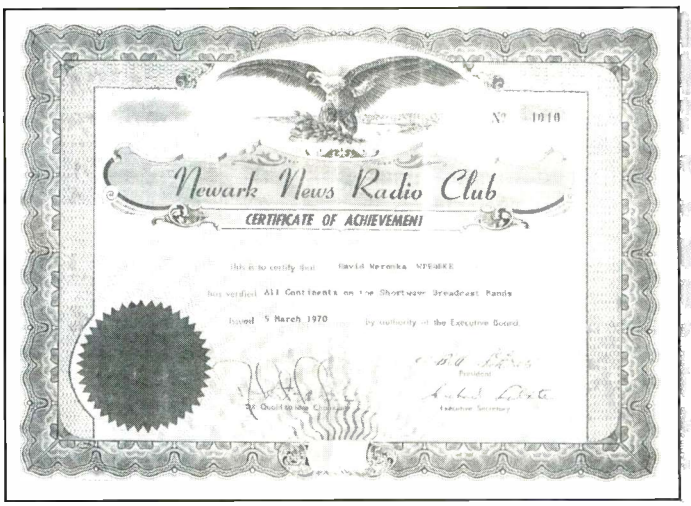
The Voice of Nigeria has reactivated its long held frequency of **15120** and seems to be keeping it going around the clock. We noted it the other evening at 0500 but mornings and afternoons local time will probably produce better results during these winter months. Programs are being aired in a number of major languages and, in the evenings at least, are running parallel to VON's outlet on 7255.

Radio Canada International has come through another budget crisis and is still breathing. Weekend newscasts have returned and two new languages — Arabic and Russian — are being added, as is additional original programming, slated for insertion into weekend time slots.

On the other hand, it looks as if **Radio Ukraine International**'s gas tank may be nearly empty. A money shortage has caused at least a temporary cessation of their broadcasts. Of course we hope "temporary" is the operative word here. By now the picture may have changed for the better. Check 12040, which always offered excellent reception, at least in the Midwest.

Bye-Bye Belgium?

Might as well "Wavre" goodbye to broadcasts direct from RVI in Belgium which has discontinued broadcasts from the Wavre trasmitter site. Radio Vlaanderen International's programs are now beamed only from Julich, Germany, also Bonaire, Madagascar, Russia and Uzbekistan. RTBF, the French network in Belgium, continues to use the Wavre site however.



"A blast from the past" is how David Weronka (NC) describes this award certificate he received from the long gone Newark News Radio Club more than 30 years ago!

VOA QSLing!

Most of us have probably run into trouble getting a particular VOA site frequency QSL'd — a problem easily blamed on

Is it an art museum? A performing arts center? Nope! It's the ultra modern HQ of YLE/Radio Finland!

the bureaucracy or not being able to get the report to the right person. Although, by and large, the VOA is pretty good with QSLs, most anything can stand improvement. And here it comes! VOA Delano engineer John Vodenik has been given permission to handle reports and QSLs for the entire IBB/VOA system — which includes RFE/RL, Radio Marti, Radio Free Asia, etc. You can send reception reports to **John Vodenik, IBB/VOA, Delano Transmitting Station, 11015 Melcher Road, Delano, CA 93215.**

Another address to which reports on **Trans World Radio** can be sent is: P.O. Box 390, Box Hill, BC 3128, Victoria, Australia. Remember, AWR-Guam no longer issues QSLs from its offices there.

Another new broadcaster — as opposed to station — on the air is **KAF — Voice of the Lord**. We caught this a couple of weeks ago around 1800 on **15750** (the broadcasts begin at 1700 and run to 2000). The broadcast (in Tagalog) is intended for Philippine and other Tagalog speakers living in the Gulf states. It's produced by the Kol Adonai Foundation, based in Manila, and from there is sent to the High Adventure Ministries facility in Jerusalem where it is uplinked to a satellite. The shortwave signals are transmitted by the DTK facility in Julich, Germany.

Speaking of UN Radio operations, they are supposed to have another one of these on the air from the Congo-Kinshasha and this one will include shortwave 24 hours per day. Even better is word that this station will be a lot more powerful than previous UN efforts in other African countries.

One of our favorites is **The Voice of Turkey**, which seems to have frequencies all over the dial lately. For reasons unknown, they have dropped their long-used and widely heard **9445**, but left the always-weaker **9460** alone. Huh?

This month's book winner is **Lee Silvi of Mentor, Ohio.** Lee receives a copy of the 2002 edition of *Passport to World Band Radio*, courtesy of CRB Research Books — The Radio and Electronics Hobby Bookstore. CRB has a large and fascinating catalog of books for the radio enthusiast and you really should treat yourself to a copy. You can write them at P.O. Box 56, Commack, NY 11725 or call 516-543-9169 Monday through Friday from 1400 and 2000 UTC.

Photos, illustrations, copies, pictures, QSLs, photocopies, fotos — no matter what you call 'em - we need 'em! Whether the subject is a station transmitter, building, antenna, studio, employee, operating schedule or even (gasp!) a picture of you and your listening post, we'll welcome it with open arms. The more, the merrier!

Of course, your reception logs are always wanted, too. We make every effort to use most of the logs sent in, so don't be shy or feel yours aren't good enough. They are! Just be sure to list your loggings by country and leave enough space between each so we can navigate scissors easily. Logs are cut into strips and then sorted by country, so be sure to use only one side of the paper otherwise some of your logs won't "make the cut." Please add your last name and state abbreviation after each item. As always, thanks so much for your continued interest and participation.

Here are this month's logs. All times are in UTC, which is five hours ahead of EST, i.e.0000 UTC equals 7 p.m. EST, 6 p.m. CST, 5 p.m. MST, and 4 p.m. PST. Double capital letters are language abbreviations (FF = French, AA = Arabic, SS = Spanish, etc.). If no language abbreviation is included the broadcast is assumed to have been in English.

ALBANIA — Radio Tirana, **6175//7160** with news at 0235. (Burrow, WA) **7160** under heavy QRM at 0229. "This is Radio Tirana." (Brossell, WI)

ANGUILLA — Caribbean Beacon, **13810** at 1954 with jazz and Dr. Gene Scott making a pitch for money. (Wilden, IN)

ANTIGUA — BBC Relay, **5975** at 0058 and **15220** at 1300. (Jeffery, NY) **5975** at 0010 and 0100, **15220** at 1245 and 1306. (Newbury, NE)

ARGENTINA — Radio Nacional, **9690** with news in SS at 0410. (Miller, WA) Radiodifusora Argentina al Exterior, **11710** with DX program at 0238. Off with ID, IS at 0256. (Burrow, WA) Radio Continental, **15820** LSB relay at 0025 with SS news, U.S. pops, woman DJ, time pips and news at top and bottom of each hour. (Alexander, PA) **20276** LSB at 2335 with EE vocals hosted by SS woman, 5 + 1 pips at top of the hour, ID and news. (D'Angelo, PA) Unidentified Argentine feeder on **20276** at 2115 with SS talks, ballads, phone talk. Also at 1425 on **29810**, both in LSB. (Alexander, PA)

ASCENSION ISLAND — BBC Relay, **17830** at 1900 with "Newsdesk." (Jeffery, NY)

AUSTRALIA — Radio Australia, **9580** at 1205 carrying National domestic service news and into country songs. (Wilden, IN) **15240** with news coverage at 0407. (Newbury, NE) **9710** at 0910 with news in presumed Pidgin. (Brossell, WI) **11650** with National service at 1258. (Miller, WA) Christian Voice presumed via Darwin, **17580** at 0330 with Christian rap and pop. (Linonis, PA)

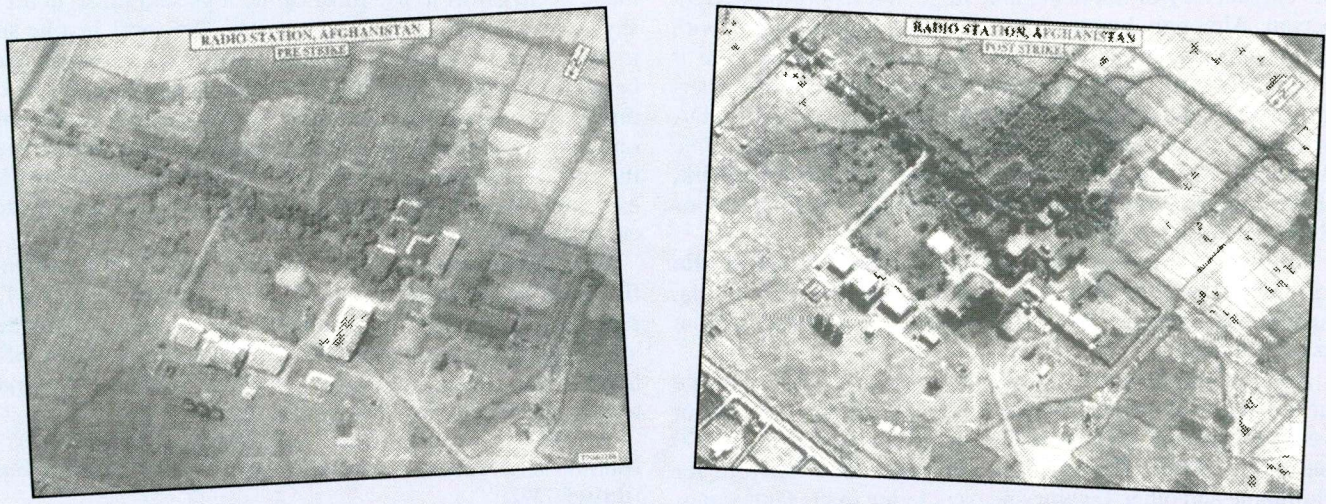
AUSTRIA — Radio Austria Int'l, **9870** in GG at 0250. (MacKenzie, CA) Adventist World Radio via Austria, **15195** at 2000. Listed as in Dyula language. Then EE from 2100–2129. (Silvi, OH)

BELGIUM — Radio Vlaanderan Int'l, **9925** in DD from 2000. EE at 1730–1800, //**5910** not audible. Last broadcast from the Wavre transmitter site and, thus, from Belgian territory. (Silvi, OH)

BOLIVIA — Radio Fides, **4845** with Latin music heard at 1148. (Miller, WA)

Good Listening (From Jim Conrad, Waterloo, IA)
Radio Netherlands–U.S. Evenings (9845 & 6165 kHz)

UTC	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
2330	News	Newsline	Newsline	Newsline	Newsline	Newsline	News
2335	Sincerely Yours						Europe Unzipped
2355	Week Ahead						
0000	Dutch Horizons	Research File	Music 52-15	Wkly. Documentary	Sound Foundation	Stories of Century	Aural Tapestry
0030	Sound Foundation	Euro Quest	A Good Life	Dutch Horizons	Research File	Wkly. Commentary	Wkly. Commentary
0100	News	Newsline	Newsline	Newsline	Newsline	Newsline	News
0105	Wide Angle						Europe Unzipped
0430	News	Newsline	Newsline	Newsline	Newsline	Newsline	News
0435	Sincerely Yours						Europe Unzipped
0455	Week Ahead						Insight
0500	Dutch Horizons	Research File	Music 52-15	Wkly. Documentary	Sound Foundation	Stories of Century	Aural Tapestry



Before and after Defense Department aerial shots of Afghanistan's Radio Voice of Shari'ah.

BOTSWANA — VOA relay, **7375** at 2143 with EE news. (Montgomery, PA) **15525** in unid. language at 1856. VOA ID at 1858 and off. (Brossell, WI)

BRAZIL — Radio Nacional Amazonia, **6180** with sports in PP at 0052. (Miller, WA) Radio Gaucha, **11915** with PP comments at 0240. (Miller, WA) Radio Bandeirantes, **11925** with news in PP at 0243. (Miller, WA) Radio Universo, **9565** with talks in PP at 2308. (Brossell, WI) Radio Anhanguera, **11830** with ID, announcements in PP and music. (Brossell, WI)

BULGARIA — Radio Bulgaria, **9400** at 0400 ending EE with ID, frequency, announcements and off. (Linonis, PA) Tentative on **17500** at 1605. (Barton, AZ)

CANADA — Radio Canada Int'l, **13670** at 2200 with news coverage. (Newbury, NE) **15305** at 1230 with commentary. (Northrup, MO) Morning news program at 1415. (Barton, NE) 0151 about more security on the border. (Wilden, IN)

CHILE — Voz Cristiana, **15375** in SS at 1230. (Northrup, MO)

CHINA — China Radio Int'l, **7170** via Mali in CC at 2302. (Brossell, WI) **9570** *(via Cuba — Ed)* at 1711 with news to Africa. **9925** in EE at 0415. (Burrow, WA) **13680** via Canada with "Events in China" at 2325. **15110** in CC at 2255. (MacKenzie, CA) **15210** in EE at 1023 and **15440** in CC at 1040. (Jeffery, NY) **15415** in EE at 1225. (Northrup, MO) **17720** in EE at 1500. (Weronka, NC) China National Radio, **7305** with EE/CC "Radio English on Sunday." Time pips, CC and EE IDs, music, possible news. (Lamb, NY) **15480** in CC at 1045. (Jeffery, NY) **17550** in CC at 2345. (MacKenzie, CA)

COLOMBIA — La Voz del Llano, **6114.9** at 0141 with SS vocals and SS man announcer. Fair to good when Tirana (6120) is not on. (D'Angelo, PA)

CROATIA — Radio Croatia, **9925** via Germany at 0230 in Croatian. Two men with comments, YL with music interlude. (MacKenzie, CA) 0240 with EE news, ID, into SS at 0246. (Lamb, NY) 0330 in presumed Croatian with EE IDs for "Voice of Croatia" and "Croatian Radio," Schedule at 0344 and into SS. (Burrow, WA)

CUBA — Radio Havana Cuba, **6000** with "Havana Calling' at 0343, including "CQ" sent in Morse. Urged potential ham operators to join a local radio club, how the tropical bands are notorious for causing lost sleep for those who chase stations there, answers to listener questions. IS and news at 0400. (Wilden, IN) 0418. (Newbury, NE)

CYPRUS — BBC relay, **21470** with EE talk program at 1715. (Jeffery, NY)

CZECH REPUBLIC — Radio Prague, **7345** at 0119. Markets and economy rebounding. **//5915**. (Newbury, NE) 0000 on **11615** with talk on films. (Weronka, NC)

DENMARK — Radio Danmark, **9475** via Norway at 0400 sign-on in DD with IS, ID, into news. (Linonis, PA) **17505** at 1953 in DD, ID "Danmark Radio," brief anthem and off. (Brossell, WI)

ECUADOR — Radio Oriental, **4782.5** at 1008 with two IDs as "Radio Oriental" as part of break in music program. Lively South American tunes, promo for future program at 1012 and ID again, talk about transmitters and locations, another ID, time check, ID. (Montgomery, PA) 1012 with music and SS announcements. (Brossell, WI) HCJB —**9745** at 0000 with fanfare, frequencies and talk about women should let men dominate them because God said so. (Wilden, IN) 0130 with advice to consumers to keep on buying. (Newbury, NE) **11960** at 1220 in SS and **15295** at 1330 in SS. (Northrup, MO) **17660** at 2330 with "Inside HCJB." (MacKenzie, CA)

EGYPT — Radio Cairo/Egyptian Radio, **9475** at 0220. (Weronka, NC) 0256 with music, news comments, IDs. (Burro, WA) **9900** in AA at 0238 and **12050** at 0425 in AA. (MacKenzie, CA) **12050** in AA at 1916 and 2245. (Brossell, WI) **15115** in AA at 1016. (Jeffery, NY)

ENGLAND — BBC, **9915** at 0004 and **17770** at 1404. (Wilden, IN) **9915** at 0235. (MacKenzie, CA) **15220** *(via Antigua — Ed)* with financial news at 1225. (Northrup, MO) 15400 *(via Ascension — Ed)* with "Newshour' at 2000. (Jeffery, NY)

EQUATORIAL GUINEA — Radio Nacional Malabo, **6250** at 2220 with woman in SS, non-stop pop vocals, then into the familiar long orchestral national anthem but it was abruptly terminated after only one minute. (D'Angelo, PA)

ETHIOPIA — Voice of the Tigray Revolution, **5500** at 0314 IS played several times, ID at 0315 and into unid. language. (Montgomery, PA) (Guess "Clandestine Communiqué" won't mind too much if we steal from ourselves!) Radio Ethiopia, **9704.2** at 0300 with local folk music, talk in unid. language, **//7110**, both poor. (Alexander, PA)

FINLAND — YLE/Radio Finland, **15400** in unid. language at 1220. (Northrup, MO) **15445** at 1500 with news in Finnish. (Miller, WA) **17670** in Finnish at 1615. (Barton, AZ)

FRANCE — Radio France Int'l, **13610** at 0330 in FF to Africa and news about Africa. (Linonis, PA) **15460** in FF with "Ici Paris" at 1852. (Brossell, WI) **17605** with news at 1615. (Barton, AZ)

FRENCH GUIANA — Radio France Int'l relay, **13640** in FF at 1125. (Brossell, WI) **21645** in SS at 2111. (Jeffery, NY)

GERMANY — Sudwestfunk, **7265** at 2139 in GG with tentative ID 2140. Mostly U.S. pops. (Montgomery, PA) 2148 with U.S. and

German pops. News in GG. (Lamb, NY) Radio Salama, **15475** via Julich at 1930 sign on with African hi-life and "Welcome to the English Service of Radio Salama" and talk of the "terrible corruption in the Nigerian government." (Brossell, WI) Radio Africa Int'l (United Methodist Church) **15485** at 1800 with news of Africa, talks on Aids and the abuse of women in Uganda and Rwanda. (Brossell, WI) Adventist World Radio, **9745** with EE from 2030–2059. AA from 2137 to 2225 and FF 2300–2330. (Silvi, OH) Deutsche Welle, **18875** in GG at 1430. (Weronka, NC)

GREECE — Voice of Greece, **17705** via Delano at 1601 in Greek. Music, ID, E-mail address, news. (Burrow, WA) 1833 in Greek. (MacKenzie, CA)

GUAM — Adventist World Radio, **11560** in listed Mongolian at 1030–1100, Mandarin from 1100–1130. (Silvi, OH) **11850** at 2157 with IS and into Indonesian at 2200. Too much QRM from WYFR to copy much. **15265** in Mandarin at 2130–2159. Also **17635** in Mandaran at 2328–2359. Schedule lists Mandarin starting at 2200 but I hear EE at 2200–2229. (Silvi, OH)

GUATEMALA — Radio Verdad, **4050.2** with SS religious broadcast at 0310. (Miller, WA) La Voz de Nahuala, **3360**, 0224 to 0412 close. Marimba music, talk with ID at 0230. (D'Angelo, PA) Radio Cultural, **3300** at 0945 with religious programming. (Brossell, WI)

HAWAII — KWHR, **9930** with sermon at 1015. (Brossell, WI) 1220 with religion. (Northrup, MO) **17510** with Christian music at 0137. (Jeffery, NY)

HONDURAS — La Voz Evangelica, **4819** at 0220 with SS religious programming. (Brossell, WI) 1131 wth Bible broadcast. (Miller, WA) Radio Luz y Vida, **3250** at 0320 with talk by man, woman, occasional vocals. Nice IDs at 0327 and 0329. ID and sign-off announcements, f/by orchestral national anthem. (D'Angelo, PA)

HUNGARY — Radio Budapest, **9560** at 0125. Jaguar cars in Hungary. (Newbury, NE) **9570** at 0231 with ID, news. (Burrow, WA)

INDIA — All India Radio, Delhi, **4960** at 0020 sign-on with open carrier to vocals at 0023, woman in Hindi and some Hindi music. ID and 5+1 tie pips at 0030 then news in EE by man. More Hindi music at 0035. (D'Angelo, PA) AIR, Aligarh, **9650** at 2112 with music, ID by man at 2118. (Montgomery, PA) All India Radio, **13605** with ID at 2339. (Newbury, NE) 2305. (MacKenzie, CA) **13700** in presumed Hindi at 1130. (Brossell, WI) **15075** at 0340 in presumed Hindi. (Linonis, PA)

INDONESIA — Radio Republik Indonesia — Makassar, **4753.2** at 1054 with man with II talks, group vocals, ID, music (not SCI) before national news at 1100. (D'Angelo, PA) Rri-Merauke, **3905** in presumed II with pops and anmts midst amateur QRM at 1140. (Brossell, WI)

IRAN — VOIRI, **9635//11755** in EE at 1530 with music, news. (Burrow, WA) **9835** with AA music, EE talk. (Newbury, NE) **13730** with talk. Rough copy. (Wilden, IN) **15084** in presumed Farsi. And 1950 on **13605** in unid. language. Also **15150** at 0236 in AA. (Brossell, WI) **15200** in Farsi at 1230 and **15385** in EE at 1225. (Northrup, MO)

IRELAND — Radio Telefis Erirann, **6155** via Rampisham, England at 0130 sign-on with "RTE Radio One" ID, news, sports, traffic and commercials. (D'Angelo, PA) **13640** via Canada at 1836 with news and weather. (MnacKenzie, CA)

ISRAEL — Kol Israel, **9435** at 0400 and **17545** in FF at 1647. (Newbury, NE) **11585** with U.S. pops at 0210. Also on **15615** with news, weather, ID. (Brossell, WI) **17545** at 1600 in unid. language. News, ID, IS and off at 1626. IS again at 1628 with time pips and into FF at 1630. EE ID and EE service starting at 1700. (Burrow, WA)

ITALY — RAI, **7250** at 2110 with bird IS, bells, anthem and into listed Romanian. Into listed Czech at **2135**. //**5970**. (Lamb, NY) **9675** at 0115. (Barton, NE) **11800** at 0115 with ID, freqs and off. Then back on in FF. (Newbury, NE)

JORDAN — Radio Jordan, **11690** at 1557 with world and local news to 1621, contemporary music, ID at 1629. (Burrow, WA) 1630–1731 close with EE news, comment, IDs, pops, time pips and EE news at 1700. Sign-off used to be 1630. (Alexander, PA)

JAPAN — Radio Tampa, **6055** in JJ with excited female announcer in JJ. Sounded like a sports event. (Brossell, WI) **9595** at 0745 talks in JJ. (Newbury, NE) Radio Japan/NHK — **9505** at **1435.13630** at 0515. (Newbury, NE) **17825** at 0345 with JJ pops, into woman anncr in EE. (Linonis, PA) 0328 with JJ language lesson. **17685** in JJ at 0321. (Jeffery, NY) **21670** in EE at 2116. (Jeffery, NY)

KUWAIT — Radio Kuwait, on **11990** in AA at 1818 and **15495** in AA at 2327. (MacKenzie, CA) **11990** ending EE pops show at 2044. (Newbury, NE) **15110** at 1345. (Barton, AZ) **15495** in AA at 1833. (Brossell, WI)

LESOTHO — Radio Lesotho, 0356 with music to IS and three time pips, ID by woman, then news. (D'Angelo, PA)

LIBYA — Radio Jamahiriya/Voice of Africa, **15435//17725** in AA at 1800. EE news at 1817, back to AA at 1821. (Burrow, WA) **15435** with EE at 0132. Language change at 0138. (Montgomery, PA) 0315 sign-on with IS, IDs in AA, EE and FF. Islamic prayers and into news. (Linonis, PA)

MALAYSIA — Radio Malaysia, **7270** (Sarawak) with news in unid. language at 1300. (Miller, WA) **7295** with EE pops call-in show at 1135. (Newbury, NE) 1504 with news. (Burrow, WA)

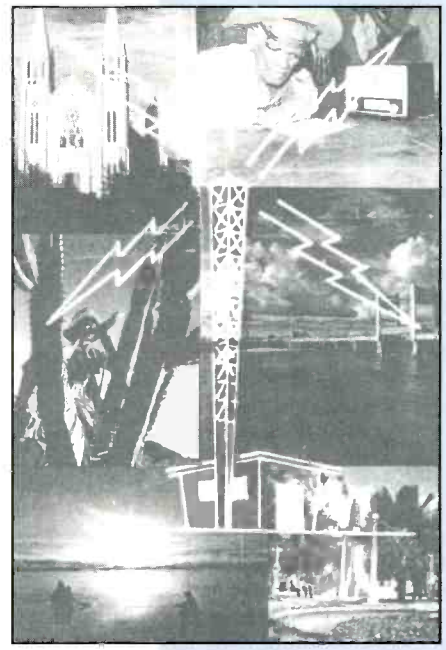
MEXICO — Radio Mexico Int'l, **9705//11770** at 0412 with EE music program, ID. (Burrow, WA) **11770** at 0023 with SS talks, SS/EE IDs at 0030, non-stop romantic Latin vocals. (D'Angelo, PA) 0302 in EE with IDs, mailbox program, SS pops. //**9705**. (Alexander, PA) 0420 with "Mirror of Mexico' program in EE, //**9705**. (Montgomery, PA) Radio Educaccion, **6185** at 0240 with music and SS talks. (Brossell, WI) 0300 in SS with Mexican folk music. (Linonis, PA) 0736 with folk music. (Newbury, NE) 1130 in SS with folk music. (Miller, WA) Radio Mil, **6010** with music and SS ID at 0925. (Brossell, WI)

MONGOLIA — Voice of Mongolia, with IS and tentative ID. Too weak to copy. (Burrow, WA)

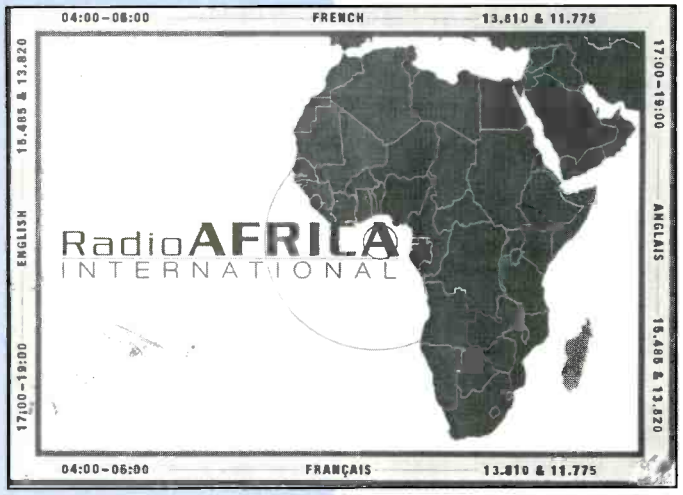
MOROCCO — RTV Marocaine, **11920** at 0320 with AA talks, music. (Linonis, PA) **15345** at 1805 in AA. (Brossell, WI) VOA

Abbreviations Used in Listening Post

AA	Arabic
BC	Broadcasting
CC	Chinese
EE	English
FF	French
GG	German
ID	Identification
IS	Interval Signal
JJ	Japanese
mx	Music
NA	North America
nx	News
OM	Male
pgm	Program
PP	Portuguese
RR	Russian
rx	Religion/ious
SA	South America/n
SS	Spanish
UTC	Coordinated Universal Time (ex-GMT)
v	Frequency varies
w/	With
WX	Weather
YL	Female
//	Parallel Frequencies



From The QSL Museum comes this 1966 card from Emisora Rural Sao Francisco in Penado, Alagoas state, Brazil. ZYL20 operated on 4925 with 1kw.



The United Methodist Church sent this card for reception of their Radio Africa International broadcasts to Rich D'Angelo (PA) and Bob Brossell (WI)

relay, **17895** at 1840. (Brossell, WI RFE/RL relay, **9865** in AA. (MacKenzie, CA) *(Probably their Radio Free Iraq service — Ed)*

MYANMAR — **4725** at 1157 with singing, flute IS at 1200, pop tunes including "Moon River." (Brossell, WI)

NETHERLANDS — Radio Netherlands, **13700** with EE at 1902. (Brossell, WI) **15220** (via Canada) at 1430. (Newbury, NE) 1530 "At Your Request." (Barton, AZ)

NETHERLANDS ANTILLES — Radio Netherlands Bonaire relay, **21590** at 1840. (MacKenzie, CA) 2000. (Jeffery, NY) 2045. (Weronka, NC)

NEW ZEALAND — Radio New Zealand Int'l, **9885** at 0750, **11675** at 1131 and **17675** at 0415. (Newbury, NE) **11675** with news at 1142. (Miller, WA) **17675** with soccer at 0245. (Brossell, WI) 0330. (Linonis, PA) 0420. (Jeffery, NY)

NIGERIA — Voice of Nigeria, **7255** at 0500 with ID, time check, drums. (Newbury, NE) 2103 with current affairs, ID, drama. (Lamb, NY) **15120** at 0729 with discussion on events in Nigeria, program previews, ID at 0800, news highlights. (D'Angelo, PA) Radio Nigeria, Ibadan, **6050** at 2210 with sports coverage, ID and apparent abrupt sign-off at 2246. (D'Angelo, PA)

NORWAY — Radio Norway, **9945** at 2325 with comedy program in NN; audience laughter. (Brossell, WI)

NORTH KOREA — Voice of Korea, **9850** at 1249. Woman announcer, bits of music. **//9640, 9975, 13650**. (Newbury, NE) **11710** at 1712. Speech and choir. **//9975, 13760**. (MacKenzie, CA)

NORTHERN MARIANAS — Voice of America, **15240** at 1029 with news. (Jeffery, NY) KFBS, **11580** at 1148 with singing and talks in CC. (Brossell, WI)

OMAN — Radio Sultanate of Oman, **15355** at 0300 with Koran in AA with EE translations and commentary. U.S. pops, time pips, ID, EE news at 0330. Back to pops at 0345 and into AA at 0400. EE news used to be 0315, now 0330. (Alexander, PA)

PAKISTAN — Radio Pakistan, **11570//15100.3** at 1600 in unid. language. Diatribe and many mentions of Pakistan. ID and into EE news at 1609 to 1619 when off with ID. (Burrow, WA) **15100** at 1600 with EE news, ID. **21465** at 1056 with EE news, ID. Stronger on **//17523.3** but carrier slightly unstable. (Alexander, PA) **17520** at 1055 with EE news, ID, Urdu anmts, string music, eulogy and prayer for someone who apparently died earlier in the day. (D'angelo, PA) EE noted at 1056 rather than listed 1100–1104. Also **//23460**. Woman with news. (Montgomery, PA)

PAPUA NEW GUINEA — Radio East New Britain, Rabaul, **3385** at 1052 with talk in EE and Pidgin, lively group vocals. ID 1101 and drums and news. (D'Angelo, PA) Radio Manaus, Lorengau, **3315** at 1104, woman with news, man with ID at 1109, then island music. (D'Angelo, PA) 1231 in EE. (Miller, WA) Radio Milne Bay, Alotau, **3365** at 1103 with news by man, EE commercials and island music. (D'Angelo, PA) Radio Northern, Popondetta, **3345** with EE music at 1140. (Miller, WA) Radio Western, Daru, **3305** with EE music at 1145. (Miller, WA) NBC, Port Moreseby, **4890** at 1054 with EE speech on Independence Day there, songs in Pidgin, man in Pidgin more EE and IS with IS at 1100 saying it was 9 o'clock, then news. (Montgomery, PA)

PERU — Voz del Campesino, **6956.8** with SS 2320 to past 0000 with SS anmts, OA music. (Alexander, PA) ID at 0051, mostly music. Fairly weak but built to S9 plus from a 250 watter! Off at 0102. (Montgomery, PA) Radio Union, **6351.7** at 0240. Very poor with wobbly, variable, distoted signal. SS talk. (Alexnader, PA)

PHILIPPINES — **15465** in Tagalog at 2332. Woman with hymns. (MacKenzie, CA) VOA Relay, **6160** at 1225. (Newbury, NE) **15250** in CC at 1032. (Jeffery, NY) **17740** at 2315. (MacKenzie, CA) Radio Pilipinas, **11720//15190//17720** at 1743 in unid. language. News about the Philippines. (Burrow, WA) **15190** at 1904 to 1930 close. Woman with news in EE, ID by man at 1910. Full ID and sign-off at close-down. (D'Angelo, PA) **17720** at 1850. "First Man" program. (MacKenzie, CA)

PORTUGAL — RDP Int'l, **11945** with live sports event in PP at 2240. (Brossell, WI) **21800** ditto at 2122. (Jeffery, NY)

PUERTO RICO — AFRTS, **6458.5** at 0325. (Newbury, NE) 0140 with Larry King. (Alexander, PA)

ROMANIA — Radio Romania Int;l, **15365** at 0400 with IS, ID, news. (Burrow, WA)

RUSSIA — Voice of Russia, **7210** via Khabarovsk, at 0400 with discussion in RR. (Linonis, PA) **11825** at 0150 with '40s style big band

St. Petersburg
August 16, 2001

Dear Mr. Richard D'Angelo,

Thank you very much for your reception report!

You really heard our short wave transmission and this letter is our official confirmation of this fact:

August 1, 2001
0200-0300 UTC
9940 kHz

Radio Studio Doma Radio "Gardarika" started its regular short wave broadcasting on February 16, 2001 using a 200 kW transmitter in the 49-meter band.

Dom Radio "Gardarika" (= Broadcasting House "Gardarika") also broadcasts on two FM frequencies here in St. Petersburg including 69.05 MHz (0300-2300 UTC) and 102.4 MHz (24 hours a day).

We hope you will continue to listen in our programs in the coming time.

Best regards,

Dmitry Vasyliev
Short wave project manager

Rich D'Angelo got this QSL letter from Radio Gardarika, St. Petersburg, Russia, on 9940 kHz.

No more Radio Vlandaaren International — at least not from its home country, Belgium.

music, //**17595**. 1200 at 0420 in EE. (Newbury, NE) **12000** at 0250. (Burrow, WA) **17565** via Komsomolsk Amure at 0142 in RR. **17595** via Petropavlovsk-Kamchatka at 0147 in EE. (Jeffery, NY) Voice of Tartarstan, **11665** at 0358 sign-on with open carrier to 0400, IS, ID by woman, IS/ID repeat by man. Then long talks and some music features. (D'Angelo, PA)

RWANDA — Deutsche Welle relay, **17860** at 1835 in GG. (Brossell, WI)

SAUDI ARABIA — BS Kingdom of Saudi Arabia, **15345** in AA at **0345, //17725**. (Newbury, NE) **15435** in AA at 1702. (MacKenzie, CA)

SEYCHELLES IS. — Far East Broadcasting Assn, **15445** at 1220 in unid. language. (Northrup, MO) 1241 in unid. language. Religious music. (Miller, WA)

SINGAPORE — Radio Singapore, **6150** at 1551 with music, ID, schedule. Off at 1600. (Burrow, WA) **7170** in unid. language at 1241. (Miller, WA) BBC relay, **9740** at 1105. (Brossell, WI)

SLOVAKIA — Radio Slovakia, **17550** at 0700 with news. (Weronka, NC)

SOUTH AFRICA — Channel Africa, **5955** at 0402 with news, ID. QRM from WYFR/Taiwan. (Montgomery, PA) 0410 with news. Also **11720** at 0508 with news. (Newbury, NE) **17780** at 1308, //**21725**. News. "business in Africa' at 1315. (Montgomery, PA) **17870** at 1810 with news, interviews. (MacKenzie, CA) 1838 with apparent news in FF. (Brossell, WI)

SPAIN — Radio exterior de Espana, **6055** at 0512 in EE. (Newbury, NE) **15170** at 1225 in SS. (Northrup, MO) **17560** in AA at 2000. (Brossell, WI)

SRI LANKA — Sri Lanka Broadcasting Corp., **15425** with U.S. pops, ID at 0230 "This is the overseas service of the Sri Lanka Broadcasting Service." (Brossell, WI) VOA relay, **15250** at 0144. //**9665, 11705**. (Newbury, NE) **15545** at 1855 in AA. (Brossell, WI) **17855** at 0336 in unid. language. (Jeffery, NY)

SWEDEN — Radio Sweden, **11895** at 0338. (Newbury, NE) *(via Canada? — Ed)*

SWITZERLAND — Swiss Radio Int'l, **9575** via relay with weather at 1453. (Barton, AZ) **9885** at 0230. Final day of planned EE to North America. (Silvi, OH) 0240 with interviews, news. (MacKenzie, CA) 0411 with news. (Newbury, NE) **15220** via Julich. Sign-on at 1625. Heard after Radio Netherlands goes off. (Barton, AZ)

SYRIA — Radio Damascus, **12085//13610** at 2035 in EE with news, comment, ID. (Burrow, WA) 2248 in AA. (Brossell, WI) **13610** at 2000 with news, comment, U.S. pops, //**12085**. Both carriers at fair level, but poor audio with loud buzz. (Alexander, PA)

TAIWAN — Radio Taipei Int'l, **15265** at 1400. (Barton, AZ) **17805** via WYFR at 2305 in SS. //**15130**. (MacKenzie, CA)

THAILAND — Radio Thailand, **15395** at 0300 with IS, news and clear ID at 0322. (Burrow, WA)

TUNISIA — RTT Tunisienne, **9720** monitored at 0240 in AA. (Brossell, WI)

TURKEY — Voice of Turkey, **9460** in TT at 0043. (Wilden, IN) 0400 in TT with Turkish music and woman annor. (Linonis, PA) **9650** at 0312 in EE. (Newbury, NE) **11845** at 2220 with "From Past to Present." (Brossell, WI) 2235. ID and schedule at 2245, IS to 2253. (Burrow, WA) *(Love their IS! — Ed)* **11885** in TT at 2300. (MacKenzie, CA) 1415 with transmitter problems. (Barton, AZ)

UKRAINE — Radio Ukraine Int'l, **12040** at 0334 with "Closeup" program. (Burrow, WA) **15135** EE at 1100 with news, comment, folk music, ID. (Alexander, PA)

UNITED ARAB EMIRATES — UAE Radio Dubai in EE at 0330. News, weather in Dubai. (Burrow, WA) 0333. (Newbury, NE) 0340. (Linonis, PA) **15400** at 0230 with Holy Koran. (Brossell, WI) Adventist World Radio relay, **11945** at 0300 and **11975** at 0320. Not in parallel. (Watts, KY)

UNITED STATES — AFRTS, Florida, **12689.5 USB** at 0140 with DJ and '50s pops. (Alexander, PA)

UZBEKISTAN — Radio Tashkent, **7285** at 1200 sign-on with chimes, ID, EE news, ham QRM. Stronger on //**9715** under co-channel Radio Netherlands. (Alexander, PA) 1258 in unid. language. (Miller, WA)

VATICAN — Vatican Radio, **7305** at 0315 in SS with text of Pope's Sunday sermon. (Linonis, PA) **12065//13675//15235** in EE with comments, ID. (Burrow, WA)

VIETNAM — Voice of Vietnam, **7975** via Canada at 0300 with ID, into SS. EE at 0330. (Lamb, NY) 0352 in EE. (Newbury, NE) **12020** in presumed VV at 2245. (Brossell, WI)

ZANZIBAR — Radio Tanzania-Zanzibar, tentative, **11734.2** at 2021 in Swahilli with some nice music. (Montgomery, PA)

That does it! Each of the following gets a sticker to put on his or her helmet for proving themselves a winner! Lee Silvi, Mentor, OH; David Weronka, Benson, NC; Richard D'Angelo, Wyomissing, PA; Mike Miller, Issaquah, WA; Stewart MacKenzie, Huntington Beach, CA; Jack Linonis, West Middlesex, PA; Brian Alexander, Mechanicsburg, PA; Robert Brossell, Pewaukee, WI; Marie Lamb, Brewerton, NY (and welcome back, Marie!); Mark Northrup, Gladstone, MO; Dave Jeffery, Niagara Falls, NY; Ed Newbury, Kimball, NE; Robert Montgomery, Levittown, PA; Bruce Burow, Snoqualmie, WA; Rick Barton, Phoenix, AZ and R. C. Watts, Louisville, KY. Thanks to each one of you!

Until next month, good listening! ■

A not-so-modern studio at China Radio International in 1993, since replaced by ultra-modern equipment in new facilities.

utility radio review

by Joe Cooper <ur-review@provcomm.net>

news, information, and events in the utility radio service between 30 kHz and 30 MHz

Radio Monitoring Ethics, Part II

A number of changes are taking place in the world since September 11th and the content of this and future columns now reflects that fact.

As I outlined in last month's column, the War on Terrorism has brought about some significant changes in the way that we should, and must, undertake to monitor utility radio stations. Parts of those changes are due to the simple expediency of protecting the country from further enemy attacks. Others are more trial and error as we all try and figure out the nature of this new war, and what actually constitutes a real threat to our national security vs. a perceived threat.

The most immediate change that you are going to notice is the format of the reader's monitoring logs. They are still there, and will continue to be published. As I stated last month, monitoring utility radio transmissions is not illegal, even during a time of war. However, what the Communications Act of 1934 is very clear about is that you cannot divulge the content of a point-to-point transmission, particularly if such information could be used to someone's personal advantage.

Likewise, in a time of a declared war or emergency, the office of the President of the United States takes on new powers that directly control the operation of a radio station — be it used for monitoring or transmission. Again, the Communications Act of 1934 is very clear, and there are very clear prohibitions on doing anything that will directly interfere with national security through the use of radio equipment.

Common sense and good judgment, in my opinion, says that we can never know for certain what information that we listen to in a ute transmission is of strategic value or not. Thus, in the best interests of national security, and to take the ute monitoring hobby out of any potential embarrassment, my decision has been to remove any references to content in the logs that are published here. Likewise anything dealing directly with military movements in war zones, support activity for the military, and anything else that pertains to national security, will not be published for the duration.

In saying all that, there are still a lot of interesting signals to be captured out there that will continue to be published here. What the column will continue to focus on is helping you to find these signals on your own radio so that you can listen to them yourselves. So, over the upcoming months expect to see more information on where the action is happening, what the hot frequencies are, and how to use your radio more effectively.

Speaking of using your radio more effectively, I've been handed a column to work on along with this one that deals with a topic that is dear to me. That's the use of computer hardware and software to assist one to monitor radio signals more effectively.

You've read my reviews of various products over the past few months, and it's obvious that this technology is here to stay. Well, a decision was made to make this information available to all of the readers of *Popular Communications*, and that starts this month.

The good news that goes with this decision is that this will free up more room in this column for ute related topics. You can still find out about computer software and techniques that will help you monitor ute stations in my new column, so do take a moment to check it out.

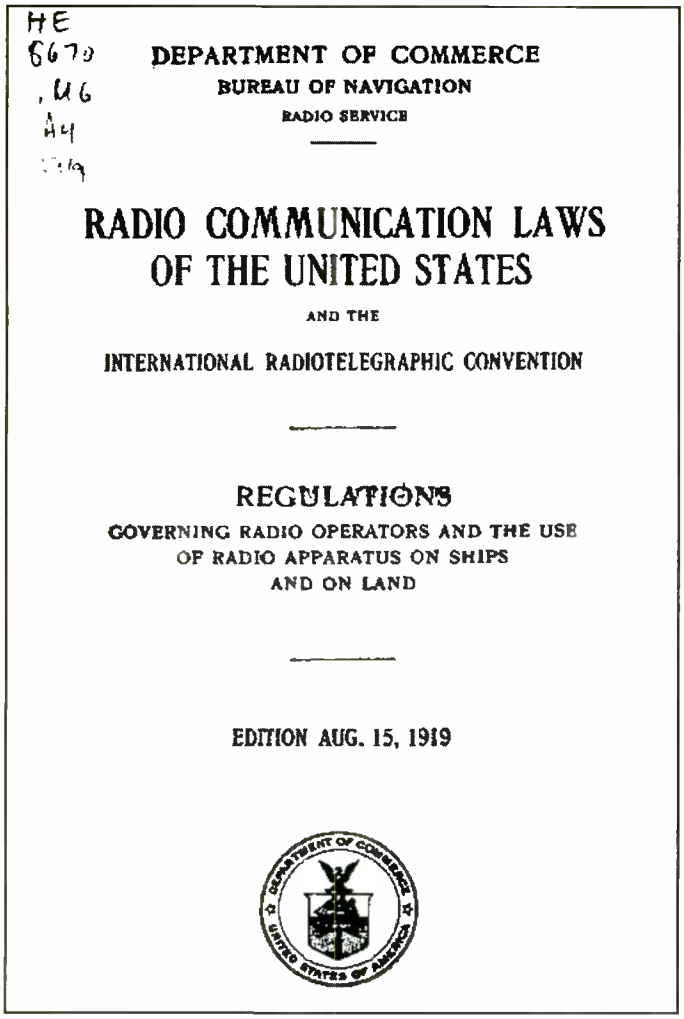
Getting back to this month's column, I'm going to finish up looking at the issue of ethical monitoring practices. What I want to share with you is an important historical reason why we have a legal prohibition against using or sharing what we hear in the ute services with other people. It's an interesting story, and concerns another form of terrorism that the United States and the world once faced — the German submarine attacks of World War I that plagued the shipping lanes of the North Atlantic.

Let me tell you the story of how an amateur ute radio monitoring station in New Jersey came to receive some very interesting information being broadcast by a German ute station operating on Long Island, New York. More importantly, let me tell you how the revelation of those transmissions content helped to propel the United States into World War I. As you will read, the actions of that ute radio monitor helped the U.S. government justify many new laws and regulations, including the restrictions that we now live under.

A Short History Of U.S. Radio Regulations

No one mode of communications stands by itself and this is true of radio. Before there was radio there were many other forms of communication available, such as telegraph, telephone, and of course the postal service. Compared to today's highly regulated environment, the commercial world of early modern communication methods was relatively unregulated.

The first law governing electrical communications (in this case telegraph) in the United States was in 1866. This was a regulation allowing the Postmaster General to fix the rates of



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DEPARTMENT OF COMMERCE
BUREAU OF NAVIGATION
RADIO SERVICE

RADIO COMMUNICATION LAWS
OF THE UNITED STATES
AND THE
INTERNATIONAL RADIOTELEGRAPHIC CONVENTION

REGULATIONS
GOVERNING RADIO OPERATORS AND THE USE
OF RADIO APPARATUS ON SHIPS
AND ON LAND

EDITION AUG. 15, 1919

Documents like these are the foundation of our radio monitoring practice. This one contains the text of the Radio Act of 1912, which set the rules and laws that define how we are to listen to commericial radio transmissions. (Courtesy the Federal Communications Commisssion.)

government telegrams. It was not really until the late 1880s that the first true regulations of telecommunications began to be passed, and most of these were directed at the telegraph industry. The Interstate Commerce Commission was established in 1887, the pre-cursor of today's Federal Communications Commission (FCC).

Due to the generally favorable view that the federal government had of the business community during that period of time, few regulations were in place. In general, the government had a "hands off" philosophy, and only intervened when the public interest clearly demanded it. However, what was made mandatory, and would lay the foundations for many of today's regulations, was the government's insistence that telegraph and telephone companies file monthly and annual reports of their financial and business activities.

While a great deal of interest was shown in the activities of the telegraph and telephone industries by the federal government, radio, when it finally appeared, was essentially ignored. Even though Marconi and other inventors had first demonstrated, then used, radio communications since the late 1890s, it was not until 1910 that the first federal regulations were passed. Even then, it was simply to ensure that wireless apparatus was installed in large sea-going vessels, with no regulation being made of land-operated radio stations at all.

It was not until 1912 that the United States government began to take the regulation of radio transmissions seriously. This was due to the country's participation in the international treaties governing radio operation that came out of the Berlin International Radiotelegraphic Convention of that same year.

The original law was called the Radio Act of 1912, and what was significant about the act was that not only did it extend the range of ships that were required to have radio sets and operators; it also introduced the licensing of such stations as well. This regulatory action was taken out of the hands of the ICC (who simply monitored industry events and kept records of them) and given to the Secretary of Commerce and Labor, who had the power and authority to enforce the new laws.

What was important about the Radio Act of 1912 was not so much what was said on paper, but what it implied in its eventual application. The original intention of the law was to prevent interference between different stations, and to do this they were issued a license to operate. However, being a federal law it was framed with many other prohibitions that were normally added in order to give the regulation a broad context to work with in.

So, in addition to preventing interference, the new law also specified that the holder of the license had to be an American citizen or a corporation legally incorporated in the United States. Likewise each licensed station would have a callsign registered with the Secretary of Commerce, along with the wavelength it would be operating on. More importantly, the new law also gave the President of the United States the power to close any radio station during a time of war or disaster, and to confiscate and use the equipment found at the radio station after having given fair financial compensation for it.

One final provision was also put into place that was to have an impact upon those who monitored radio "traffic" for either commercial or private interest. In part 19 of the act, entitled "The Secrecy of Messages," it states:

"No person shall divulge or publish the content of any messages except to the person or persons to whom the same may be directed, or to their authorized agent, or to another station employed to forward such message."

The fine for breaking this law was stiff — $250 and three months in jail. The only time a person could legally divulge such information was when demanded by a court of law during a trial. What is interesting about the law was that it was obviously based upon telegraph practice. The entire idea was to ensure that the confidential content of the message, which was often business related, remained secure while in transit.

This need for a legally sanctioned prohibition against the theft of private information was important for the fledgling technology of radio to gain acceptance. Yet at the same time such laws against the divulgence of information were in place, there was no specific law against listening, and that would turn to the public's favor in an interesting way.

The Telefunken Story

The first real understanding of the importance of the newly enacted laws regarding the operation of radio equipment and the monitoring of the radio signals they produce took place in Sayville, NY. This small town is located on Long Island, east of

New York City. Due to its location both on the island and its proximity to the city of New York, it was ideal for one of the first commercial transmitter and receiver sites built in the United States.

The company that chose to build the station was the German Radio Company Telefunken. Its purpose was to provide point-to-point commercial and government communications between the United States from Sayville to an identical station located in Nauen Germany. Built in 1911, the station employed a RF alternator operating at 19,266 and 38,425 kHz and having an output power of 100 kW.

At the same time commercial operations like Telefunken were taking place, there was a small, but significant number of amateur radio operators to be found in the greater New York area. The high power of the Telefunken transmitter made monitoring the station very easy, but what captured the interest of many of these amateurs was the apparently impossible high speed at which the operators were sending code. It was so fast that even the best radio telegrapher could not copy it.

What the amateurs did not know was that Telefunken had developed what was essentially the first wire recorder. In order to increase the number of transmissions made, they would pre-record their traffic on the wire recorder, then play it over the transmitter at high speed. An identical wire recorder was located at the receiving station in Germany, and was set to the same speed as the one at the American site. Once copied, the recording in Germany would be played back at a speed slow enough to be copied.

Discovered By Accident

The secret of the Telefunken transmissions was discovered by accident. Charles Adgar, who operated an amateur monitoring station in New Jersey, had been recording the high-speed code on an Edison wax cylinder recorder. As Adgar's spring operated machine slowed down, so did the speed of the code that he recorded, and thus he was able to decode it. Adgar had been making such recordings over the period that the Sayville station had been in operation, and during that time the German Submarine U-39 had sunk the British passenger ship Lusitania on May 7, 1915. The ship's voyage had originated in New York, and it was apparent that the U-boat knew when to expect it off the British coast.

Adgar turned his recordings over to the United States government, who reviewed the contents of each. While it was obvious that the messages, while decipherable, were encoded, it was believed that the German Ambassador in New York city was sending ship movements and other strategic messages back to Germany through the Sayville transmitter.

Since the United States was still not at war with Germany, the confiscation provisions in the Radio Act of 1912 could not be invoked. However, a technicality was used instead. Claiming that major upgrades made to the transmitter constituted a new, and hence unlicensed station, on July 9, 1915 the United States government issued an order to shut the station down, and sent a contingent of Marines to deliver it.

The station was re-opened for operation by Telefunken employees a few hours after the order was delivered, but it was under the strict control and supervision the U.S. Navy. All messages had to be reviewed by a group of U.S. Navy officers, sent at normal speeds, and in plain language.

The U.S. Navy operated the Telefunken site in a supervisory fashion until the United States entered the war, at which time the site was confiscated completely as a war measure, and many of the German radio staff were arrested as spies. The United States government confiscated the transmitter sites of all foreign-owned companies at the same time, including all of Marconi's. The assets of these companies were eventually converted into the Radio Corporation of America (RCA), which went on to create the standards and practices for an American system of radio broadcasting and communications.

When the war ended, the United States government and military were not eager to give up the control that they had over the airways. The military in particular believed that the radio spectrum was too strategically important to allow civilian participation. This opinion was so strong that at one point soon after armistice legislation was being introduced to Congress that would have effectively ended amateur radio in all its forms. It was only through concerted lobbying by those dedicated to the preservation of an amateur radio service that the proposed law was defeated. Even with that, it was not until October 1919 that amateur transmissions and communications were permitted again when war measures were finally lifted.

At the beginning of the 1920s there was a lack of radio transmitter parts after the war. With the popularity of cheap crystal radio detectors, there was a surplus of listeners. At the same time many amateur stations began to experiment with voice transmitters and began to hold broadcasts for those who could only listen. The Federal government soon recognized the need for such broadcasters, and issued special "Limited" commercial licenses, and assigned 750 and 833 kHz for their operations.

Because these early stations were essentially experimental, and because the courts ruled that the Radio Act of 1912 really did not regulate them, nothing could be done to control them. As a result there was an explosion of broadcast stations on the air, and listening to radio became one of the great fads of the 1920s. By the end of the decade literally everyone in the United States either owned a radio, or had access to one.

As a result of those trends, the practice of radio monitoring was no longer the domain of a hand full of specialists. At the beginning of World War I under 10,000 people could be called "radio amateurs," and that included those who only monitored radio signals. The end of the 1920s engaged literally millions of people in some type of radio monitoring, even if it was a casual twist of the dial to find out what else was on. Radio monitoring came to be part of the mainstream culture of the United States, where it has remained in one form or another up to today.

In 1927 a new radio act was passed, creating the **Federal Radio Commission**, and bringing order to commercial radio. This was later changed with the introduction of the Radio Act of 1934 which created the FCC, that would regulate all interstate and foreign communication by wire and radio, telegraphy, telephone, and broadcast. The preamble of that act is important to know, as it states the purpose for the creation of the FCC is;

"For the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States a rapid, efficient, nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, for the purpose of the national defense, and for the purpose of securing a more effective execution of this policy by centralizing authority."

The two key phrase contained in that paragraph are **"to make available"** and **"to all the people of the United States."** The key point to remember is that while politics, disasters, and war

may create special situations where restrictions will apply, the overall governance of the United States of America is still for and by its people.

So yes, the prohibitions on divulging what you hear on the radio that were first laid down in 1912 still apply today, as well as the provisions for special powers for the office of the President if there is a disaster or war. These laws have, and will, be used when necessary. However, if you believe that your monitoring hobby is important to you, and that you should be able to continue to listen to radio transmissions from all services, then you must make requirements known. If ordinary citizens cannot be trusted to work in partnership with their government through rule of law then we must indeed ask how badly society was damaged on September 11.

As was shown in the case of Charles Adgar and his ability to discover the secret of Telefunken's high-speed transmission of code, there is a role to be played by the amateur in maintaining national security through radio monnitoring. It also goes without saying that having open access to radio frequencies is a fundamental part of an open and democratic society.

However, like any right, if it is not exercised regularly and practiced publicly, it can be lost. It is also an important way to keep freedom alive by exercising your personal right to make your own decisions about what to listen to on your monitoring station radio because you have the common sense to know what is strategically sensitive and what is not.

Please use the logs published here as guides for your own reports, and keep on monitoring and reporting what you find in the pages of this column. It's a great way to practice democracy and help keep your country strong by being informed of what is going on in the world.

Note: The information for this subject was gathered from several sources, particularly the official FCC website at http://www.fcc.gov. The site contains many original documents that have been scanned for downloading. It is also a very good site for historical essays and reports that were very useful for interpreting this topic. The information about Telefunken and its history at Sayville, NY, was provided by an excellent essay by Chris Bacon, and can be found at the Friends of Long Island Wireless History (FLIWH) at their website, http://www.geocities.com/g3zfj/index.htm. By the way, the meaning of Telefunken in English is "Distant Sparks" — a rather romantic way of describing early radio transmissions by the use of spark gap transmitters. Thanks to the FCC, Chris Bacon, the FLIWH, and others for their assistance.

Reader's Mail

One of the things I do like about writing this column is trying to get information to people. Sometimes that can be fast, and other times it's not so fast. Here is one example. Way back in the August column I was asked a question, and I posted it out for an answer. Well time went by and I got another query from the gentleman.

Joe,

You had asked me to contact you a while back and jog your memory on my earlier request. The Coast Guard's **5696** and **8983 kHz** freqs often tell their aircraft to switch to "one echo 11" or "one echo three" frequencies. Did you ever get a handle on decoding these channels?

Bob Phillips KB2JRD

Ironically, only a little while later an answer was forwarded to me.

Hi Joe,

I was able to dig up my August copy of *Pop'Comm* and noticed that the original question was about USCG comms and the use of those two designators. USCG doesn't use the A as a decimal or place marker; the two terms in question are frequency designators. 23A is 157.150 FM mode; marine VHF channel 23 — one of the USCG working frequencies. 3A11 follows the pattern of the USCG Secure Net frequency designators, although 3A11 isn't a known one (3E11 is however). It could be that Bob P. heard a new designator or misheard the alpha in the designator.

From the WUN September 2001 newsletter:

U.S. Coast Guard Secure Net

4448.0	3A4
5272.0	3E6
5399.6	3C16 GANTSEC
5422.5	3A3
6234.5	3E4
6815.6	3E11 GANTSEC
7421.0	3A9
7626.0	3E10
7773.5	3A8
7845.0	3E12
7884.0	3E13
7909.0	3E14 CAMSLANT
10608.1	3E5 Group Miami
10675.0	3E19
10759.0	3E20
10788.0	3E21
11157.5	3E24
13413.0	3E25

Other frequencies in this net may be **8091.0, 10993.6, 13809.0, and 13950.0.** Reference to a 3A5 designator has been heard on the air recently. For a full listing of USCG aircraft and helicopters, go to URL: http://www.wunclub.com/

Roland R. "Mac" McCormick III

So, Roland thanks for helping out. Those of you who have sent me E-mails and snail mail, have patience if you haven't heard from me, or haven't seen your logs published. I'm getting there and one day you will be answered. So please keep the correspondence coming. It is always appreciated.

Reader's Logs

This month's logs have been formatted using the new criteria. There are still many to go over, and as you will see, there are still lots of content. Yes, the quotations of actual conversation or content are gone in order to assist the United States and its allies maintain security during this time of war. However, I still think that you will find what is taking place in the utility services to be fascinating as always. Remember that all frequencies here are in kilohertz.

00000: STATION, Anytown, USA, summary of traffic heard in MODE at 0000 (Z), personal comments here (JC)

388 : MFV: Mielfa NDB 0418 CW. (MADX)

518 : NMA: USCG Miami 0403 NAVTEX (MADX)
518: NMN: USCG CAMSLANT 0600 NAVTEX [N] (MADX)
696: CAMSLANT: 0320 USB clg RESCUE 6504 (HH-65). (MADX)
733: "3KK," wkg control, Germany mil, EE/GG 0930 USB (LA)
809: S00, Swedish MFA 1805 MIL-STD 188-141A/USB clg S31: Swedish Embassy, Algiers. Also at 1808, 1811, and 1817. (MADX)
2203: MGJ RN FASLANE RTTY//75/N/340 CARB. All bands using p/q channels.
2800: 4XZ, Haifa, Israeli Navy with V-marker, M22, CW, 2025 (TY)
3150: PCD2, Israeli Mossad//4270, E10, USB, 1930 (TY)
3195: SLHFM-R, Izhevsk, Russia, MX, CW, 1727 (TY)
3415: ART2, Israeli Mossad//4325, E10, USB, 1900 (TY)
3440: UNID station 6PXJ Rptng"V ABYZ DE 6PXJ" over and over**//4567**, CW, 1224. (TY)
3658: SLHFM-V, Khiva, UZB, MX, CW, 1950. (TY)
3757: PIP, S30, near Moscow, Russia, S30, CW, 1842 (TY) **3764.4**: PBB DN DEN HELDER RTTY//75/N/850 "CARB""02b 04a 06b 08b PBB"MI (DW)
3782: CTP PN LISBON RTTY//75/N/850 "Marker ""NAWS de CTP qsx 04 06 08 12 MHz" MI (DW)
4009.4: Army MARS net at 0010 in USB with check-ins and digital traffic. Closed at 0028 after chitchat. (RW)
4032: M21, Russian Air Defense, pseudo-TS, BT99 sequence, M21, CW, 1917 (TY)
4035: Army MARS net at 0015 in USB with training session. (RW)
4125: RCC Bermuda asking all ships on frequency to move this is a Sar frequency 9/8/01 2329 (LH)
4165: VLB2, Israeli Mossad**//5230//6921**, E10, USB, 1845 (TY)
4241: 4XZ IN HAIFA CW Tfc in Hebrew [25wpm] MI(DW)
4270: PCD, Israeli Mossad, USB, 1830 (TY)
4293: The noisy slot machine, XSL, AM, 0954 (TY)
4321: 4XZ, M22, Haifa, Israeli Navy//5159, M22, CW, 1943 (TY)
4325: ART2, Israeli Mossad//3415, E10, USB, 1900 (TY)
4331: 4XZ, Haifa, Israeli Navy with V-marker, M22, CW, 1935 (TY)
4360: MIW2, Israeli Mossad//7445, E10, USB, 1915 (TY)
4372: OFGF wkg Bravo Fox and Charlie exercise 9/12/01 2254 (LH)
4461: FTJ, Israeli Mossad//7332, E10, USB, 1930 (TY)
4466: Civil Air Patrol Net testing different radios 9/12/01 0247 (LH)
4559: "BT991411??8?????", Russian Air Defense, M21, CW, 1014 (TY)
4560: YHF, Israeli Mossad E10, USB, 2000 (TY)
4560: BT991528??8?????, Russian pseudo-TS//6330, dirty CW, M21, 1130 (TY)
4567: UNID station 6PXJ Rptng"V ABYZ DE 6PXJ" over and over //5600//6788, CW, 0945 (TY)
4570: HZN46 JEDDAH MET RTTY//100 /R/430 Met tfc, 100Hz high. MR (DW)
4583: DDK2 HAMBURG MET RTTY//50/ N/440 "Met tfc, AAXX" MR (DW)
4780: SYN2, Israeli Mossad, E10, USB, 1845 (TY)
4870: UNID station Rptng "V LA5S DE NH8T" over and over, hand-keyed CW, 2015 (TY)
4880: ULX2, Israeli Mossad//6270, E10, USB, 1930 (TY)
4962: SNN299 MFA WARSAW CW(F1A-250HZ) "Periodic marker ""vvv de SNN299 ga""" DP (DW)
4996: RWM TS MOSCOW CW Time signals MS (DW)
5019: HFB UK RSC ?LOC MIL.STD 188-141A ALE on USB. Sounding. Also at 2248 MI (DW)
5091: JSR, Israeli Mossad, E10, USB, 1830 (TY)
5097: CFH: CANFORCE Halifax 0544 BAUDOT 75/830 w/ZKR tape. (MADX)
5103: A25 LATVIAN MIL MIL.STD 188-141A ALE on USB. Clng PAMATS WAM. 1613 clng LIELVA MI (DW)
5119: HSP UK RSC HANSLOPE MIL.STD 188-141A ALE on USB. Sounding. Also at 2359 MI (DW)
5154: SLHFMs-F and M, Vladivostok and Magadan, Russia, MXC, CW, 1217 (TY)
5159: 4XZ, Haifa, Israeli Navy//4321, M22, CW, 1943 (TY)
5201: M21, Russian Air Defense, pseudo-TS, BT99 sequence, CW, 1919 (TY)
5230: VLB2, Israeli Mossad//4165//6921, E10, USB, 1845 (TY)
5320: Coast Guard cutter mako wkg Group Atlantic City, Atlantic City 2315 (LH)
5339: MIW2, Israeli Mossad, E10, USB, 1915 (TY)
5412: UNID stn N58T Rptng"V LA5S DE N58T" over and over, CW, 1836 (TY)
5422: Lincolnshire Poacher lady**//6485/ /8464**, E03, USB, 2200 (TY)
5450: RAF VOLMET 0527 USB w/aviation WX. (MADX)
5466: SLHFM-R, Izhevsk, Russia, MX, CW, 1727 (TY)
5505: Shannon VOLMET 0530 USB w/aviation WX. (MADX)
5600: UNID stn 6PXJ Rptng "V ABYZ DE 6PXJ" over and over//6789, CW, 0850 (TY)
5715: Presumed South Korean female numbers, V24, AM, 1400 (TY)
5820: YHF, Israeli Mossad, USB, 1900 (TY)
5852: HSP UK RSC HANSLOPE MIL.STD 188-141A ALE on USB. Sounding MI (DW
5877: M21, Russian Air Defense, pseudo-TS, BT99 sequence, CW, 1922 (TY)
6014: RFFTC: FAF Selsoulogmatsol 1032 Arq-E3 100/400 pages of 5LG to RFQINVS & RFVINVS (Floreal Class Frigate - *Nivoise*, via Jibouti & Le Port) - on RUN cid (RH2)
6200: CESYP: Colombian Navy Special Command San Andreas and Providencia 2327 MIL-STD 188-141A/USB wkg PORTO: UNID Colombian Navy then into SS USB voice. (MADX)
6215: Presumed South Korean female numbers, V24, AM, 1500 (TY)
6270: ULX2, Israeli Mossad//4880, E10, USB, 1930 (TY)
6289: VVV CQ 211.140, North Korean Intelligence, M40, CW, 1400 (TY)
6330: BT991528??8?????, Russian pseudo-TS//4560, dirty CW, M21, 1130 (TY)
6371: 4XZ, Haifa, Israeli Navy, with V-marker, M22, CW, 1850 (TY)
6379: 4XZ, Haifa, Israeli Navy, with V-marker, M22, CW, 1850 (TY)
6417: The noisy slot machine, XSL, AM, 0954 (TY)
6445: The noisy slot machine, XSL, AM, 0954 (TY)
6485: Lincolnshire Poacher numbers// 5422//8464, USB, 2200 (TY)
6498: PCD, Israeli Mossad**//4270**, USB, 1900 (TY)
6501: NMN: USCG CAMSLANT 0508 USB w/Highseas Forecast /4426/8764/ (MADX)
6604: New York VOLMET 0530 USB w/aviation WX. (MADX)
6694: Rescue 76 wkg ialifax military passed cell number. 1930 (LH)
6695: Link11, AM, 0818 (TY)
6702: Link11, AM, 1420 (TY
6739: Volmet UK WX info 9/9/01 0100 (LH)
6754: Trenton Military CANFORCE VOLMET 0526 USB w/aviation WX.(MADX)
6770: SIL: Rockwell Collins Sys Integr Lab 0615 MIL-STD 88-141A/USB + UNID QPSK modem. (MADX)
6774.1: UNID: USAF MARS 0157 PACTOR 200/200 wkg BBS at AFA1HN w/WWV Solar-terrestrial forecast msgs. (MADX)
6784: UNID station HMA sending V and CQ marker, dirty CW, 1232 (TY)
6785: MVNHF424: USACE New Orleans 0645 MIL-STD 188-141A/USB w/sounding call. (MADX)
6788: UNID station 6PXJ Rptng"V ABYZ DE 6PXJ" over and over, CW, 0945 (TY)
6840: The English Man numbers, Russian intelligence, already in progress. Ended with "000 000", E07, AM, 2005 (TY)
6840: EZI, Israeli Mossad**//9130//11565**, USB, 1900 (TY)
6846.2: UNID 0609 ARQ-E(?) 192/120 idle. Signal id'd by Code3 as ARQ-E. (MADX)
6881: NNN0RBD: US Navy MARS 2345 PACTOR 100/200 wkg NNN0MRG: NAVMARCORMARS BBSA w/MARS tfc. (MADX)
6900: Lincolnshire Poacher lady**//10426// 11545**, USB, 1900 (TY)
6912: VLB2, Israeli Mossad**//4165//5230**, E10, USB, 1845 (TY)
6929: A25 LATVIAN MIL MIL.STD 188-141A ALE on USB. Clng PAMATS PAM. 1613 clng LIELVA MI (DW)
6930: E10: MOSSAD Numbers Station 0148 AM w/CIO2. QRT at 0150. (MADX)

6935: YT316A CHINESE DIPLO MIL.STD 188-141A ALE on USB. Responds to ZT201A DP (DW)
6935: ZT2 CHINESE DIPLO MIL.STD 188-141A ALE on USB. Clng YT3 DP (DW
6940.5: UNID: British Mil/Diplo 0144 PICCOLO-12 encrypted. (MADX)
6959: Lincolnshire Poacher lady, British MI6//9251//11545, E03, USB, 1900 (TY)
6979.5: Russain Air Defense, Russian pseudo-TS, sending CW, 1009 (TY)
6982: The Cuban Cut CW numbers in progress, 1205. Similar but non-parallel TX was heard on 9331kHz (TY)
6986: ART2, Israeli Mossad, E10, USB, 1915 (TY)
7039: SLHFMs-F and M, Vladivostok and0Magadan, Russia, MXC, CW, 1218 (TY)
7322: FTJ, Israeli Mossad//4461, E10, USB, 1930 (TY)
7337: Lincolnshire Poacher lady//9251//12603, E03, USB,1800 (TY)
7358: FTJ, Israeli Mossad, USB, 2100 (TY)
7445: MIW2, Israeli Mossad,USB, 1815 (TY)
7473: Link11, AM, 0820 (TY)
7496: CYP UK RSC EPISKOPI MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
7496: HSP UK RSC HANSLOPE MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
7540: JSR, Israeli Mossad, E10, USB, 1900 (TY)
7540: UNID station repeating OO6D over and over, CW, 2222 (TY)
7605: VLB2, Israeli Mossad, USB, 1945 (TY)
7635: Shares trying yo clear frequency no net today because of emergency services 9/11/01. 2100 (LH)
7646: DDH7 Hamburg Meteo 0521 BAUDOT 50/400 w/call tape. (MADX)
7646: DDH7 HAMBURG MET RTTY//50/N/440 "General situation. Eng channel then forecast. Eng Chan West ""southwest 10 to 11, gusts of hurricane force, later decreasing 8""""MR. (DW)
7650: T159: UNID 0630 MIL-STD 188-141A/USB w/sounding call. (MADX)
7668: 8BY, French Intelligence//10248//14932,VVV 8BY followed by 3FG's separated by a slant bar, M16, CW, 1840. (TY)
7677: HBD20: Bern, Switzerland 14.55 ARQ Receiving 5-lg tfc then sending HOTLINE tfc to London embassy (19Sep01). (PT)
7710: VFF CCG IQALUIT FAX//120/576/N/800 Weak ice chart image in noise floor. (DW)
7817: T159 US MIL ?LOC MIL.STD 188-141A ALE on USB. Sounding. Also at 0245 0315 0345 0415 0445 0515 0545 0615. (DW)
7880: DDK3: Hamburg Meteo 0517 FAX 120/576 w/chart. (MADX)
7880: DDK3 HAMBURG MET FAX//120/576/N/800 Schedule MF (DW)
7885: ZT201a CHINESE DIPLO MIL.STD 188-141A ALE on USB. Clng YT316A DP. (DW)
7885: YT316A CHINESE DIPLO MIL.STD 188-141A ALE on USB. Responds to ZT201A DP. (DW)
7914.8: UNID: prob British mil 0040 PICCOLO-6 20bd encrypted. (MADX)
7918: YHF, Israeli Mossad, USB, 1930 (TY)
7926: UNID Ukraine? 18.30 ITA2 50/ Looks like Ukrainians 19Sep01). (PT)
7978: A25 LATVIAN MIL MIL.STD 188-141A ALE on USB. Clng PAMATS. 1612 clng LIELVA MI (DW)
7992: KUW UK RSC KUWAIT MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
8003: SWAMP 79: C-17A Tail #99-0060 1908 USB wkg Rota w/arrival msg on an ALE-originated pp. (MADX)
8027: Link11, AM, 2150. (TY)
8050: CLM41 VENEZUELAN ARMY ?LOC MIL.STD 188-141A ALE on USB. Clng CLC4 [AMD] IH3 MI (DW)
8050: CLM VENEZUELAN ARMY ?LOC MIL.STD 188-141A ALE on USB. Clng CLC41 MI (DW)
8057.5: UNID, OM/RR (look like) w/ telephone numbers, probably Warsava area, 1545 USB. (LA)
8103: 4XZ, Haifa, Israeli Navy, with V-marker, M22, CW, 2214. (TY)
8125: SHARES coordinated net 1500 (LH)
8136: The Cuban Cut CW nbrs, DGI, in progress, M08a, CW, 1114. Similar but non-parallel TX was heard on 10346kHz. (TY)
8143: Marine yl and ym in conversation yl ask are you going to Cove Marina? 9/11/01 0010 (LH)
8157: Numbers yl groups of five letters 9/12/01 0242 (LH)
8165: A25 LATVIAN MIL MIL.ALE 188-141A ALE on USB. Clng OZOLS Also at 1802 MI (DW)
8165: OZOLS LATVIAN MIL MIL.ALE 188-141A ALE on USB. (DW)
8260: M40: N. Korean Numbers Station 0500 CW w/5FGs (36wpm). (MADX)
8335.3: DRAE: *FGS Luetjens* (D 185) 2300 USB + 3CH VFT wkg DHJ59: German Navy Wilhelmshaven. (MADX)
8375: Chinese female numbers, Beijing, Chinese Intelligence, usual null message format, AM, 1500 (TY)
8401.2: 15WRAC POLISH KFOR MIL.STD 188-141A ALE on USB. Clng OPE(RACY JYNPKW)(Warsaw?) MI (DW)
8401.2: 1KZDJAN POLISH KFOR MIL.STD 188-141A 1KZDJANKOVIC. ALE on USB. Clng OPERACYJNY PKW(Warsaw?) MI (DW)
8421.5: LZW (probably): Varna Radio 0248 SITOR-B 100/170 w/tfc list (MADX)
8439: PBC: Royal Dutch Navy Goeree Islands 0248 BAUDOT 75/810 w/CARB. (MADX)
8453: FUG: French Navy Le Regine 0244 BAUDOT 75/810 w/call tape. (MADX)
8464: Lincolnshire Poacher lady//**5422/ /6485**, USB, 1900 (TY)
8465: CIO2, Israeli Mossad, E10, USB, 1845. (TY)
8495: SLHFMs-D and F, Odessa and Vladivostok, Ukrain and Russia, MXC, CW, 1339. (TY)
8515: UFL Vladivostok rdo 1010 FEC w/RYs QSS 8515/12955 tape & tfc list (ML)
8515: UFL Vladivostok rdo 1040 RTTY 50/170 msg to UEFW PB Zaliv Vostok (ML)
8588: The noisy slot machine, XSL, AM, 0954. (TY)
8642.1: Royal Navy Faslane 0137 BAUDOT 75/340 w/CAARB. (MADX)
8700: Commando solo (USAF EC-130) broadcast with Afghan music and talk at 0200 in USB. (RW)
8703.5: The noisy slot machine, XSL, AM, 0954 (TY)
8764: NMC: USCG CAMSPAC 0440 USB w/Highseas Forecast. (MADX)
8805: Mossad lady, already in progress, USB, 1735 (TY)
8828: Honolulu VOLMET 0525 USB w/aviation WX. /6679/ (MADX)
8837: ELAL, Tel-Aviv, wkg UNID a/c, with appointment via GSM cellular, Hebrew 2005 USB (LA)
8912: TRC US COTHEN ?LOC MIL.STD 188-141A ALE on USB. Sounding NG (DW)
8912: TRC US COTHEN ?LOC MIL.STD 188-141A ALE on USB. Sounding. Aslo 0225 0311 0356 0527 NG (DW)
8921: "Speedbird" London wkg many British a/c, EE 2000 USB (LA)
8930: REACH 19: 0357 USB wkg UNID ground station. (MADX)
8957: Shannon Volmet Ireland WX 9/17/01 2343 (LH)
8971: Darwin RAAF, Australia, wkg UNID a/c, EE 1924 USB (LA)
8983: Karachi, Pakistan, wkg national a/c with position report at 2005 USB.
8989: "CH08" wkg "ONY", OM/EE 0854 USB (LA)
8992 : PUERTO RICO: 0510 USB wkg MCclellan w/radio check. (MADX)
9001: Kinloss Rescue, United Kingdom, EE 1905 USB (LA)
9007: "Stacking" x 2, follow message and authentication code, EE 1925 USB (LA)
9021: Link11, AM, 2114 (TY)
9023: Kilo wkg Uncle Sam and Hotel 0238 (LH)
9035: UNID net, furnished numerical codes associated with the capital cities of South American countries, SS 2230 USB (LA)
9035: "0610", airplane in 34∞N 30∞W (Azorre Island area) wkg "N321", OM/SS 0500 USB (LA)
9041: 5YE NAIROBI MET RTTY//100/N/850 Met tfc.MR (DW)
9044.9: 5YE NAIROBI METFAX//180/576/N/800 Numerous (fuzzy) chart of African Continent and W Indian Ocean MF (DW)
9050: 176 CHINESE DIPLO MIL.STD 188-141A ALE on USB. Clng 162 DP (DW)
9050: PAR FRENCH NET MIL.STD 188-141A ALE on USB. Sounding. CO (DW)
9114: FAAZDC FAA WASHINGTON MIL.STD 188-141A ALE on USB. Sounding. Also 0153 0253 0354 0458 0803 NG (DW)
9121: A25 LATVIAN MIL MIL.STD 188-141A ALE on USB. Clng PAMATS. 1611 clng LIELVA MI (DW)

9130: EZI, Israeli Mossad//**6840**//**11565**, USB, 2200 (TY)
9153: The Cuban Cut CW numbers, DGI, in progress, M08a, CW, 1015. Similar but non-parallel TX heard on 9323 kHz (TY).
9202: YHF2, Israeli Mossad//**10648**, E10, CW, 1830 (TY)
9219: The CIA Couting numbers//**10527**, E05, USB, 2200 (TY)
9235: UNID net, master station call in continuation, central Asia language, 2000 USB (LA)
9238: The Cuban Cut CW numbers, DGI, already in progress, M08a, CW, 0914 (TY)
9239: The Cuban Cut CW numbers, DGI, already in progress, M08a, CW, 1023. Similar but non-Parallel TX heard on 9323 kHz. (TY)
9251: Lincolnshire Poacher numbers, British MI6, with pulse-type jamming.//**7337**//**12603**, USB, 2100 (TY)
9323: The Cuban Cut CW numbers, already in progress, M08a, CW, 1023. Similar but non-parallel TX heard on 9239 kHz. (TY)
9331: M08a, The Cuban Cut CW numbers, DGI, in progress, M08a, CW, 1210 (TY)
9331: The Cuban Cut CW numbers in progress, M08a, CW, 1205. Similar but non-parallel TX was heard on 6982 kHz. (TY)
9360: OXT COPENHAGEN MET FAX// 120/576/N/800 Ice chart MF (DW)
10018: Bombay and Karaci, Indian and Pakistan air controll w/ tfc, EE 2000 USB (LA)
10046: 4XZ, Haifa, Israeli Navy with V-marker, M22, CW, 2135 (TY)
10051: Gander VOLMET 0524 USB w/aviation WX. (MADX)
10126: The Cuban Cut CW numbers, DGI, already in progress, M08a, CW, 0926 (TY)
10127: The Cuban Cut CW numbers, DGI, already in progress, M08a, CW, 1124. Similar but non-parallel TX heard on 10715kHz. (TY)
10200: Chinese female numbers, AM, 1600. "All listening stations in the country. This is Beijing calling." Repeats above for approx. 5 mins. Ends with "thanks". First time I've ever heard this one on 10200 kHz. (TY)
10345: The Cuban Cut CW numbers, DGI, already in progress, M08a, CW, 1122. Similar but non-parallel TX heard on 10446 kHzs. (TY)
10346: Link11, AM, 0910 (TY)
10346: The Cuban Cut CW nbrs, DGI, in progress, M08a, CW, 1114. Similar but non-parallel TX was heard on 8136 kHz. (TY)
10352: VVV CQ 995.297, M40, North Korean Intel. M40, CW, 2300 (TY)
10392: CYP UK RSC EPISKOPI MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
10392: HSP UK RSC HANSLOPE MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
10392: PRI UK RSC PRISTINA MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
10426: Lincolnshire Poacher numbers// **12603**//**14487**, E03, USB, 1400 (TY)
10446: The Cuban Cut CW numbers already in progress, M08a, CW, 1115(TY)
10493: WAR 46 wkg UNID radio check and asking another person to pick up net, in Michigan 9/11/01 2107, (LH)
10493: Shares Coordinated net 9/12/01 1500 (LH)
10520: Chinese female numbers, Chinese Intelligence, Beijing, China, V22, AM, 0030. "All listening stations in the country. (x3)This is Beijing calling. (x2)", Repeats above for approx. 5 mins. Ended with ìthanks". (TY)
10520: The CIA Counting numbers//**9219**, E05, USB, 2200 (TY)
10583: The CIA Countig numbers//**11580**, E05, USB, 2100 (TY)
10620: VVV CQ 747.820, North Korean Intelligence, M40, CW, 1000 (TY)
10648: YHF, Israeli Mossad, E10, USB, 1830 (TY)
10648: MIW2, Israeli Mossad, USB, 1845 (TY)
10715: The Cuban Cut CW numbers, DGI, already in progress, CW, 1124. Similar but non-parallel0TX heard on 10127 kHz. (TY)
10746: SAB GW Goeteborg 2320 CW id & ARQ tuning (ML)
10750: Chinese female numbers, Guangzhou, Chinese Intelligence, with null message, AM with echo. V09, 1500 (TY)
10822: UNID stn 4XML Rptng "V BFR7 DE 4XML" over and over, CW, 0848 (TY)
10845: Link11, AM, 0833 (TY)
10872: SLHFM-M, Magadan, Russia, MX, CW, 1254 (TY)
11072: The CIA counting numbers, E05, USB, 1800 (TY)
11175: RADAR 10 with p/p via Offutt AFB to an unknown party USB from 2137-2157 (CG).
11175: GASSER 31 with p/p via Andrews AFB to "Offutt Scheduling" USB from 2058-2104Z (CG).
11175: JAMBO 22 with p/p via Andrews AFB to "JAMBO Scheduling" USB from 2104-2107 (CG).
11175: JAMBO 22 with p/p via Offutt AFB to "JAMBO Scheduling USB from 2133-2137 (CG).
11175: HOBO 77 with p/p via Offutt AFB to "command post" USB from 2014-2020 (CG).
11175: Stn requesting radio check, answered by Andrews AFB in USB at 2055 (CG).
11175: Puerto Rico calling a number of stations for radio check, including Offutt, Andrews, Ascension, Hickam and more USB off and on from 2053 till at least 2200 (CG).
11226: "260Y" wkg Andrew VIP, WX report, EE 1935 USB (LA)
11232: Trenton Military departing Clear water 9/12/01 2300 (LH)
11244: Andrew AFB, EAM message, EE 2047 USB (LA)
11253: RAF VOLMET 0534 USB w/aviation WX. (MADX)
11384: 007 ARINC SHANNON HFDL// on USB. Quitters AE (DW)
11432: The Cuban Cut CW numbers already in progress, M08a, CW, 0835 (TY)
11432: UNID: Long Distance Trucking Net 0600 USB Lotsa chat between Zimbabwe & Pretoria (RH2)
11445: C07 US BIO-WARFARE NET MIL.STD 188-141A ALE on USB. Clng C11 NG (DW)
11445: ALL US BIO-WARFARE NET MIL.STD 188-141A ALE on USB. Clng OPS. 2111 Clng CDR. NG (DW)
11465: 616 ISRAELI AF MIL.STD 188-141A ALE on USB. Sounding MI (DW)
11465: 055 ISRAELI AF HQ MIL.STD 188-141A ALE on USB. Sounding MI (DW)
11483: RFGW: Paris, France 15.45 FEC-A 192/400 5-lg tfc to Prague Embassy. (PT)
11523: PRI UK RSC PRISTINA MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
11523: ISL UK RSC ?LOC MIL.STD 188-141A ALE on USB. Sounding MI (DW)
11545: Lincolnshire Poacher lady//**12603**// **13375**, USB, 1700 (TY)
11550: T159: UNID 1157 MIL-STD 188-141A/USB w/sounding call. Also on 9124 at 1200. (MADX)
11565: EZI, Israeli Mossad//**9130**, USB, 1830 (TY)
11580: The CIA Counting numbers//**10583**, E05, USB, 2100 (TY)
11642: ASI UK RSC ASCENSION MIL.STD 188-141A "ALE on USB. Sounding. Also 0248, 0515" MI (DW)
12138.5: SU1: FBI Salt Lake City 0635 MIL-STD 188-141A/USB clg SUP03: FBI. (MADX)
12144: CYP UK RSC EPISKOPI MIL.STD 188-141A ALE on USB. Sounding MI (DW)
12144: PRI UK RSC PRISTINA MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
12161.7: Unid: Algeria 143 Pactor 200/400 (PT)
12170: 8BY, French Intelligence//**7668**// **10248**//**14932**, M16, CW, 2140 (TY)
12242: Alfa 92 wkg Alfa 76 told 76 they were using VHF and Data 9/10/01 2312 (LH)
12362: Caribbean weather net, in USB at 1300. Believe this to be David Jones weather from British Virgin Islands. See www.caribWX.com (RW)
12376: CIO2, Israeli Mossad//13921, E10, USB, 2245 (TY)
12412.5: NOJ USCG KODIAK FAX// 120/576/N/800 "Weak, r/t qrm. Grainy sfc analysis" MF (DW)
12489: UBVI M/V Alexandre Kerosinskii 0950 ARQ msg EE to Vladivostok (ML)
12510: UEUB TH Pasifik Briz 1111 ARQ w/UFZ DE UEUB log on & tfc to Vladivostok (ML)
12510.5: BPJA M/V Chang Qing 1113 ARQ tfc to Guangzhou (ML)
12510.5: BPDC M/V Ning An 3 1117 ATQ msg to Guangzhou (ML)
12510.5: BPEL M/V Chang Tong 1126 ARQ msg to Guangzhou (ML)
12510.5: BROR M/V Ba Da Ling 1108 ARQ SELCAL QVXY (2017) & msg to Guanghzou (ML)
12510.5: BRRY M/V Guang Yuan 1100 ARQ msg to Guangzhou (ML)
12519.5: UCAU MTR Bata 0847 RTTY tfc to Sevastopol (ML)

12547.5: BPDJ M/V Ning An 10 0947 ARQ CHISREP msg to Shanghai (ML)
12547.5: BPLG M/V Zhan Xin 0923 ARQ SELCAL QVXV (2010) & CHISREP msg to Shanghai (ML)
12570: UDTO Ostrov Popova 1026 ARQ tfc for Vladivostok (ML)
12570: UIAM TH Sibirskij-2119 1029 ARQ msg to Vladivostok (ML)
12603: Lincolnshire Poacher numbers**//11545//13375**, E03, USB, 1700 (TY)
12831.9: 3SD NMEFC BEIJING FAX// 120/576/N/800 Very weak signal in noise. Only dead-zone marker visible MF (DW)
12832: UNID: CIS Navy 1940 36-50 50/240 Unable decode (RH2)
12832: RDL CISB SMOLENSK CW(F1A-200HZ)""XXX RDL figs"" then into brief burst of 50bd data." MI (DW)
12832.5: JFC Misaki Fishery Radio CW, 0903 wkng fishing vessel CO (DW)
12948: 4XZ, Haifa, Israeli Navy, with V-marker, M22, CW, 2214 (TY)12950: VVV CQ 747.439, M40, North Korean CW numbers, M40, CW, 1030 (TY)
12984: 4XZ, Haifa, Israeli Navy, with V-marker, M22, CW, 2320 (TY)
13149: CYP UK RSC EPISKOPI MIL.STD 188-141A, ALE on USB. Sounding. MI (DW)
13149: KUW UK RSC KUWAIT MIL.STD 188-141A, ALE on USB. Sounding MI (DW)
13282: Honolulu VOLMET 0532 USB w/aviation WX. (MADX)
13375: Lincolnshire Poacher numbers// **11545//12603**. USB, 1700 (TY)
13442: 055 ISRAELI AF HQ MIL.STD 188-141A, ALE on USB. Sounding MI (DW)
13508: CENTR7 MFA BUCHAREST MIL.STD 188-141A ALE on USB. Clng ZMF/UNID emb. DP (DW)
13528: SLHFMs-C, F and S, Moscow, Vladivostok and Arkhangelsk, Russia, MXC, CW, 1336 (TY)
13533: EZI, Israeli Mossad//11565, E10, USB, 1430 (TY)
13570: HLL SEOUL MET FAX//120/576/N/800 (DW)
13570: HLL2 SEOUL MET FAX//120/576/N/800 Sea surface temp obs? - blurred. 0740 sfc analysis MF (DW)
13597: JMH4 TOKYO MET FAX//120/576/N/800 24 hr Wave prog. (shows trop cyclone) MF (DW)
13882.5: DDK6 HAMBURG MET FAX// 120/576/N/800 Surface chart with plotted data MF (DW)
13906: The CIA Counting numbers//15732, E05, AM, 1200 (TY)
13921: CIO2, Israeli Mossad//12376, E10, USB, 2245 (TY)
13968.5: A25 LATVIAN MIL MIL.ALE 188-141A ALE on USB. Clng OZO. Also at 1801 MI (DW)
13973: IHB8GVA: Geneva, Switzerland 18.16 Pactor(I) 200/200 ICRC? Mailbox working unknown station (09Oct01). (PT)
14367: BAF Beijing Meteo 1146 FAX 120/576 test chart (ML)
14400: OLZ69 CZECH EMB CAIRO MIL.STD 188-141A ALE on USB. Sounding. DP(DW)
14406: FOL: Romanian Embassy (reportedly in Cairo) 0620 MIL-STD 188-141A/USB clg CENTR5 CEX: MFA Bucharest. (MADX)
14422: GAO ALGERIAN EMB GAROUA MIL.STD 188-141A ALE on USB. Clng MAE/Algier DP (DW)
14422: TRP ALGERIAN EMB TRIPOLI MIL.STD 188-141A ALE on USB. Clng MAE/Algiers. Also at 0916 0925 1003 DP (DW)
14467.3: DDH8: Hamburg Meteo 0506 BAUDOT 50/400 w/plaintext WX in German. (MADX)
14487: Lincolnshire Poacher numbers//10426//12603, E03, USB, 1400 (TY)
14505: RFFXC FAVIERES 0730 ARQ-E 72/400 svc msg to RFFXCA, cct UAF, QRT at 1020 (ML)
14580: ASI UK RSC ASCENSION MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
14580: DLD UK RSC DHEKELIA MIL.STD 188-141A ALE on USB. Sounding MI (DW)
14580: CYP UK RSC EPISKOPI MIL.STD 188-141A ALE on USB. Sounding. Also 2347 MI (DW)
14598.5: VVV CQ 995.297, M40, North Korean Intel., M40, CW, 2330 (TY)
14670: CHU TS OTTAWA USB "Time sig, and voice announcement. Barely readable." MS (DW)
14718.3: RFHI: French Forces Noumea 0518 ARQ-E3 100/400 w/5LGs. (MADX)
14731.7: RFFAC: Marine Dipermil Paris 1523 Arq-E3 192/400 Admin Msg\FF to AIG2133 (RH2)
14746.5: A25 LATVIAN MIL MIL.STD 188-141A ALE on USB. Clng PAMATS. 1610 clng LIELVA MI (DW)
14814: CYP: Royal Signal Corps Cyprus 2355 MIL-STD 188-141A/USB w/sounding call. (MADX)
14814: ASI UK RSC ASCENION MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
14814: DKL UK RSC DHEKELIA MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
14931: 8BY, French Intelligence//7668// 10248, M16, CW, 1840 (TY)
15016: Raven 19 wkg Raven 22 asking how copy and passing messages 9/13/01 2108 (LH)
15732: The Counting numbers//13906, E05, AM, 1200 (TY)
15980: EZI2, Israeli Mossad, USB, 1500 (TY)
16014: RFQP: FF Jibouti 0627 Arq-E3 100/400 CdeV to itself on RUN cid (RH2)
16014: RFVIT: FN Le Port 1531 Arq-E3 100/400 5LG to RFVINVS/Nivoise (RH2)
16023: CMU967 CISN HAVANA CW "Clng ""RMP de CMU967 zzd?""" MI (DW)
16026.9: BAF9 BEIJING MET FAX//120/576/N/800 Vague outlines in noise MF (DW)
16026.9: BAF9 BEIJING MET FAX// 120/576/N/800 Dual chartlet MF (DW)
16027: BAF Beijing Meteo 1145 FAX 120/576 test chart (ML)
16035: 9VF252 KYODO SINGAPORE FAX. Blurred image but improving. Japanese character text PF. (DW)
16084: Lincolnsher Poacher numbers// 11545//13375, E03, USB, 1800 (TY)
16125.2: RFQP FF DJIBOUTI ARQ/342// 200/E/400 "4rc. Two tdm channels. Channels A: B: betas, weak sync thru 1520"MI (DW)
16165.2: RFFA FF PARIS ARQ/342//200/E/400 "4rc. Two chan tdm. Chans A: B: betas, weak sync. No app tfc thru 1612" MI (DW)
16302: Un-ID: Loc unknown 08.47 ITA2 75/400 Encrypted tfc. Signs off with "OK OM TKS 73 SK CAO" (19Sep01). (PT)
16332: SLHFM-M, Magadan, Russia, MX, CW, 0956 (TY)
16348: FAAZDC AA WASHINGTON MIL.STD 188-141A, ALE on USB Sounding. (DW)
16373.2: 8WB4: Teheran, Iran 13.25 ITA2 50/400 INDEM in TEHERAN with MOST IMMEDIATE 5-lg tfc to FOREIGN NW DELHI. (PT)
16520: Chinese female numbers, with null message, V22, AM, 0000. (TY)
16640: DKL UK RSC DHEKELIA MIL.STD 188-141A, ALE on USB. Sounding. (DW)
16640: CYP UK RSC EPISKOPI MIL.STD 188-141A, ALE on USB. Sounding. (DW)
16706.5: UCKT TH Iogan Makhmastal 0840 ARQ msg to Arkhangelsk (ML)
16706.5: UCMV TH Vlas Nichkov 0809 ARQ msgs to Arkhangelsk. (ML)
16706.5: UCOO TH Mekhanik Brilin 0801 ARQ tfc to Arkhangelsk. (ML)
16706.5: UCOR TH Mekhanik Makarin 0941 ARQ tfc to Arkhangelsk. (ML)
16706.5: UHCK TH *Kapitan Glazachev* 0750 ARQ tfc to Arkhangelsk. (ML)
16710.5: UFJI NIS Akademik Mystislav Keldysh 0952 ARQ crew msgs to Kaliningrad (ML)
16710.5: UFSF TK Minusinsk 1028 ARQ msg to Kaliningrad, UFSF log on/off (ML)
16713: UBXE TH Rus' 0007 ARQ tfc to Vladivostok (11OctO1). (ML)
16716.5: UDGA TH Khudozhnik Moor 0935 ARQ msg to Novorossiysk. (ML)
16716.5: UEVI TH Mys Khako 0844 ARQ tfc to Novorossiysk. (ML)
16762: BPEO M/V Chang Lian 1124 ARQ msg to Guangzhou (ML)
16762: BPJF M/V Chang Shun 1059 ARQ QVXY (2017) SELCAL & msg to Guangzhou . (ML)
16762: BRUA M/V Hua Ong Shan 1121 ARQ tfc to Guangzhou (ML)
16774: BPFG M/V Jian She 7 1110 ARQ SELCAL QVXV (2010) & CHISREP msg to Shanghai. (ML)
16774: BRYE M/V Da Qing 240 1106 ARQ msg to Shanghai (ML)
16801.5: UGBE BATM Borisov 0754 ARQ 53450 UGBE log on & msg to Petropavlovsk-Kamchatskiy (ML)
16801.5: UGPA BATM Khotin 0714 ARQ msg to Petropavlovsk- Kamchatskiy (ML)
16801.5: UGPC BATM Irtysk 0719 ARQ tfc to Petropavlovsk- Kamchatskiy (ML)
16806.5: NMF USCG BOSTON SITOR/B// 100/E/170 Idling. WX/Nav bdcst scheduled 1630 failed to appear. MM (DW)

16806.5: NMF USCG BOSTON SITOR/B//100/E/170 WX bulletin + Navarea IV msg. MM (DW)
16808: XSV GW Tianjin CHN 0750 CW id & ARQ tuning (ML)
16979.9: PWZ33 BN RIO DE JANEIRO FAX//120/576/N/800 Sea surface temperature.1817 sea level pressure chart MF (DW)
17384.4: CPK GW Santa Cruz BOL 0615 w/CW id & ARQ tuning (ML)
17396.4: CPK GW Santa Cruz BOL 0620 w/CW id & ARQ tuning (ML)
17410: EZI2, Israeli Mossad, E10, USB,1330 (TY)
17445.5: 5YE NAIROBI MET FAX//180/576/N/800 "Header only, labelled ""Analysis - Indian Ocean""" MF (DW)
17462.7: RFTPA FF NDJAMENA, ARQ/E3//200/E/400 8rc. Betas. Offair 1639 for 2 mins. 1642 cct [FDZ] tfc in FF MI (DW)
17488: RIW CISN KHIVA, CW, Tfc to RKZ. Offline encrypt with accentuated ltrs MI. (DW)
17490: ASI UK RSC ASCENSION MIL. STD 188-141A, ALE on USB. Sounding MI (DW)
17490: CYP UK RSC EPISKOPI MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
18220: JMH5 TOKYO MET FAX//120/576/N/800 24 hr Wave prog. (shows trop cyclone) MF. (DW)
18277: ASI UK RSC ASCENSION MIL. STD 188-141A, ALE on USB. Sounding. MI (DW)
18311.7: Un-ID: Cairo, Egypt 17.17 ARQ MFA with tfc in AA to LKZGCG, Washington Embassy (PT)
18336: 586 UNID MIL.STD 188-141A ALE on USB. Sounding. Also at 1629 CM (DW)
18336: 055 UNID MIL.STD 188-141A ALE on USB. Sounding CM (DW)
18415: 8BY, French Intelligence, M16, CW, 1155 (TY)
18480: OLZ69 CZECH EMB CAIRO MIL.STD 188-141A ALE on USB. Sounding DP (DW)
18598: BRA MFA BRATISLAVA MIL.STD 188-141A, ALE on USB. Sounding. DP (DW)
18605: OLZ84 CZECH EMB ?LOC MIL.STD 188-141A, ALE on USB. Sounding DP (DW)
18864: Cherry Ripe numbers, Guam**//21866,** E04, USB, 1300 (TY)
20048: SLHFMs-C and S, Moscow and Arkhangelsk, Russia, MXC, CW, 1207 (TY)
18974: ASI, UK RSC ASCENSION MIL.STD 188-141A, ALE on USB. MI (DW)
19043: 055 ISRAELI AF HQ MIL.STD 188-141A, ALE on USB. Sounding. MI (DW)
19299: UNID: 1905 CW w/"5" sent repeatedly in groups of 3 (555 555 555, etc). (MADX)
19464: ASI UK RSC ASCENSION MIL. STD 188-141A, ALE on USB. Sounding. MI (DW)
19647: N2G: Sanaa, Yemen 18.25 FEC-A 192/400 French embassy calling P6, Paris, then encrypted tfc on FNS cct (14Sep01). (PT)
19647: ZEME: loc. un-id 15.28 MIL-STD 188-141A Calling A25, also A25 calling OZOLS (14Sep01). (PT)
19762.4: CPK GW Santa Cruz BOL 0600 w/CW id & ARQ tuning (ML)
19762.4: CPK GW NODE SANTA CRUZ CW "Chan free marker (Globe) MM (DW)
19862: MGJ: RN Faslane 0605 RTTY 75/325 Carbs (RH2)
19977: ASI UK RSC ASCENSION MIL. STD 188-141A, ALE on USB. Sounding MI (DW)
20216: A25 LATVIAN MIL MIL.ALE 188-141A ALE on USB. Clng OZOLS Also at 1759 MI (DW)
20535.6: UNID: prob Medecins Sans Frontieres 1932 PACTOR 100/200 w/SEL CALl PACMZG. (MADX)
20555: RFFA FF PARIS ARQ/E//184.5/I/330 8rc. Betas. 1245. Cct [XXL] tfc to RFFXL/ Naqoura in offline encrypt MI (DW)
20596: A25 LATVIAN MIL MIL.STD 188-141A ALE on USB. Clng PAMATS. 1609 clng LIELVA MI (DW)
20602: ASI UK RSC ASCENSION MIL. STD 188-141A, ALE on USB. Sounding. MI (DW)
20610: HBD48 SWISS EMB RIYADH, SITOR/A//100/E/170 "Period of irs till 1400. Signs off "" (HDB48)." DP (DW)
20946: 8BY FRENCH INTELEGENCE PARIS CW "Marker ""vvv 8BY 506/663/475""" MS (DW)
20995.7: RFPTA FF NDJAMENA ? ARQ/E3//200/E/400 8rc. Betas. No app tfc thru 1547 MI (DW)
21857.9: OZU25 MFA Copenhagen 1130 TWINPLEX 100/400 TPOY SELCAL & op chat to Bangkok (ML)
21862.9: OZU25 MFA Copenhagen 1120 TWINPLEX 100/400 TPIQ SELCAL & op chat to Harare (ML)
21867: ASI UK RSC ASCENSION MIL. STD 188-141A, ALE on USB. Sounding. MI (DW)
22288.5: V3BM RTMS Musson 0824 ARQ msg, headed RTMS MUSSON/V3BM, to Kaliningrad (ML)
22354.4: J8LZ5: MV Juno Endeavour 15.40 ITA2 50/170 Tfc to UNID, Ukraine mentioned (PT)
22376: NMC: San Francisco, USA 15.12 FEC Very long trans of WX reports and forecasts originating SF, Guam and Yokosuka (PT)
22387.5: SVT7: Athens, Greece 13.20 FEC Report on Tuesday's European soccer games in anglicised Greek (PT)
22461.4: 8PO GW NODE BARBADOS CW "Chan free marker (Globe) ""8PO""" MM (DW)
22490: UCE ARKHANGELSK RADIO 3SC//50/R/170 Tfc in 3sc to UNID ship MM (DW)
22522.9: JMH6: Tokyo, Japan 11.25 FAX 120/576 WX chart with Japanese writing (19Sep01). (PT)
22542: JJC KYODO TOKYO FAX//60/576/N/800 Press in Japanese script - blurred PF (DW)
22600: LSD836 GW NODE ARGENTINA CW "Chan free marker (Globe) ""LSD836"". Wkng ship in Globedata" MM (DW)
22610.5: CLA50 HAVANA RADIO CW "Marker ""CQ de CLA QSX c/11 8368/12552/16736 TX 8573/12673.5/16961 QSW CLA20/32/41/50 QRJ c/1217k""" MM (DW)
22628.5: VTG9 IN MUMBAI CW Tfc in offline encrypt (4fig grps). Rasping note. (DW)
22769: 616 ISRAELI AF MIL.STD 188-141A ALE on USB. Sounding. MI (DW)
22847.4: CPK GW Santa Cruz BOL 0910 w/CW id & ARQ tuning (ML)
22847.4: CPK GW NODE SANTA CRUZ CW "Chan free marker (Globe) ""CPK""" MM (DW)
22853.4: CPK GW Santa Cruz BOL 0605 w/CW id & ARQ tuning (ML)
22853.4: CPK GW NODE SANTA CRUZ CW "Chan free marker (Globe) ""CPK"". Just readable" MM (DW)
22857: RFVI FF LE PORT ARQ/E//100/E/400 8rc. Betas. 1423 cct [VII]. Copntrole de v svc RFVI de RFVI. Tfc in offline encrypt MI (DW)
23101.7: Egyptian Emb Pyongyang (JG YSLGQ SKGQ) 0620 ARQ msg in ATU-80 to Cairo (ML)
23265.4: HGX44:Baghdad, Iraq 10.20 DUP-ARQ 125/170 Hungarian EM with tfc in HH to HGX21, Budapest. (PT)
23337: PLA: Lajes Field, Azores 1320 Ale/USB SND (RH2)
23337: ADW: Andrews AFB 1350 ALE/USB SND Many repeats later. (RH2)
23337: CRO: Croughton AFB 1358 ALE/USB SND Many repeats later. (RH2)
23337: JNR: Salinas PRT 1359 ALE/USB SND Many repeats later. (RH2)
23337: Guam 1416 ALE/USB SND Many repeats later. (RH2)
23337: OFF: Offutt AFB 1421 ALE/USB SND Many repeats later. (RH2)
23337: Diego Garcia 1550 ALE/USB SND (RH2)
23354.5:Baghdad, Iraq 150 Cuban Embassy with encrypted tfc then SS tfc to CLP, Havana (PT)
23370: HZN50 JEDDAH MET RTTY//100/R/850 Met tfc MR (DW)
23461: Cherry Ripe numbers, Guam//18864, E04, USB, 1200 (TY)
23740: Israeli Mossad already in progress, E10, USB, 1410 (TY)
24332: GXQ RN LONDON PICC// "On standby. 1740 6 tone. ""de GXQ"" and some opchat re system problem" MI (DW)
24644: Cherry Ripe numbers, Guam//18864, E04, USB, 2200 (TY)
25012.4: MGJ RN FASLANE RTTY//75/N/""278059 de MGJ GRV GRV GRV"". CARB with ID MGJ" MI (DW)
25012.4: GYA RN LONDON RTTY//75/N/340 "CARB. ""02q 03p 04p 06p 12q 16p 16q 22p 25p GYA"" then idle on Mark." MI (DW)
25500.5: MTS: Port Stanley, Falkland Is. 12.30 Piccolo 6 Op "GEC DE MTS GXQ DE MTS LOLOLO....." (PT)
25806: VTP Indian Nvy Mumbai 1050 RTTY

50/1260 ID tape & 4LG msg, harmonic of 12903 (ML)
26135.4: 8PO GW Bridgetown BRB 2300 w/CW id & ARQ tuning (ML)
26161.4: CPK GW Santa Cruz BOL 0525 w/CW id & ARQ tuning (ML)
26170.4: CPK GW Santa Cruz BOL 0620 w/CW id & ARQ tuning (ML)
26241.7: RFVI: French Forces Reunion 1226 ARQ-E3 100/400 w/CdV on ckt [REI]. (MADX)
26241.7: RFVI FF REUNION ARQ/E3//100 /E/400 tfc in offline encrypt thru 1316" MI (DW)
26441.7: RFFIM FN Paris 1650 Arq-E3 100/400 5lg to RFVIMCR/FN Le Port on IRE cid(RH2)
26441.7: RFFA FF PARIS ARQ/E3//100/ E/400 8rc. Betas. Cct [IRE]. Poor (DW)
29810: Argentine broadcasting (Radio Lis ?), relay by national mil network, SS 1630 LSB (LA)
29965: UNID, YL/RR with many brief msg, directive for local service, probably radio taxi, 0930 FM (LA)

For those who has contributed logs, many thanks.

TY	Takashi Yamaguchi MD of Nagasaki, Japan
CG	Chris Gray
RH	Robert Hall
RW	ColonelDX, KY
DW	Day Watson, UK
LA	Lupo Alberto, Venice Italy
LH	Lenroy Hogan
MADX	Midatlanticdxer, MD
ML	Murray Lehman
PT	Peter Thompson, UK
RH2	Robert Hall, RSA

Your Ideas And Suggestions, Please!

Next month I hope to get back on track writing about utility radio topics. Speaking of that, I would like to ask for suggestion, for new topics. Likewise I would also like to ask people who read this column for writing contributions. As you have seen in past issues, I've been able to put forward some excellent work by people who have a lot of skill and experience to contribute. Don't worry about writing the material yourself. Just get me your ideas and information and I will put it together so that it can be used in the column.

Until next time then, may all of your monitoring sessions be successful. Likewise, continue to pray for success in ending this war against terrorism quickly, and for all members of the armed services who are currently on duty protecting the United States and the world. ■

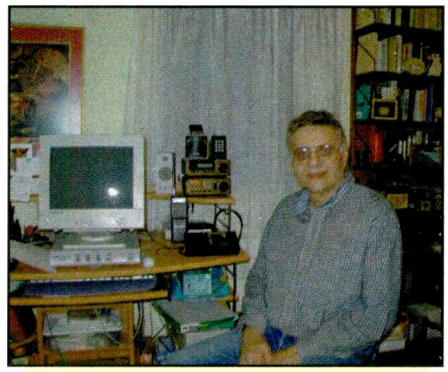
v.i.p. spotlight

Congratulations To Daniel A. Grunberg of Maryland!

Popular Communications invites you to submit, in about 150 words, how you got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, your photo (no Polaroids, please) should be included.

Each month, we'll select one entry and publish it here. Submit your entry only once; we'll keep it on file. All submissions become the property of *Popular Communications*, and none will be acknowledged or returned. Entries will be selected taking into consideration the story they relate, and if it is especially interesting, unusual, or even humorous. We reserve the right to edit all submitted material for length, grammar, and style.

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to *Popular Communications*. Address all entries to: "V.I.P. Spotlight," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801 or E-mail your entry to popularcom@aol.com, letting us know if you're sending photos. Please print your return address on the envelope if using the postal mail system. Not doing so will delay your submission being processed. If you're E-mailing photos, please send them in a separate E-mail with your name in the "subject" line.



Dan Grunberg at his monitoring post in Maryland. His equipment includes a Panasonic RF-B65, Uniden Bearcat BC200XLT scanner, MFJ-24-hour LCD clock, Optimus XTS-3 speaker, Lowe HF-150, keypad for HF-150, and a Lowe preselector. (Photo by Kenneth Chun).

Our February Winner: Daniel Grunberg Of Kensington, Maryland

Pop'Comm reader, Daniel Grunberg talks about his involvement in radio and a "historical perspective" saying, "I was born in Antwerp, Belgium, a couple of years before World War II started. Although my father was born in Belgium and my mother was born in New York, both of my parents were American citizens doing business in Antwerp. The situation in Germany was not fully reported in the European press, but, fortunately for us, early in 1939 my New York grandparents made an extremely expensive trans-Atlantic phone call to talk some sense into my parents. We returned to my grandparents' home in Brooklyn, New York, almost immediately. My mother went back to teaching school, and my father went into business in New York.

A few days after Canada declared war on Germany, my father, too old for the U.S. Army, went north to Canada to enlist. He was given a battery of aptitude tests, and my amateur-musician father aced the rhythmic-pattern telegraphy-aptitude test. The Canadian Army trained my father to be a signalman.

When my father returned from the war, he wrote the Morse code's dits and dahs, and the phonetic alphabet's Ables, Bakers, and Charlies on my toy blackboard. My father bought me a surplus J-38 key and a buzzer mounted on piece of wood, and told me about ham radio. Five years later, I began to study from that blackboard, and I got my ticket." ■

mean that I would not say anything on a wireless phone or two-way radio that was intended to remain private. Not a difficult concept to grasp. Much like talking to a friend on a crowded bus. Whether or not you like it, you have an audience. By making it illegal to monitor wireless phone calls, did we provide terrorists with a low-cost, secure communications system?

The push for privacy is taking away another "check and balance" in our system of government. Police and fire agencies across the country are converting to trunked and/or digital systems, many based on the APCO 25 format but very easily encrypted so as to be unintelligible to the average listener. It's unintelligible anyway, because as of this writing, no one has introduced a scanner that can copy digital transmissions. It is reported that Los Angeles media outlets are buying expensive commercial transceivers and begging to get them programmed by whatever means they can to restore their ability to monitor public safety transmissions. Is there something wrong with this scenario?

Now, I believe that in this country, individuals do have a right to privacy but nowhere in the Constitution can I cite a passage that states the government has an absolute right to privacy in all its communications. The Bill of Rights puts limits on government, not the people. I'll concede that certain agencies, such as the Secret Service and the military, have a need for security. But I'm sorry, not everything the cops and firemen and other public servants have to say is secret, nor should it be. There are many legitimate reasons to know what public safety agencies are reporting. Rioting in a defined area? The location of the tornado? Godzilla marching up Main Street? Some of the radio communications surrounding the Rodney King beating incident in Los Angeles showed that when radio communications can be conducted away from public scrutiny some very awful things can be said. Had those LAPD communications been in the clear, perhaps the public would have been better informed that there are indeed some bigots in places where they do not belong. Public safety is the public's business. We pay for it. We should be able to listen to most of it. When secrecy is needed, let a judge make that determination, as is done for wiretaps. When you can't monitor the activities of your public servants, just whom are they serving? And how well are they doing it?

Worst of all, the trend toward secure government communications has had some (more) unintended consequences. There have been severe communications problems reported in New York, Los Angeles, and Washington D.C. as police and fire agencies in those cities have converted to digital and found the system does not work as well as the older analog systems. The manufacturer says there is no problem. The cops and firefighters whose lives are on the line say there is. Which side do you believe? So, for a few bells and whistles like addressable radios, millions are spent on a system that is inferior in many ways, except for the ability to encrypt routine communications.

Here's another way encryption cuts both ways: It has been reported that reputed terrorist factions have been purchasing "secure" communications devices. We must now come to grips with the notion that the good guys have it, the bad guys have it, and we have no means of tracking either.

No one knows if the monitoring public might have had a role in averting this tragedy, or might in the future. The ability to monitor our radio spectrum could have made a difference, and that's enough for me. I also see a troubling trend when the government gets more and more privacy while we the people get less. The incidents surrounding September 11, 2001 have given us much to think about.

Finally, here's a salute to those communications volunteers who have given their time and the use of their skills and equipment in the recovery effort. When the cell phone system failed due to damage and over demand, once again, ham radio came through. Those volunteers are people who put true magic in the sky for the benefit of others. On behalf of a grateful nation, thank you. ■

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loose connection

radio communications humor

by Bill Price, N3AVY

A Communication Museum

My friend Dave told me I should call this one "A Trip to a Radio Museum," or something like that. Museums are organized. They dust. They label their things and maintain a sense of order, and they usually only have one of each item. My "closet" is not really a closet - it's several closets, part of a basement, a few square feet in my mother's attic, a few square feet at friends' houses, and a good portion of an outdoor shed.

I know I've been away from my friend Norm for way too long; first of all, because I miss him, and second, because I can't remember what that radio was that he has collected so many of. ARC-5, I think. Norm, are you out there? Is that what you collected so many of?

This morning, at work, Dave reminded me of something we all miss, and something you'd find in my closet: A 12V car radio with a vibrator power supply. Oh, the hum - and what a powerful hum it was - especially as they got old and the rubber insulation worked loose and dried out, turning your entire dashboard into a giant foot-massager until it finally gave out.

Today, we have FM stereo, fancy speakers, and all that, but in the '50s there was a big AM radio sitting in that dashboard with a vibrator power supply (to supply the necessary AC) and a big speaker which, at least within the confines of my memory, had a bigger sound than anything available today. Maybe it was just that Joe Niagara and Hy Lit had deeper voices.

I moved that old Buick radio aside and found a few mercury vapor rectifier tubes - those ones with the nice blue glow. I probably lost a few IQ points when I took them apart.

Some people don't understand "taking things apart." Try this simple test:

Have you ever cut a golf ball open?

If you answered no, then you don't understand. If you answered, "Of course, hasn't everyone?" then you may just qualify for free admission to Bill's Closet if I ever go public with it. You too would have taken apart dangerous things containing evil and unknown chemicals, sharp objects, and in the case of some capacitors - enough of a charge to burn you long after the power was removed from the circuit.

I was going to add question number two, but if you're still reading, then you would answer "Yes, of course I've unwound a transformer and saved all the wire on a stick."

How about your first "breadboard" project? Still have at least part of it? I've got a board with a big coil on it. It used to be my antenna tuner 'til I realized how much RF it was putting into the room.

OK - raise your hands - how many of you have either an entire R-390 receiver or at least more than 50% of one, which you were once absolutely certain that you would "get working" some day? Me too.

Bet none of you have a Gibson Girl transmitter! You know, the big yellow thing, sort of an hourglass shape to it (hence the name) with a crank on top. The one that has a helium balloon to raise the fine wire antenna at sea and automatically sends an SOS on 500 kHz when you turn the crank? Well, don't count on it anymore - the Coast Guard has quit maintaining a watch on 500 kHz. Fact is, they don't' even have RADIOMEN any more. They're now "Communication Specialists." I know there are still a few Coasties out there who can copy Morse code, but they're probably dying off fast. I wonder if the flashing light and semaphore have been replaced by satellite communications too.

There are some neat old hand-keys and code practice oscillators in that closet. Oh, there's my Chrome Plated Vibroplex Bug. I'll have to get that out someday and put it on my desk.

The Dynamotor is still outside in the shed. I hope it's not getting rusty. That was a powerful little beauty. Took two of us to lift it out of the trunk from the old sheriff's car. Clever how they used a car battery to run a motor to run a generator to get AC power to run a radio. You don't see ideas like that much anymore.

A box of selenium rectifiers is chewed on the corner by some rodent who went away hungry that day. Guess I wasn't so clever to save them, either.

Nixie Tubes! I knew they'd be hard to find. Good thing I saved them. I know of one elevator that still uses them for the display to show the floor number. Maybe I'll make some money selling them to the building manager. Maybe I'll buy the Brooklyn Bridge and charge everyone to drive across it.

Oh, I almost forgot! MY KSR28 TELETYPE! How I negotiated for that one. 100 wpm! Communication just doesn't get any more modern than that. The finished product comes out already typed. No code to copy, nice, simple paper tape to store messages on. Good thing I bought a few cases of that, too. And those big yellow rolls of paper were sure a bargain.

It really is a museum, this closet of mine. There's my first 8088 computer. And my first printer – a dot matrix - a nine-pin model. Had to have it. Epitome of modern communication. On top of it is the 24-pin model. All of that sits on top of a three-bay eight-inch drive from a TRS-80 computer. Had to have that, too.

Oh - there's the TI-99 and the Sinclair ZX80 - on top of the old Hallicrafters S38-D receiver, and my Globe Chief transmitter. I think there's still a crystal in it.

I don't stop buying these things, though. My latest is a pair of Family Radio (FRS) 14-channel transceivers with sub-audible squelch tones. I also got the neatest little FM transmitter that takes the output audio from my MP3-CD player and transmits it, in stereo, to any nearby radio - even my car radio.

And the voice-stress-analyzer that Wal-Mart sold in their toy department as a lie detector game.

This year, for sure I'm going to set up a table at the hamfest. Absolutely. This year, it's ALL going to someone who can enjoy it.

Well, maybe not the Bug. And a person couldn't very easily replace that Teletype . . . ■

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