Radio–Homeland Security–Computers & Radio–Family & Hobby Comms

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POPULAR COMMUNICATIONS

NOVEMBER 2002

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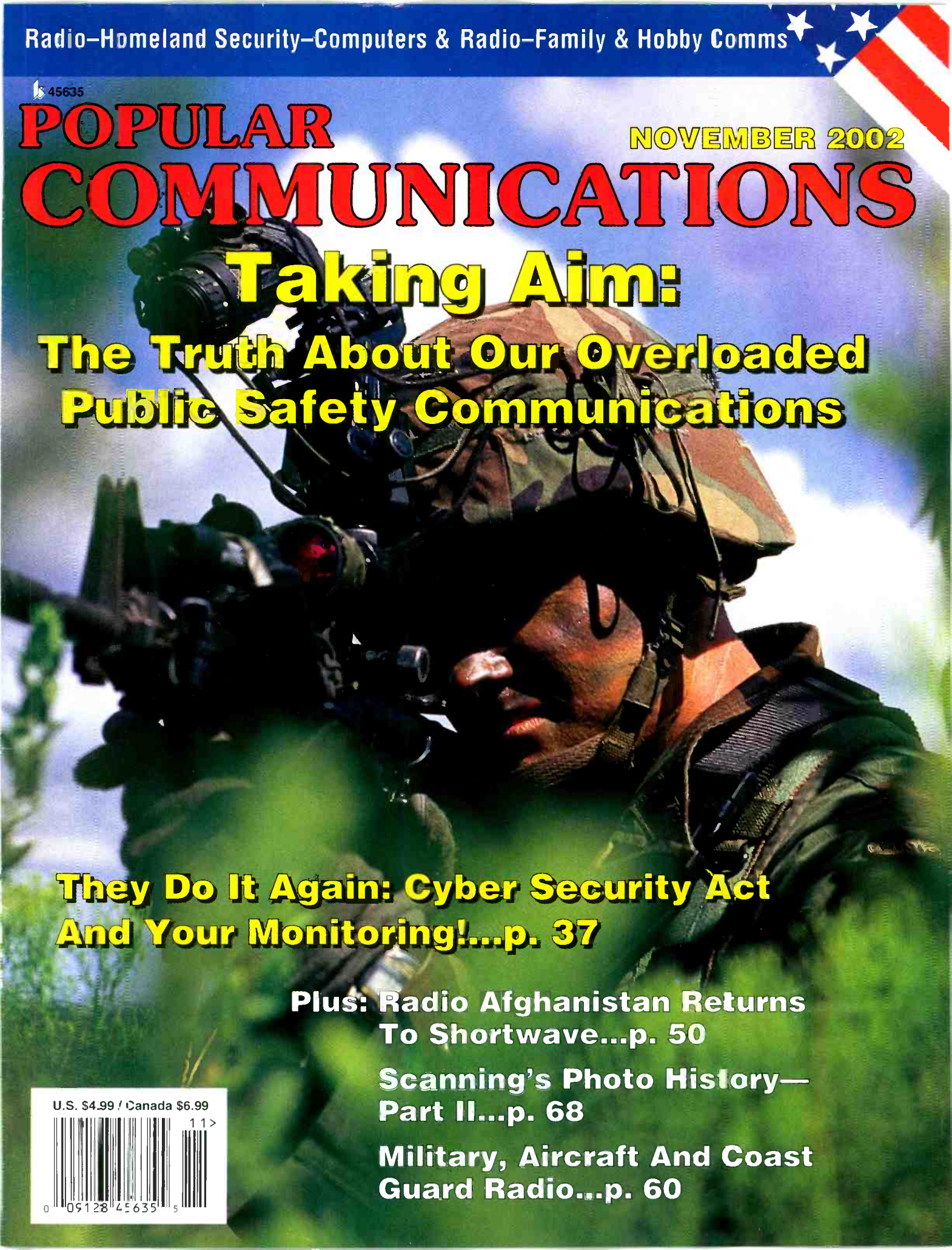

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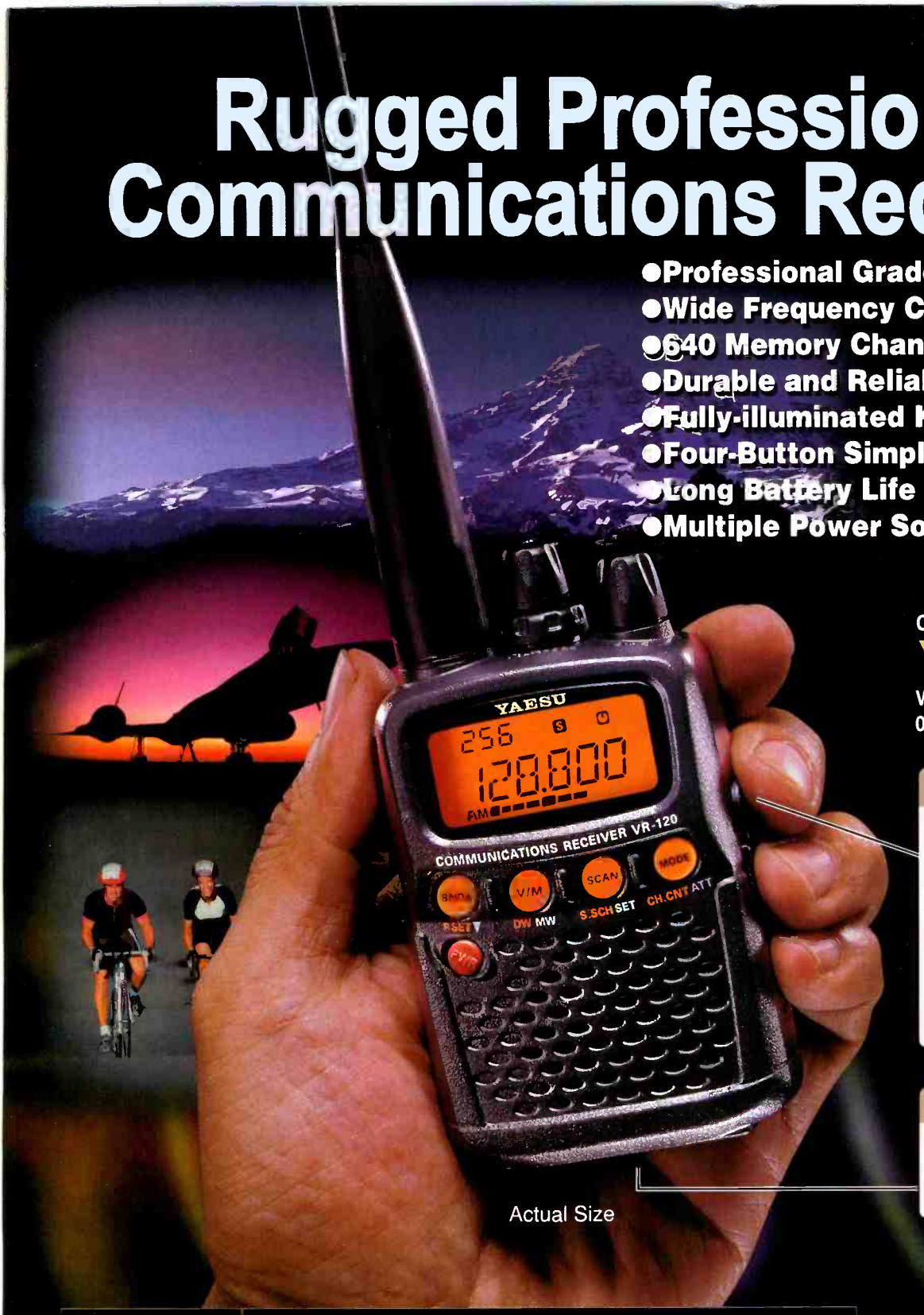

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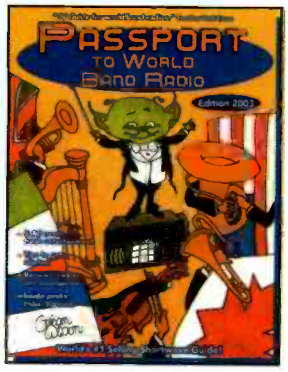

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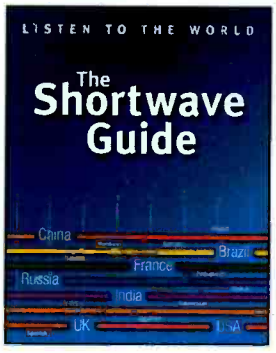

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On The Cover

The War on Terrorism continues. You can hear tons of military, diplomatic, and aircraft communications if you know where to listen. Check out Joe Cooper's "Utility Radio Review" column on page 60—it's your radio roadmap to adventure! (Photo by Larry Mulvehill)

IC-PCR1000

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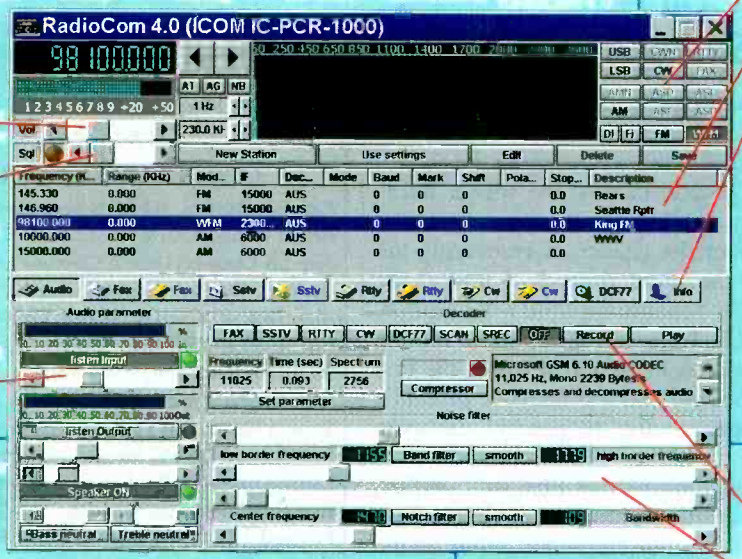

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tuning in

by Harold Ort, N2RLL, SSB-596

an editorial

AMBER Alert: A Call For A Nationwide System

Some things in life are so obvious that when you think about them, it's almost as if they've always been with us—NOAA weather radios, car rear window defrosters, push-button phones, TV remote controls, phone answering machines, and, well, you get the idea. The AMBER Plan also comes to mind, especially with all of the recent media attention on missing children—especially the case this past summer of the two young women kidnapped in California who were found alive, yet only minutes away from being killed by their abductor. The AMBER Plan is credited with saving their lives.

More than just flashing signs on the highway providing motorists detailed information about the missing child and suspected abductor, when activated by our public safety agencies, the AMBER plan springs into action broadcasting the child's and suspect's information and other data in the "crawl" along the bottom of the TV screen. Radio stations also participate through the Emergency Alert System (formerly the Emergency Broadcast System). So far, the AMBER Plan is credited with recovering 10 children, and more than 20 similar emergency alert programs have been established around the USA.

"The AMBER Plan was created six years ago in memory of Amber Hagerman, the nine-year-old girl who was abducted and murdered in Arlington, Texas."

The AMBER Plan was created six years ago in memory of Amber Hagerman, the nine-year-old girl who was abducted and murdered in Arlington, Texas. It was the Dallas/Fort Worth Association of Radio Managers teaming up with local law enforcement agencies who developed this innovative plan that's now the subject of discussion nationwide. In places like Houston, Texas, and Wichita, Kansas, the AMBER Plan has demonstrated its value in finding kidnapped children and bringing the abductor to justice. Fact is, the sooner information is put out to the general public, the better the chance of recovering the child; the more time that passes, the greater the chance the child will be killed. The U.S. Department of Justice reports that 74 percent are killed within the first three hours—and less than one percent a day later. Sadly, 40 percent die even before the kidnapping is reported!

While the AMBER Plan isn't perfect, right now it's the best we have to get these messages out to the general public. In the above-mentioned California case, it reportedly took about five hours to get the initial message from law enforcement through the system and into the AMBER system. That's certainly nowhere near satisfactory in a world that prides itself on instant paging, messaging, and speedy computer systems. I suspect the problem isn't computer related, but people related. Somewhere between the moment authorities are notified of the kidnapping and when the message is flashing across highway signs and on TVs, there's an inexcusable gap.

For the AMBER Plan to be ultimately successful, authorities can't overwhelm the public with bulletins about *every* missing person or major crime. To do so will only turn people off, much like seeing a scrolling "Traffic Delay Ahead" sign on a New York City highway. People become complacent very quickly. That's not to diminish in any way the agony and pain anyone experiences when that missing person is theirs, however, we should use the AMBER Plan in concert with other notification systems that reach the largest possible audience in the least amount of time.

Many police agencies routinely "broadcast" information to the general public, on standard police radio channels, about specific vehicles or subjects they're tracking. What better way to get the word out quickly when time is the main con-

(Continued on page 78)

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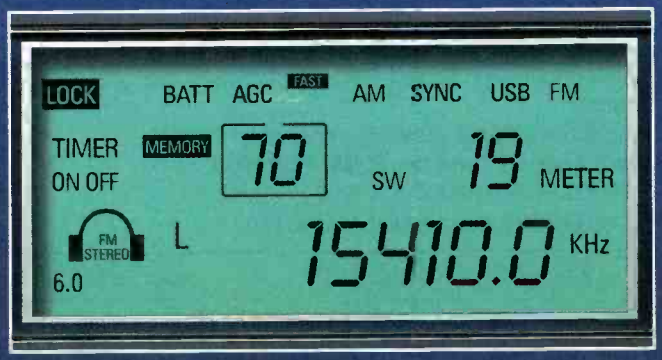

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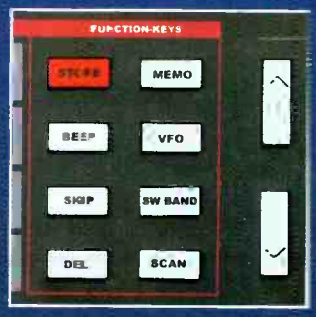

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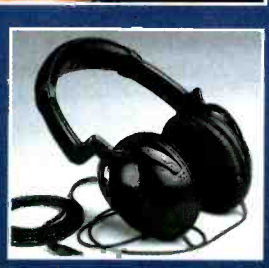

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Interoperability Of Public Safety Communications Systems

More Than A Year After 9/11 We're Still Not Ready: An Inside Look At Comms In The Dallas-Fort Worth Area

by Mark Colborn

Editor's Note: Mark Colborn is a Senior Corporal and pilot for the Dallas Police Department Helicopter Unit, which currently operates four Bell helicopters. Mark is also a retired Chief Warrant Officer Four (CW4) and UH-60L Blackhawk Standardization Instructor Pilot for the Texas Army National Guard. His main hobby is amateur radio and monitoring many types of communications. Mark believes—as we do, of course—that responsible citizens have the right to monitor routine police and military communications, and thus stay informed about events transpiring within their communities.

Public Safety agencies are always striving for ways to improve communications. As agencies grow, so do their communication needs. More channels are needed to do the job, but the problem is where does the Federal Communications Commission assign the space? Frequency assignments in some areas are becoming extremely limited, if not very expensive. In Dallas, Texas, recently, the owner of an 800-MHz Specialized Mobile Radio (SMR) Trunked Radio System (TRS) sold a major portion of its 20-frequency system to a wireless provider for over one million dollars per frequency. Public Safety agencies are still allocated certain ranges throughout the radio bandwidth, but those frequencies are going fast.

Thirty years ago, most public safety agencies were either on the Very High Frequency (VHF) FM low band, 40 to 50 MHz, or on the VHF FM high band, 148 to 174 MHz. The low band has the most range in mountainous-type terrain but the mobile antenna system required was an ungainly 102-inch whip. The VHF high band offered agencies nationwide nearly interference- and skip-free communications over wide areas, especially with the aid of repeaters. The Colorado State Patrol for decades has depended on a network of VHF high band repeated frequencies microwave downlinked to numerous dispatch centers throughout the state. This system is being replaced on the front range near Denver, but in the mountains and western slope regions these frequencies will likely continue to be the communications choice for years to come.

Ultra High Frequency (UHF) FM (450–512) conventional frequency systems are still very popular in many large municipalities in the southwest, to include Dallas, Phoenix, and Los Angeles. Conventional frequency systems utilize two frequencies per channel in either a duplex or half-duplex mode. Stated simply, a repeater is utilized to allow dispatchers and units to communicate over large distances. Each group of radio users

View of downtown Dallas from the north, with American Airlines center in foreground.

Communications tower in North Arlington on Collins Street.

has its own "channel," therefore, a large number of channels are required to handle all the radio traffic in a large city.

In an effort to solve the problem of shrinking available bandwidth, the trend for large- and medium-sized agencies has been to move to an 800-MHz TRS. Trunked systems in theory allow a large number of users to occupy a small number of frequencies, thus freeing up bandwidth. TRS radios offer many attractive features. Each radio has an assigned identification number that can be displayed on the dispatcher's console. If an officer has a problem, he or she can push a designated "emergency" button alerting the dispatcher. Also, if a radio is lost or stolen, the system administrator can disable it. Other features include privacy call (radio to radio calling) and landline interconnect.

A typical Motorola or M/A-COM EDACS (formally Ericsson) trunked system dedicates one frequency in the system (which usually alternates every 24 hours) to be used as the data control channel. The control channel sends out a constant data stream that tells each radio affiliated with the system what to do next. If a user keys up a microphone, the signal will be carried on a certain frequency within the system. The next time the user keys up the radio, the signal likely will be carried on another frequency in the system. It is this constant frequency hopping that makes these systems unique. Until the advent of the Uniden Bearcat TrunkTracker scanner, these systems were very hard to monitor with a conventional scanning receiver.

The Overloaded System

A typical 20-frequency trunked system can accommodate hundreds of groups of users, and literally thousands of radios—the theory being that not every user is going to use the system at the same time. This works great for most routine communication needs; however, when a disaster strikes, the system fills up quickly. When a tornado tore through the middle of downtown Fort Worth on March 28, 2000, the Fort Worth Public Safety TRS quickly demonstrated its Achilles heel. A homeless man had the misfortune of choosing the wrong place to take refuge from the rapidly approaching storm. The side of the building he huddled next to collapsed and fatally trapped him. The Fort Worth Fire Department Battalion Chief who responded to the collapse had to call for an additional engine company and rescue ambulance on his *amateur radio* because he could not get through to his dispatcher on his fire department radio! I heard this call myself on my ham radio as the emergency sirens near my home in Arlington started blaring. Scanner listeners who were computer monitoring the Fort Worth Public Safety TRS during the storm logged hundreds of reject codes from users who tried to key up their radios but were rejected by the system. Fort Worth has a separate 20-frequency TRS for public works and various city departments. This system quickly became overloaded also as groups of users who could do so made the switch from the public safety system. Fort Worth administrators are reportedly planning to expand the public safety TRS that currently supports 7,500 to 8,000 radios. Eight frequencies may be borrowed from the local government TRS, new towers added, and existing tower sites rebuilt.

There are basically three major corporations who offer TRSs in the United States: Motorola, M/A-COM, and E.F. Johnson. Each uses different protocols and they are presently incompatible. Motorola dominates a large majority of the public safety TRS market in the Dallas/Fort Worth area. However there are three agencies that employ M/A-COM EDACS systems. An outlying county uses a Johnson LTR system and another uses a TETRA (Trans European Trunked Radio) system popular in the United Kingdom and Australia, or MPT-1327 protocol.

Using Dallas, Texas, as an example, the majority of the agencies that surround Dallas to the south and east are still using conventional VHF. The Dallas Police and Fire Departments are presently using two separate UHF conventional systems. Agencies that border Dallas to the north, the mid cities, and Fort Worth have all made the switch to various TRSs and most have removed their old VHF high-band "Intercity" statewide radio frequencies of 154.950 and 155.370. Law enforcement agencies with 800-MHz trunked systems have the capability to use the five National Law Enforcement Channels (NLEC) in conventional mode if needed. Presently, the only unit within the Dallas Police Department or Dallas Fire Rescue that can communicate with any surrounding agency on 800 MHz (either conventional or trunked), is the Dallas Police Helicopter Unit. Amazingly, there are four agencies that are completely bordered

by the city of Dallas, and communications have had to be relayed over the phone for years. Highland Park, University Park, Southern Methodist University, and Cockrell Hill are all 800-MHz TRS and conventional channel users.

Federal agencies are also on different radio bands from the police agencies they often have to coordinate with. The DEA, State Department, Federal Protective Service, and U.S. Postal Police are all in the 406- to 412-MHz range. U.S. Customs, Secret Service, U.S. Marshals, and the FBI all utilize radios that communicate in the 164- to 172-MHz range. Some of these agencies encrypt their radio communications while others operate in the clear. Several federal prisons and a VA Hospital in the DFW area utilize 400-MHz trunked systems. Twenty years ago, the area-wide standard that afforded all agencies the capability to communicate on the VHF "Intercity" radio frequencies has fallen between the cracks with the advent of newer systems. If a major disaster were to occur in the Dallas/Fort Worth area, coordination between agencies will be difficult at best.

Digital Systems?

Digital communications systems are becoming increasingly popular as agencies opt for new systems and expanded features. Digital systems convert a user's voice to binary 1s and 0s. These number signals are then transmitted across the airwaves and a Vocoder of some sort is required on the receiving end to turn the binary signals back into voice.

The Los Angeles Police Department recently switched from analog to digital on their 39+ conventional channel system. The Dallas Fort Worth International Airport upgraded from an M/A-COM EDACS trunked analog system to Pro-Voice digital on November 8, 2001. Until recently, this switch has left scanner listeners out in the cold.

Uniden Corporation has addressed this emerging technology with two new scanners: the BC-785D and BC-250D. Both scanners will be digitally compatible with the purchase of an additional plug-in module. A number of different digital protocols exist, but thanks to the Association of Public Safety Communications Officials (APCO), a digital standard called Project 25 has been developed. Uniden has stated its new digital scanner will initially be APCO-25 Project compliant. Project 25 ensures interoperability between different systems and manufacturers and defines technical standards such as Vocoder, bandwidth, signaling, and other features. The APCO-25 plan never included shutting out scanner listeners. Avid scanner listeners believe that they have a right to monitor public safety communications which, after all, are paid for with taxpayer dollars.

Encryption is really the only way for an agency to obtain complete privacy. Digitally encryptable radios are considerably more expensive than straight digital radios. Agencies making the switch to digital usually order a limited number of encryptable radios and issue them to special units within the department that require truly secure communications. Digital and encryption comes with a price: more towers have to be installed or higher transmitter power has to be used in some cases to overcome the signal to noise ratio problems inherent with digital signals. The difference is like switching from an analog cellular phone to a digital phone. If an analog signal gets weak or receives interference it gets noisy, but generally the user can continue to hear the other party. With a digital cellphone however, the signal becomes broken and choppy, or drops off all together. Public safety users also have to get used to the delay inherent with digital radio. There is a noticeable delay in the time it takes for the radio to process analog voice into digital then back to analog voice.

Several large agencies in the east which have recently installed digital TRSs have experienced a wide range of problems with their new systems and have reverted back to analog while the problems are being studied. Lack of coverage inside glass and metal/concrete buildings is the main complaint. This is a major concern for firefighters battling a fire inside a burning building. They need to be able to coordinate with their commanders and call for help if needed. Other agencies claim that they have numerous dead spots in the areas surrounding more powerful commercial wireless system tower sites. The problem experts cite is caused by interference from frequencies used by commercial wireless systems that adjoin frequencies assigned to public safety. According to a March 12, 2001 article in *USA Today* on the subject, Anne Arundel County, Maryland, has eight radio "dead spots" near cell towers. The

nature of radio makes these claims hard to track down and hard to duplicate because weather and temperature variations change the way radio signals travel. What may be a problem spot today at a certain time may not be a problem spot tomorrow.

Agency administrators' bottom line should be interoperability with neighboring agencies when they choose a new and, most likely, highly expensive communications system. Will they be able talk to the agency next door, or across town, or beyond if a major incident or disaster occurs? Phone lines are generally reliable, but too much gets lost in the translation between dispatchers and it takes too long to pass critical information. Agencies should run extensive tests, study signal propagation rates, and expect to have to spend additional funds to fill in coverage gaps with additional towers after the new system goes on-line. Does the agency have a backup system in case the primary system goes off-line?

The Bank of America Building, Dallas City Hall, and Convention Center in background.

To address this potential situation, several agencies in the Dallas/Fort Worth area have backup talkgroups on neighboring agencies' trunked radio systems—a very good plan. The Commission has recognized that there is no more space in the 800- and 900-MHz ranges and is considering opening up the 700-MHz UHF television broadcast band to public safety. Of course, public safety is not the only targeted user, and the government can make billions of dollars by auctioning off portions of this spectrum. When the FCC decides what to do with this new juicy chunk of radio spectrum, public safety users will still have to contend with potential interference and non-interoperability. ■

homeland security

power, and products

by Alan Dixon, N3HOE / WPUC720 / KST8678

More Essential Mobile Hardware For High-Mileage Road Warriors

Welcome back, fellow "Road Warriors." We're the ones who spend several hours a day during the week behind the wheel, rolling many miles down the highway, or negotiating stop-and-go traffic on urban streets. While the term "Road Warrior" has been used in recent years as a humorous title for businesspersons and other multitasking types, the War on Terrorism has added a suddenly realistic twist to the phrase. Of course, most of us had been relying heavily on our mobile communications gear as we travel between home, work, meetings, and such to begin with. Collectively, we comprise a large part of the War on Terrorism and the effort to secure our homeland.

Last month we discussed aspects of our basic radio communications operations as Road Warriors. One aspect is *our own security*, as well as the safety of those around us on the road. Most of us are prepared for everyday-type highway emergencies. Another aspect is *maintaining vigilance*, such as in reporting suspicious persons or activities.

Among those already spending many hours of the day on the road, those of us who are also emergency communications service workers or disaster volunteers have special communications equipment needs for their cars, trucks, and SUVs. We are already prepared to request assistance when needed or to report any emergency situation that we may happen upon in the course of our day. Given this, a third security aspect remains to be considered: Are we prepared to be caught out-of-town or on-the-road in our travels when a major emergency breaks? Will we have already onboard the commo equipment we need for sustained disaster or emergency operations, at a moment's notice? We should.

To reiterate from last month, there are two types of rigs that hams *and other* communications operators going mobile in an emergency commo situation seriously want to consider, in addition to any other communications equipment and capabilities on board. In my last column, we examined the need for securing a good, versatile 2-meter/440-MHz ham mobile transceiver with greatly extended receive (RX) and scan capabilities. This month, we'll consider the need for a versatile **all-band, all-mode mobile shortwave radio.** We are actually looking for a shortwave (HF) *transceiver* with a substantial number of memory channel slots and scan capability. This consideration is still of paramount importance for those of you who are not licensed hams. Why? With the right selection of equipment, this type of radio equipment will be quite valuable to non-hams when used in the RX mode as a mobile tunable and scanning receiver.

A Transceiver As A Receiver

Why not use a *transceiver* as a full-featured *receiving* set? Consider it! Just as in choosing a VHF/UHF ham transceiver for its scanning capabilities, don't be concerned with the thought of paying extra for transmit (TX) capability that may go unused. Consider instead, that you might not be spending too much more, and that you will likely be getting premium features not otherwise available. Where else can we find an HF mobile scanner? Has anyone actually found one on today's market? Probably not. If you did, it probably wasn't inexpensive, in any event. An appropriate HF receiver is essential for serious disaster mitigation work, in addition to having the previously discussed VHF and UHF capabilities. So this month, let's look at what we need for the *lower* bands.

The Alinco DX-70 shortwave transceiver.

The **Alinco DX-70T Series HF transceiver** is one excellent rig for consideration, particularly for disaster response volunteers who are already HF licensed radio amateurs and for those considering amateur code-licensing or a code upgrade. There are other HF ham transceivers that are suitable in size and power consumption, at least for mobile and field portable use. These rigs may have the shortwave RX qualities we're looking for, but some are low-power "QRP" rigs operating at or near 5 watts RF output. No doubt, such radios are great field portable rigs, but we are concerned here with *mobile* operation, not field portable ops where low-power is a factor of portable battery power limitations. QRP is a challenge for skilled operators and will not, by its nature, provide reliable HF disaster comms. Frequently enough, HF disaster communications are local-to-regional in range and worked by groundwave rather than skip. Ironically, it takes more brute force to propagate a good groundwave signal than it does an ionospheric skip wave under adequate atmospheric conditions.

The Alinco DX-70T produces a serious 100 watts SSB output across the amateur HF and MF (160-meter) bands. Again, keep in mind your current—or potential—ham licensing possibilities when looking at a radio; while its *receive* capabilities may be paramount now, high-power TX availability may also be important now or in the future. Or, you may be in a position where you sometimes make a mobile response with an HF-licensed ham who could make use of the mobile station already operational in your own response vehicle. Regardless, you don't need to be licensed for anything at all in order to operate the DX-70T as the full-featured general coverage receiver that it is!

Shortwave Scanning?

Let's have no misunderstanding of mobile HF receiver operation. Scanning the shortwave bands is arduous at best. We are

dealing with a substantially diverse group of wavelengths, which raises very real antenna considerations. Noise levels on shortwave can easily be equal to or stronger than the signals we are trying to receive. And there are three different audio (voice) modes commonly used on HF; AM, lower sideband (LSB), and upper sideband (USB). FM is also used, although to a greatly lesser extent. You could even have an interest in scanning CW signals, as well. In short, scanning HF is an entirely different world than scanning FM or FDMA (P-25 digital) signals on VHF and UHF.

For instance, totally unattended, automated scanning is not usually feasible on HF, even with the most sophisticated receivers. You will find that your receiver will need occasional attention, particularly in nudging the scanning along when it wants to stop on signals that are nothing more than elevated noise. Mobile HF scanning, *while actually mobile*, is demanding if the driver is the one operating the radio. It is better, therefore, in this instance, to tune in a desired station or frequency before getting onto the road, rather than attempting semi-attended scanning while driving. In any event, always give your attention to the road first! Ignore any noisy garbage your HF scanner has locked onto until you are stopped. Traffic stoplights may be good for something after all!

Looking At The Alinco DX-70TD Mobile

Our evaluation unit here at *Pop'Comm* was the Alinco DX-70TD mobile. The "TD" version has limited RF output power (10 watts) on the 6-meter band. All the HF/MF bands transmit the full 100 watts on sideband, CW and FM, and 40 watts AM. Since we are considering HF here, I see no need to pay extra for high TX power on 6 meters, which may see little if any use in regional disaster relief communications. If you want all the available bells-and-whistles on your DX-70, and have a need for reliable 6-meter communications, then be sure to order your unit with the *full* 100/40-watt capability.

With our focus still on the HF features of the DX-70, this is one versatile radio! Dual VFOs allow for true split-frequency and repeater operation. Alinco provides 100 memory channels, numbered 00 through 99, in 10-channel groups. Each channel memory slot will store simplex or split TX/RX frequencies, mode, standard/narrow filter, RX attenuation/amplification level, automatic gain control (AGC) response speed, noise blanker on/off, and CTCSS tone for FM.

Memory data is stored on an EEPROM, a non-volatile storage method. No memory backup battery or capacitor is needed or used. This is great news for any of us who have had to suffer through tearing apart a radio to replace a five-year memory battery that has died without warning. Reprogramming dozens of frequencies and other parameters is no fun, and Murphy's Law dictates that memory failure will usually happen at the least opportune times. You won't have this problem with the DX-70. When a memory channel is manually selected, the frequency can be manually changed if desired, or RIT (Delta tune) can be used for fine-tuning. The mode can be changed as well. Conveniently, your memory data remains unchanged, and will appear as previously stored when recalled, in spite of any of these "on the fly" changes made. Memory channels can be manually accessed by simply pressing the **MEMO** key, then selecting the desired channel by either pressing the UP-DOWN keys on the mic or by rotating the Multi Function knob on the front panel.

The DX-70 is equipped for three different "types" of scanning. The first is **band scanning**, which sequentially scans the entire frequency range of each amateur band in user-specified step sizes, in one specified mode. SSB and CW step sizes are 0.1, 0.5, 1.0, and 2.5 kHz, with 1.0 kHz as default. AM step sizes are 1.0, 2.5, 5.0, 9.0, and 10.0 kHz, with 1.0 kHz as default. FM frequency steps are 2.5, 5.0, 10.0, and 12.5 kHz, with 2.5 kHz as default. Additionally, if the general coverage receiver is active, the band scan function also scans through the "general coverage" HF segments between the various ham bands. Obviously, this type of scanning is fine when simply looking for action on the shortwave bands in general, or in any particular band.

The second scan mode is **memory scanning**. This, quite simply, is just like regular scanning with a standard VHF/UHF scanner. The DX-70 scans through its entire 100 memory channels, or alternatively, scans through the 10 channels of any of the 10 channel groups. Notice that this rig can jump band-to-band from one memory channel to another—no small technical feat—and just as easily hop from one mode, bandwidth filter, attenuation, etc.

Our third choice of scan types is **priority scan**. This scan involves only two selected frequencies, with one given priority, in terms of scan dwell time, over the other frequency. This is particularly useful for split-frequency (duplex) operation. The two selected frequencies for priority scan can be any two memory channels, or one frequency in the first VFO (A) and the second frequency in the other VFO (B), or any combination.

In addition to these three scan "types," the DX-70 has essentially four different scan "*modes*." The first scan mode is actually a search mode, where the scanner stops on a received signal, then stops scanning. The second mode is standard carrier-operated squelch (COS), commonly used in VHF/UHF scanning, in which the receiver stops scanning when a signal is received and resumes after the received signal stops. In the third scan

mode, the receiver keeps scanning even when a signal is received. Brief fractions of the passing received signals are heard in rapid succession. This mode allows the operator to quickly determine which scanned frequencies are active and, in particular, which frequencies have intelligible signals, as opposed to bogus noise. The fourth scan mode is a time operated scan where the receiver stops when a signal is picked up, then resumes scanning after a specific period of time, regardless of whether the signal is still being received. There are three time intervals from which to choose: two seconds, four seconds, or six seconds.

The third and fourth scan modes are really important in HF scanning. Though these modes may be unknown to most VHF/UHF scannists, you will find them vital for scanning the worldwide shortwave bands. The reason for this is quite simple and will quickly become evident for anyone scanning the HF bands for the first time. (Those of you who have been shortwave listeners (SWLs) are already nodding your heads.) The HF bands are full of bizarre noises, various forms of digital modulation, image transmission, and non-voice signaling as well as over-the-horizon (OTH) radar, cosmic radiation, and just plain bogus signal junk.

Set up your HF scanning receiver with more than just a dozen or so frequencies you want to monitor, or more than a two or three megahertz slice of a shortwave band, and even with the squelch set fairly high, your receiver will likely lock up on some unwanted and persistent garbage signal, sooner or later. Using the time operating scan mode, the DX-70 will stop momentarily on a signal long enough to hear what sort of communication is going on. If it happens to stop on mere noise, don't groan. Scanning will resume quickly. If scanning stops on what might be an ongoing transmission that you might want to listen to, you can easily stop the scan, then resume it when desired. Stop the scan on the DX-70 at any point by pressing either the UP or DOWN or PTT buttons on the hand mic. Pressing the PTT button in this instance does not key the transmitter. The scan is started or resumed by pressing and holding either the UP or DOWN button on the mic for more than two seconds.

The Alinco DX-70, being a nearly full-featured HF rig, has the specialized operational and tuning controls that one would expect to find on such a quality shortwave transceiver. You get RIT (also known as receive "delta tune" or "clarifier"), TXIT (delta tune on transmit), intermediate frequency delta tune, RX attenuation steps or RX pre-amp, narrow/wide filter, noise blanker, automatic gain response speed control, and tuning increment step size, among other features. Its faceplate control panel is detachable, and can be dash-mounted with the transceiver box hidden under a seat or in the trunk of your car for either security or convenience purposes. This particular installation requires the optional remote mounting kit.

The Mobile Antenna

What about an antenna system for mobile HF scanning? This presents a serious challenge to say the least. Most multi-band mobile ham HF antennas have different coil taps for each amateur band. Just changing operation from one band to another means stopping your vehicle, climbing out, and manually changing the coil tap clip or plug. This is no fun, and it clearly isn't practical for anything as diverse as scanning across the HF bands. It is unlikely that any of the newly developed motorized-tuning mobile HF antennas could keep up with an HF scan, either.

Your best choice for mobile HF scanning with (or without) occasional transmitting may well be a standard 102-inch whip antenna, fender or deck-mounted. This configuration requires a small HF antenna tuner intended for mobile use. Get one with meters to continually read TX power and SWR when transmitting.

Note: For scanning only, switch your antenna tuner to the "Direct" or "Bypass" position. This takes the tuner out of the antenna circuit. It is both unnecessary and, frankly, impractical to tune the antenna for a diverse group of shortwave frequencies for receive-only purposes. When intending to operate in the transmit mode, if you are an appropriately licensed ham, you *must* then switch in the antenna tuner and tune for resonance. This should serve these purposes nicely.

I recall that *Pop'Comm's* own Gordon West, WB6NOA, stated that he was not a fan of using a long whip with an antenna tuner for HF amateur work. Gordo has a point: If you are going to use your DX-70 primarily for regular amateur operation, then go ahead and get a specialized amateur HF mobile antenna. Still, for mainly scanning and RX operation, with only occasional, if any, transmitting, I maintain that the 102-inch whip with tuner is the way to go. Oh yes, the DX-70 has a separate antenna jack for 6-meters. Be sure to select a good mobile antenna for 6-meter operation, also.

And How's This For Convenience?

Where can you find the DX-70? Last month in this column, we promised to reveal where you could purchase a radio with an HF scanning receiver function from a well-known electronics retailer found in nearly every town. Now you know that the radio is the excellent Alinco DX-70TD, and you likely guessed the retailer, particularly if you are familiar with their catalog. That's right—RadioShack. We purchased our evaluation unit from RadioShack.com online. Though the DX-70 is not a stock item in RadioShack stores, we just as easily could have placed our order for this item at any RadioShack store rather than online. The DX-70TD is listed in the 2002 RadioShack catalog at just $599.99 (catalog #940-0827). Not bad, especially since RadioShack had originally priced this same unit at $699.99.

We were surprised just a smidgen to discover that the radio comes with no mobile mounting bracket. While this hardware can be ordered from Alinco, you may find it faster and even less expensive to use one of the universal mobile mounting kits available in stock at RadioShack stores. Additionally, the remote mounting cable kit is listed in the same RadioShack catalog for $60.95 (catalog #940-0568), as a special order item.

As we go to press in late summer, RadioShack will be coming out with their 2003 catalog, which should be in stores by the time you read this. We do not yet know if RadioShack will make any changes in price or availability of these items, or if a newer, comparable model HF mobile transceiver will be offered. Be sure to check around for the latest products and deals when considering an item such as this. You will be hard pressed to find a comparable shortwave rig for both scanning and occasional licensed amateur TX operation. And you will also be hard pressed to find a mobile HF rig with these features at this price. Over all, we were seriously impressed with the Alinco DX-70TD here at *Pop'Comm*.

Join us again next month for more information on homeland security communications preparations when we will take a look at **emergency power** for your home two-way radio comms station. Again, please remember that preparedness is *not* an option. Never has been. ■

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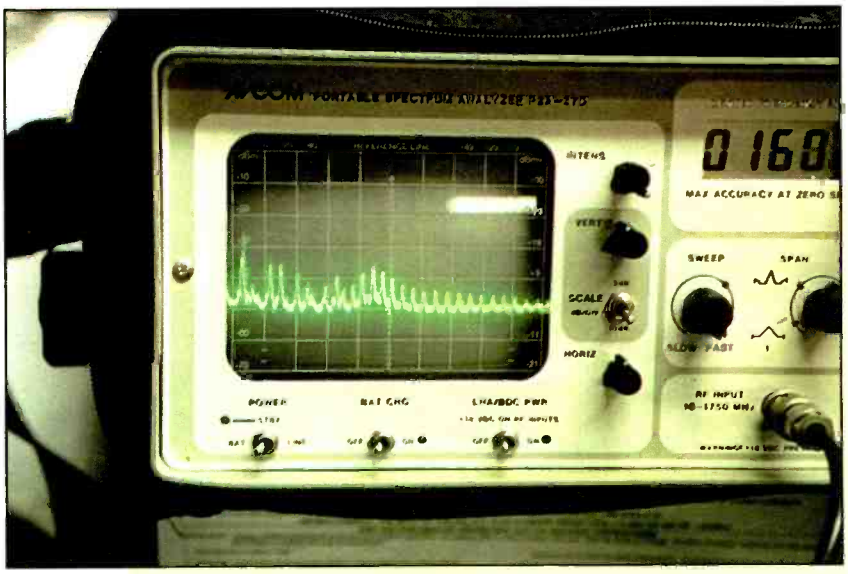
www.jrc.co.jp/

by Gordon West, WB6NOA

Sniffing For Noise

If you're a VHF/UHF scanner enthusiast, you probably know that radio frequency interference (RFI) is usually associated with phantom dead carriers that seem to come and go as you walk around the house with scanner in hand.

If you're into shortwave listening or are an avid high-frequency ham radio operator, you're not only faced with these phantom dead carriers, but also incessant noise sources emitted from sources as unlikely like a heater thermostat or more obvious sources such as your neighbor's touch lamp. In all cases, in order to lick the noise you must first identify it.



Broadband noise spikes peaked at 15 MHz.

Dead Carriers

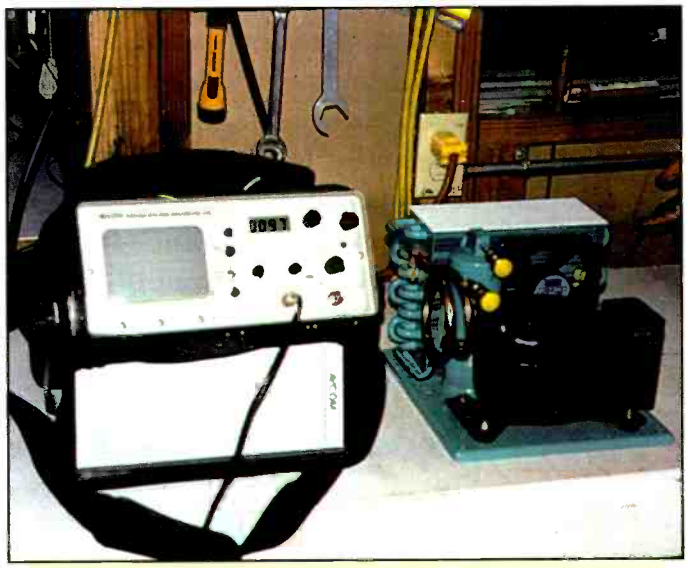
If you are into VHF and UHF scanning, every so often you bump into a steady carrier that is smack dab on a frequency that you would really like to hear. Or, this dead carrier keeps your scanner from scanning and locks it up each time the scanner lands on this particular frequency. Sound familiar? Now, what do you do about it?

First remove the antenna from your handheld, mobile, or tabletop scanner receiver. Same thing with a shortwave set. Did the phantom signal disappear? If it did, get set for hunting. However, if you remove the antenna and the phantom carrier is still there, it's coming from within your own equipment and is commonly called a "birdie." There is little cure for this problem inherent with any mega-frequency receiver that every now and then generates a phantom signal from the local oscillator (LO). On selected pieces of high-end scanner equipment, there may be a keyboard routine to change the digital frequency of the local oscillator, which may work on some frequencies, but it can put the spur somewhere else on another favorite frequency.

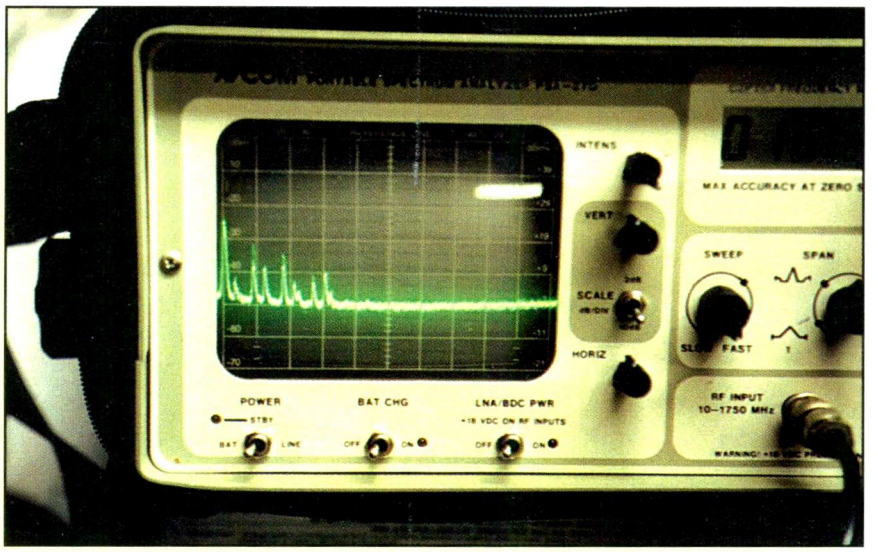
So you remove the antenna and the noise disappears? If so, put the rubber duck antenna back onto your portable handheld and start walking around looking for the signal to become stronger. You may need to shield your handheld with aluminum foil in order to maximize only near-field reception. Hold the equipment near obvious phantom carrier generators like your computer, fax machine, cordless telephone base unit, thermostats, weather stations, clocks, and anything else you might envision having a microprocessor circuit inside. Also try your big screen TV set, fish tank heater, and even certain electric blankets with new digital heat controls. Unplug or remove the batteries from the potential dead carrier generator and track down that noise source.

Even after you find the noise source, the dead carrier is a tough one to cure. Sometimes moving the device or rearranging the power cord may help. On my fax machine, the dead carrier landed right on top of a favorite 2-meter amateur radio band frequency. I cured the problem by getting into the fax machine "brains" and simply pushing the crystal in the oscillator about 45 degrees from straight up, which magically moved the dead carrier 20 kHz away. But as the crystal ages, there's no telling which way that carrier is going to move.

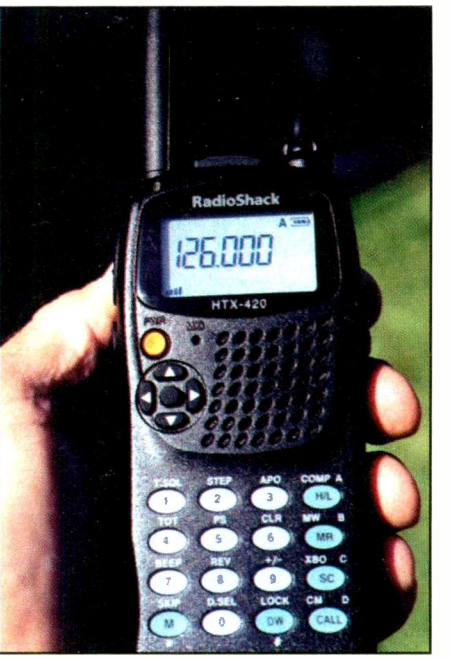
Many times you may need to simply ditch the particular device that's sending out the phantom dead carrier onto your



The spectrum analyzer let us track the noise to the RV refrigerator controller.



After the Danfoss refridgerator controller was shut down, we could hear—and see—noise free shortwave reception!



Sniffing noise with the brand new RadioShack two-band handheld on airband receive in the AM mode.

scanner. I have a battery-operated, major-sized clock that tunes into WWV is signal for self-calibration; and when, the clock is powered by its little battery, it gives me a carrier right in the middle of the 20-meter ham band. It is *not* a name brand clock from any of the hobby radio manufacturers, and it looks like an imitation of an imitation that was given to me by another ham who complained of the same problem.

Shortwave Woes

As a shortwave listener or active ham, your antenna system is fixed. You track down the noise using a portable high-frequency receiver, like the Grundig Yacht Boy HF receiver with SSB or the popular Yaesu FT-817, or other Kenwood, ICOM, and Yaesu handheld products with HF SSB reception. Use a telescopic whip for high-frequency reception; the little rubber duck won't pick up much until you get very close to the offending noise maker.

Lamps with touch switches emit a constant buzz throughout the bands. Unplug them from the wall and see if the noise goes away. Dimmers are killers. Turn them all the way off and see if the noise disappears. Certain TV sets, even turned off, may radiate high-frequency noise. Unplug them from the wall.

Walk around the house with your little receiver tuned into the high-frequency radio band until you see the signal get stronger. Now reduce to the rubber duck and get closer. Now reduce the antenna to a paper clip, and get even closer. Then start unplugging things. When you unplug something and the noise disappears, you've found the culprit.

You may find that the noise is next door. You may end up buying your neighbor a new style touch lamp with RFI suppression circuits built in. Or maybe you tell your neighbor that their ultrasonic pest repeller is giving off RF radiation, and they really don't want to be standing around anything giving off RF radiation, right? These bug repellers with their ultrasonic circuits use very dirty oscillators that are easily heard on the high end of the HF band and often on VHF frequencies, too.

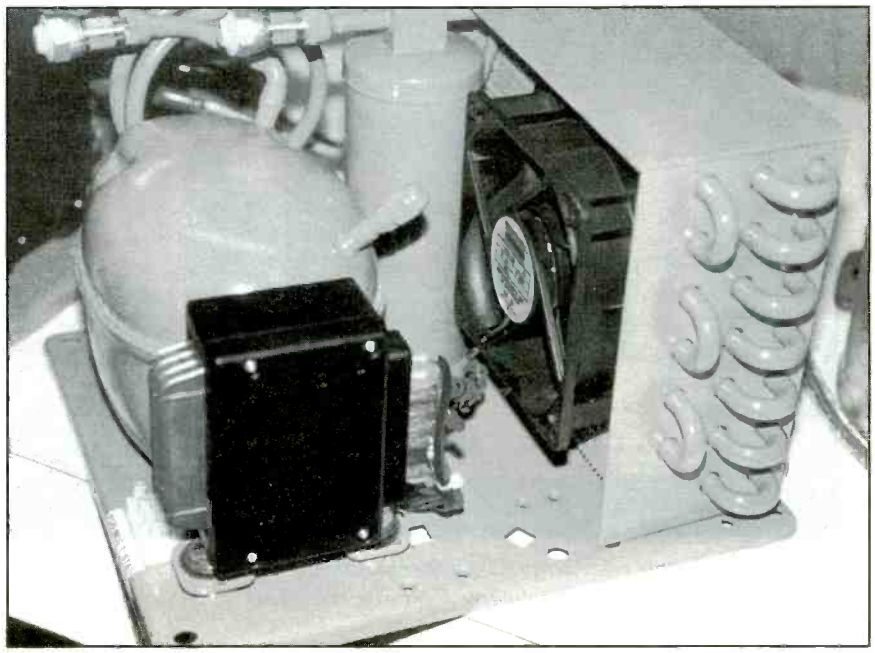
The interference you may pick up over shortwave frequencies can usually be identified as the non-typical power line interference which is characterized by that frying sound usually associated with damp mornings or extra humid conditions. You know what power line noise is by taking your little battery-operated shortwave receiver and standing near a power pole: this is power line noise.

But noise generated by certain oscillator circuits found in appliances around the home and sometimes out on the street may take on a much difference concert of beeps, bops, and buzzes. Unlike power line noise, which is rather general in the reception area within the home, things like touch lamps and certain digital thermostat circuits are real strong in one room and almost absent in another. This makes it easy for you to hunt them down.

Lately, the strangest sound I ever investigated was a Morse code racket centered between 8 MHz and 15 MHz, every 200 kHz on my radio dial. Three dots, two dashes, a dash-dot, and a dash-dash-dot. (The Morse code word "song"?) Then more dots and dashes, and despite my relatively adequate transcription of the dots and dashes, there was no complete message nor anything meaningful coming off this reception throughout the high-frequency radio range. Further, six dashes in a row and sometimes a combination of dots and dashes all in a row indicated it wasn't any Morse code broadcast in ANY foreign or domestic dialect.

It took me a couple of days to hunt down my phantom Morse code sending station. It was coming out of my driveway, within our communications van. No stuck code keyer—just a small refrigeration unit getting things cooled down for our next trip. And guess what? The culprit wasn't the refrigeration motor making the noise, but rather the small compressor controller made by Danfoss, manufactured in Germany.

The technical literature on the Danfoss controller indicates the controller is an ASIC (Application Specified Integrated Circuit) that consists of both the digital gate array and analog circuits. The analog circuits consist of a six-channel A/D converter, and four comparators that are



The noise culprit was the Danfoss controller to the left of the fan. The black case is plastic!

used to supervise inputs. The digital gate array then supervises the output from the analog circuits, and when conditions are evaluated right, it controls all of the digital outputs for both the small signal and power circuits in a suitable manner that makes the motor rotate. It was also the culprit in sending the Morse-code-like signals over a distance of 100 feet. Even the ham operator across the street was wondering where the strange signals were coming from!

In working with Ed Hare at the American Radio Relay League's electronic lab, plus Danfoss in Germany and their corporate headquarters in New Jersey, we concluded that expensive filters might not be as effective as simple copper EMI suppression screen to encapsulate the offending plastic (!) box containing the circuit boards radiating the noise on the inside. EMI screen is available from Metal & Cable Corporation (phone: 330-425-8455, e-mail: <david @metal-cable.com>). They're the same folks that offer the amateur radio industry copper grounding foil and high-strength metal antenna masts. We encapsulated the module with the screen EMI mesh, and the noise all but disappeared. Even the HF installation in the van was back to normal after the plastic box was shielded with the copper EMI mesh.

The noise sources in RVs and boats may be a lot more than just one simple unshielded refrigeration compression controller. The noise might come from a simple LED voltage monitor, or even a solar panel controller that electronically chatters when it senses the batteries are up to snuff. Tachometers in vehicles generate variable frequency static, and so do fuel pump motors along with tire pressure sensors. As they say on TV, "It's always something."

So to find that annoying "something," you need a portable receiver, some of that all-copper mesh that is very flexible like a table napkin, and plenty of patience while walking around sniffing out the noise sources.

Finally, professional companies like Optoelectronics build into most of their frequency counters a broadband signal-strength indicator as you approach the near-field zone of an unknown noise source. If the noise is a "dead carrier," equipment like the Optoelectronics SCOUT, M1, or CUB will help you zero in on the source and even give you the strongest component frequency it is receiving. Their new RF detector and digital Scout are also excellent pieces of test equipment to track down unknown noise sources. The RF detector from Optoelectronics reads from +5 to -65 dBm, with signals calibrated at the input.

So get started NOW in tracking down those noise sources! Let us know what you find. ■

the wireless connection

a look behind the dials

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

On The Workbench: Choosing A Signal Generator

We've talked about what's needed to service vintage equipment, and this time around we'll take a look at signal generators. I'd guess a good tech armed with a VTVM could handle most routine repairs, but there are other tools available to assist us on the bench. The objective is to learn what instruments you *need*—those that will be the "daily drivers" you will come to rely on—and not to clutter up the bench with an array of seldom-used test gear.

I've received quite a few comments regarding my recent column on variable isolated AC supplies, a piece of test gear I've come to rely on, so I'd let's continue by looking at signal generators.

The Boonton 102F is a fine all-purpose lab generator that features digital frequency readout and low phase noise. The generator can be phase-locked to prevent drift. It's a nice unit, but overkill for vintage radio servicing!

What Does It Do?

A signal generator provides us with a modulated or unmodulated carrier signal that can be set to the frequencies needed to perform alignment or troubleshooting tasks. The generator dial should be *precise*, its dial should have fine frequency divisions to limit guess work in interpreting the dial reading. This also implies that the signal generator has a like degree of *accuracy*. By *accuracy* we mean to what degree the frequency it generates actually corresponds to what its dial shows! Some of my bigger Philcos have dial scales that are far more detailed than those used on many inexpensive signal generators. How do you know the radio isn't perhaps closer to being correct than the signal generator on hand?

Using Off-The-Air Signals

Most simple AM-BCB sets are easily aligned using local off-the-air signals. I frequently use signals from local stations on 560, 640, 1080, 1450, and 1600 kHz to quickly align simple five-tube radio sets. This sure beats setting up the signal generator for each check point! Those stations provide a good look at the dial calibration across the AM BCB, and allow me make quick local oscillator (LO) adjustments as needed.

It's a good idea to use a signal generator to precisely align the IF to the frequency specified by the manufacturer; this is crucial if you ever expect the dial to track properly. Often you'll run across an odd set that refuses to track properly—even with the IF and LO properly aligned the low-end sensitivity may suffer. This usually indicates that the antenna coil has too many or too few windings.

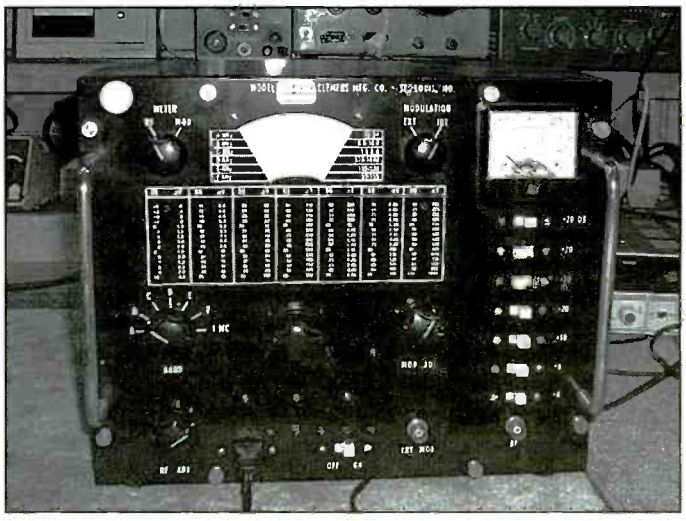
Rather than trying to add or remove turns, or a portion of one (which is tedious at best), it's often easier to "fudge" the IF alignment several kHz in either direction until a station at the low end of the dial comes in loud and clear where it should on the dial. For example, say WHYN on 560 kHz sounds weak when the set is aligned by the book, but when the LO is shifted up or down by 10 or 20 kHz the station sounds much louder. Start by setting the LO for the loudest reception (often you can peak for loudest background hiss) and carefully tune the radio dial towards the desired 560-kHz dial marking (or the frequency of your local station) until the signal becomes weak, but still audible. Now carefully "walk" the IF alignment (re-peak each IF transformer adjustment) until the station is again loud and clear. Repeat these steps until the station frequency finally corresponds to the dial calibration!

What about the high frequency end of the dial? Most simple five-tube sets have two trimmer caps on the main tuning capacitor for high end RF and LO alignment, and these usually have enough authority to make needed adjustments, even if the IF was fudged to compensate for low-end LO tracking errors.

High-end sets use series padder trimmers or slug-tuned coils to facilitate tracking alignment. These (along with the smaller value alignment trimmers for aligning the high-frequency end of the dial's LO and RF tuning) permit precise RF alignment and tracking for the LO and RF stages across the entire dial. Just remember everything interacts, and you will end up going back and forth between the low-end and high-end tuning several times to average out the errors until everything falls into place. That's where it's nice to have a generator that can be rapidly retuned to another frequency as needed.

It's important that the low-end tracking is on the button—the RF bandwidth is much sharper at 560 kHz than at 1600 kHz, for example. This is due to an effect

Similar WaveTeks are quite commonly available surplus at continually falling prices—and for good reason. They use several phase-locked UHF VCOs chasing each other to keep the beasts in lock. A real maintenance headache with high residual phase noise, it offers good frequency agility via levered thumbwheel entry, but has little else going for it.



The Clemens SG83C is a fine general purpose solid-state generator that covers from 50 kHz to 54 MHz and is AC or 9-volt battery powered. The attenuator system is a bit cumbersome, but these are reliable workhorses! Unfortunately, they are also very scarce and seldom seen. Good dial resolution, stable, and can be calibrated via front panel adjustments for each range.

known as "arithmetic selectivity." This simply means the bandwidth of a simple LC tuned circuit becomes greater as the frequency increases, which is why more tuned circuits were used in quality vintage communications single-conversion receivers to avoid image problems much above 10 MHz. In other words, a signal 30 kHz off-channel that might easily pass by a single-tuned RF stage at 1600 kHz would be severely attenuated when placed 30 kHz off-channel at 560 kHz. I digress, but that is a little trick I've wanted to pass along. Just remember to use it on the more common sets you may encounter, such as AA5 radios, which exhibit tracking problems due to production tolerance issues.

Choosing The Right Generator

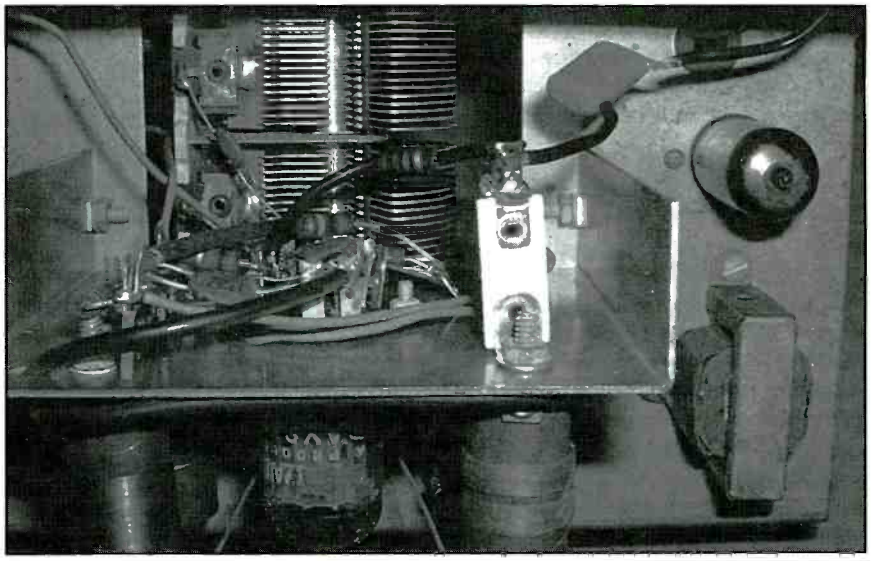
Here's where things get tricky. First, determine what your needs are. Someone who only works on vintage AM radios from the '30s and '40s will get by with a much simpler and cheaper generator than say a ham who also will be aligning SSB and CW receivers with very narrow bandwidths and little tolerance for a drifting signal. The test equipment market is glutted—it's a buyer's paradise!

Unless you know test equipment, avoid the higher-end lab-grade signal generators. There are many fine lab-grade instruments that would do fine for all levels service work, and there are dogs that are maintenance headaches and use custom factory parts that are no longer available. (Some were dogs from the day they were made.) If you desire a lab-grade instrument, a Boonton 102F or HP 8640 *might* be a good buy, while devices from the problem-plagued WaveTek 3000 series are best avoided. Also avoid clunkers such as the HP6xx series; they drift, eat a lot of current, and will take up most of your workbench in the process! Of course, if someone offers you any of these for free, grab it and run.

Bargain Basement

Here's what I'd look for in an inexpensive generator: a good unit made by Eico, Heath, Leader, Precision, or other known and respected manufacturers of test equipment for TV/radio service shops—at least 20 brand-names come to mind! Look for an instrument made in the mid-'50s or later. The exception would be a surplus military URM25 generator; these are workhouses and they are getting harder to find.

The most common signal generators, at least by my eBay searches, seem to be the Heathkit SG-8, Eico 324, and at a close third, the Heath IG-102. They must have handed these



Adding a high-level RF sampling port to the SG-8, or similar generator, is relatively easy. The 1000-ohm resistor, .01 capacitor, and added tie point can be seen in this photo. The Audio Out connector is now the RF Output sampling port for the external counter.

The Heathkit SG-8 and companion StarTek counter. The counter indicates the generator is set to 1600 kHz.

out as promos in supermarkets! Keep an eye open for solid-state service-shop grade instruments made by manufacturers such as BK Precision, Clemens or Leader. Ditto for the so-called "lab grade" instruments offered by Heathkit—while tube instruments, they are a cut above the regular Heath offerings.

Electrically, these are simple and uncomplicated, easy to service should problems arise, and being solid-state are usually more stable. Look for a generator with extended low-frequency coverage—an instrument that goes below 200 kHz is a plus, even better if it reaches to 50 kHz (a final IF used by many boatanchor receivers). Look for an upper limit of 30 to 55 MHz. Most use harmonics of the highest band to provide coverage much above 50 MHz, and you'll find that the drift is excessive above 30 MHz.

If you are going to service FM radios, you'll need to search for a generator with decent performance on the 88 to 108 FM band, something found in many of the service shop models. Heath's IG-37 FM stereo signal generator is a good bet.

Big Is Good?

In general, the more expensive service-shop generators used larger dials with finer dial calibration points. Look for a unit that is clean and looks as if it has been taken care of. The manual should also accompany the unit—you will eventually need the schematic or service information.

Solving Drift

Tubes generate heat, which warms the determining components in the generator, so it may drift until thermal equilibrium is reached. After an hour or two the generator should be settled down enough to be useable. Most service shops let their equipment run all day. Turn the generator on a few hours before use, and it will be ready to go when you need it.

Peter's SG-8

I picked up a Heathkit SG-8 so I could have some first-hand experience to help write this column. I paid $8 for a nice, clean unit which came with the original manual. The Heath manual includes a good primer on using the generator and is a good ref-

erence for beginners. Whoever built the kit did an expert wiring and soldering job—a big plus. The steel chassis is copper plated, and the dial employs a smooth planetary reduction drive.

The first thing you'll notice on most generators from this era are the odd RF and AF connectors. These are single-button Amphenol audio connectors, which are not so commonly available these days. Heath used a ton of them on their test equipment, and as mic jacks on many of their amateur products. If the test cables are missing, a quick substitute can be made by cutting down the center pin of a PL-259 coaxial fitting (the thread size is the same) or, you can simply replace the Amphenol connector with a panel-mount BNC female fitting.

Next, replace the .01 and .1 mfd 600v tubular paper capacitors with newer plastic dielectric components. Replace the selenium rectifier with a 1N4007 silicon diode with a 100-ohm 1-watt resistor in series. Add a three-lug terminal strip where the selenium rectifier was located to mount the silicon diode and dropping resistor. The dual-section 20-20@150v filter cap should be replaced with two 22-uf at 160v electrolytics. Spray the controls and switches with *deoxIT D5* spray cleaner (or equivalent) and give the controls a good working to help clean the contacts and wipers. Check the wiring for bad solder joints and correct sloppy wiring as needed. The tubes are probably still good—if the unit works, you're all set!

Add A Frequency Counter!

The SG-8 has no provisions for alignment. The dial accuracy was limited by the wiring technique of the builder and the tolerance of the components supplied with the kit. The dial calibration markings also leave a lot to be desired—above 8 MHz only 500 kc dial markings are present.

Here's my solution to the *precision* and *accuracy* issues: Add a frequency counter! To do this You'll need to add a high-level RF sampling port to the SG-8. I suggest using one of the audio connectors for this purpose, rather than drilling extra holes in the front panel for another connector. It's your choice which feature to sacrifice, but I kept the option of being able to feed the generator with an external audio source. I also replaced the connector for the Audio Output with a panel-mount BNC female (the hole size is the same). This is now the RF Sample Output for driving a frequency counter. Add a 1000-ohm resistor in series with a .01-µF capacitor from pin 3 of the 12AU7 cathode to the center pin of the RF sampling connector. The cap prevents loading the cathode bias, or applying the cathode voltage to the counter input when the counter is being used. The original audio lead will be rerouted from the connector to the RF cathode sampling resistor. Again, I added a single-point terminal on one of the spade lugs used for mounting the "B-Band" oscillator coil. This provides a junction between resistor to the 12AU7 socket's pin 3 and the .01-µF. capacitor going to the audio connector.

Counter Requirements

Here's the rub: This technique works best with a counter that allows setting the input for either high or low impedance. Best results are had using the high-impedance input and a short interconnecting RG-58 jumper. Long cables will load the output. I've tested this modification with my HP 5383A counter, a Fluke 1953A, and an inexpensive StarTek handheld unit.

The true worth of a counter largely hinges on the long- and short-term calibration characteristics of the timebase, which in turn determines the overall accuracy of the unit. Since errors of a few hundred cycles are of little concern when dealing with vintage receivers, a cheap timebase based on a 59-cent 3.58-MHz color burst TV crystal is fine, and the little StarTek unit does all that is needed. The Fluke 1953A was a bit finicky, and oddly it is my best counter with both the 1 GHz C input and the superior TXCO options! The HP 5383A has a high impedance provision and also worked fine.

If you have trouble driving your counter, try using resistor values between 330 and 2.2 k ohms to find the value that works best for your generator/counter combination. A lower value will drive the counter harder, but it also may allow harmonics to cause false counts at multiples of the generator frequency. You'll also find that the cable length is critical, and the cable used during the final resistor value selection is the one that should be used with that counter.

If you're using a lab-grade signal generator, say a Clemens SG83C, consider adding a FET source follower stage between the sampling point in the generator and the RF sampling port. This will provide power amplification and impedance matching. The filament supply of a tube generator can be half-wave rectified and filtered to power a simple FET source follower circuit.

Counter Costs

I paid $25 for the Fluke 1953A at an Internet auction site. The price was cheap because the seller didn't specify that the 25-MHz counter included the desirable 1-GHz input and superior TXCO timebase. Also, the counter didn't work because someone had the voltage selector set for 220 Vac! A good, basic counter has other uses on the vintage bench, and I'll show some examples in the coming months.

Again, you'll find many lab-grade counters made by Agilent/HP, Leader, Dana Racal, etc., and many inexpensive units offered by RadioShack, StarTek, and Optoelectronics for the ham, experimenter, and CB crowd. Everyone is buying microwave counters on the cheap. Good 1-GHz or 520-MHz lab-grade units are begging for homes. The counter can be set for the fastest timebase rate; we're only interested in display resolution to the nearest 100 cycles at best, and having the counter update every tenth or hundredth of a second helps to quickly spot a new frequency by reducing display lag. The *cheapest* handheld counter will do the job. A used StarTek, or similar unit, should run about $10 to $25 tops. ■

on-the-go radio

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

by Alan Dixon, N3HOE/WPUC720/KST8678

Pedestrian "Telematics"—Classic CB Equipment—And Thank The FCC For A Major Setback In Automotive Telematics Deployment

Telematics—All of your "vehicle's" on-board comm systems, from high-end GPS to a basic CB, is becoming an increasingly important part of our fast-paced mobile lives. While the term actually refers to automotive-based communication, navigation, and information technology (computer!) equipment, there is no reason why we couldn't or shouldn't extend this concept to the individual *person*. Afterall, not everyone owns a car, truck, or SUV. And even among those who do, not everyone drives to work, school, or anywhere else on a daily basis. A number of us commute on busses and trains, some ride bicycles to work, and some are close enough to walk. You don't need to push around a ton or two of steel in order to have personal communications and information at your fingertips.

This month we'll consider how to add a few inches at your waistline without ruining your figure. What electronic goodies do you carry on your belt? A cellphone? Pager? Any variety of two-way radio? If so, you're already a good bit into personal communications for those of us who regularly go *pedestrian mobile*.

Radio To The Rescue—As Usual!

For those of us planning our own custom telematics installations for our own cars, trucks, and SUVs, the FCC cellular ruling adds increased importance to alternative personal communications services such as CB radio and GMRS. And for licensed hams, a well-planned 2-meter and HF mobile setup is imperative, especially at this point in history, in the midst of the War on Terrorism. This ruling, along with the FCC's earlier Priority Access Service ruling for government officials, has served only to weaken the viability of wireless telephone service in the event of widespread emergency. Backup communications capability in addition to, or in lieu of, cellular service, is a must.

A beautiful specimen! A four-channel Browning Mobilaire "Class D" radio telephone. Too cool! Photo courtesy of Browning Labs, Inc.

A glimpse of the Browning Labs collection of vintage Browning CB radio equipment. Photo courtesy of Browning Labs, Inc.

The days when we could *rely* on a cellular or PCS phone to get us through in an emergency are *over*. This is true not merely because of this recent FCC ruling on AMPS phones, but for a variety of reasons, discussed here and in recent previous editions of "On-The-Go Radio" and *Pop'Comm's* new "Homeland Security" column. Bottom line: Be sure your mobile telematics installation includes licensed GMRS or Amateur Radio Service equipment. At the very least, be sure to have a good CB radio rig installed, and an FRS handheld radio, with cigarette lighter power cord, in the glove box!

How About Being Pedestrian Mobile?

A well-equipped pedestrian "telematics" setup for such a commuter might include a wireless phone and *one other* communications, navigation, or computer device carried on your belt or in a pocketbook. The same could be carried alternatively in your

business calendar/planner binder, if carried separately or in lieu of a briefcase or similar bag. In any event, these excellent communications devices need to be relatively *readily accessible*, if for no other reason than your own personal safety. You probably don't want to carry more than two such items on your belt or in a purse or binder, due to weight and mobility considerations. Now, if you as a commuter also carry a briefcase, backpack, or other business materials baggage, you may want to carry an additional third device in that bag, along with extra rechargeable batteries, charger, and AC and DC power adaptor cords for everything.

Notice that I mentioned carrying a wireless phone and "one other" device on your belt or in another readily accessible place on your person. You will need to give due consideration as to what that second readily accessible device might be, based upon your own needs and upon your FCC licensing status, if any. Consider some of these options for this purpose: If you are a licensed ham of any class, then you definitely want a 2-meter handheld portable. A dual-band 2-meter/440-MHz handheld would be even better, naturally. If you are a licensed GMRS user, then certainly you want a good GMRS handheld. You will want a GMRS radio that is repeater-capable, something most "bubble-pack" consumer GMRS handheld radios are *not*. Also, a good commercial-grade GMRS handheld will typically offer 5 watts output power, whereas bubble-pack GMRS handies typically offer 2 watts or less. Some GMRS portables are equipped with NOAA weather alert capability. I strongly recommend getting a unit with this additional service included. Consider your purchase options carefully.

If You're Not Licensed

What if you are not FCC-licensed? What secondary device would you carry on your belt? If your travels outside of your own automobile take you mainly along or near Interstate highways, you could choose a standard 27-MHz CB walkie-talkie. State-of-the-art CB handhelds have become surprisingly small, as commercial-quality manufacturing methods become more commonly applied to these units. If you want to go with a CB handheld, be sure to go for a 4-watt full-power radio. Don't waste your money on one of those 2-watt (or less) units. Just as when considering a GMRS portable radio, be sure to get a CB handheld with NOAA weather channels receive and alert capability! This makes your handheld infinitely more valuable in either personally averting or in responding to any larger-scale emergency that is broadcast on the WX channels.

If your daily commute or your daily rounds take you mainly into the urban jungle, particularly if you ride a subway or other commuter train, you may have little need for anything like a CB rig at your side. Your alternative here is either an FRS portable, or a walkie-talkie in the newer MURS radio service in the VHF band. Remember that MURS is still evolving, and its usefulness is still being determined by those who keep an eye on this service. Its advantage over FRS radio is its higher 2 watts of power as compared to FRS's 1/2 watt. But in an emergency, the better chance of making a contact, among these two radio services, may be on FRS. This is simply because there are likely to be far more users on FRS, particularly within range in urban areas. Again, make your purchase and acquisition choices carefully.

Still other alternatives for your secondary carried device could be either a Global Positioning System unit or a palm-top computer. A number of handheld GPS units are suitable to be carried on your belt. And many GPS units come preloaded with road maps and with locations of places to dine, gas stations, hotels, airports, etc. Some will need to be uploaded with optional detailed local street maps, while others will include this built in to the GPS unit's firmware. Most will allow you to insert your own favorite "waypoints" with icons and related data such as name and street address or telephone number. Until you have experienced navigating with GPS, you don't know the excitement you've been missing! Again, you may find having your own handheld computer at your side to be more of a necessity. You can keep pertinent business documents as well as calendar and address book-type information at your fingertips. And as with GPS receivers, many palm-tops can be loaded with street-map and services-directory "geo" software. This way, you can use your palm-top much like you would use a GPS, the only disadvantage being that the palm-top will not tell you where you are *right now*, at any given moment.

Tough choices here! Don't you wish you could carry all of these goodies on you belt without losing your trousers or buckling your knees? Well, don't hold your breath. One concept that has never seriously occurred to consumer electronics manufacturers is integrating more than about two of these devices into a single unit. Imagine! Why not have a single handheld appliance that works as a wireless phone, GMRS, or ham two-way (both repeater-capable *and* capable of operation independently of any repeater or network, i.e., *simplex*), with some basic computer functions and GPS location. Now, I am aware that some wireless phones are coming onto the market with Internet e-mail and Web browsers, address books, and GPS location functionality. Nonetheless, it would be far more significant to have a wireless phone with a *secondary communications service* built in. Many of us would like to see a multimode wireless telephone with true GMRS built in as a separate functionality. The same can be said, quite obviously, for integrating 2-meter amateur radio into a commercial wireless phone. Simply, why do we need to carry so many different devices just to have communications diversity and redundancy?

There are regulatory considerations for manufacturers to consider here, along with the consideration that any such combined products would inherently have a smaller target "audience" of prospective purchasers. It is indeed an irony of the business world that combined products such as these proposed here, though being *more diverse* in functionality, would be useful to *fewer consumers*. This notwithstanding, FCC equipment certification regulations strongly discourage integrating radio services within a single appliance or device. With the promotion of Software Defined Radio, however, attitudes at the Commission will be forced to change. Still, it will be quite a number of years before we will see any significant change in integrated products actually produced for sale.

What Are You Using?

Do you have your own unique or creative *pedestrian mobile* "telematics" concept? We here at "On-The-Go Radio" would like to hear about it and share it with other readers. Why not e-mail me here at *Pop'Comm* and describe your ideas for the rest of us? We would be particularly interested in hearing from those of you who are bicycle commuters and what communications and navigation gear you use while cycling. The same

A rare Browning franchise banner, proudly flying today at Browning Labs. Photo courtesy of Browning Labs, Inc.

Close-up of a classic Browning Golden Eagle with the optional wooden cabinet. Photo courtesy of Browning Labs, Inc.

goes for motorcyclists. What are you using for comms? Please let us know! Write to me at <n3hoe@juno.com>.

The FCC Does It Again—Or Do They?

First though, we need to take a look at an FCC ruling announced just two days before this issue of *Pop'Comm* was set to go to press. If you've been an avid consumer of telecommunications devices and services, or if you are in the business, then you already know that when the FCC makes a policy decision on any particular matter, anything can occur. The FCC, in its infinite wisdom, often chooses to ignore the groundswell of public sentiment in favor of its own arcane political agenda. Common sense, if there is such a thing anymore, is not the maxim within the hallowed halls of The Portals (that's the FCC temple—er, headquarters—in Washington, D.C.).

This past mid-August, the Commission ruled on **ET Docket 00-258 (FCC 02-229)**, a biennial review of the Part 22 Cellular Radio Service rules. At the urging of major cellular industry interests, the FCC has decided to render standard FM (analog) AMPS cellular phones to something less than its present co-primary status in the 800-MHz cellular bands. The rule change is set to take effect five

years from the date this ruling is published in the *Federal Register*. What this means is clear: **Cellular service providers will no longer be required to serve customers with AMPS-standard "analog" cellular telephones**.

The five-year delay in implementing this new regulation is to give everyone plenty of time to dump their perfectly good AMPS phones in favor of lower power, lower audio fidelity digital phones. As recently as earlier this year, the Cellular Telephone Industry Association's own website conceded that over 50 percent of all wireless subscribers still use analog-only phones. This scheme is an obvious moneymaker for the economically sagging wireless phone manufacturing industry.

So, what does this mean for the emerging telematics field? Plenty—and it's not exactly sweet roses. Clearly, the most prominent OEM (original equipment manufacturer) supplier of telematics is General Motors with its OnStar system. OnStar relies on an *embedded* system, meaning that the "guts"—the hardware and firmware—that run the onboard system are permanently built into the vehicle's electronics systems. How happy will OnStar customers be when their brand new 2003 model year cars and trucks' telematics system suddenly stops working after only four years? *Not very*, I'd say. Under the new FCC plan, present-generation OnStar telematics would go quietly dead, likely before the extended warranties on the vehicles run out. Brilliant move, Commissioners! And, my research into the OnStar system indicates that the present-generation systems are not capable of upgrade.

The FCC was clearly aware of several implications in letting cellular carriers plan for the ill-conceived demise of AMPS cellular service. But, they persisted against sound economic policy and against both consumer and some corporate interests. Not only is this new ruling a potentially fatal blow to the nascent and struggling telematics *industry*, but also **this ruling dismantles the one universal wireless roaming protocol for the entire Western Hemisphere**. If an area to which a user roams does not happen to have a carrier on the same digital mode and band as the user's home area, then the user's phone will be useless in that roaming area. That can't happen now with today's phones in the cellular markets. And the Commission would have us think that this is progress!

Am I saying to stay away from purchasing OnStar-equipped vehicles? Not at all. The OnStar system is quite impressive and quite effective. There is no other OEM telematics system available today that compares with OnStar's products and services. If you are the type who buys new and then trades in your car or truck within two or three years, or if you lease new vehicles, then acquiring a new vehicle with the OnStar system may be the smart thing to do. Even if you want to buy new to *keep*, there is another factor to consider: With the very same capriciousness that the FCC made this ingenious ruling, they may well ultimately postpone this five-year deadline for a number of years, or even indefinitely.

Yes, the FCC could vacate (do away with) this ruling before it ever takes effect. Stranger things have happened at the Commission, and in fact stranger things than this happen on a regular basis, nearly every day! For example, wireless telephone carriers were mandated several years ago to provide digital wiretap points for law enforcement personnel (CALEA Act). This never happened, though. Additionally, way back in 1996, Congress passed legislation ordering the FCC to mandate telephone number portability (Telecommunications Act of 1996). This was to allow someone who changed local telephone companies to keep the same telephone number. It also was to allow anyone who moved from one location of the country to another to keep the same telephone number, area code and all. Well, you guessed it: Never happened. And I would be surprised at this point if it ever does. The FCC changes policy faster than some of us can change dirty socks. It's one of those facts of life we learn to live with.

All of this does raise a case for *non-embedded* telematics. By non-embedded, we mean telematics devices that are either modular in nature, or are added-on, either by the vehicle manufacturer, the selling dealership, or by the consumer, using aftermarket components. This isn't only a question for consumers. At least one major telematics industry competitor to OnStar is considering building some of the electronics into vehicles at the factory, such as power supply, handset cradle, along with antenna hardware and circuits. End-users (customers) would choose the main functional components of the system, such as a wireless phone and GPS unit. This way, as these components become obsolete even faster than the car or truck depreciates (!), they can be easily replaced by car owners and users themselves, or by automotive audio and specialty shops.

CB Club News

The "Nashville Rebel," owner of the **Channel Masters CB Radio and Scanner Club** invites interested prospective members to sign up for the club's e-mail membership message board. Set your browser to <http://groups.yahoo.com/group/channelmasters/> and sign up. (Incidentally, although my own CB handle is "Channel Master," I have no connection with this club other than possibly being among its membership. This handle of mine is not my own creation. It had been bestowed on me by another, begrudgingly, because of my big mouth. Now you know *that* little tale!)

Nashville Rebel validates the continued usefulness of CB radio and the commitment of the Channel Masters membership in his own extremely moving account, as follows:

> Last year I was contacted by a lady that was seeking help in locating her husband. He was a truck driver and she was trying to get a message to him and let him know that his mother had suffered a severe heart attack and had only hours left to live. He was supposed to be in the Virginia area somewhere. I sent a message to all my members to attempt to locate the driver using his CB handle and name, plus the company he worked for. Many of the members got on their CB radios and someone was able to contact the driver in Kentucky. He was able to make it home and kiss Momma goodbye before God took her away.

Incidentally, this is a perfect example of using the Internet in conjunction with CB radio for both emergency and professional business (trucking) messaging. Good show, Nashville Rebel!

He adds, "Please visit Channel Masters CB Radio Club and join, we will be glad to have you aboard." Though located in Clay City, Illinois, this club is, as we can see, Internet-based, and therefore international in scope. That does it for me! I'm signing up this minute.

Classic And Collectable CB Radios

In the older "golden" years of 11-meter CB radio production, **Browning** equipment was much sought after and coveted. Early Browning President Gardiner G. Greene, Sr., built his company's reputa-

Bill Prather's Johnson Viking Messenger. Photo courtesy of Bill Prather.

tion on quality products. He ran Browning through CB's early years in Laconia, New Hampshire, and passed away in 1981, but not before seeing his company in the capable hands of son, "Birdman" Gar Greene, Jr., who was president from 1968 to 1979. The Browning Company saw CB through the fad days of the 1970s, but unfortunately did not survive beyond the regression of the CB fad, as the Seventies slipped away into history. For 20 years, the Browning name and tradition have been gone, but not forgotten.

In 1999, Browning aficionado and collector Glenn Hendrix, KD5BOG, of Ardmore, Oklahoma, pulled off an incredible miracle. Glenn resurrected the Browning name *officially* by incorporating **Browning Laboratories, Inc.**, in the state of Oklahoma. The new Browning Corporation's mission statement is simple and highly commendable: "Our main objective is to maintain and preserve the renowned Browning CB tradition. Our intent is to provide the highest quality of customer service, goods, and website information we possibly can." You just can't beat that level of dedication.

Glenn's massive achievement didn't happen overnight, we can be certain. Years of collecting, restoring, and with a doubt, a significant amount of personal investment surely went into this massive effort. So impressive is all of this that it caught the attention of Mr. Greene, Jr., himself. Gar Greene, Jr., who owns a few Browning classic CBs of his own, contacted Glenn very early in 2000 to commend Glenn on his efforts, which Gar views as a "tribute" to his late father, and graciously concedes that the senior Greene would have been proud of the loyal Browning following cultivated by Glenn and his Browning Laboratories, Inc., website.

In my personal estimation, I feel that Gar Greene, Jr.'s kind and touching statements amount to nothing less than an official endorsement of the new Browning Laboratories Corporation, and an official handoff of the Browning name from one millennium to another. Thank you, Gar Greene, Jr., and thank you Glenn Hendrix! Will Browning Laboratories become a service center and parts and equipment trading post for vintage Browning equipment? Come see for yourself at the Browning Labs website at <http://www.browninglabsinc.com>.

Bill Prather, KC4KMG/KEP6112/SSB-28ØD, of North Carolina was kind enough to share a photo of a rare and vintage piece of CB radio equipment in his possession. Check out the photo of Bill's old white-face Johnson Viking Messenger CB rig. Bill tells us that this radio is still in service in his ham shack, used for monitoring Channel 9. This is one nice piece of classic equipment! And I highly commend you Bill, for being among the fraternity of we who do monitor the CB emergency channel.

What's On Your Holiday Wish List?

With the colder weather setting in, you'll want to make sure any new heavy coats you get will be long enough to both conceal your belt-carried electronics and to protect them from the elements as well, right? Meanwhile, it's not too early to start thinking about what you'll want to add to your Christmas and holiday wish list this year. GPS receiver or palm-top computer? Handheld CB or FRS walkie? GMRS or amateur 2-meter handheld? Ah, the possibilities!

We'll see you again next month with more news from the world of CB radio, telematics, GMRS, FRS, and such. ■

ham discoveries

connecting as a radio amateur

by Kirk Kleinschmidt, NTØZ

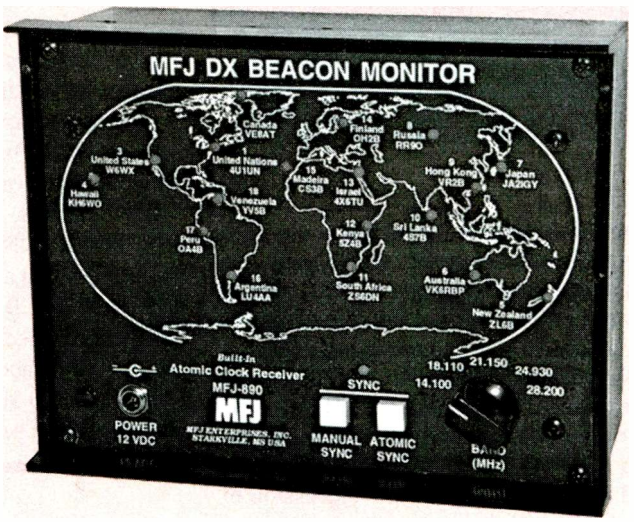
Think You Need an Amplifier? Think Again!

I was enjoying a Saturday morning "ham breakfast" the other day when, through the usual din, I heard a couple of relatively new hams discussing the fact that linear amplifiers had dropped in price and were now "in range" of their wallets. The two were gleefully imagining what they'd do with their new powerhouse signals.

Most of us have gone through this at one point or another, and a certain percentage of hams at large have done something about it and actually purchased an amplifier. But I'm here to tell you, folks, for the vast majority of today's hams, station amplifiers aren't terribly useful. In fact, they may be more trouble than they're worth. Even if they're free!

If I ever became the FCC Czar (with an office down the hall from the Drug Czar), my first official act in office will be to reduce the HF power output for the Amateur Radio Service to 150 watts PEP. This would irritate a few hams, but it would almost certainly improve our hobby. I wish the FCC had the fortitude to do just that.

If you think you need a linear amplifier to chase away your radio blues, think again. Your 100-watt barefoot signal almost certainly provides more than enough power. If you need a bigger signal, what you likely need is a better antenna and/or a better feedline. Here's why:



With increasing frequency, some really nifty things are coming from the folks at MFJ. Their new DX Beacon Monitor is a real corker! This standalone box provides up-to-the-minute information about worldwide band conditions on 20 through 10 meters from your shack. It does so by listening to transmitted information from the 18 stations around the globe that comprise the IARU International Propagation Beacon Network.

The DX Beacon Monitor lets you instantly see which propagation beacons are being received: An LED lights up on the unit's built-in world map to show you the beacon location and where to point your antenna. As data from each beacon is received, the corresponding LED lights to indicate that the radio path on that frequency is open between the beacon and your station. If the light's on, the band is open. Right now!

Priced at $99, it's a handy, truly useful gadget that won't break the bank. See it for yourself at <www.mfjenterprises.com>.

The Struggle

Beginning hams often struggle with deciding whether to buy an amplifier or improve their antenna system—or maybe both. It's a logical question.

They want to improve their station's signal quality, make more QSOs, work more DX stations, rack up higher contest scores, and chat with others while enjoying armchair copy.

But which way should you go? Are amplifiers a good investment? Will they provide the boost in readability you've been looking for? They are legal, but are they really in keeping with the amateur spirit?

RF Environmentalism

In case you've forgotten, Amateur Radio is a radio service, with rules, regulations, and goals that transcend hobby operation. One of the most important rules compels us to use the minimum transmitter power required to communicate.

That doesn't eliminate amplifiers entirely, but it does (or should) limit their habitual use. The minimum necessary power rule protects us all. It promotes responsible, considerate operation. Try it sometime! Reduce your 100-watt signal to 50 or 25 watts. You'll maintain effective comms most of the time. You'll also improve your operating skills, enjoy a greater sense of achievement, and gain an intuitive sense of propagation.

Hams who are also decent human beings are concerned about others: other hams, neighbors, family members, etc. They try to fit in, to get along, to accommodate a community of interests in addition to their own. Just because we can transmit a 1500-watt signal doesn't mean we should. Just because we can erect a 200-foot-high antenna tower doesn't mean we should. Hams who follow the Golden Rule integrate their radio pursuits with the pursuits of others—not because they have to, but because they want to!

Joe Ham's Shack

Let's assume that you have a typical shack. A 100-watt transceiver feeds a coax-fed dipole (or two) through a 300-watt antenna tuner. Because of the tuner, your rig can happily put out full power regardless of actual antenna/feedline SWRs on the various bands you work.

This setup, which is used by thousands, works pretty well, right? Maybe. But maybe not. You might have noticed that working stations on some bands doesn't seem as easy as it should—especially DX stations. You might even be dreaming of solving your problem by cranking up the power. By adding a glowing monster amp to your modest shack, you might think, those stations with once-marginal copy will respond with ease.

It's a comforting image, but it's probably a fantasy. Although you may not yet know it, you'll likely get a lot more signal for a lot less money if you upgrade your antenna system before (or instead of) shelling out the bucks for an amplifier.

You Can Pay Me Now Or Pay Me Later

Let's boost our signal and see how the decibels stack up against the greenbacks. If your amplifier budget is modest, a small solid-state or single-tube amplifier will boost your 100-watt barefoot signal to about 500 watts. That's enough to be noticed, or so you think, but just how noticeable?

Here's the bad news: Every time you double your power output, stations that are receiving your signal hear a 3-dB increase in strength. That's less than half an S-unit! To nudge the needle a full S-unit you need to *quadruple* your power output (a 6-dB increase)!

The progression looks like this: 100 watts doubled to 200 watts equals a 3-dB increase. Next, 200 watts doubled to 400 watts equals a 6-dB increase. Then, 400 watts doubled to 800 watts equals a 9-dB increase (exceeding the output power of our entry-level amplifier). Finally, 100 watts times 10 equals 1000 watts, a 10-dB increase in power output.

Our 500-watt output amplifier gives us a smidgen more than a one S-unit boost on the other end. That's not much, especially when an amplifier in this class can cost as much as $1,000!

Want more power? Using our calculations from before, boosting your signal to a kilowatt output provides a 10-dB shot in the arm. That's just under two S-units on the other end—S3 to S5, S7 to S9, etc.

That's enough of a difference to be noticed, but still not enough to "burn down the barn." And by the way, you're now shelling out $1,500 or more. If you go for a legal-limit amplifier, your 1,500-watt signal will be about 12 dB stronger than your "barefoot" transceiver. Because of the "price of power," 1500 watts is still only two S-units stronger! And a legal-limit amplifier is hardly a casual purchase. It'll set your wallet back about $2,500.

Harmonious Solution?

To save wear and tear on your neighbors, fellow hams, wallet, and even your house wiring (big amps require big AC power), consider improving your antenna system before investing in an amplifier. Here are some ideas to get you started:

- One almost universal way to get out more signal is to get your antenna(s) higher up in the air (your present antenna or a new one). Build a taller mast, find a taller tree, or put up a tower.
- If that dipole just isn't cutting it, put up a contest-winning and

DX-catching secret weapon: a full-wave horizontal loop for 40 or 80 meters (up as high as possible, of course!). Feed it with coax and use a tuner on bands above the fundamental frequency. That's a "cheap 'n' dirty" way to snag an extra 2 to 10 dB, depending on frequency.

- Disconnect the feedline from your coax-fed multiband dipole and replace it with 450-ohm ladder line. With a coax feed, even though your antenna tuner may be presenting a happy impedance to your transmitter, feedline losses due to high SWR may slash your signal by 6, 10, or 25 dB, depending on the band and the size of your dipole! By using 450-ohm open-wire line you'll likely reclaim most of that lost power. Now that's a 6- to 20-dB shot in the arm that anyone can afford!
- On SSB, learn to correctly use your rig's speech processor. That's another 3-dB (or more) improvement, this time in the modulation department! No purchase necessary!
- For about the price of an entry-level amplifier you can buy a multiband beam antenna and a decent rotator. This dynamic duo, mounted reasonably high, will offer a 5- to 7-dB steerable improvement to your signal.

Remember: Amplifiers only boost your *transmitted* signal and do nothing to improve reception. By rotating a directional antenna you can often boost the signal you're trying to *receive* while attenuating signals that are unwanted. For example, if I'm working a European ham from my Minnesota QTH, a potentially interfering signal from an op in Florida—located in the side null of my directional antenna—may drop 25 dB or more! The difference, more than 30 dB of signal enhancement, could never be achieved by a lone amplifier.

At The Crossroads

So, do antennas win out over amplifiers in your shack? Or will your operating table soon be sporting some heavy iron? Amplifiers do have their uses, especially after you've tweaked your antenna farm. Add a 10-dB amplifier to a 7-dB beam antenna and you've got a whopping 17-dB improvement in signal strength! That will put you on the map, especially when the minimum necessary power required to communicate requires maximum smoke.

Given the choice, I'll take a "killer" antenna instead of a "rock crusher" any day! How about you?

Send your questions, comments and QSLs to me at "Ham Discoveries," c/o *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801. And send along your photo while you're at it. See you next month! ■

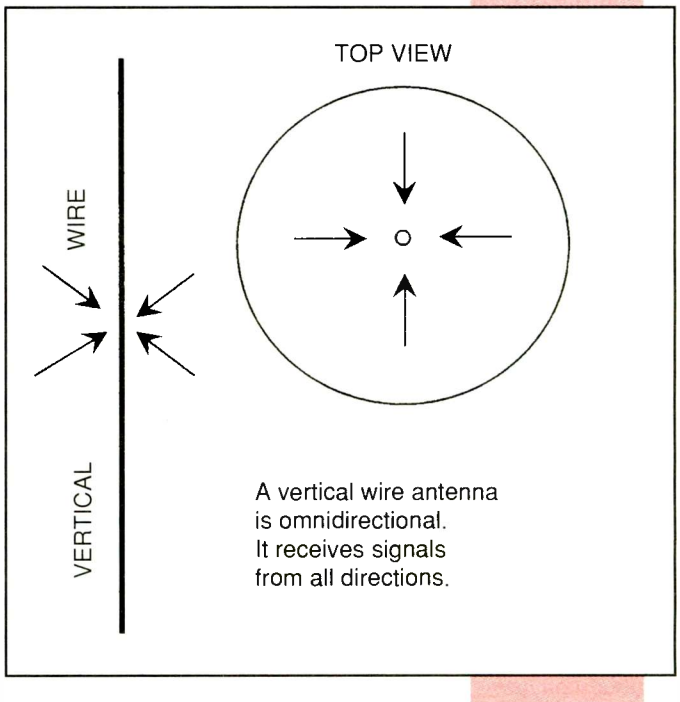
by Bruce Conti <baconti@aol.com>

Where Are You Aiming Your AM Antenna?

How many times did your mother warn, "Watch where you're pointing that thing. You might poke someone's eye out!"? Well unless you're playing with a telescopic whip, there's little chance of hurting an eye with an AM radio antenna. However Mom was right about watching where you aim that antenna. Almost all mediumwave antennas are *directional* and where you take aim may determine what you receive.

Vertical Wire Or Whip?

A vertical wire or whip is *omnidirectional*, that is it should receive signals from all directions without favoring any particular direction. Unfortunately, because it receives from all directions, it also picks up noise from all directions, which is one reason why DXers prefer to use directional antennas. There are two basic types of directional antennas used for mediumwave DXing: the loop and the horizontal wire.



A vertical wire antenna is omnidirectional. It receives signals from all directions.

Internal Ferrite Loop

Most portable receivers have an internal ferrite core loop antenna for AM broadcast band reception. Basically the ferrite core concentrates the antenna field strength to compensate for its compact size, making it the ideal antenna for use inside a receiver. A loop antenna is *bidirectional*, meaning that it receives best in two directions opposite each other, such as north and south. Because the ferrite core loop antenna is typically mounted lengthwise in a receiver, best reception will be in the directions of the front and back of the receiver. Signals in the directions of the sides of the receiver will be nulled. Some DXers like to place their portable receiver on a Lazy Susan or microwave turntable to make it easy to change direction.

The Air Core Loop

Like the ferrite core loop, an air core loop is bidirectional. The popular Select-A-Tenna, the RadioShack AM Loop, and the well engineered Kiwa Loop are all examples of air core loops. (Joe Cooper shows how to construct a loop antenna in the September edition of his "Computer Assisted Radio Monitoring" column.) Air core loops are noted for low-noise performance, whereas ferrite core loops tend to be noisier. An air core loop can be connected to the external antenna input of a receiver. Your receiver doesn't have an external antenna input? Not a problem, as the field of the air core loop can be coupled with the field of a receiver's internal ferrite loop simply by placing them next to each other.

Most loop antennas, air and ferrite core, are *tuned circuits*. The wire loop inductance and a tuning capacitor combine to produce a resonant frequency where the antenna performance is most efficient, resulting in peak signal strength. However, you can build a simple broadband mediumwave loop antenna consisting of a single turn of wire, an approximately 16-to-1 ratio RF matching transformer, and coax lead-in. It doesn't require tuning but still provides for bidirectional reception. The only drawback is its size. A good broadband loop antenna should measure at least six by six feet. A smaller loop will require RF amplification. The larger the loop, the less amplification required.

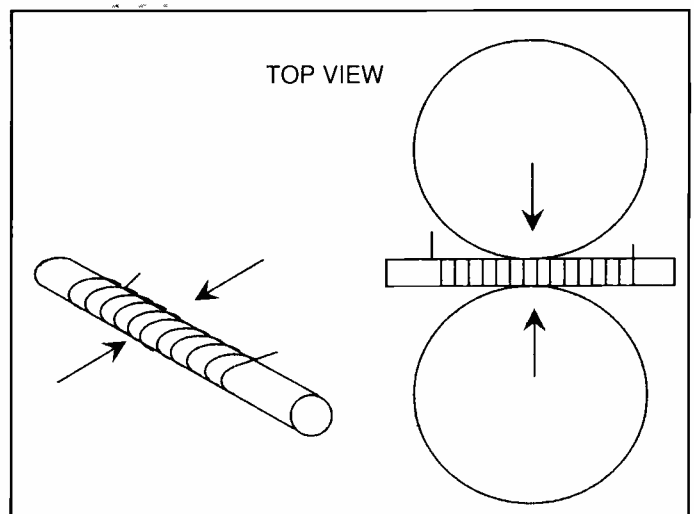
Lay out a single loop of wire, connect the ends of the wire to the high impedance windings of the matching transformer, and connect the low impedance leads of the matching transformer to the coax lead-in center conductor and shield. Build two loops and orient them in different directions, then combine the signals for some interesting phasing effects.

Horizontal Wires

In general a horizontal wire antenna is bidirectional. The direction of reception not only depends upon wire orientation, but also can be determined by the length of the wire. A short wire, let's say about 50 feet for mediumwave, should receive the best signals off the sides of the wire over a wide beam angle. As the antenna wire length increases, the reception pattern will begin to shift from the sides to the ends of the wire. The height and slope of the wire will affect performance. A long wire can be forced to favor one direction by sloping it downward in the desired direction of reception. The minimum length of a long wire antenna is about 1/8 wavelength, or about 125 feet for the middle of the AM broadcast band. At 1 wavelength or greater,

the wire becomes a wave guide with the radio waves traveling along the length of the wire, resulting in pencil-beam bidirectional reception off the ends of the wire. A 1,000-foot wire length will cover the middle of the band. You'll need close to 2,000 feet to reach the low end at 530 kHz.

While much of what has been described here is perhaps an oversimplification, at least you now have some understanding of how the direction of reception can be controlled with various antennas. Plenty has been written about loop and wire antennas. *73 Dipole and Long-wire Antennas* by Edward M. Noll, W3FQJ (MFJ Publishing, 1992), covers all sorts of directional wire antennas from simple long wires to Vee beams and Beverage antennas. Volumes One and Two of the NRC *Antenna Reference Manual* (National Radio Club, Inc.) detail loop construction projects, phased arrays, and RF amplifier designs. *Long Wire Antennas* by Frank P. Hughes, VE3DQB (Tiare Publications, 1995), provides more about the theory behind various designs. *The Beverage Antenna Handbook* by Victor A. Misek, W1WCR (1989), is a highly technical exploration of the traveling wave guide antenna. Let me also direct you to our friends at Universal Radio (www.universal-radio.com) where you'll find more books detailing antenna construction and theory. Aim carefully!



A horizontal ferrite core loop antenna is bidirectional. It receives signals off the sides resulting in a figure-8 reception pattern.

QSL Information

540 KWMT Fort Dodge, Iowa, QSL letter on "AM 540 KWMT" stationery plus station refrigerator magnet in four months following an e-mailed reception report via the station website's feedback form at www.kwmt.com/feedback.html, signed by Barry Walsh, Chief Engineer. Address: PO Box 578, Fort Dodge, IA 50501. (Smith, IN)

1270 CBRU Squamish, British Columbia, a full-detail QSL card received in nine days from this LPRT formerly at 1260 kHz, signed Dave Newbury-CE. Address: CBC, PO Box 4600, Vancouver, BC V6B 4A2, Canada QSL #278. (Martin, OR)

1510 KNRC Littleton, Colorado, full-data letter in 30 days for a report on test transmissions and the first day of broadcast, mentions that they use Kahn Powerside, signed Daniel Hyatt, Eng. Address: 1201 18th Street, Suite 250, Denver, CO 80202. (Griffith, CO)

1660 KTIQ Merced, California, a QSL in the form of a message written on the back of a small bumper sticker, received in eight days. Address: 514 E. Bellevue Rd., Atwater, CA 95301. (Martin, OR)

Broadcast Loggings

Steve Clang, KA1BTI, writes, "A few loggings to pass on. Active again after a long time off due to a bad noise problem here at my apartment which wiped out the AM band every night. Traced it to a defective photoelectric sensor on a halogen light. (Always fun trying to explain these types of issues to the maintenance staff.)"

Nice detective work! Steve does his DXing from Plymouth, Massachusetts, with the Palstar R30 receiver, a 63-foot sloping wire (also used for 80/75 Ham), and a noise-reduced buried coax/1:1 isolation transformer lead-in.

Lawrence Ressler of Warren, Ohio, sent in a nice report of stations logged on the RadioShack DX-375 receiver. Like many broadcast DXers, Lawrence has managed to build a rather large collection of receivers including the RadioShack DX-350, the Optimus AM/FM radio from their Y2K package, the Grundig Mini-World 100PE, the Magnavox AE 3625, a 1972 Realtone solid-state AM table radio, and the RadioShack DX-390.

Brian Smith, W9IND, of Indiana enjoyed listening to **660 KTNN** while on a trip through the west. "I received it in my car while driving through New Mexico, Arizona, and Utah; KTNN Window Rock, Arizona, 'The Voice of the Navajo Nation' with a format unlike any other: news and interviews in the Navajo language, plus contemporary country and western music along with occasional songs by Native American artists. As the station's website says, 'Cowboys and Indians share the air on KTNN.' A fascinating catch."

There are interesting reports from Mark Connelly, WA1ION, and Patrick Martin, too, in this month's selected logs. All times are UTC.

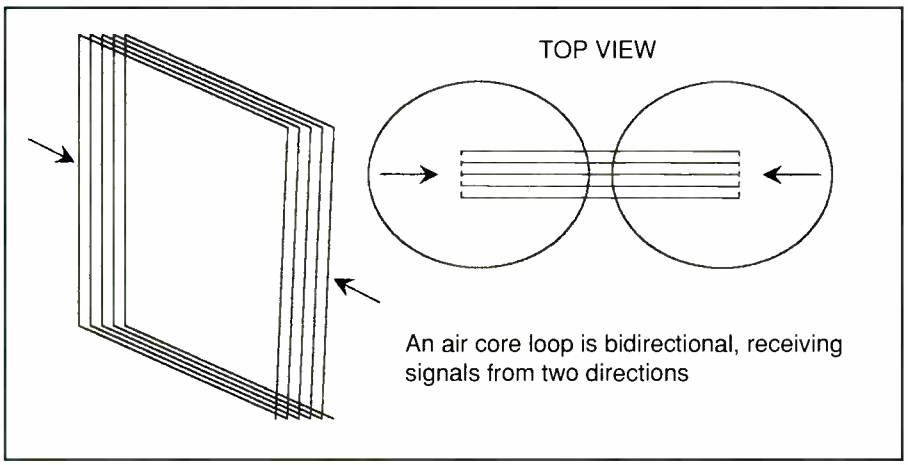
153 Deutschland Radio, Donebach, Germany, at 0235 a German talk program. Fair, quickly faded. (Clang, MA)

171 R. Mediterranee Int'l, Tangiers, Morocco, at 0345 fair, with slow hypnotic Middle-Eastern music, followed by upbeat techno-pop. Faded soon after. (Clang, MA)

590 WKZO Kalamazoo, Michigan, good at 1019 with morning show featuring news, traffic and weather, and commercials. Also heard was the station's slogan, "When you need to know—WKZO." (Smith, IN)

600 KGEZ Kalispell, Montana, good and dominant with usual AOR format, and "The Edge" slogans at 0630, later mixing with CJWW Saskatoon, Saskatchewan. (Martin, OR)

603 France Bleu, Tramoves (Lyon), France, at 0151 parallel 1206 kHz with a female soul vocal; excellent—surprisingly loud, and at 0204 a slow male vocal; good. Some slop from stronger-than-usual CBNA Newfoundland on 600 kHz. (Connelly, MA) At 0254 with the Barry White tune "Can't Get Enough of Your Love, Baby," my first transatlantic signal, on my birthday. Strong, stand-alone signal. (Clang, MA) *(Congratulations, Clang!—bc)*



An air core loop is bidirectional, receiving signals from two directions

640 WHLO Akron, Ohio, fair at 1200 before being obliterated by WCRV at 1215. Originally a mystery logging for me after I heard a male-and-female morning team, adult contemporary music, an ad for a Cleveland auto show, and an ID that sounded like WKBB or WKVB. All signs pointed to WHLO, but outdated online information said it was a gospel station. But the truth was out there—especially after I discovered WHLO had begun simulcasting its FM sister, WKDD. (Smith, IN)

650 WSM Nashville, Tennessee, at 0735 a good signal while listening to "The Classic Country Weekend." (Ressler, OH)

760 WJR Detroit, Michigan, at 0646 good with news/talk and "The Midnight Cowboy Trucking Radio Network" program. (Ressler, OH)

900 CHML Hamilton, Ontario, at 0622 fair to good with "Coast-to-Coast AM," interference from WLSI Pikeville, Kentucky. (Ressler, OH)

940 CINW Montreal, Quebec, at 0614 a fair signal, "Montreal's 24-hour news station" with all news, featuring a traffic and weather report, film review, and news headlines. (Ressler, OH)

1050 WEVD New York, New York, at 0540, a good signal, ESPN Radio sports talk featuring a conversation with the departing commissioner of the Southeastern Athletic Conference. (Ressler, OH)

1070 WIWS Beckley, West Virginia, good at 0230, slipping through the cracks for a few minutes on a frequency usually dominated by local heavyweight WIBC Indianapolis. Pop oldies (Beach Boys, Fifth Dimension) and ID as "Groovy 94.1," referring to simulcast sister, WAXS Oak Hill, West Virginia. (Smith, IN)

1116 SER Synchros, Spain, at 0314 talk in Spanish alternating between a man and woman. Fair to poor. (Clang, MA)

1130 KWKH Shreveport, Louisiana ("The Fan," featuring Fox Sports programming), dueling with WISN Milwaukee, Wisconsin ("News/Talk 1130"). Both fair at 0120, with neither establishing a foothold. (Smith, IN)

1130 WBBR New York, New York, at 0519 a good signal with a weather report, then listened to "The Bloomberg Money Show" on "Bloomberg Radio Eleven-Three-Oh." (Ressler, OH)

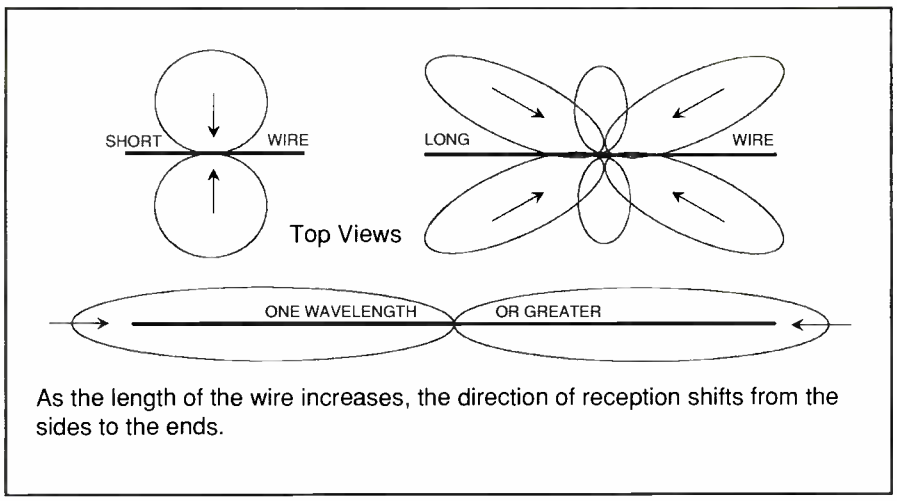
1140 WBXR Hazel Green, Alabama, in a strange cacophony at 0100; sudden fade by the usually dominant WRVA Richmond, Virginia, and its Dr. Laura show, triggering a five-minute free-for-all among lesser rivals, with two of them briefly claiming the brass ring. Most consistent was WBXR, fair to good with instrumental Christian music, but WAWK Kendallville, Indiana, which the FCC lists as a 250-watt daytimer, also sneaked in with a fair ID before slipping back into the swamp. A "Star Spangled Banner" moments later may have been WAWK's sign-off, as 0100 is close to Hoosier sundown this time of year. (Incidentally, although we both share the same state, WAWK is about three hours north of my location and is anything but a slam-dunk to tune in.) (Smith, IN)

1140 WLOD Loudon, Tennessee, poor to fair at 1005 with traditional country and bluegrass music. Couldn't resist checking this frequency around sunrise and voila, another new one. Unmistakable format; not that much music on AM anyway these days, let along old-time country songs. (Smith, IN)

1320 WJAS Pittsburgh, Pennsylvania, heard at 0441 a good signal with interference from an unidentified Christian music station, heard nostalgia including "Georgia On My Mind" by Ray Charles. (Ressler, OH)

1548 VOA Relay, Kabd-Kuwait City, Kuwait, 0030–0130 I listened to this several times over an hour and was mystified by the same station playing Middle Eastern and Indian music along with western (U.S./Euro) pop hits. The female announcer mumbled, so I wasn't sure of the language. I did hear an ID that Herman Boel in Belgium confirmed as being "Radio Sawa," an entertainment service being run on VOA Kuwait. The signal was very strong on peaks. (Connelly, MA)

1630 KNAX Fort Worth, Texas, heard with Spanish ranchera-type music and ID at 1001, "1440 KTNO Denton, Dallas, Fort Worth," under/over KKWY. No mention of KNAX calls though parallel with 1440 apparently. New, x-band #47. (Martin, OR)



As the length of the wire increases, the direction of reception shifts from the sides to the ends.

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Here's more info regarding Mark Connelly's log of Kuwait on **1548 kHz**, quoted from www.ibb.gov/radiosawa/:

Radio Sawa is a service of US International Broadcasting, which is operated and funded by the Broadcasting Board of Governors (BBG), an agency of the US Government. The BBG serves as a firewall to protect the professional independence and integrity of the broadcasters. One of the guiding principles of Radio Sawa is that the long-range interests of the United States are served by communicating directly in Arabic with the peoples of the Middle East by radio. Radio Sawa seeks to win the attention and respect of listeners. In reporting the news, Radio Sawa is committed to being accurate, objective, and comprehensive. Radio Sawa broadcasts 24 hours a day, 7 days a week on FM frequencies throughout the Middle East. Radio Sawa is also available via Nilesat, Arabsat, and Eutelsat.

Mediumwave frequencies: Levant/ Eastern Mediterranean at **1260** kHz, and Kuwait/Gulf at **1548** kHz (VOA relay). Some potential shortwave parallels for east coast transatlantic DXers during local sunset: 1700–2100 at **6040 kHz**, and 1800–2100 at **6160**, **7105**, **9505**, **9620**, **11825**, **11895**, and **15545 kHz**.

Many thanks to Steve Clang, Mark Connelly, Patrick Griffith, Patrick Martin, Lawrence Ressler, and Brian Smith. 73 and Good DX! ■

PENDING

New Call	Location	Freq.	Old Call
KHCM	Waipahu, HI	940	KJPN
WMCC	Zion, IL	1500	WPJX
WIZZ	Greenfield, MA	1520	WGAM
WZBK	Keene, NH	1220	WKBK
KANM	Albuquerque, NM	1600	KIVA

CHANGES

New Call	Location	Freq.	Old Call
KJMP	Pierce, CO	870	New
WIBF	Dover, DE	1600	WKEN
KMDR	Pearl City, HI	1380	KIFO
KSYB	Shreveport, LA	1300	KFLO
KBCK	Deer Lodge, MT	1400	KDRG
KTRC	Santa Fe, NM	1260	KVSF
KVSF	Santa Fe, NM	1400	KTRC
WOTW	Nashua, NH	900	WMVU
WLKW	West Warwick, RI	1450	WWRI
WJDJ	Hartsville, SC	1490	WTNI
WQJM	Myrtle Beach, SC	1450	WJYR
WVLZ	Knoxville, TN	1180	WHJM
KHCK	Dallas, TX	1480	KDXX
CJWI	Montreal, QC	1610	New
KNRJ	Payson, AZ	101.1	KAZL
KFRJ	China Lake, CA	91.1	New
KHKL	Laytonville, CA	91.9	KARA
KKRO	Redding, CA	91.5	New
KWTD	Ridgecrest, CA	91.9	New
KULV	Ukiah, CA	97.1	New
KARA	Williams, CA	99.1	KHKL
KTMH	Colona, CO	89.9	New
KTCF	Dolores, CO	89.5	New
KWRZ	Eaton, CO	88.9	New
KWWY	Fort Collins, CO	88.3	New
KTLG	Fowler, CO	88.3	New
KTPS	Pagosa Springs, CO	89.7	New
KTEI	Placerville, CO	90.7	New
KTDU	Trimble, CO	88.5	New
WWKQ	Clermont, FL	88.7	WLAZ
WAFZ-FM	Immokalee, FL	92.1	WGCQ
WLAZ	Kissimmee, FL	89.1	WWKQ
WVVE	Panama City Bch., FL	100.1	WQJM
WBGE	Bainbridge, GA	101.9	WJHW
WWWD	Bolingbroke, GA	102.1	New
KBSS	Sun Valley, ID	91.1	New
WLIE-FM	Golconda, IL	94.3	WLIE
WNHT	Churubusco, IN	96.3	WHTD
WXTZ	Wadesville, IN	90.1	New
KWOF-FM	Hiawatha, IA	89.1	New
KROJ	Vinton, IA	107.1	New
KACZ	Riley, KS	96.3	New
KUMX	North Fort Polk, LA	106.7	KCIJ
KRXE	Opelousas, LA	105.9	KVOL-FM
WINX-FM	Cambridge, MD	94.3	WFBR
WDTW	Detroit, MI	106.7	WLLC
WVXH	Harrison, MI	92.1	WKKM
WMOZ	Moose Lake, MN	107.1	KBFH
KRDS-FM	New Prague, MN	95.5	KCHK-FM
WRXW	Pearl, MS	93.9	WVIV
KBIL	Billings, MT	90.9	New
KZMY	Boseman, MT	103.5	New
KARQ	Mesquite, NV	91.1	New
WTPL	Hillsboro, NH	107.7	WKXL-FM
WIBF-FM	Port Republic, NJ	88.7	WIBF
KLSK	Las Vegas, NM	98.1	KBAC
KBAC	Santa Fe, NM	104.1	KLSK
WQZL	Belhaven, NC	101.1	WANJ
KTBT	Collinsville, OK	101.5	KMRX
KHBZ-FM	Oklahoma City, OK	94.7	KQSR
KTKL	Stigler, OK	88.5	New
KLRB	Stuart, OK	89.3	New
KANL	Baker, OR	90.7	New
KYBN	Bend, OR	90.5	New
KARO	Jordan Valley, OR	90.9	New
KKLP	La Pine, OR	90.3	KLOP
KPFR	Pine Grove, OR	89.5	New
KWLZ-FM	Warm Springs, OR	96.5	KRCO-FM
WNJR	Washington, PA	92.1	WXJX
KDXT	Granbury, TX	106.7	KDXT-FM
KDXX	Lewisville, TX	107.9	KDXX-FM
KBKH	Shamrock, TX	92.7	KRMN
KQXS	Stephenville, TX	89.1	New
WOKG	Galax, VA	90.3	New
KRVO	Vancouver, WA	105.9	KSTE-FM
KCPP	Casper, WY	89.1	New

washington beat

Capitol Hill and FCC actions affecting communications

by Laura Quarantiello <lauraq@cts.com>

Cyber Security Act Affects Scanner Listeners

The penalties for listening to cellular telephone calls, cordless calls, pagers, and common carrier communications are about to get bigger. Buried within the text of HR 3482, the recently passed Cyber Electronic Security Act (CESA), are two amendments that have scanner listeners fuming.

CESA Section 108 "Protecting Privacy" amends Title 18 of the U.S. Code, which relates to intercepting and disclosing wireless communications. The changes are small, but potentially significant, especially in Section 2701–Section 2701(b) which now makes it a felony to intercept an unscrambled and unencrypted wire or electronic communication for hobby purposes.

Prior to the passage of this Act, listening to wire or electronic communications (cellphones, pagers, etc.) was a misdemeanor punishable by not more than one year in prison and a maximum fine of $500 (for a first offense). CESA now makes a first offense into a felony good for five years in the federal pen. That's serious prison time and a federal rap to boot.

In addition, there's some scary language down in Section 4 of potential significance to scanner listeners. This section says:

(1) Except as otherwise specifically provided in this chapter any person who-

(c) intentionally discloses, or endeavors to disclose, to any other person the contents of any wire, oral, or electronic communication, knowing or having reason to know that the information was obtained through the interception of a wire, oral, or electronic communication in violation of this subsection;

(d) intentionally uses, or endeavors to use, the contents of any wire, oral, or electronic communication, knowing or having reason to know that the information was obtained through the interception of a wire, oral, or electronic communication in violation of this subsection; or shall be punished as provided in subsection (4) or shall be subject to suit as provided in subsection (5).

Some have speculated that this means posting the contents of intercepted communications to an Internet mailing list could get you arrested if they weren't legally obtained.

CESA doesn't create any new laws and it doesn't outlaw anything that wasn't illegal before, but it does mean that getting caught merely listening to cellular, cordless, or other common carrier communications no longer gets a slap on the wrist: now it's a felony.

FCC Implements Migration Path In The 700-MHz Public Safety Band

The Federal Communications Commission has adopted a Report and Order that sets forth a uniform migration path for General Use and State License public safety channels that will promote the deployment of spectrally efficient communications equipment in the 764- to 776-MHz and 794- to 806-MHz band (700-MHz band). The FCC's migration path requires that all new systems accepted for filing after December 31, 2006, must use 6.25-kHz equipment.

Congress' Balanced Budget Act of 1997 directed the FCC to allocate 24 megahertz of spectrum in the 700-MHz band for public safety use. The FCC designated the spectrum as follows: 12.5 MHz for General Use, 2.6 MHz for Interoperability, 2.4 MHz for State License, 0.3 MHz for Low Power, 0.2 MHz for Secondary Trunking, and 6.0 MHz for Reserve. The General Use spectrum, which consists of both 6.25-kHz and 50-kHz channels (referred to as narrowband and wideband), is licensed utilizing a regional planning approach akin to that used for the 800-MHz band. The General Use channels can be used for voice and data applications in support of public safety services. The State Licenses are 2.4-MHz geographic area licenses based on state boundaries and are issued to the Governor of each state or the Governor's designee for implementation of statewide public safety systems.

FCC License Grants And Updates Site

A new site is now available for those of us who like to keep track of Land Mobile Private license grants and updates from the Federal Communications Commission. The site, at <www.freq ofnature.com/grants.html>, is run by Tracy Justus as a courtesy to the monitoring community. Though the same information can be found on the FCC website, Tracy provides an easily navigated database which is updated monthly and is much more user friendly than the federal site. Simply enter your state and county (optional) and the database will retrieve the past month's license grants and updates, listed by entity name, callsign, RSC, entity type, attention line, city, state, and last action. Clicking on a particular callsign brings up details such as license status, radio service, and location detail (lat/long, address, frequency, etc.). "This is currently a work in progress so please excuse the mess while it's under construction," says Tracy. "There are a lot of cool features and documentation in the works so please visit this site often to see its progress." Indeed, he's just added a handy feature that maps the transmitter site. You can't beat that!

More Spectrum Available For Advanced Wireless

The U.S. Department of Commerce has released a plan to free up 90 MHz of radio spectrum for advanced wireless communications services. According to the National Telecommunications and Information Administration (NTIA), the spectrum would be comprised of 45 MHz from the 1710- to 1755-MHz band (currently used by the federal government), and 45 MHz from the 2110- to 2170-MHz band (used by non-government agencies). Originally, the 1755- to 1770-MHz band was also on the chopping block, but NTIA has determined that sharing or moving defense systems wouldn't be a good idea.

"This plan promotes our country's economic growth while protecting national security and public safety," Commerce Secretary Don Evans said. He indicated that NTIA will continue to work with the FCC to make more spectrum available for wireless and data services by the end of the decade.

Radar Detectors Must Comply With Emission Limits

The FCC has moved to protect satellite operations from interference caused by radar detectors by imposing new emission limit and certification requirements for these devices. The rules modification applies to Part 15 and specifically requires radar detectors to meet emission limits in the 11.7- to 12.2-GHz band and to require that radar detectors obtain certification under the Commission's equipment authorization procedures. All radar detectors marketed within the U.S. must comply with the new rules within 60 days after the rules are published in the Federal Register. All radar detectors imported into and manufactured for sale within the U.S. must comply with the new rules within 30 days of Federal Register publication.

Part 15 of the FCC's rules that devices which unintentionally radiate radio frequency energy, such as computers and receivers, be required to comply with radiated emission limits before they may be marketed. Radar detectors have come under fire recently for interfering with very small aperture satellite terminals (VSATs), which operate with downlink frequencies in the 11.7- to 12.2-GHz band.

Canadian Airport Shuts Down Cellphones

The Canadian Radio-Television and Telecommunications Commission (CRTC), Canada's version of the FCC, has ruled that cellular telephone coverage at Toronto's Lester B. Pearson International Airport can be shut down. The move, if it happens, would mean that neither passengers nor airport employees would be able to use cellphones at the airport. This may pose a problem for the 28 million travelers who pass through annually and the 15,000 people who work at the airport. Officials are concerned that cellphone transmissions are interfering with airport communications.

Tech Guard Bill Passes Senate

The U.S. Senate has passed a bill that would create a technology equivalent of the National Guard. The Science and Technology Emergency Mobilization Act, sponsored by Sen. Ron Wyden (D-OR) and Sen. George Allen (R-VA), would amass a reserve force of volunteers skilled in technology and science who would be available on short notice in case of emergency. The Act also would consist of a database of private sector equipment and expertise that emergency officials could call upon in an emergency; a Center for Civilian Homeland Security Technology Evaluation that would serve as a national clearinghouse and test bed for innovative technologies relating to emergency prevention and response; a Web portal to provide individuals and companies with a single point to access the center and a single point of contact at each federal agency participating in the Center for Civilian Homeland Security; and a "communications interoperability" pilot program awarding seven grants of $5 million each. These grants would help law enforcement, fire, and emergency services communications networks to interface in a disaster. ■

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

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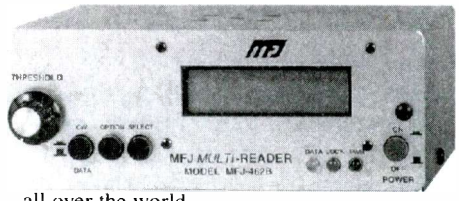

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MFJ's exclusive *TelePrinterPort*™ lets you monitor any station 24 hours a day by printing transmissions on an Epson compatible printer.

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

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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.

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Eliminate power line noise!

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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.

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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

MFJ-956 **$49.95**

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.

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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

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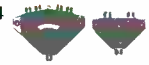
How to build and put up inexpensive, fully tested wire antennas using readily available parts that'll bring signals in like you've never heard before. Antennas from 100 KHz to 1000 MHz.

MFJ 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

MFJ-8100K **$69.95** *kit*
MFJ-8100W **$89.95** *wired*

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.

21 Band World Receiver

MFJ-8121 **$39.95**

MFJ's new 21 Band World Receiver lets you travel the world from your armchair! Listen to BBC news from London, live music from Paris, soccer matches from Germany and more! Covers 21 bands including FM, Medium Wave, Long Wave and Shortwave. *Sony*® integrated circuit from Japan, multicolored tuning dial, built-in telescopic antenna, permanent silkscreened world time zone, frequency charts on back panel. Carrying handle. Operates on four "AA"s. Super compact size!

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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	4717	Radio Yura, Bolivia	SS
0000	11750	Voice of Russia, via Moldova	
0000	11780	Radio Nacional Brasilia, Brazil	PP
0000	6105	Radio Cultura Filadelphia, Brazil	PP
0000	5035	Radio Aparecida, Brazil	PP
0000	9400	Radio Bulgaria	Bulg
0030	9770	SLBC/Radio Sri Lanka	
0030	11690	Radio Vilnius, Lithuania	
0030	11970	VOIRI, Iran	
0030	11600	Radio Bulgaria	Bulg.
0030	5990	Radio Senado, Brazil	PP
0030	4052	Radio Verdad, Guatemala	SS
0045	11585	Kol Israel	HH
0100	17675	Radio New Zealand	
0100	4815	Radio Difusora, Brazil	PP
0100	4775	Radio Liberal, Brazil	PP
0100	9737	Radio Nacional, Paraguay	SS
0100	9580	China Radio Int'l	
0130	6797	Radio Ondas del Rio Mayo, Peru	SS
0130	5500	Radio San Miguel, Peru	SS
0130	4960	Radio Villa, Dominican Republic	SS
0130	9425	All India Radio	
0130	6535	Radio Huancabamba, Peru	SS
0130	6215	Radio Maranatha, Argentina	SS
0130	4830	Radio Tachira, Venezuela	SS
0130	6045	Radio Clube Paranaense, Brazil	PP
0200	9460	Voice of Turkey	
0200	11980	Radio Rossii, Russia	RR
0200	9420	Voice of Greece	Grk/EE
0200	3995	Deutsche Welle, Germany	GG
0200	9475	Radio Cairo, Egypt	
0200	11940	Radio Romania Int'l	
0200	5678	Radio Ilucan, Peru	SS
0200	11700	Radio Bulgaria	
0200	11710	RAE, Argentina	
0200	17815	Radio Cultura, Brazil	PP
0200	11815	Radio Brazil Central	PP
0200	11787	Voice of Iraq	AA
0200	7270	Radio Tirana, Albania	Alb
0230	11920	RTV Marocaine, Morocco	AA
0230	13620	All India Radio	Hindi
0230	9570	Radio Budapest, Hungary	
0230	15355	Radio Sultanate of Oman	AA
0230	15435	Radio Jamahiriya, Libya	AA
0230	7160	Radio Tirana, Albania	
0230	20276	Radio Rivadavia relay, Argentina	SS, LSB
0230	15180	Radio Romania Int'l	
0230	5025	Radio Rebelde, Cuba	SS
0245	15400	UAE Radio, Dubai	AA
0245	17755	Qatar Broadcasting Service	AA
0300	12040	Radio Ukraine Int'l	
0300	7305	Vatican Radio	
0300	4991	Radio Apinte, Surinam	unid
0300	15555	Far East Broadcasting Assn., Seychelles	unid
0300	15495	Radio Kuwait	AA
0300	15630	Voice of Greece	Greek
0300	12050	Egyptian Radio	AA
0300	15120	Radio Pilipinas, Philippines	
0300	11710	Adventist World Radio, via Austria	Oromo
0300	4820	Radio Botswana	
0300	11705	Radio Free Afghanistan	vern
0300	4755	Radio Educacao Rural, Brazil	PP
0300	3215	Adventist World Radio via Madagascar	
0300	17780	Adventist World Radio, via UAE	EE/RR
0300	4819	La Voz Evangelica, Honduras	SS
0300	9970	RTBF Int'l, Belgium	FF
0330	11655	Voice of Turkey	
0330	15420	BBC relay, Seychelles	
0330	13675	UAE Radio, Dubai, UAE	
0330	7310	Voice of Truth via Madagascar	
0330	5030	University Network, Costa Rica	
0330	3250	Radio Exterior de Espana, via Costa Rica	SS
0400	4976	Radio Uganda	
0400	3320	South African Broadcasting Corp.	Afrikaans
0400	4960	Voice of America relay, Sao Tome	
0400	9830	Croatian Radio	Croat
0400	4775	Trans World Radio, Swaziland	vern
0400	4950	Radio Nacional, Angola	PP
0500	12005	RTV Tunisienne, Tunisia	AA
0500	9840	Radio Portugal	pp
0500	7275	RTT Tunisienne, Tunisia	AA
0500	4775	Radio Nigeria	
0530	6185	Radio Educacion, Mexico	SS
0530	13840	Italian Radio Relay Service	
0600	13720	Radio Exterior de Espana	SS

UTC	Freq.	Station/Country	Notes
0600	13630	Radio Japan	EE/JJ
0600	11610	Adventist World Radio, via Germany	AA
0600	4835	RTV Malienne, Mali	FF
0600	4760	ELWA, Liberia	
0600	7210	RTVB, Benin	FF
0630	13820	Radio Netherlands via Germany	DD
0700	6010	Radio Mil, Mexico	SS
0700	6458	Armed Forces Network, Puerto Rico	
0700	15565	BBC, England	
0700	15605	Radio France Int'l, via Gabon	
0700	15415	Radio Australia	
0700	6070	CFRX, Canada	
0800	11640	Norwegian Domestic Radio, Norway	NN
0800	9595	Radio Tampa, Japan	JJ
0800	11735	Voice of Korea, North Korea	RR
0800	6065	La Voz de su Conciencia, Colombia	SS
0830	11940	Radio Taipei Int'l, Taiwan	CC
0830	11930	Voice of America relay, Northern Marianas	
0900	4890	NBC, Papua New Guinea	
0900	9975	Voice of Korea, North Korea	
0900	3291	Voice of Guyana	
0900	6090	Radio Esperanza, Chile	SS
0900	6537	La Voz de Campesino, Bolivia	SS
1000	4781	Radio Oriental, Ecuador	SS
1000	4915	Radio Cora, Peru	SS
1000	6085	Radio San Gabriel, Bolivia	SS
1000	9840	Voice of Vietnam	
1030	5020	Solomon Islands Broadcasting Corp.	
1030	2410	Radio Enga, Papua New Guinea	
1030	3275	Radio Southern Highlands, Papua New Guinea	
1030	9665	Radio Singapore Int'l	Malay
1030	3345	Radio Republik Indonesia, Ternate, Moluccas Is.	II
1030	5954	Radio Casino, Costa Rica	SS
1045	3290	Radio Centro, Ecuador	SS
1100	11685	Voice of Russia	
1100	7260	Radio Thailand	
1100	12085	Voice of Mongolia	
1100	3245	Radio Morobe, Papua New Guinea	
1100	9850	Radio New Zealand	
1100	3325	Radio Maya, Guatemala	SS
1130	7445	Radio Taipei Int'l	CC
1130	4725	Radio Myanmar (Burma)	vern
1200	11675	Radio New Zealand	
1200	11665	Trans World Radio, Guam	CC
1200	11820	Radio Polonia, Poland	
1200	11940	National Radio of Cambodia	
1200	11810	Radio Kuwait	AA
1230	17775	Radio Tashkent, Uzbekistan	unid.
1230	17670	YLE Radio Finland	
1230	9490	Tibet Peoples Broadcasting Stn., China (Tibet)	TT/Cc
1245	9525	Voice of Indonesia	II/EE
1300	6135	Radio Santa Cruz, Bolivia	SS
1300	6150	Media Corp/Radio Singapore	
1300	7295	Radio Malaysia/Radio Four	
1300	11565	KNLS, Alaska	
1300	13775	Vision Int'l, Australia	CC
1330	18690	Radio Sweden	
1330	5955	Voice of America relay, Sri Lanka	
1330	15190	BBC, England, via Antigua	
1330	12095	Far East Broadcasting Co., Philippines	unid
1400	17680	Voz Cristiana, Chile	SS
1400	9830	Radio Thailand	
1400	7405	China Radio Int'l	
1400	13635	Voice International, Australia	
1400	11885	Philippine Broadcasting System	
1400	13725	Radio Sultanate of Oman	AA
1430	15265	Radio Taipei Int'l, Taiwan	
1430	17820	Radio Canada Int'l	
1500	15425	Sri Lanka Broadcasting Corp.	
1500	17770	Channel Africa, South Africa	
1500	21660	BBC relay, Cyprus	
1500	11570	Radio Pakistan	
1530	13765	Vatican Radio	
1530	9635	VOIRI, Iran	
1600	9870	Radio Korea Int'l, South Korea	
1600	11690	Radio Jordan	
1600	11685	Voice of Armenia	
1630	9385	Adventist World Radio, Guam	
1630	15715	High Adventure Ministries, USA via Germany	Farsi
1700	15340	Radio Free Afghanistan	vern
1730	15670	Voice of Oromo Liberation, via Germany	vern
1800	17735	Swiss Radio Int'l, via Fr. Guiana	FF
1800	17850	Radio Exterior de Espana, via Costa Rica	SS
1800	11990	Radio Kuwait	
1830	11520	Radio Free Asia, USA, via Russia	CC
1900	12070	Voice of Russia	
1900	15180	Voice of America relay, Philippines	
1900	15445	Voice of America relay, Botswana	
1900	15250	Salama Radio, to Nigeria	vern
1930	11750	VOIRI, Iran	
2000	11655	Radio Netherlands	
2000	15150	Voice of Indonesia	
2000	17660	HCJB, Ecuador	
2005	13610	Radio Damascus, Syria	
2100	15120	Voice of Nigeria	various
2100	11620	All India Radio	Hindi
2100	15184	Radio Africa, Equatorial Guinea	
2130	15255	Radio Sweden	
2200	17860	Deutsche Welle, Germany, via Sri Lanka	GG
2200	17825	Radio Japan	JJ
2200	21740	Radio Australia	
2200	11725	Radio Marumby, Brazil	PP
2200	15170	Radio Canada Int'l	
2200	5030	Radio Burkina, Burkina Faso	FF
2230	17615	BBC relay, Thailand	EE/CC
2230	17535	Kol Israel	HH
2230	17705	Radio Havana Cuba	SS
2230	9550	BSKSA, Saudi Arabia	AA
2300	9925	Voice of Croatia, via Germany	
2330	11905	Swiss Radio Int'l, via Fr. Guiana	
2330	13650	China Radio Int'l, via Cuba	CC
2330	9875	Radio Vilnius, Lithuania	
2330	9850	Democratic Voice of Burma via Germany	vern.
2345	12020	HCJB, Ecuador	PP

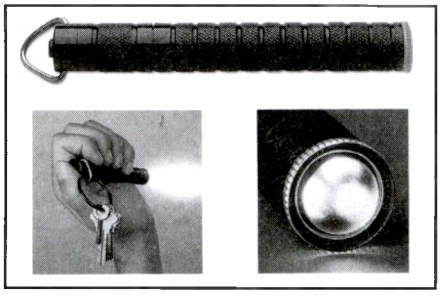
power up: radios & high-tech gear

by Harold Ort, N2RLL, Editor

review of new, interesting, and useful communications products

Streamlight BatonLite Hi-Intensity Flashlight

Finally, a finely crafted flashlight that features an array of three super-bright LED bulbs delivering brilliant white light that will easily illuminate a room, vehicle, or pathway. The BatonLite is constructed of machined aluminum with a non-slip knurled grip, and is black anodized inside and out to prevent corrosion. It's O-ring sealed and features an unbreakable Lexan lens and dual switch operation (momentary blink and locking-on). The flashlight offers about 100,000 hours of bulb life and operates continuously over 12 hours on three "N" batteries (included). The BatonLite measures 5 1/2 inches long and is 11/16 inches in diameter. It comes with a rear swivel collar with lanyard, plus a detachable key ring. These flashlights are individually serialized and come with a lifetime manufacturer's warranty. The BatonLite (Part No. 434-025) sells for $29.95.



Don't let the size of the BatonLite fool you—the three LEDs are super bright and offer 100,000 hours of use.

For more information, contact Jensen Tools, Inc., 7815 S. 46th Street, Phoenix, Arizona 85044-5399 or phone 800-426-1194 or 602-453-3169. You can also visit Jensen on the Web at <www.jensen-tools.com>. Don't forget to tell them you read about it in *Pop'Comm*!

B&K Precision's New Dual Four-Digit, Triple Output Digital DC Power Supply

B&K Precision's newly designed line of power supplies includes the Model 1761. Utilizing a standard 115-Vac outlet as the power source, this new bench-top unit provides the accuracy of dual four-digit LED resolution, two variable voltage outputs of 00.00 Vac to 35.00 Vdc, 0.000 to 3.000 A, and one variable 2- to 6.5-Vdc, 5-A output.

B&K Precision's new Dual Four-Digit, Triple Output Digital DC Power Supply is a high-tech unit that sells for $689.

The new B&K unit features two large, easy-to-read front-panel-mounted four-digit LED displays: one reading volts or amps of the "B" supply, the other reading volts or amps of the "A" supply or the 2- to 6.5-Vdc supply. The unit also has a unique variable tracking, where B tracks A at 5 to 100 percent capability, and the voltage meter resolution is outstanding.

Other front panel indicators and controls include an OFF/ON power switch, a Power LED, Overload Indicator Light, Voltage Adjustment Knob, and adjustable current limit controls. The Model 1761 features current limiting, reverse polarity, over voltage, and short circuit overload protection. It weighs in at 21 pounds and measures 5.7 x 15 x 10.5 inches (HWD).

The B&K Model 1761 is priced at $689. For more information contact B&K Precision Corporation at 714-237-9220 or visit them on the Web at <www.bkprecision.com>.

ZeroSurge News

Virtually all methods of surge protection lose their effectiveness when brownouts occur. Computers are especially susceptible to surge damage during brownout conditions as most of the power line surge suppressors and UPSs connected to them use fixed clamping level MOVs (metal oxide varistor). This clamping level must be set higher than the highest anticipated power line voltage or thermal runaway (overheating) will occur due to the MOV conducting on the power wave peak voltage. This could also lead to catastrophic failure and even fire.

During a brownout, no protection is afforded until the surge exceeds the MOV clamp level, which is much higher than the power wave during the brownout. The result is that the computer's power supply sees a much larger surge before any suppression takes place, greatly increasing surge exposure. ZeroSurge has recognized and eliminated this problem by introducing a dynamic new technology, called series mode with Spectrum WVR (wide voltage range).

Unlike a fixed clamping level device, Spectrum WVR features a dynamic clamp or instantaneous response to surge current and voltage. With brownouts occurring more frequently, your equipment can be protected!

For more information on ZeroSurge and their extensive line of surge removal filters, contact them at 889 State Rt. 12, Frenchtown, New Jersey 08825 or phone 908-996-7700. Your valuable computers, transceivers, and accessories deserve quality surge protection!

The Zap Checker—A "Receiver Meter"

Alan Broadband Company announces the Zap checker, a high-quality handheld instrument that detects and displays transmitted electronic energy. This new device is comparable to a sensitive wideband receiver with signal strength indicators. It's distantly related to the electric field strength meters of earlier days, but with much greater sensitivity and broader bandwidth than the older devices.

The useable bandwidth of the Zap Checker extends from less than 10 MHz to over 4.50 GHz. Transmitting devices in this bandwidth are detected by the instrument at surprisingly far distances. This bandwidth includes cellular and wireless phones, microwave ovens, computer wireless devices, UHF, VHF, and ham radio transmitters, hidden "bugs" and surveillance equipment, baby and security mon-

Alan Broadband's new Zap Checker receiver meter.

itors, FM and TV broadcasts, and even electronic car keys and garage door openers!

The sensitivity of the unit allows it to detect cellphones and covert "bugs" at more than 20 feet, and from VHF and UHF transceivers at more than 80 feet. Detection is limited by the background level of radiated signals, usually determined by baseline FM and TV transmissions in the area.

You can tune up lower power transmitters and determine antenna radiation patterns from a distance (avoiding detuning effects), allowing you to measure RFI signals and pinpoint RF leakage in cables, to locate hidden transmitters during "fox hunts," to determine the optimum placement of computer wireless equipment, to monitor the radiation level at the baby's crib, and detect hidden cameras and audio bugs. A manually adjustable sensitivity control adjusts the gain over >20 dB range.

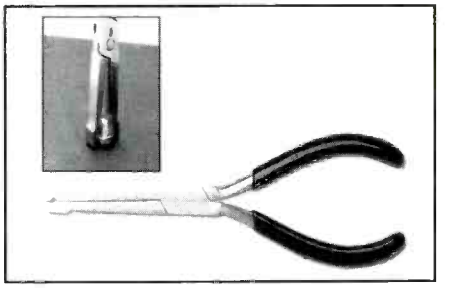
Detection is in logarithmic or linear modalities. In LOG mode the dynamic range of the instrument spans a 1000:1 signal range. In linear mode it picks up the weakest signals for a full display. Display of the transmitted signal readings can be either by an analog meter or by illumination of colored LEDs. The LED display allows the measurements to be viewed from a distance or at nighttime. A switch-enabled silent vibrator mode is included for situations where it's undesirable or impossible to directly view the display (such as at the top of a utility pole or when monitoring covert transmissions at a meeting site).

The Zap Checker operates on two "AA" batteries for more than 80 hours, weighs less than 5 ounces with batteries, and readily slips into your pocket or purse. It's priced at $89, including shipping and handling in the U.S. (California residents add 8 percent sales tax), and available from Alan Broadband, Inc., 93 Arch Street, Redwood City, CA 94062, phone 650-369-9627 or 888-369-9627. You can also check it out on the Web at <www.zapchecker.com>. Be sure to tell them you read about the Zap Checker in *Popular Communications*!

Euro Tool's Multi-Nut Pliers

We've recently found a great tool that's made of stainless steel, has cushion PVC grips, and is great for work around the home and radio shack. Frankly, it may be the handiest tool around. The new Multi-Nut Pliers, available from Jensen Tools, Inc. (a division of The Stanley Works), can tighten smaller nuts and bolts, hold hard-to-reach heads when tightening bolts, and has long V-shaped jaws on the sides and end to handle virtually any situation, giving you the ability to reach into difficult-to-access places.

For more information on the unique Multi-Nut Pliers, contact Jensen Tools at 800-426-1194. ■



Possibly the handiest tool you'll ever own, these Multi-Nut Pliers are made of stainless steel for long life.

by Shannon Huniwell

Shannon's Broadcast Classics

a look back at radio & TV's golden years

The Power Towers Of Connecticut

It's not unusual to assume that more is better. Even folks who know something about broadcasting might quickly answer that a 50,000-watt station is better than one with just a kilowatt. In fact, from the early 1930s through much of the 1970s when regional and national advertising time buying agencies purchased airtime largely based upon transmitter power, radio station owners worshipped the holy grail of big RF (radio frequency) output. Nowhere was this more evident than in the densely populated, highly rated AM band of the 1950s and 1960s.

A tale from America's smallest state illustrates this point. That's where it is said that Rhode Island's governor was touting the attributes of his domain to a fellow gubernatorial chief executive. A bit of 1950s one-upmanship led the visiting dignitary to query just how many 50-kilowatt radio stations Rhode Island possessed. The answer was "none," so the governor began pushing for someone to establish one in Providence as soon as possible. A multi-tower, highly directional daytime-only facility on 990 kHz resulted under the moniker WLKW—a callsign proudly declaring via the Roman numeral "L," "*We're Fifty Kilowatts!*" But because the station had to protect its co-channel and nearby neighbors, more than a little of its power was FCC mandated to be directed right out to sea.

Hearing that I planned to cover some high-power, very directional AM facilities, *Pop'Comm* Editor, Harold Ort, recalled learning about the many-towered signal of WNLC in New London, Connecticut, from one of its erstwhile DJs, Peter Hunn, who won *Billboard* magazine's Air-Personality of the Year there in 1976. Hunn responded to my e-mail with a smile and joked that from his second floor New London apartment at night he could clearly see the blinking red beacons on WNLC's eight sticks, but he couldn't hear the station. "Actually,..." he admits,

> the 10-kW-day/5-kW-night WNLC came in fine within the New London city limits, but a few miles outside it could be quickly lost in a hash of a co-channeled Quebec outlet and the not so distant WMEX Boston, also running a highly directional antenna pattern on 1510 kHz. On the same day that someone 10 miles away complained they weren't able to receive 'NLC too well, the secretary would hand me a letter from some radioman on a submarine (based in nearby Groton) requesting a 1510 tee-shirt and noting he "picks us up with crystal clarity in mid-Atlantic!

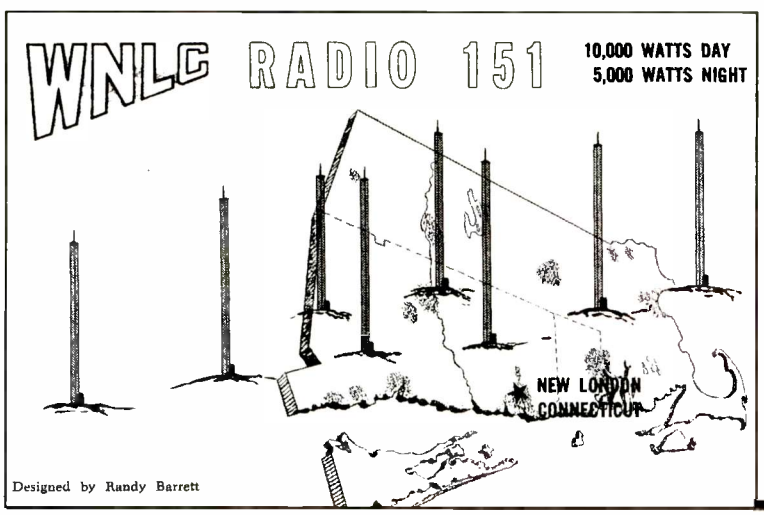
All good-natured jabs aside, Hunn clearly has warm memories of the now defunct WNLC (AM) and relays historical details he requested from the great *Broadcast Pro-File* archives.

What Communities Needed

By the mid 1930s, communities wanting to be considered modern needed to boast at least one broadcast station. Those hoping to establish a profitable radio outlet often got out a map, looked for attractive population centers, and, if then not home to a station, sought governmental permission to build one. In early April 1936, according to Hunn,

> The Federal Communications Commission granted a construction permit (CP) to the Thames [rhyming with "James," as opposed to the British pronunciation "tems"] Broadcasting Corporation to build and operate a new broadcast station on 1500 kilocycles at New London.
>
> The 100-watt daytime-only station was issued the call WNLC (for New London, Connecticut) and studios were installed in New London's Mohican Hotel on State Street. Its transmitter and single 180-foot Lehigh Steel vertical radiator [antenna tower] were located east of town at Winthrop Point.

There, the tiny, one-story transmitter shack's roof-mounted tower was affixed to a copper ground screen that draped into the salty water. The operator on duty took frequent equipment readings from a glowing



About a year after switching from 1490 to 1510, WNLC had cards like this readied for an anticipated deluge of DXers. The QSL might have given a recipient the impression that the station's eight-tower array (four of which were used for the day and six for the night) covered all of Connecticut, Rhode Island, Massachusetts, and Long Island. Actually, even in parts of its home state, WNLC was considered a decent DX catch!

An RCA DX-77 ribbon mic with a rare WNLC center "flag" ring. It hails from the 1490-kc era.

Collins transmitter and then typed them into a log. A check of those documents from 1937 shows WNLC mixing local programming with network fare from Mutual, Yankee, and Colonial and tagging its IDs with the slogan "The Friendly Voice of the Thames." It was the only station in the Nutmeg State's southeast broadcast from 7:30 a.m. until sunset, but was given an FCC nod for full-time transmission in 1939.

Nowadays, it's amazing to consider an AM 100-watter being able to support the rental of hotel space, other fixed costs, and salaries for management and a dozen or so employees, but such was the case in radio's first golden age. A November 1936 *Broadcasting* article noted that the new station signed up 150 sponsors within its first few weeks of operation. Even so, Thames Broadcasting no doubt appreciated an FCC upgrade to 250-watts day/night in 1940. And along with most other North American stations, WNLC was required to shift frequencies a year later, descending a notch to 1490 kilocycles.

During the late 1940s, a renovation of the Mohican Hotel's second floor offered WNLC new studio space, while a new stick replaced the station's original tower. The facility began the 1950s by adding the regional Connecticut State Network to its list of affiliations and installing a Gates BC-250-GY transmitter.

Gerald Morey was the real sparkplug behind WNLC, as he had originally convinced his father (who had Boston-area business interests) to help start the station. Morey ran WNLC for decades, spending much of his time trying to figure out how to find a new spot on the dial that would allow for some serious power and, at the same time, making sure a competitor couldn't spring up on the 1490 spot. When (around 1957) a construction permit for WSUB (980 kHz, 1-kW-day) was granted in nearby Groton, he really became obsessed with jumping WNLC's output.

This focus superceded Morey's attention to Class "B"-sized WNLC-FM and a CP for WNLC-TV on UHF channel 26. The FM was closed-down, and, although a TV transmitter site was purchased, the television station never hit the air. Longtime chief engineer Randy Barrett worked with Morey and a Washington-based consulting firm to make any such move from a quarter kilowatt at 1490 worthwhile. They asked the Commission to let WNLC squeeze into 1510 kilocycles with a decidedly directional 5000-watts. Because much of this added punch had to protect, among others, Boston's 50,000-watt WMEX 1510 (just some 80-miles away), the antenna pattern that the FCC agreed upon in late 1960 was largely a province of the ocean.

Though this signal was arguably not as effective as a kilowatt (or better yet, 2500-watts) from a single stick might have been, the temptation to brag about raw RF power to the local public, in promos, on letterhead, and to ad time buyers was too great. Barrett remembered the morning when his boss came running into the engineering office wearing a look of extra determination: "I thought it was really something that we had a CP to go from 250 to 5000-watts, but the old man wanted us to try for 10-kW even before we built the original 1510 setup!"

In late 1962, the FCC said Morey could do the 10,000-watts but only during days. Commission staff felt that the WNLC's proposed 1510, 5-kW nighttime operation was already at the max. Morey's enthusiasm and willingness to invest in a 10-kW RCA BTA-5U transmitter (actually a 5-kW with an upgrade kit to convert it into a model BTA-10U), related acreage, building, and towers, as well as Barrett's electrical/RF engineering genius, made the 1490 to 1510 switch possible in early November 1963. Barrett built the complex dual-directional antenna phasing unit on the back wall of his well-equipped engineering HQ. He also concocted a complex automatic transmitter control system that changed patterns and took frequent meter readings on a cleverly altered electric typewriter.

From the late 50s through the early fall of '63, there'd been so much hoopla and buildup of what the bigger power would do that even some WNLC DJs were buying the hyperbole. One story goes that the station's old country music announcer opened his late night show with the greeting, "Hello to everyone in Canada!" Besides the fact that there was already a Canadian outlet blasting from 1510, the salute might have been more accurately targeted, "Welcome to our Western European DXers."

Fanfare—exaggerated or otherwise—for the new eight-tower (Rohn 45-G) guyed tower array's product was cut short several days after WNLC programming began on 1510 at the single-story studio/transmitter building in Waterford, just outside of New London: News of President Kennedy's assassination dampened promotional revelry there and pretty much everywhere else.

Getting Hired

Like most radio stations during the 1960s and '70s, 'NLC made various musical programming changes but retained a local news presence. Network offerings were refocused to short national ABC newscasts. Contemporary (Top-40) music became the station's mainstay in 1974. The station's morning show was reformatted with a quicker-paced, comic personality approach.

Hunn joined WNLC in the fall of 1975 as an "emergency replacement" for a wake-up DJ who went a bit too far in his humor. According to Hunn, "The guy announced that cold weather was freezing the phone lines and broadcast an appeal to listeners to take their phones off the hook, put the handsets in a plastic bag, and dangle them near a heat register. So many people did this, Hunn was told at his hasty hiring interview, "that telephone service was knocked out and a woman who suddenly went into labor with twins couldn't get through to the hospital! That was the end of that announcer," he noted, "so they recruited me to simply sound friendly, kind, and helpful on the air."

Throughout his two-year stint at WNLC, Hunn admired the engineering acumen of CE Randy Barrett, who had to

regularly take remote antenna current readings around the coverage area in order to keep the separate day and night antenna patterns within FCC compliance. And then phasing tweaking (and equipment maintenance/repair) often resulted. Right after the move from 250-watts, Barrett got little cooperation from landowners of the exact locales where the Commission wanted him to take sample 1510-kHz readings (on a portable Potomac brand RF-strength monitor). Fortunately, the Millstone Nuclear power facility was a familiar name to most area residents there, so he'd just whisper, "I'm making secret tests to check on Millstone," and all trespassing would instantly be welcomed.

Once, Barrett was called back to the station when a distraught tower maintenance worker threatened to jump from a 220-foot guyed stick. Though Barrett assured management that the fellow was in no danger of electrical shock while ranting from way up there, WNLC's RCA transmitter was quickly silenced until police finally talked the blubbering man down.

By that time, a softer, adult-contemporary music format with some major league sports at night had been instituted, resulting in a ton of calls from irate listeners demanding to know why the *%$@#&*!* Yankee game was cut in the 8th inning!

Morey's family sold WNLC (and co-located WTYD-FM, a smaller FM that was started years after the original WNLC-FM was dumped) in the spring of 1976. The station moved to a CBS affiliation, maintaining—as was the case with most AMs of the era—its existing audience via network and strong local news.

Right after this switch, Bob Lord was brought on board to handle the station's 3:00 p.m. to midnight shift. That's 6:00 to 12:00 on the air, preceded by 3:00 to 6:00 for any late day commercial production assignments, or as Lord laughed, "any other thing that might be needed, like Cub Scout tours of the *15-Fun* facility."

He remembers that one afternoon a group of snazzy senior citizens showed up for a look-see and got treated to the usual route of the WTYD-FM automation (a relay-laden Gates unit with three 10-inch reel-to-reel playbacks, several tape cartridge carousels, single tape player, and analog commands on cart), the loud, heavy WNLC newsroom's Associated Press teletype machine, RCA AM transmitter with giant, glowing tubes, and a peek upwards out the back door at those eight towers. More than the chance to meet 'NLC's afternoon DJ, the newsman, or even hear themselves mentioned over the engineering hallway air-monitor speaker, however, the bunch "was interested in—of all things—a mundane patch panel."

They kept asking animated questions about the audio routed through this bay, and Lord gave them the radioman's version of how sound from CBS, the Yankees, and other such program sources was sent over phone lines, and how-since broadcasting's earliest days-the phone company was ripping off radio stations via exorbitant line charges. To break the resulting odd and sudden silence, Lord queried where the group was from. "We're the Telephone Pioneer retirees from Southern New England Telephone Company," one old gentleman in the back defiantly retorted.

Changes Abound

Shortly thereafter, Lord decided to call radio a hobby and opted for weekend announcing while studying to become a medical technologist. His colleague, Hunn, left for WMGK-FM Philadelphia the following year. Hunn recalled that but before going he chided a newsperson who drove the WNLC Mobile Unit #1 (actually the sign painter misspelled it "mobil" like the oil company) into town for some pizza—all the while with then-in-vogue WNBC New York (660 kHz) blaring through its open windows.

Even as the big New York AM got sold and became a niche, all-sports (WFAN) station, WNLC began an accelerated pace of license transfers and format modifications in 1984, 1989, 1993 (corporate change), and 1995. Programming went from middle-of-the-road, to oldies, to all news, to adult standards. Finding it increasingly difficult to attract younger listeners to a mercurial local AM outlet (especially an expensive facility to maintain), management reconsidered the value of the very directional signal.

Its 1995 sale had mated WNLC (and WTYD-FM) with co-owned Hall Communication stations in nearby Norwich and their FM in East Lyme. The latter station became WNLC-FM to simulcast adult standards music, but quickly drained much of the AM's audience. On April 1, 1998, WNLC-AM switched calls to WWJY. Few heard of the change, though, because this new 1510 left the air "temporarily," as indicated to the FCC.

About a year later, Hall Communications decided to throw in the towel at 1510 and asked the Commission to cancel the WWJY (formerly WNLC) license. "When reflecting upon all the activity that buzzed in the busy WNLC building just during my 1975–77 tenure there," Hunn mused,

> I get nostalgic for AM radio's good old days. We knew most of the signal was headed out to sea, but it was still rather heady being able to tell folks who didn't know a whole lot about directional systems that you worked with a *10,000 watt* broadcast operation! And just before dawn when those pulsating red beacons appeared brightest, when you slowly cruised down the station's long driveway and looked up at those eight towers, it was neat to think that your voice would be leaping off those sticks and into millions of radios. OK, maybe only a couple thousand, but the huge antenna array sure made that level of AM radio seem pretty important and completely invincible at the time.

Next Month

Next time we'll take an historic look at radio in beautiful Coeur d'Alene, Idaho. There, three AM stations have been authorized by the FCC, with one the result of a tricky switcheroo to and from Spokane, Washington.

As always, thanks to Jan Lowry of *Broadcast Pro-File* (28243 Royal Road in Castaic, CA 91384-3028) for FCC information about WNLC. Drop Jan a line if you'd like to order a *Pro-File* of your favorite station. They're worth more than the $12 price

And so ends another broadcast history day at *Pop'Comm*. ■

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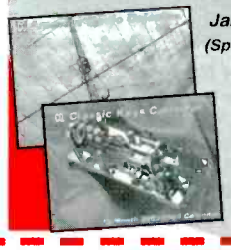

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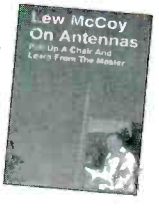

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Radio Afghanistan Returns To Shortwave!

If your DX activity involves a concern about where a particular broadcast was transmitted from, rather than the location of the studio in which the broadcast took place, you're well aware of how complicated and confusing keeping track of who is where—and when—can be (see "Relay Madness" in the July issue).

Guess what? Things have gotten even more complicated! Religious broadcaster WYFR has signed a contract with England's Merlin Communications, which means that their broadcasts are now airing from several additional sites, including the UAE; Wooferton, England; Meyerton, South Africa; and Ascension Island. The new relays carry Arabic, Russian, and Hindi broadcasts to India, Russia, the Middle East, and Africa and are active on various frequencies between 1400 and 2100.

This stylish New Year's card came from Radio Australia and appears intended for shortwave listeners in Asia.

It's showing its age but this view of the Hradcany Castle graced the QSL of Radio Prague back in 1957! (Thanks to Mike Clapshaw, WA)

Radio Afghanistan has returned to shortwave, although on something of a second-hand basis. The transmissions aren't coming from Afghanistan; they're being beamed from Merlin-operated transmitters in the UAE on **15240** between 0200 and 0400 and from Kvitsoy, Norway, on **18940** from 1330–1630.

It's an extremely rare catch and often not even active, but **Radio Lubumbashi** in the Democratic Republic of the Congo seems to be up and running again. And from the looks of it we might have just a slight chance of catching it between 0600–0700 on **7435**. Don't bet the farm on it, though, because this one is really tough.

Speaking of things Congo, our chances of hearing that UN-operated **Radio Okapi** we mentioned a few months ago have improved. The power has been upped from the initial 100 watts to 10 kW. The station is using **6030, 9550, and 10690** and seems to be on the air 24 hours a day, at least for its immediate service area. We would suggest that **10690** probably offers the best opportunity whenever that frequency range is open to your part of the world.

Great Scott! It looks like we'll be running across Dr. Gene even more frequently before long. His World University Network is installing a new 100-kW transmitter at the Cahuita, Costa Rica site, and once it is up and running they plan to use a number of new spots on the dial.

The **Voice of the Islamic Republic of Iran** has placed a new horse in the propaganda race. It's a service beamed to Israel in Hebrew called "The Voice of David," on the air from 1900–1930 daily on **7175 and 9745**. As fall/winter conditions improve we should have a shot at the **9745** opportunity.

The **Italian Radio Relay Service**, which carries programming from a number of small independent broadcasters, is cutting back on its hours due to the high cost of operating. Their revised schedule is 0530–0630 weekdays on **13840** and from 0800–1200 on weekends.

Radio Villa (IDing as Radio Cima) in the Dominican Republic is active again. Check for it on **4960** during our North American evenings or during the early morning hours.

Radio Luxembourg is a station found only in the logs of listeners who were active in 1994 or earlier. When the station went off the air at the end of that year we figured it would never to

Abbreviations Used In This Month's Column

//	—	Parallel frequency
ABC	—	Australian Broadcasting Corporation
AFRTS	—	Armed Forces Radio Television Service
AFN	—	Armed Forces Network
AIR	—	All India Radio
anncr	—	announcer
anmt(s)	—	announcement(s)
BSKSA	—	Broadcasting Service of the Kingdom of Saudi Arabia
CNR	—	China National Radio
GOS	—	General Overseas Service
ID	—	identification
Int'l	—	international
IS	—	interval signal
Lang	—	language
LSB	—	lower sideband mode
NBC	—	National Broadcasting Corporation
OA	—	Peru, Peruvian
PBS	—	People's Broadcasting Station
Pgm	—	program
RRI	—	Radio Republick Indonesia
sked	—	schedule
SIBC	—	Solomon Islands Broadcasting Corporation
TOH	—	Top of the Hour
unid.	—	unidentified
USB	—	upper sideband mode
vern	—	vernacular (any local dialect or language)
VOA	—	Voice of America
VOIRI	—	Voice of the Islamic Republic of Iran

be heard from again. So it was quite a surprise to learn that Luxembourg's Broadcast Center Europe, which runs most of the broadcasting there, fired up the shortwave transmitter for a test broadcast back in July. As it turned out, their old **6090** frequency, which was used for the test, was completely blocked by World University Network out of Anguilla and, as far as we know, not even the East Coast DX wizards were able to hear anything of the Luxembourg transmission. There are hints that more such tests may follow. But don't let your hopes rise too high because the plans are to eventually convert to digital broadcasting which current radios won't be able to decode.

The checking account at Bush House is getting healthier. The world's best-known broadcaster is getting an additional 48 million pounds for the new fiscal year. What they plan to do with it, we can't begin to guess. But don't look for a restoration of the North American service. That, we fear, is a dead issue.

El Sol went through all kinds of geomagnetic turmoil as we got into late summer. Huge sunspots and monumental solar flares wrecked havoc with shortwave reception conditions, leaving us with frequency segments that were often completely empty. The diminishing sunspot count also means less activity on the higher bands and thus more congestion on the lower channels.

Those Chinese music jammers you've undoubtedly heard seem to be increasing in number and spreading all over the dial. No longer are they after just Radio Free Asia (if RFA was ever a sole target). The music jamming is also directed at the Voice of America, BBC, Deutsche Welle, the Falun Dafa broadcasts, and probably others Beijing has decided to put on its list.

These jammers can be heard at various times on: **5925, 6140, 7150, 7160, 7190, 7200, 7310, 7470, 7515, 7530, 9355, 9445, 9450, 9455, 9510, 9545, 9675, 9905, 9915, 9945, 9955, 11510, 11520, 11665, 11700, 11750, 11760, 11785, 11795, 11855, 11935, 11945, 11955, 12065, 13625, 13670, 13675, 13680, 13690, 13775, 15280, 15510, 15515, 15625, 15665, 15680, 17615, 17640, 17695, 17720, 21540, 21570, 21690 and 21705.**

Regular log reporter Rick Barton (AZ) has learned first hand that applause cards work (see the February 2002 issue). Rick sent a card to one of the Radio Netherlands personalities with kind words about a particular program. He received a handwritten note from the host in reply, along with several music CDs and some other goodies. Of course, the idea of these cards isn't to send them in the hope of receiving bounty in return, but this does show how much they can be appreciated by the people who put on the programs. And significant mail such as this would likely have a positive effect on the high priests of the bureaucracy.

This month's book winner is **Robert Brossell of Pewaukee, Wisconsin**, who never seems to miss a month with his fine logs. Bob receives a 2003 edition of *Passport to World Band Radio* from CRB Books. (CRB has a fascinating catalog of books you really should check out. You can get a copy by writing them at CRB Books, P.O. Box 56, Commack, NY 11725 or calling 516-543-7486.)

Here comes the usual pitch: your shortwave broadcast logs are always sought and always welcome. Please just remember to list your catches by country, double or triple space between the logs, and add your last name and state abbreviation after each. We're also looking for spare QSL cards we can use as illustrations. Also station schedules, photos—anything along those lines you'd care to lay on us! Thanks for your continued interest and support!

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.

ALASKA—KNLS, **11565** at 1300 now free of the interference they'd been suffering from for the past several months at this hour. (Silvi, OH) **11765** to Russia at 0825 with "Elmer's Tune" and mailbag. (Becker, WA)

ALBANIA—Radio Tirana, **6115//7160** at 0247 with current events in Albania. (Burrow, WA)

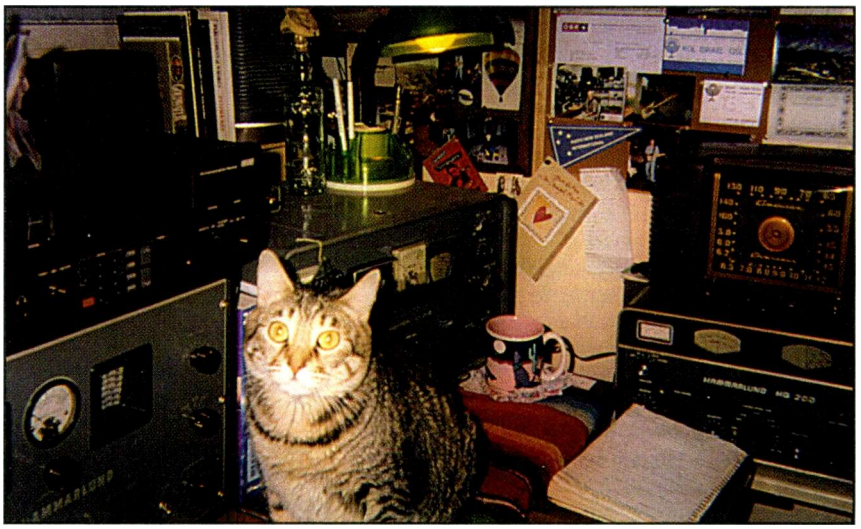
ANTIGUA—BBC relay, **15190** at 1345 with "Off the Shelf." (Paradis, ME) Deutsche Welle relay, **12045** in GG at 0310. Man and woman co-anchors. (MacKenzie, CA) **17730** at 1211 with soccer play-by-play in GG. (Brossell, WI) **17730** in GG at 1450 and **17765** in GG at 1415. (Northrup, MO)

ARGENTINA—RAE, **11710** in EE at 0202 with opening ID, anmts, cultural news, local music. Lots of adjacent channel splatter and even worse on //6060. (Alexander, PA) 0223 with economic news. (Burrow, WA) Same at 0225. (Brossell, WI) Radio Rivadavia, **20276** lower sideband relay with talk and SS ballads. (Alexander, PA)

ASCENSION ISLAND—BBC relay, **6005** to West Africa at 0720 and close. (Becker, PA) **11765** in SS at 0015. (MacKenzie, CA) **17830** at 1957 with "Health and Mind," ID and "Newshour." (Jeffery, NY)

AUSTRALIA—5995/9580/11650/11660 at 1538 with interview about judicial reform. (Burrow, WA) **5995** at 1400 with news. **21740** at 2159 with ID, news. (MacKenzie, CA) **9710** to Japan at 0805. **//9580. 12080** to Pacific at 0836, **15240** with news, comment at 0707 and **15415** to SEA at 0708. (Becker, WA) **12080** at 0810 with program on local politics. **//9580, 9710, 15240, 15415.** Alexander, PA) **15515** with sports news at 0214. (Jeffery, NY) 0302 with news. (Brossell, WI) **17580** in AA (?) at 1205. (Northrup, MO) **21740** with "Asia Pacific Weekend" at 2200. (Paradis, ME) ABC Northern Territory Service at **2310**, Alice

A somewhat more modern Radio Prague card shows a radio TV transmitting tower in the center of Prague.



These receivers in Rick Barton's shack, including a Hammarlund HQ-200 and a 1946 Crosley are the cat's meow.

Springs at 1036, //**2325** Tennant Creek and 2485 Katherine, which was best. (Strawman, IA) Vision International, **13635** at 1418 with Christian pop and address. (Barton, AZ)

AUSTRIA—Adventist World Radio, **11710** via Moosbrunn heard at 0300 sign on with IS, multi-lingual ID, and into listed Oromo. (Alexander, PA)

BELGIUM—RTBF, **17570** via Germany in FF heard at 1215. (Northrup, MO)

BOLIVIA—Radio Santa Cruz, **6134.8** at 1019 with "Radio Santa Cruz" ID, pop-style music. (Strawman, IA)

BOTSWANA—Radio Botswana, **4820** with barnyard IS at 0252 opening, choral national anthem, ID and announcements, tribal vocals, pop and country. (D'Angelo, PA) VOA relay, **13670** in Selibi to Central Africa at 0647. (Becker, WA) **15445** with "Border Crossings" at 1907. (Jeffery, NY)

BRAZIL—Radio Cultura Filadelphia, **6105** at 0002 with male vocals, full ID and frequency anmts in PP, more music. (D'Angelo, PA) Radio Aparecida, **5035.1** at 0015 with PP talk, ID and abrupt off at 0210. Weak. //**6135** poor, **9630.2** was fair. (Alexander, PA) Radio Senado, **5990** at 0045 with Brazil pops and Muzak-style instrumentals, ID at 0055. (Strawman, IA) Radio Difusora, **4815**, presumed, at 0120 with PP ballads and announcer. Heavy reverb. (Strawman, IA) Radio Nacional Brasilia, **11780** at 0010 in PP with live concert from a stadium. (MacKenzie, CA) Radio Cultura, **9615** at 0215 with romantic Brazilian ballads, PP anmts. Off with national anthem at 0302. //**17815** very weak under Romania. (Alexander, PA) **17815.1** at 0210 with romantic vocals and PP talk. Poor to fair and mainly over Romania until the latter began to dominate at 0240. (D'Angelo, PA)

BULGARIA—Radio Bulgaria, **9400** at 0216 with domestic news and events. (Burrow, WA) **11600** at 0042 with comments and music. Into SS at 0100. (MacKenzie, CA) **11700** at 0220 with program on the economy, worker wages and labor contracts there. (Brossell, WI)

CANADA—CFRX, **6070** at 0742 with local relay. (Becker, WA) Radio Canada Int'l, **17820** at 1435. (Northrup, MO) **17835** via Japan in FF at 2210. (MacKenzie, CA)

CHILE—Voz Cristiana, **17680** in SS at 1405. (Northrup, MO) 1806 with music and anmts in SS. (Brossell, WI)

CHINA—China Radio Int'l, **5965** in CC at 1355, off at 1357 and back at 1359 with IS, ID and more in CC. **7135** VIA Irkutsk, Russia in CC at 1410. Also **7405** at 1417 with ID, comments and business news and **11850** via French Guiana in SS at 0003. Also **13650** via Cuba in CC at 2325. And **13680** at 2319 with "Spotlight" program on Hong Kong. (MacKenzie, CA) **9785//17720** at 1542 with "Inside Opinion" report on Chinese insurance. Slight delay between frequencies. (Burrow, WA) **9830** in CC at 1240 and **17720** in EE at 1450. (Northrup, MO) **11980** at 1200. (Paradis, ME) Tibet PBS, **4905** presumed at 1220. Low level. (Strawman, IA)

COSTA RICA—University Network, monitored at **5030** with Gene Scott at 0335. (Paradis, NE)

CROATIA—Voice of Croatia, via Germany, **9925** at 2300. (Paradis, ME)

CUBA—Radio Havana Cuba, **17705** heard at 2228 with SS sign on. (MacKenzie, CA)

CYPRUS—BBC relay, **9410** at 0200. (Linonis, PA) **15470** in unid. language with talks at 0209. (Jeffery, NY) 0300 with Big Ben, ID and news in unid. language. (Brossell, WI) **21660** at 1500 with news, "Focus on Africa." (Paradis, ME)

ECUADOR—Radio Oriental **4781.4**, presumed, at 1007 with possible church service. (Strawman, IA) HCJB, **9745** at 0100 with DX program. **11980** in GG at 2350 and **12020** in PP at 2345. (MacKenzie, CA) **15115** with "Morning in the Mountains." (Paradis, ME) **17660** with "Musical Mailbag." (Jeffery, NY)

EGYPT—Radio Cairo, **9475** monitored at 0200 with talk on ancient Egypt, music. Better modulation than on **9900**. (Linonis, PA) Egyptian Radio, **12050** at 0315 with Koran. (Brossell, WI)

ENGLAND—BBC, **9740** at 1245, **17640** at 1225 and **17760** at 1230. (Northrup, MO) **12095** to Europe and North Africa at 0630. (Becker, WA) **15565** at 0703. (Jeffery, NY)

FINLAND—YLE Radio Finland, **17670** at heard at 1240 with a feature on the extensive use of English in Finland. (Brossell, WI)

FRANCE—Radio France Int'l, **15605** VIA Gabon at 0711 with news and sports. (Jeffery, NY) **17620** at 1350 in FF with ID, music. (Northrup, MO)

FRENCH GUIANA—RFI relay, **17860** at 1235 with news and ID. (Northrup, MO)

GERMANY—Deutsche Welle, **3995** in GG heard at 0227 amidst heavy ham QRM. Also **15205** via Sri Lanka in GG at 0240. (Brossell, WI)

GREECE—Voice of Greece, **9420** in Greek at 0215 with lots of Greek music, some EE talk. (Linonis, PA) **15630** at 0307. (Brossell, WI)

GUAM—KTWR, Trans World Radio, **11665** in CC at 1219. (Brossell, WI) KSDA, Adventist World Radio, **9385** at 1637 in EE with ID, news. (Burrow, WA)

GUYANA—Voice of Guyana, **3291.3** head at 0858 with EE talk, ID "You are listening to the Voice of Guyana" and pops. (D'Angelo, PA)

HUNGARY—Radio Budapest, **9570** at 0230 with news about imports and exports. (Linonis, PA)

INDIA—All India Radio, **11620** at 2100. (Paradis, ME) 2117. Also 0232 on **13620** in presumed Hindi. (Brossell, WA)

INDONESIA—Voice of Indonesia, **9525** at 1245 in local language. EE sign off at 1257. (Barton, AZ) **15150** at 2000 with ID, news. (Burrow, WA)

IRAN—Voice of the Islamic Republic of Iran, **9635** heard at 1540 with world and Iranian news, political comment, ID at 1557 and "Talking About Iran." (Burrow, WA) **11970** at 0030 with music and news. (Paradis, ME) 0230 with Koran recitations on **15150//15165**. (Brossell, WI)

ISRAEL—Kol Israel, **11585** in HH with songs and news at 0300. (Brossell, WI) **11585** at 0045 and **17535** at 2238, both in HH. (MacKenzie, CA) **15615//17545** at 1600 with IS, time pips and news. (Burrow, WA) 17545 at 1900 with news report. (Paradis, ME)

JAPAN—Radio Japan/NHK, **9530** via French Guiana in JJ to South America at 0800. **9825** to South America at 0809 in JJ. **9835** at 0810 in JJ to WNA. Also **12030** in JJ at 0834, **13630** to WNA with EE/JJ lessons at 0640 and **15195** to China in JJ at 0704. (Becker, WA) **11910** in JJ at 1858 and **17825** in JJ at 2214. **//11895, 15220** via Ascension, **13680** and **11910**. (MacKenzie, CA) **15220** via Ascension at 2227 with JJ talk. (Jeffery, NY) Radio Tampa, **9595** in JJ at 0804. (Becker, WA)

JORDAN—Radio Jordan, **11690** at 1600 with news, weather, ID "Radio Jordan, 96.3 FM" at 1611. (Burrow, WA)

KUWAIT—Radio Kuwait, **11675** in AA at 0036. (MacKenzie, CA) **11990** in EE at 1800. (Burrow, WA) **15495** in AA at 0300. (Brossell, WI) **17885** in AA at 1230. (Northrup, MO)

LIBYA—Radio Jamahiriya, **15435** in AA at 0245. (Brossell, WI)

LITHUANIA—Radio Nord, **9980**, special broadcast via Sitkuani site, 2036 to 2059 close. Man with talk in Swedish, Elvis number, talk about the station's history. (D'Angelo, PA) Radio Vilnius, **9875** at 2330 with ID, IS, program notes, news. (Burrow, WA) **11690** at 0030 with sign on, ID, anmts by woman, IS and news. (MacKenzie, CA; Paradis, ME)

MALAYSIA—Radio Malaysia/Radio Four, **7295** at 1515 with "Midnight Madness" music program. (Burrow, WA)

MEXICO—Radio Educacion, 6185 with light classical music at 0747. (Becker, WA) Radio Mil, **6010** in SS at 0723. (Becker, WA)

MOROCCO—RTV Marocaine, **11920** at 0231 with music and songs in AA. (Brossell, WI) VOA relay, **11910** in AA at 0324. (MacKenzie, CA) **17895** with world news at 1820. (Brossell, WI)

NETHERLANDS—Radio Netherlands, **11655** with "Newslines" at 2000. (Paradis, ME) **13820** to Scandinavia via Germany in DD at 0655. (Becker, WA)

NETHERLANDS ANTILLES—Voice of Germany via Bonaire, **11895** in SS at 0316. (MacKenzie, CA)

NEW ZEALAND—Radio New Zealand Int'l, **9515** at 1116 with interviews, sports news and ID. **17675** at 0118 with movie reviews. (Jeffery, NY) **9885** to Western Pacific at 0811. (Becker, WA) **11675** at 1220 with "Sports World." (Brossell, WI) **15160** heard at 1910 with talk on crop contamination. (MacKenzie, CA) 1929 with local political items. (Burrow, WA)

NIGERIA—Voice of Nigeria, **15120** to Central Africa at 0658. Typical mushy audio. (Becker, WA)

NORTH KOREA—Voice of Korea, **9975** with sign on at 0900. (Barton, AZ) **11710** at 1535 with talk on Kim Jung Il, music, ID. Spur on **11776**. (Burrow, WA) **11735** in RR to Russia monitored at 0820. (Becker, WA)

NORWAY—Norwegian Radio, **11640** in NN to Middle East at 0816. (Becker, WA) **13800//9960** in NN at 0309. (Brossell, WI)

OMAN—Radio Sultanate of Oman, **15355** with talks in AA at 0242. **17630** in AA at 1330. (Northrup, MO) BBC relay, **15575** at 0305. (Brossell, WI)

PAKISTAN—Radio Pakistan, **11570/15100** at 1458 with IS, ID, time pips, ID and news. **15100** came on late. (Burrow, WA)

PAPUA NEW GUINEA—NBC, **4890** at 0840 with pops. (Becker, WA) 0901 with national news, election results, ID, music, and more election talk. (D'Angelo, PA) 1340 in EE and vernaculars. (MacKenzie, CA) Radio Enga, presumed, **2410** at 1047. Very weak and gone by 1048. (Strawman, IA)

PERU—Radio Ondas del Rio Mayo, **6797.5** at 0145 with OA folk music, SS ballads, ID, anmts, off with national anthem at 0208. (Alexander, PA) Radio San Miguel, tentative, **5500.1** at 0200 with male anncr in SS, which might have been a sign off routine, instrumental music, and either lost or signed off at 0204. (D'Angelo, PA) Radio Ilucan, **5678** at 0222 with male SS anncr, music, ID and sign off anmts. Off at 0230 without anthem. (D'Angelo, PA)

PHILIPPINES—Far East Broadcasting Corp., **12095** to SE Asia with IS at 1328. (Barton, AZ) Radio Pilipinas, **15120//15270** at 0300. News, music, ID. (Burrow, WA) VOA relay, **15180//15235** with tunes. Also **17820** at 2222 with sports news. (MacKenzie, CA)

PUERTO RICO—Armed Forces Network, **6458 USB** heard at 0752. (Becker, WA)

ROMANIA—Radio Romania Int'l, **11940//15105//15180** with pgm on Romanian history monitored at 0219. (Burrow, WA) **15180** at 0235: "From Bucharest, this is Radio Romania International." (Brossell, WI)

RUSSIA—Voice of Russia, **9665** at 0230 with "Let's Speak Russian." (Linonis, PA) **11685** via Irkutsk at 1126. (Strawman, IA) **11750** with news at 0300. Also **13720** with Russian anthem and "Goverit Mokba" at 1300, into news in RR. (Brossell, WI) **11750** via Moldova at 0917. **//9665**. Also **12040** in RR at 2337. **//12060** via Krasnodar. (MacKenzie, CA) **12070** at 1900. (Paradis, ME) Radio Rossii, **9530** via Magadan in RR at 0758. (Becker, WA) **11980** in RR at 0203. (Strawman, IA)

RWANDA—Deutsche Welle relay, **15390** at 1900 with news and "Talking Point." (Jeffery, NY) **17835** in GG at 1430. (Northrup, MO) **17860** in GG. (Brossell, WI) 2205 in GG. (MacKenzie, CA) **21745** at 1300. (Paradis, ME) *(EE?— gld)*

SAO TOME—Voice of America relay, **4960** at 0400. (Paradis, ME)

SAUDI ARABIA—Broadcasting Service of the Kingdom of Saudi Arabia, **17895** in AA with call to prayer at 1355. (Northrup, MO)

SEYCHELLES—Far East Broadcasting Assn., **15555** in Asian language at 0305. (Brossell, WI) BBC relay, **11730** with news at 0304. (Brossell, WI) 0320 with sports news, ID. **//15420** from 0330. **15420** from 0329 sign on, joining program in progress without the usual IS. (D'Angelo, PA)

SINGAPORE—Mediacorp Radio, **6150** at 1507. Current pops with "98.7 FM" ID at 1512, promos and commercials, "Perfect 10" ID heard at 1536. (Burrow, WA)

SOLOMON ISLANDS—Solomon Islands Broadcasting Corp, **5019.9** monitored at 1018 with world news, Honiara items, ID at 1030 and religious talk. (D'Angelo, PA)

SOUTH AFRICA—South African Broadcasting Corp., **3320** at 0411 in Afrikaans, ID and talk by en. Some religious choir music, 5 + 1 time pips at 0500, ID and news. (D'Angelo, PA)

SOUTH KOREA—Radio Korea Int'l, **9515//9870** at 1604 with news, ID. (Burrow, WA)

SRI LANKA—Sri Lanka Broadcasting Corp./Radio Sri Lanka, **9770** at 0034 with time check and ID followed by a program of greetings and music requests. **//15425**. (D'Angelo, PA) **15425** at 1505 with national and world news. (Burrow, WA) VOA relay, **5955** in VV at 1350. (MacKenzie, CA) Deutsche Welle relay, **15205** in GG at 0202. (Jeffery, NY)

SPAIN—Radio Exterior de Espana, **9540** at 0230 with news and interview. (Linonis, PA) **13720** in SS at 0650. (Becker, WA) **17595** in SS at 1400. (Northrup, MO) **17850** via Costa Rica in SS at 1817. (Brossell, WI) 2207 in SS. (MacKenzie, CA)

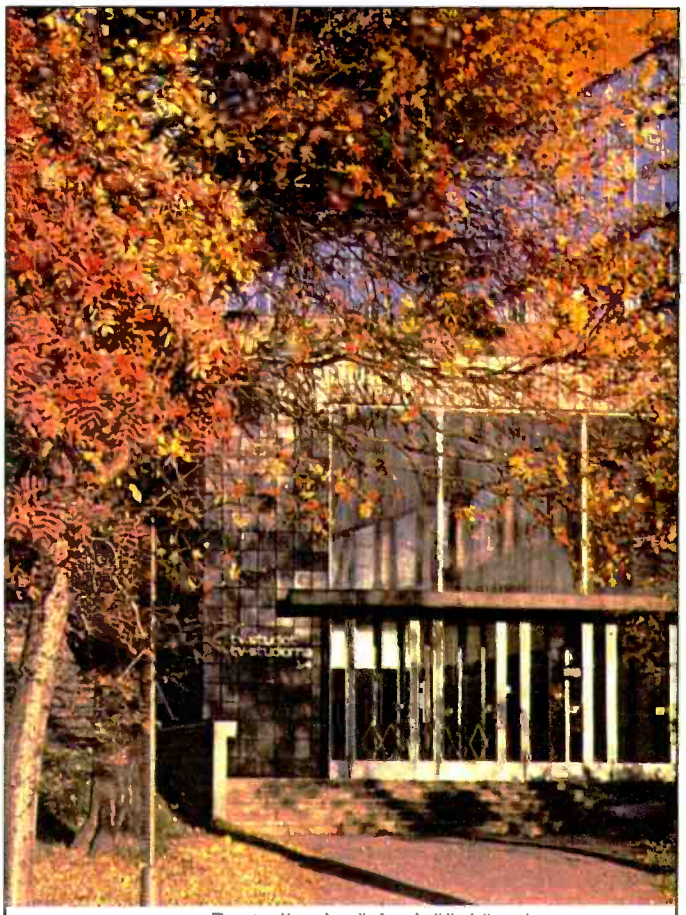
SURINAME—Radio Apintie, presumed, **4991** at 0314 with continuous pop vocals to 0346 and man announcer. (D'Angelo, PA)

SWEDEN—Radio Sweden, **9490** at 0316 in Swedish. (Brossell, WI) **15255** at 2139 with talk on the Swedish National Space Board. (Burrow, WA) **18960** at 1330. (Barton, AZ)

SWITZERLAND—Swiss Radio Int'l, **11905** via French Guiana at 2355 with news, music, ID and off by 0000. (MacKenzie, CA) **17735** via French Guiana in FF at 1812. Time pips at 1815, ID and off the air. (Brossell, WI)

SYRIA—Radio Damascus, **12085//13610** at 2003 in FF. ID in EE at 2011, schedule, program notes and news. (Burrow, WA)

Who says QSLs aren't artistic? This RAI card features a work by Enrico Reycend. (Thanks to Jeff Muska, NJ)



If you worked for Finland's YLE, your office would probably be in this Helsinki building.

TAIWAN—Radio Taipei Int'l, **5950** via WYFR at 0245. (Linonis, PA) **7445** with CC lesson at 1150. (Barton, AZ) **11940** to Asia in CC at 0833. (Becker, WA) **15265** in EE at 1446. (Burrow, WA)

THAILAND—Radio Thailand, **7260** at 1100 sign on with IS, "This is Radio Thailand broadcasting from Bangkok" and into program in VV. (D'Angelo, PA) **9830** at 1423 with environmental report and **15395** at 0300 with national news. (Burrow, WA) BBC relay, **17615** in EE and CC at 2235. (MacKenzie, CA)

TUNISIA—RTV Tunisienne, **12005** in AA at 2000. (Paradis, ME) 0315 in AA. (Brossell, WI)

TURKEY—Voice of Turkey, **9460** heard at 0215 with exotic Turkish music. (Linonis, PA) **11655** at 0328: "You have been listening to the Voice of Turkey. Goodbye." Back at 0330 with "A Turkish Story." (Brossell, WI) 0337 with EE features. Off with IS at 0349. (Burrow, WA)

UGANDA—Radio Uganda, **4976** monitored at 0350 with news. (Strawman, IA)

UKRAINE—Radio Ukraine Int'l, **12040** at 0300 with IS, ID, program notes and news. (Burrow, WA) 0319 with Ukrainian music. (Brossell, WI)

UNITED ARAB EMIRATES—UAE Radio, Dubai, **13675** at 0330 with news and Islamic history program in EE. (Burrow, WA) **15400** at 0243, //**13675** with Koran recitations. (Brossell, WI)

UZBEKISTAN—Radio Tashkent, **11905** at 2030 with IS, ID, news, music, ID again at 2040. (Burrow, WA) **17775** at 1230 in unid. language. (Paradis, ME)

VATICAN—Vatican Radio, **7305** at 0255. Saluting the USA as "the only country in the world that is truly free. But freedom has a price." (Brossell, WI) **9605** at 0245 with news and commentary. (Paradis, ME) **12065//13765//15235** at 1550 with IS, ID, schedule and religious feature. (Burrow, WA)

That's it! High fives and raised glasses to the following who did the right thing this month: Stewart Mackenzie, Huntington Beach, CA; Jerry Strawman, Des Moines, IA; Richard D'Angelo, Wyomissing, PA; Ray Paradis, Pittsfield, ME; Rick Barton, Phoenix, AZ; Mark Northrup, Gladstone, MO; Bruce Alexander, Mechanicsburg, PA; Lee Silvi, Mentor, OH; Pete Becker, Clarkson, WA; Robert Brossell, Pewaukee, WI; Dave Jeffery, Niagara Falls, NY; Jack Linonis, Heritage, PA; and Bruce R. Burrow, Snoqualmie, WA. Thanks to each one of you.

Until next month, good listening! ■

v.i.p. spotlight

Congratulations to David Matarazzo of Dalton, New York!

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 readadantries should be typewritten, or otherwise easily readaaa 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 "VIP 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.

Pop'Comm reader David Matarazzo of New York at his well-equipped shack.

Our November Winner: David Matarazzo!

Pop'Comm reader David Matarazzo tells us,

For me, SWLing began way back in 1950. Actually I was introduced to the hobby by my father. I was only six years old. I still remember the large floor model RCA radio with shortwave bands. He told me of voices that could be heard from far off lands through the radio. I eagerly listened as he began turning the tuning knob. Every Sunday night we gathered around the radio and listened.

As I grew older, this old radio became a part of my life, even through my teen years and beyond. I continued to listen to broadcasts from around the world and shared my experiences with my classmates. I seemed to have a shortwave radio around me for most of my life.

In the early 1990s I became even more passionate as I began to expand my radio shack with new radios. As a fifth grade school teacher, we had science units on shortwave and the students made shortwave radios with kits from RadioShack. They were fascinated.

My shack consists of a Grundig Satellit 800 Millennium, a Sangean ATS-803A, RadioShack models DX-160, DX-380, DX-397, DX-398, and a DX-399. Also included are a Bearcat 30-channel scanner, a RadioShack PRO-28 scanck PRO-28 scanner, a Motorola fire radio, weather radios, and a portable AM/FM/TV and air band radio. All of them sure help me keep an ear on the world! ■

plane sense

your link to global aviation communications monitoring

By Bill Hoefer <flacap388@hotmail.com

U.S. Air Traffic System Still On High Alert, Plus Monitoring The Military

It's turkey time and football is in full swing—and I have no idea if the World Series was played last month. As I write this our air traffic system is in a higher state of alert for terrorism. If you go to the various flight service station websites you may see something like this:

Important Information Regarding General Aviation Security!

The U.S. Government continues to receive credible indications that extremist individuals are planning additional terrorist operations against U.S. and Western interests within the U.S. and overseas. Such operations, possibly involving civil and general aviation (GA) aircraft, could be carried out whenever attack preparations are complete and operatives are in place. The Transportation Security Administration (TSA) has no credible information concerning specific targets, timing, or methods of attack. However, the GA community should observe good physical security for aircraft and facilities and be continuously on the lookout for suspicious persons, activities, and operations around airports.

Terrorists who are no longer able to hijack commercial airliners because of increased security at commercial airports may turn to GA airports and aircraft to conduct operations.

The TSA asks members of the GA community to report all unusual and suspicious activities. If you observe persons, aircraft, and operations that do not fit the customary pattern at your airport, you should immediately advise law enforcement authorities.

Your immediate action is requested for these items:

- Secure unattended aircraft to prevent unauthorized use.
- Verify the identification of crew and passengers prior to departure.
- Verify that baggage and cargo are known to the persons on board.
- Where identification systems are in place, encourage employees to wear proper identification and challenge persons not wearing proper identification.

Increased vigilance should be directed toward the following:

- Aircraft with unusual or unauthorized modifications.
- Persons loitering in the vicinity of aircraft or air operations areas.
- Persons who appear to be under stress or the control of other persons.
- Persons whose identification appears altered or inconsistent.

It is, of course, just over a year since the WTC attacks. We are still on alert and will be for the foreseeable future. As a result,

Thunderbirds/Blue Angels/Golden Knights/ Canadian Snow Birds Schedule*

(October and November)

October

Thunderbirds

5–6	Nellis AFB, NV
12–13	Fort Worth, TX
19	Shaw AFB, SC
20	Seymour Johnson AFB, NC
26–27	Houston, TX

Blue Angels

5–6	Salinas, CA
12–13	San Francisco, CA
19–20	MCAS Miramar, CA
26–27	NAS JRB New Orleans, LA

Golden Knights

2	Tucumcari, NM
4–6	Nellis AFB, NV
5	Keesler AFB, MS
12–13	Fort Worth, TX
12–13	Manassas, VA
19–20	MCAS Miramar, CA
26	Edwards AFB, CA

Canadian Snow Birds

2	Whiteman AFB, MO
12–13	Springfield, IL (last show of year in the U.S.)

November

Thunderbirds

2	Lackland AFB, TX
3	Cannon AFB, NM
9–10	Lake City, FL (last show of the year)

Blue Angels

2–3	NAS Jacksonville, FL
8–9	NAS Pensacola, FL (last show of the year)

Golden Knights

1	San Antonio, TX
2	Lackland AFB, TX
15–17	Charlotte, NC (last show of the year)

Canadian Snowbirds

No shows this month.

Note: Dates and locations are "show dates" only and do not reflect arrival or practice date temporary flight restriction (TFR) periods that may precede the specific aerial demonstration events listed above.

**Canadian Snowbirds demonstrations in the U.S. will be included as I find them.*

I'm going to try, over the next few columns, to concentrate on sources for the various military applications you may see fit to monitor. This month you will find more information in the *DoD Flip Enroute VFR Supplement, United States*. You just can't pick that up at any flight school or airport fixed base operator (FBO), but what if I told you that you *can* find this on the Web? You can find this at <http://164.214.2.62/products/digitalaero/ index.html>, but please be advised that the majority of the information requires Adobe Acrobat to be read. If you don't have it (which is rare) find a copy to load on your computer.

The *VFR Supplement* for the U.S. is very similar, but not identical to, the *Green Book*, called the *Airport Facility Directory (A/FD)* that I discussed in my first few columns two years ago. However, *the VFR Supplement* covers mainly smaller airports throughout the country. Each page covers three to four airports, with over 99 percent showing airport layouts. All have the same basic information—the name and ID of each airport, its latitude and longitude, and above all, the frequencies in use there. Since few, if any, of these airports have towers, the frequencies printed are the CTAF and/or Unicom frequencies, as well as the RCO frequencies for the associated Flight Service Station and the RCAG frequencies, if available, for the appropriate Air Route Traffic Control Center. Some even have the Army National Guard frequencies for the airport, including HF.

Also the book's list is in alphabetical order according to airport name, not by state and city as is the *A/FD*. As I said, the information online is available in PDF format only, so it may take a bit of time to load on your screen.

Please tell me what you hear.

Long Distance Frequencies

Speaking of HF, I have been asked about HF frequencies used for flights over the pond to Asia, Europe, the Caribbean, and South America. Here are some frequencies I discovered recently. Be advised that some of them may be out of date, but with all these frequencies some have to be in use.

North America to Asia—2.932, 5.628, 6.655, 6.661, 10.048, 11.33, 13.3, and 17.904.
Caribbean—2.887, 3.455, 5.52, 5.55, 6.577, 6.586, 8.446, 8.918, 11.387, 11.396, 13.297, and 17.907.
Europe—2.872, 2.899, 2.962, 2.971, 3.016, 3.476, 4.675, 5.598, 5.616, 5.649, 6.622, 6.628, 8.825, 8.831, 8.864, 8.879, 8.891, 8.906, 11.279, 11.309, 11.336, 13.291, 13.306, and 17.946.
South America—2.944, 3.479, 4.669, 5.526, 6.649, 8.855, 10.024, 10.096, 11.36, 13.297, and 17.907, plus the Caribbean frequencies.

I'm still looking for additional frequencies. If you have some not listed here drop me a line at <flacap388@hotmail.com> and I'll include it.

Enjoy Turkey Day and all the games. Of course, I will be a good little boy and work hard to keep the pilots safe at the flight service station that day. See you for Christmas and Hanukkah next month. ■

NEW/CHANGED/DELETED AIRPORT IDs AND ABANDONED AIRPORTS

NEW

AL

Fort Ricker/Samson, TAC X Stagefield AHP Heliport	07AL

AK

Anchorage, Carpentiers Strip Airport	64AK
Big Lake, Kucera Residence Airport	63AK
Delta Junction, Buffalo Row Heliport	AK35
Delta Junction, Trophy Lodge Heliport	72AK
Eagle River, Highland Airport	47AK
Fairbanks, Hardrock Field Airport	32AK
Kenai, Basquo Airport	52AK
Palmer, Gilmore Strip Airport	39AK
Shaktoolik Airport	2C7
Wasilla, Bechtol Field Airport	56AK
Wasilla, Fairview East Airport	58AK
Wasilla, Fairview Landing Airport	65AK
Wasilla, Flyway Farm Airstrip	36AK
Wasilla, Kalmbach Lake Seaplane Base	54AK
Wasilla, Lawrence Airstrip	55AK
Wasilla, Lost Lake Seaplane Base	57AK
Wasilla, Mels Airport	38AK
Wasilla, Penderosa Airport	59AK
Wasilla, Seymour Lake Seaplane Base	3A3
Wasilla, Valley Flying Crown Airport	AK27
Wasilla, Wallis Lake Seaplane Base	62AK
Wasilla, Yukins Airport	23AK

AR

Cabot, Red Oak Airport	4AR2
Conway, Arkavalley Airport	12AR
Flippen, Pine Mountain Airpark	6AR9
Greenbrier, Ira's Airstrip	52AR

CA

Palmdale, Gray Butte Field Airport	04CA

CO

Denver, DTC North Heliport	41CO
Franktown, Reed Hollow Ranch Airport	CO96
Monument, Helibase Heliport	61CO
Red Mesa, Monte Madeira Airport	17CO
Steamboat Springs, Mann Heliport	13CO

DE

Middletown, Okolona Plantation Airport	DE33
Townsend, A Airport	DE34

ID

East Hope, Holiday Shores Seaplane Base	2C9
Gooding County Memorial Hospital	1ID8
Inkom, Skyline Stolport	1ID9
Ketchum, St. Luke's Wood River Medical Center Heliport	1ID5
Kimberly, Sligars Landing Heliport	1ID6
Troy, Friendly Persuasion Farm Airport	ID94

LA

Rayne, Phoenix Airport	LA30
Slaughter, Country Breeze Airport	01LS

MD

Baltimore, Marriott Parking Garage "Rooftop" Heliport	24MD
Chestertown, Breezecroft Seaplane Base	23MD
Hagerstown, Laura's Landing Airport	22MD

NJ

Brick, Allen's Seaplane Base	JY35
Newton, Mianecki Heliport	JY36

NY
Adams, Butterville Airport 7NY2
Colden, Hilltop Airport 3NY9

NC
Hertford, Craig Craft Airport 86NC

OR
Kimberly, Longview Ranch Airport OG39
Junction City, Munson Airport OG36
McMinnville, Valley Medical Center Heliport OG38
Salem Hospital Heliport OG37

PA
Bethlehem, Muhlenberg Hospital Heliport 2PN6
Collegeville, Wyeth-Ayerst Nr2 Heliport 3PN8
Eagles Mere, Merritt Field Airport 4PN7
Erwinna, Brigham Heliport 4PN5
Export, Phil Cain Memorial Field Ultralight 3PN6
Hatboro, Mahon Heliport 5PN4

SC
Elgin, Over the Hill Airport 12SC

TX
Alvord, Becker airport 65TS
Arlington, Thirty Thirty Matlock Office Center Heliport 01TA
Aubrey, Campbell Field Airport 06XS
Azle, Moore Private Airport 73TE
Cotulla, Ghost Apache Airport 45XS
Mount Pleasant Airport OSA
Webster, Clear Lake Regional Medical Center 52XS

VA
Tappahannock Hospital Heliport VG49
Yorktown, Clear Moore Corp/Kenneth Moore Heliport VG48

WA
Hansville, Mirth Airport WA22
Newhalem Office Heliport WA34
Olympia, Stonehedge Heliport WA32
Redmond, South Cove Heliport WA38
Shaw Island Trust Heliport WA33

WY
Burns, Raco 1 Heliport 2WY4

CHANGED

FL
Estero, Corkscrew Trace, now Schmidt Airstrip (1FD4)
Hollywood, Memorial Hospital, now Memorial Regional Hospital (77FD)

IL
Galena, Coursen's Landing, now Briggs Brothers Airfield (77LL)
Marengo, Krause, now Wind Rose Farm Airport (IS57)
Roscoe, Floyd McCurdy, now McCurdy Airport (LL94)
Watson, Percival Springs Ultralight/STOL, now Percival Springs Airport (2T2)

IN
Arcola, Kelly's Patch, now Confer's Place Airport (11N3)

IA
Sioux City, Sioux Gateway, now Sioux Gateway/Col. Bud Day Field (SUX)

KS
Kingman Municipal Airport, not ????? Kingman Airport, Clyde Cessna Field (9K8)

MT
Fort Peck Airport, was 9MT7, now 37S

NE
Weeping Water, Browns Airport, was EPG, now NE69

NH
Goffstown, Country Club Air Park Airport, was 5D4, now NH88

OR
Paisley State Airport, now Paisley Airport (22S)
Powers State Airport, now Powers Airport (6S6)

TX
Dalhart, Miller Airfield Airport, was 2E1, now 25TS
Dallas, Redbird Airport, now Dallas Executive Airport (RBD)
Denison, McKeon Aviation Airport, was 8F8, now 9XS4
New Braunfels, McKenna Hospital, now McKenna Memorial Hospital (TE60)
North Richland Hills, North Hills Medical Center, now North Hills Hospital (24TS)
Tyler, Pounds Fieldnow Tyler Pounds Regional Airport (TYR)

ABANDONED/DELETED

AK
Shaktoolik, New Airport 38A

AZ
Yuma, Checkerboard Airport AZ99

CO
Denver Water Department Heliport 04CO
Evergreen, Flying J Ranch Airport 27CO
Otis, Stansfield Airport 26V

FL
Miami, Southeast Bank Operations Center Heliport (0FA2)
Parkland, Beaty Farms Inc. Airport (FA00)

OK
Cookson Hills Christian School Airport 5OK0

NEW/CHANGED/DELETED FREQUENCIES

NEW

AL
Fort Rucker, Shell AHP (SXS)
CTAF 140.3
LC 140.3/244.5
GC 148.8/310.6

AK
Palmer, Wolf Lake Airport (4AK6)
CTAF 122.9
Shaktoolik Airport (2C7)
Unicom 122.8
Wasilla, Fairview East Airport (58AK)
Unicom 122.8
Wasilla, Fairview Landing Airport (65AK)
Unicom 122.8
Wasilla, Kalmbach Lake Seaplane Base (54AK)
CTAF 122.9
Wasilla, Lost Lake Seaplane Base (57AK)
CTAF 122.9

Wasilla, Penderosa Airport (59AK)
CTAF 122.9
Wasilla, Seymour Lake Seaplane Base (3A3)
CTAF 122.9
Wasilla, Valley Flying Crown Airport (AK27)
CTAF 122.9

CO
Canon City, Fremont County (1V6)
AWOS-A 120.025
Sterling Municipal (STK)
AWOS-3 118.525
Walden, Jackson County (33V)
AWOS-3 118.625

FL
Jacksonville ARTCC (ZJX)
Lake City Low RCAG 125.375/254.325
Valparaiso, Eglin AF Aux Number 3/Duke Field (EGI)
Cmd Post 236.1

GA
Bainbridge, Decatur County Industrial Air Park (BGE)
AWOS-3 121.125

ID
East Hope, Holiday Shores Seaplane Base (2C9)
CTAF 122.9

KY
Bardstown, Samuels Field (BRY)
AWOS-3 119.925

MD
Chestertown, Breezecroft Seaplane Base (23MD)
Unicom 122.8
Indian Head Airport (2W5)
Ronald Reagan Apch 119.85/322.3

NV
Ely Airport/Yelland Field (ELY)
ASOS 120.65

NH
Nashua, Boston ARTCC (ZBW)
South Acton, ME RCAG 263.05

NJ
Brick, Allen's Seaplane Base (JY35)
Unicom 122.8

OR
Salem Hospital Heliport (OG37)
Unicom 123.075

TX
Fort Worth Naval Airstation/Carswell Field (NFW)
GCA 128.775/380.8
Aubrey, Campbell Field Airport (06XS)
Unicom 122.7
Cotulla, Ghost Apache Airport (45XS)
Unicom 122.7
Mount Pleasant Airport (OSA)
Unicom 122.7

VA
Leesburg (JYO)
RCO 122.0/122.2/122.6

CHANGED

AZ
Phoenix Sky Harbor International Airport (PHX)
Apch, was 379.8/388.0, now 281.45/285.55

HI
Kaneohe Bay MCAF (NGF)
CD, was 310.8, now 300.4

ID
Indianapolis International (IND)
VOT, was 111.8, now 109.6

IA
Cedar Rapids, The Eastern Iowa (CID)
Apch, was 247.2, now 266.8

KS
Olathe, Kansas City ARTCC (ZKC)
Edna KS RCA, was 343.9, now 282.325

MO
Cameron Memorial Airport (EZZ)
Apch, was 132.95/318.1, now 119.0/307.35

NM
Albuquerque International Sunport (ABQ)
PMSV, was 342.5, now 342.3

RI
Providence, Theodore Francis Green State (PVD)
Apch, was 119.85, now 118.55

VA
Quantico MCAF (NYG)
Apch, was 120.925, now 127.05
GC, was 127.05, now 121.75

DELETED

AK
Oliktok Point (OLI)
A/G 288.4
Point Lay (PIZ)
A/G 288.4

AR
Fort Smith (FSM)
Outer Marker (FS) 223 kHz

FL
Valparaiso, Eglin AF Aux Number 3/Duke Field (EGI)
AFRES Ops 225.3

HI
Kaneohe Bay MCAF (NGF)
Apch 300.4

MN
Barnesville Municipal Airport (9MN3)
CTAF 122.9
Cook Municipal Airport (CQM)
ATIS 135.35

TX
Dalhart, Miller Airfield Airport (25TS)
CTAF 122.9
Denison, McKeon Aviation Airport (9XS4)
CTAF 122.9

VA
Gordonsville (GVE)
RCO 122.2/122.65 ■

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

Utility Monitor Craig A. Rose On HF Aero Comms

USCG helo (Tail 6505, HH-65B Dolphin, USCG Air Station San Francisco) taken by Craig Rose, our new Assistant "Utility" column editor for aeronautical UTE topics.

Frankly this column needs an overhaul, and beginning with this issue you are going to be seeing a number of important changes. Don't worry, the logs will still be here, but over the coming months the content and direction that the column is going in will be changing for the better.

First and foremost, the biggest change is going to be having a group of dedicated "assistant editors" to help me out with the content. Each month I've tried to bring you an interesting report on some aspect of the utility radio world along with the logs. Over the past few months, especially since taking on the "Computer-Assisted Radio Monitoring" column, I've been unable to do that.

So from here on the column will have the assistant editors and guest contributors submit the news and articles, while I continue to collect and format the logs. That brings up the rather important role played by you, the reading audience. I need more letters and contributions from each of you.

Yes, the logs that have been coming in are great, but as you can see this month, too few people are carrying the load again. I need more comments and information from each of you on what is happening in the UTE world. Again, let me remind you that what makes *Popular Communications* so interesting is that we really try to make it *your* magazine.

If you've followed this column from the beginning you will know that I have tried to get as many logs, letters, and e-mails in as possible. Sometimes I've not been able to get everyone's contributions in, and I'm sorry that sometimes I have to make a decision that isn't always popular.

Frankly by having the content written by the assistant editors I can spend more time on correspondence and answering some of your queries personally. So, no matter what, over the next six issues you will see some changes here that will make the column one that you look forward to each month.

Following is an introduction from the first assistant editor, **Craig A. Rose**, who lives near Silicon Valley in California, as well as his first report. Craig, by the way, is also an excellent photographer, and I've included some of his photos in this column. (I should also mention that I would be more than happy to publish any photos that you may have that are similar. Ships, boats, aircraft, vehicles, and ground stations—as long as the picture has a clear tie in to the world of radio communications, it will be considered.)

Craig's Introduction

Being a dedicated reader of Joe's column and *Popular Communications* for many years, I was thrilled to hear from Joe that he was interested in possibly having someone provide occasional contributions for specific aspects of utility monitoring! It just so happens that my main interest, HF aeronautical monitoring, seemed to fit in with what Joe was trying to accomplish. So, without any hesitation, I offered my assistance.

By way of introduction my name is Craig Rose; some of you may remember one of Joe's columns in which he featured my experience of monitoring the emergency landing of Delta 79 in Cold Bay, Alaska (July 2001 issue). That happens to be one of the many unusual, even critical, situations that I have heard while tuning the HF aero frequencies. It is this kind of action that I hope to be able to share with you by providing frequencies, background, and news related to the world of HF aero communications.

I would also like to invite all of you to send your aero requests, questions, or comments to me via e-mail at <hfaerocomms @hotmail.com>. I look forward to hearing from you!

Craig's HF Aero Communications—The Pacific Region

"San Francisco, San Francisco, American 284 with position." It's 0341 GMT as the voice of a 767-300 crewmember breaks through the noise on 11.282 kHz. Somewhere over the Pacific

Ocean, having departed Honolulu, a passenger jet makes its way toward the California coast and an eventual landing at Los Angeles International Airport. This aircraft, along with hundreds of others, flying for carriers ranging from the massive American Airlines to the small Air Tahiti Nui, cruises the world's air routes, 24 hours a day, seven days a week. The best part of all this is that you can listen in on their progress as they make their way to and from some of the most exotic, and not so exotic, locations on the globe!

Readers throughout the United States will be able to catch HF radio communications conducted between aircraft and ground stations on dozens of frequencies (see "HF Aero Voice Frequencies (Pacific Area)" sidebar), but this first installment of HF aero information for the "Utility Radio Review" will focus specifically on the **Pacific** region. First, it might be helpful to provide a bit of background on who is responsible for handling these communications and why.

In fact, a single company, Aeronautical Radio, Inc. (ARINC), acts as the intermediary between the FAA and flights on overseas routes. ARINC, headquartered in Maryland, with communication centers in New York and San Francisco, handles virtually all HF USB aero radio traffic for flights traversing vast regions, including Central and South America, the Pacific and Atlantic Oceans, the Caribbean, and the Gulf of Mexico. From their communication facilities, ARINC radio operators are able to conduct long-haul communications by keying remote radio sites in locations as varied as Molokai, Hawaii, Barrow, Alaska, and Guam.

ARINC's mission is to provide effective air-to-ground voice communications that will allow for the transmission of air traffic control flight movement messages from the FAA to all aircraft transiting oceanic regions under FAA jurisdiction. In addition, ARINC also serves as the sole provider of flight-following information for aviation operators and air carriers, thereby allowing real-time tracking of an aircraft's position as it transits an oceanic route. A secondary role played by ARINC is its Long Distance Operational Control (LDOC) service that allows airlines to make and receive phone patches between their aircraft and ground parties. These communications may include discussions ranging from standard scheduling changes and weather forecasts to urgent requests for engineering support during an in-flight emergency, or even requests for medical advice when needed by a stricken passenger.

However, the vast majority of communications you will hear on ARINC frequencies pertain to an aircraft's position, altitude, flight conditions, and requests for clearance from FCC air traffic controllers. A typical report will include a current position, following position, flight level, and Selective Calling (SELCAL) System check. You will recognize a SELCAL immediately by the transmission of two tones used to signal or page an aircraft crew when ARINC is attempting to establish voice contact. All SELCALs consist of a unique four-letter code that is often announced by a member of the flight crew when requesting a test transmission from an ARINC operator. Not all aircraft are equipped with SELCAL capabilities, which is especially true of military aircraft found on ARINC frequencies.

Now that you have some basic background it's time to look at the frequencies. Remember that all voice transmissions are made in USB and that you will need to rely on your knowledge of propagation to find the best frequency at a particular time of day or evening. Most of all, have fun! You never know what you might hear, like the time I monitored an American Airlines flight en route to Honolulu with a passenger suffering from severe chest pain! The pilot of the aircraft requested an immediate phone patch to his company to discuss the potential of diverting back to San Francisco (over two hours away)! You'll be happy to know that the passenger made it with the help of two physicians who just happened to be aboard the flight for their vacations.

A Special Thanks—And Your Logs

Thanks Craig for that information, and I look forward to including more of them. Over the coming months we'll have reports from other assistant-editors and contributors, so stay tuned!

Meanwhile, let's move on to the reader's logs. This month we have a good selection of contributions, but as you will see the number of contributors is down. So, I'm going to again make a request for more contributors, please.

I am also going to be making some changes in the format of the logs over the upcoming months. Rather than simply displaying it from lowest to highest frequency, I'm going to be breaking out the logs into the various services, with more interpretation of what has been received.

If you remember back at the beginning of the column I stated that I wanted to focus more on how you, the reader, could capture these stations yourselves. Well, I'm going to be getting back to that in future columns. In that regard, I'd like to hear some suggestions from you on how that could be best done. I've been getting some feedback from readers that they would like to have more info on the people who are making the logs, such as their location, the equipment, and antenna systems they are using.

If you have any ideas or suggestions, now is the time to speak up!

Remember that all frequencies are in kiloHertz and times are Universal (Z).

0000: STATION, Anytown, USA, summary of traffic heard in MODE at 0000 Z (Z), personal comments here. (JC)
60: MSF, TS RUGBY CW Time signals. Also RX accuracy checks—no error. (DW)
77.5: DCF77, TS MAINFLINGEN CW Time signals. (DW)
147.3: DDH47, Hamburg MET RTTY// 50/N/85 Met tfc. (DW)
490: E, CORSEN SITOR/B//100/E/ 170 Bulletin Atlantique in FF. 2047Z nav wngs in FF thru 2051Z. (DW)
490: G, MONSANTO SITOR/B//100/E/ 170 Nav wngs in PP thru 2108Z. (DW)
490: I, NITON SITOR/B//100/E/170 [IA20] "UK 490 kHz NAVTEX service. Broadcast service unreliable. Details available via local coastguard on VHF or telephone nnnn." (DW)
490: C, PORTPATRICK SITOR/B// 100/ E/170 Inshore waters fcst. Late start at 2031Z, and end of bulletin corrupted. (DW)
518: S, NITON, SITOR/B//100/E/170 Nav wng. (DW)
518: X, VALENCIA SITOR/B//100/ E/170 Wx Fcst and nav wngs, Variable copy. (DW)
518: W, VALENTIA SITOR/B//100/ E/170 Wx fcst for Irish Sea areas. (DW)
1251: XUFV3 TH Pasifik Karrir 0840 ARQ w/KYPS SELCAL DE 66642 TH PASIFIK KARRIR/XUFV3 log on & tfc to Vladivostok, ITU MARS show XUFV3 as Pacific Wind. (ML)
3137: USAF AIRCRAFT MIL.STD 188-141A ALE on USB. Sounding. (DW)
3137: USAF AIRCRAFT C-5 85-0010 MIL.STD 188-141A ALE on USB. Sounding. Also at 1927. (DW)
3137: haw, USAF ASCENSION MIL.STD 188-141A ALE on USB. Sounding. (DW)
3137: cro, USAF CROUGHTON MIL.STD 188-141A ALE on USB. Sounding. (DW)
3390: MGJ, RN FASLANE RTTY// 75/N/850 CARB "02 04 MGJ." (DW)
3764.4: PBB, DN DEN HELDER RTTY// 75/N/850 CARB. (DW)
3782: CTP, PN LISBON RTTY// 75/N/850

Marker "NAWS de CTP QSX 04 06 08 12 MHz AR." (DW)
3855: DDH3, Hamburg MET FAX//120/576/N/800 Sfc analysis. M/path streaking. (DW)
3882: ---, UNID, CW offline encrypt then off air. (DW)
4560: TAH, ISTANBUL RADIO SITOR/B//100/E/170 wx fcst in TT. 2016 revert to chan free marker "TAH." (DW)
4666: REACH 3559 working San Francisco ARINC (CWP-2) to accept ATC clearance to be off frequency for 10 minutes then conducts p/p via GHFS Hickam to Hickam AMCC on 11.175.0 in USB at 1220Z. (CR)
5547: United 862 (B747-422, reg. N715UA, YSSY to SFO) working San Francisco ARINC (MWARA CEP-2) is advised to make new primary 5.574.0 in USB at 1352Z. (CR)
5547: Singapore Air Cargo 7962 (B747-412F/SCD, reg. 9V-SFH en route LAX) wkg San Francisco ARINC (MWARA CEP-2) with SELCAL check on KS-FC in USB at 1252Z. (CR)
5547: ROVING 21, working San Francisco ARINC (MWARA CEP-2) with position report and advises will be accepting MARSA with SLIP 56 at 1258Z while in the block from 240 to 270 for AR in USB at 1246Z. (CR)
5547: EVA 616 (MD-11 RCTP to PANC to LAX) wkg San Francisco ARINC (CEP-2) at 0354Z in USB with position report and is advised to call Seattle Center on 135.150 at 128 west. (CR)
5547: Dynasty 318 (B747-409F, reg. B18706, RCTP to PANC to LAX) working San Francisco ARINC (CEP-2) to provide updated position report per ATC request then is advised to call Seattle Center on 135.150 crossing 128 west in USB at 0448Z. (CR)
5547: Sing Cargo 7965 (B747-412F/ SCD, reg. 9V-SFC) working San Francisco ARINC (CEP-2) for SELCAL check on EQ-DR in USB at 0521Z. (CR)
5547: REACH 201 HEAVY FLIGHT working San Francisco ARINC (CEP-2) to request clearance to occupy the block from flight level 270 to 290 to conduct AR with SLIP 58 in USB at 1255Z. (CR)
5574: New Zealand 15 (B747-419, reg. ZK-NBU) working San Francisco ARINC (MWARA CEP-1) for SELCAL check in USB at 0542Z. (CR)
5574: Tahiti 22 (A343 PPT to LAX to CDG) heard working San Francisco ARINC (MWARA CEP-1) to accept ATC clearance to climb and maintain flight level 390 in USB at 1336Z. (CR)
5574: Air Transport 728 (?) working San Francisco ARINC (MWARA heard CEP-1) with initial position report...originally misidentified self as REACH flight in USB at 1337Z. (CR)
5574: N457GA (Gulfstream IV, Wells Fargo Bank) wkg San Francisco ARINC (CEP-1) at 1322Z in USB to accept ATC clearance to climb and maintain flight level 430. (CR)
5574: United 841 (B777-222/ER, reg. N224UA, LAX to AKL) working San Francisco ARINC (CEP-1) for SELCAL check on KM-DP and is then directed by San Francisco to make primary 8.867.0 when crossing 140 west in USB at 0448Z. (CR)
5574: N934CD (Cirrus SR20) working San Francisco ARINC (CEP-1) with position report and advises in formation with N861CD at flight level 4800! in USB at 1410Z. (CR)
5574: Tahiti 02 (A340-300 PPT to LAX) working San Francisco ARINC (CEP-1) to advise when able to accept flight level 380 and 390 per ATC request in USB at 1324Z. (CR)
5628: Malaysian 94 (B747-400 RCTP to LAX) wkg San Francisco ARINC (NP-1) at 1250Z in USB to provide confirmation of estimated time to 46 north and 170 west. (CR)
5628: China Eastern 583 (MD-11 ZSPD to LAX) wkg San Francisco ARINC (NP-1) at 1247Z in USB to accept ATC clearance to climb and maintain flight level 340. (CR)
5643: Qantas 10 (B747-438 LHR to SIN to MEL to SYD) working San Francisco ARINC (MWARA SP) is advised to make new primary 8.867.0 for next position report in USB at 1410Z. (CR)
5667: VIPER 81, wkg San Francisco ARINC (MWARA NP-3) to provide position report and is advised to call Anchorage Center on 119.100 in USB at 1236Z. (CR)
5667: Philippine 107 (B747-400 YVR to RPU) wkg San Francisco ARINC (NP-3) at 1239Z in USB to provide position report and is advised to pass report on new primary of 10.048.0. (CR)
6604: New York Radio VOLMET (WSY-70) with aeronautical weather observations and forecasts in USB at 0428Z. (CR)
6640: United 63, calling San Francisco ARINC (LDOC) for p/p to dispatch at with no response then returns to 5.574.0 and is advised to call ARINC on 131.950 to attempt patch in USB at 0309Z. (CR)

KC-135R of the 163rd Aerial Refueling Wing can often be heard working San Francisco ARINC using the call GRIZZLY. (Photo Craig Rose)

6655: World 272 (MD-11 RODN to SEA) calling Tokyo Radio (NP-2) heard at 1304 in USB with progress report and SELCAL check. (CR)
6655: REACH 339Y working Tokyo Radio (MWARA NP-2) with progress report and requests clearance to climb from flight level 190 to maintain flight level 210. (CR)
7335: CHU, TS OTTAWA USB Time sigs. Too weak to hear announcements. (DW)
7375: FDG, FAF BORDEAUX CW Marker "vvv de FDG ar." (DW)
7488: FDC, FAF METZ CW Marker (under hvy qrm) "vvv de FDC ar." (DW)
7496: HSP, UK MIL/DIPLO HANSLOPE PARK MIL.STD 188-141A ALE on USB Sounding. (DW)
7505.5: FDG, FAF BORDEAUX RTTY//50/R/850 Marker "test de FDG voyez le brick ry's" Offair 2028Z. (DW)
7535: VMW, BOM WILUNA FAX// 120/576/N/800 Textual—current warnings (Asian) summary. (DW)
7535: VMW, BOM WILUNA FAX//120/576/N/800 Wave/swell prognosis. Fair. (DW)
7570: RBX72, TASHKENT MET FAX// 60/576/N/800 Synoptic chart + obs. M/path smearing. (DW)
7594: ---, UNID SITOR/A//100/E/170 Poor copy, appears to be in SS and mentions "Canarias" and "ao emes de jubho." (DW)
7611: FAAZBW, US FAA Boston MIL.STD 188-141A ALE on USB. Sounding. Also 0536. (DW)
7611: default US FAA ?LOC MIL.STD 188-141A ALE on USB. Sounding. (DW)
7623.5: FDC, FF METZ CW Marker "vvv de FDC ar." (DW)
7632: 200085, USAF AIRCRAFT MIL.STD 188-141A ALE on USB. Sounding. (DW)
7632: 100466, USAF AIRCRAFT C-5 70-0466 MIL.STD 188-141A ALE on USB. Sounding. (DW)
7632: 160016, USAF AIRCRAFT C-5 86-0016 MIL.STD 188-141A ALE on USB. Sounding. (DW)
7632: CEF, USAF WESTOVER MIL.STD 188-141A ALE on USB. Sounding. Also 0512 0717. (DW)
7646: DDH7, Hamburg MET RTTY// 50/N/450 Met tfc. AAXX. (DW)
7650: PAR, ROCKWELL-COLLINS PARIS MIL.STD 188-141A ALE on USB. Sounding. Also at 1347z. (DW)
7650: LAB, ROCKWELL-COLLINS ?LOC MIL.STD 188-141A ALE monitored on USB. Sounding. (DW)
7668: 8BY, French INTEL Paris CW Marker "vvv 8BY 542/077/561/ 195/353." (DW)
7708: MILOLE, GABON RLWYS MILOLE MIL.STD 188-141A ALE monitored on USB. Sounding. (DW)
7761.8: ---, UNID PACTOR//100/-/200 Pact-I, std. "zczc oub uu ska". Thereafter only figs and "mapot" seem in plain language. Transfer slow. "nnnn" then "qsami" and SELCALs "ROUA" thru 2100Z. (DW)
7800: ---, UNID CW Offline encrypt in 5fig grps circa 20-22wpm. Uses opsig "imi." (DW)

7818: ALR, ALG 0+G ALRAR MIL.STD 188-141A ALE on USB. Sounding. (DW)
7824.5: ---, UNID CW(F1A-250HZ) End of bdcst/qso. Idle on space thru 1440Z. (DW)
7870: LN2A, SVEIO BEACON /USB Propo beacon. Data burst and CW ID "LN2A" (+1660Hz). Offair 0856Z. (DW)
7880: DDK3, Hamburg MET FAX//120/576/N/800 N/Atlantic + European sfc analysis with obs. (DW)
7885: 179, CHINESE DIPLO ?LOC MIL. STD 188-141A ALE on USB. Clng 162 followed by brief RT in Chinese. (DW)
7895: F3Z158, UNID, MIL.STD 188-141A ALE on USB. Sounding. (DW)
7960: FDG, FAF BORDEAUX CW Marker "vvv de FDG ar." (DW)
7977: W6FR, UNID CW "4BGV qtc zxu ar" repeated. Followed by offline encrypt (20wpm). Then faster in exchanges "ONAR", "Q9WX", "XKFF" - "de W6FR r 198?." (DW)
7983.7: ---, FF DAKAR ? ARQ/E3//48/E/400 8rc. Stuck in RQ loop thru 2245Z. (DW)
7990: LAB, ROCKWELL-COLLINS ?LOC MIL.STD 188-141A ALE on USB. Sounding. (DW)
7992: HSP, UK MIL/DIPLO HANSLOPE PARK MIL-STD 188-141A ALE on USB. Sounding. (DW)
8035: FL7HJB, UNID MIL.STD 188-141A ALE on USB. Sounding. Also 0703. (DW)
8040: GYA, RN NORTHWOOD FAX//120/576/N/800 400MB spot wind 24hr prog. Start tones 35sec ahead of schedule. (DW)
8103: 4XZ, IN HAIFA, CW Marker "vvv de 4XZ ==." (DW)
8330.3: RFVI, FF LE PORT ARQ/E3//100/E/170 8rc. Betas. Cct [VII] "oo RFVI" Possible c de v. Very slow transfer to eventually stuck in permanent loop. (DW)
8334: 5555, MOROCCAN MIL ?LOC MIL.STD 188-141A ALE on USB. Sounding. Also at 2340Z. (DW)
8397: ---, SHIP TEHNOLOG KONUHOW SITOR/A//100/E/170 Tfc in 3sc. DISP/1 report. (DW)
8413: UDOS TH Omskij-117 1118 ARQ svc msg to unkwn, prob Khabarovsk. (ML)
8414.5: ---, GMDSS ALERT CHANNEL DSC//100/E/170 84pkts in 3hr. Distress (call,ack,relays)/22. Unlstd Italian (247065500) qth 44.51N 13.50E nature undesig. Urgency/0, safety/38, illegals/24. C/stns logged Lyngby, HongKong, Olympia, Montevideo(?). (DW)
8417.5: XSV, TIANJIN RADIO CW Chan free marker "XSV." (DW)
8418: IAR, ROME RADIO CW Chan free marker "IAR." (DW)
8419: HEC, BERN RADIO CW Chan free marker "HEC." (DW)
8419: VIP, GW NODE PERTH CW Chan free marker (Globe Wireless) "VIP". QSX 8379. QRM from strong central carrier, regular break with CW ID(?)—something akin to HEC but corrupt. (DW)
8419: WLO, Mobile Radio CW Chan free marker "WLO." (DW)
8420.5: HEC,Bern Radio CW Chan free marker "HEC" then arq wkng ship (no tfc sent). Reverts to chan free marker (DW)
8421: WLO, Mobile Radio CW Chan free marker "WLO." (DW)
8421.5: VRX, Hong Kong Radio CW Chan free marker "VRX." (DW)
8421.5: LZW4, Varna Radio CW Chan free marker "de LZW LZW." (DW)
8422: ESA, TALLINN RADIO CW Chan free marker "de ESA." (DW)
8423.5: WLO, MOBILE RADIO CW Chan free marker "WLO." (DW)
8424: SVO, Olympia Radio CW Chan free marker "de SVO." (DW)
8425.5: HEC, Bern Radio CW Chan free marker "HEC." (DW)
8425.5: XSG, Shanghai Radio CW Chan free marker "XSG." (DW)
8427.5: A9M, Bahrain RADIO CW Chan free marker "de A9M tlx." (DW)
8428: NMN, USCG Portsmouth CW Chan free marker "NMN." (DW)
8429.5: IDR4, IN Rome RTTY//75/ N/850 CARB. Chan/idr2 active. (DW)
8430: RRR34, Moscow Radio CW Chan free marker "RRR34." (DW)
8431: TAH, Istanbul Radio CW Chan free marker "TAH" then into FEC for wx fcst in EE, and 2010 in TT. (DW)
8431: TAH, Istanbul Radio SITOR/B//100/E/170 wx fcst. (DW)
8431.5: UAT, Moscow Radio CW Chan free marker "de UAT." (DW)
8432.5: UFN, NOVOROSSIYSK RADIO CW Chan free marker "UFN." (DW)
8433: XSG, Shanghai Radio CW Chan free marker "XSG." (DW)
8434: TAH, Istanbul Radio CW Chan free marker "TAH." (DW)
8435: XSQ, Guangzhou Radio CW Chan free marker "XSQ." (DW)
8435.5: OST, OOSTENDE RADIO CW Chan free marker "OST." (DW)
8439: PBC38, DN Goeree Island RTTY//75/N/850 CARB. (DW)
8453: FUG, FN LA REGINE RTTY//75/N/850 Marker "FAA de FUG ry's sg's figs k." (DW)
8459: LSD836, GW NODE BUENOS AIRES CW Chan free marker (Globe Wireless) "LSD836". QSX 8311.5. Wkng ship in Globe Wirelessdata/dataplex. (DW)
88461: PKR Semarang rdo 0950 CW w/CQ CQ DE PKR PKR QSX CH 3/9 QRU? K. (ML)
8496: CLA20, Havana Radio CW Marker "CQ de CLA QSX c/11 8368/12552/16736 tx 8573 qsw CLA20 qrj c/1217 k." (DW)
8542: PKX Jakarta rdo 1000 CW w/CQ CQ CQ DE PKX PKX PKX QRU? K mkr, 1100 wx EE for Indonesian & adjacent waters. (ML)
8549: UCE, ARKHANGELSK RADIO SITOR/A//100/E/170 irs mode then QSLs (accepted) to UCOK. Reverts to chan free marker "kyky" without CW ID. (DW)
8551.5: CTP, PN LISBON RTTY//75/ N/850 Marker "NAWS de CTP QSX 04 08 12 16 MHz ar." (DW)
8557: SPB, SZCZECIN RADIO CW Chan free marker "SPB." (DW)
8594: LSD836, GW NODE Buenos AiresCW Chan free marker (Globe Wireless) "LSD836". QSX 8335.5. (DW)
8597: HEC, GW NODE BERN CW Chan free marker (Globe Wireless) "HEC" then wkng ship on 8346 in Globe Wirelessdata/dataplex. (DW)
8625.3: GYU, RN Gibraltar VFT// Two chan vft on USB. (DW)
8625.9: GYU, RN Gibraltar RTTY// 75/R/200 CARB "08a 12a GYU". Chan(1) in vft. (DW)
8638.5: DAO8, KIEL MAIL CW Idle mode bursts. Every 3 mins CW ID "CQ de DAO8. (DW)
8640.3: MGJ, RN FASLANE VFT// Four chan fleet bdcast vft on USB. (DW)
8642.1: MGJ, RN FASLANE RTTY// 75/N/340 CARB. Ch(3) in vft. Chan 03 active. (DW)
8670: IAR, ROME RADIO CW Marker "vvv de IAR k 4 8 12 16 22 MHz = we lsn 22 and reply on 17206.1 kHz." (DW)
8675.5: VCS, GW NODE HALIFAX CW Chan free marker (Globe Wireless) "VCS". QSX 8358. Wkng ship in Globe Wirelessdata/dataplex. (DW)
8677: CBV, VALPARAISO PLAYA ANCHA FAX//120/576/N/800 Sfc prognostic chart. Grainy. (DW)
8683.5: LFI, GW NODE ROGALAND CW Chan free marker (Globe Wireless) "LFI. Wkng ship on 8349 in Globe Wireless data/dataplex. (DW)
8686: PKF Ujungpandang rdo 0725 CW w/CQ CQ CQ DE PKF PKF PKD QRU? K mkr. (ML)
8698: 7TF6, BOUFARIK RADIO CW Marker "CQ de 7TF QSX 6/8/12/16 MHz = ." (DW)
8705.5: PKC Palembang rdo 0920 CW w/CQ CQ CQ DE PKC QRU? K mkr. (ML)
8705.5: LFI, GW NODE ROGALAND CW Chan free marker (Globe Wireless) "LFI". QSX 8317.5. (DW)
8867: N987GK (Mystere Falcon 900 reg'ed to Shadowfax LLC) working San Francisco ARINC (MWARA SP) with position report and is advised that upon arrival customs will be conducting a complete inspection of aircraft in USB at 1236Z. (CR)
8867: Hawaiian 466, (DC-10 NSTU to PHNL) working San Francisco ARINC (MWARA SP) to advise they are established back on course after deviation for WX in USB at 1320Z. (CR)
8867: Hawaiian 466 (DC-10 NSTU to PHNL) heard working San Francisco ARINC (MWARA SP) to accept ATC clearance to climb and maintain flight level 350 in USB at 1421Z. (CR)
8867: Qantas 25 (B747-438, reg. VH-OJJ, NZAA to LAX) wkg San Francisco ARINC (SP) at 1225Z in USB with position report and SELCAL check. (CR)
8867: United 842 (B777-222/ER, reg. N226UA, NZAA to LAX) calling Auckland

Radio (SP) with no response then calls San Francisco ARINC on 5.547.0 (CEP-2) for SELCAL check in USB at 1316Z. (CR)

8867: New Zealand 9 (B767-300/ER NZAA to PHNL) working San Francisco ARINC (SP) with position report in USB at 1224Z. (CR)

8912: PR1, US CUSTOMS ?LOC MIL.STD 188-141A ALE on isb. Sounding. (DW)

8942: ---, AIRCRAFT FLIGHT AY2358 HFDL//on USB. Posn 52.12N 4.43E. (DW)

8942: ---, AIRCRAFT FLIGHT LH8251 HFDL// on USB. Posn 52.8N 6.9E. (DW)

8942: ---, AIRCRAFT FLIGHT UP6807 HFDL// on USB. Posn 49.49N 10.17E. (DW)

8942: 07, ARINC SHANNON HFDL// on USB. Squitters. Operating on 8942/ 11384 kHz. (DW)

8965: 2000182, USAF AIRCRAFT C-17 00-0182 MIL.STD 188-141A ALE on USB. Sounding. (DW)

8977: ---, AIRCRAFT FLIGHT AY2710 HFDL// on USB. Posn 57.36N 26.19E. (DW)

8977: 03, ARINC REYKJAVIK HFDL// on USB. Squitters. Operating on 8977/ 11184/15025. (DW)

10046: 4XZ, IN HAIFA CW Marker "vvv de 4XZ==." (DW)

10048: Japan Air 48 (NGO to JFK to Sao Paulo) working San Francisco ARINC (MWARA NP-1) with position report and SELCAL check then is advised secondary will be 8.915.0 in USB at 1255Z. (CR)

10048: China Eastern 583 (MD-11 ZSPD to LAX) working San Francisco ARINC (MWARA NP-1) to advise unable to accept flight level 360 per ATC request at in USB at 1258Z. (CR)

10048: Varig 8837 (MD-11 RJAA to LAX) wkg San Francisco ARINC (MWARA NP-1) to provide revised estimate for reaching 170 east per ATC request in USB at 1321Z. (CR)

10087: ---, AIRCRAFT FLIGHT SV1418 HFDL// on USB. Log on (DLS) request for ICAO DB008E. Psn 26.18N 49.49E (DW)

10087: 14, ARINC KRASNOYARSK HFDL// on USB. Squitters. Operating on 10087 and 13321. (DW)

10100.8: DDK9, HAMBURG MET RTTY//50/N/450 Marker "cw de DDK2 DDH7 DDK7 frequencies 4583 kHz 7646 kHz 10100.8 kHz ry's". Warnings in EE and GG. (DW)

10144: DK0WCY R/AM BEACON CW Marker "DK0WCY". 1505 propo "info 05 jul 15 UTC keil K 3 forecasts 05 Jul sunact active magfield quiet" etc. (DW)

10210: ---, UNID PICC//VFT 2 chan Piccolo on USB. (DW)

10210.5: ---, UNID PICC// 10210.510. Eng chan(1) in vft. On standby thru 1400Z until off air. (DW)

10210.9: ---, UNID PICC// 10210.910 tfc chan (2) in vft. Mk6 6-tone. Encrypted. (DW)

10211: SP130P, ALG O+G PUMPING STATION MIL.STD 188-141A ALE on LSB. Sounding. (DW)

10215: HZN48, JEDDAH MET RTTY// 100/R/800 Met tfc. (DW)

10285: OHT30P, ALG O+G OHANET MIL.STD 188-141A ALE on LSB. Sounding. (DW)

10341: HEC, GW NODE BERN CW Chan free marker (Globe Wireless) "HEC" and wkng ships on 10238.5 in Globe Wirelessdata/dataplex. (DW)

10352: CENTR2, MFA Bucharest MIL.STD 188-141A ALE on USB. Clng ZPO, flwd by 188-110A, s/t, burst mode. Two stns alternating. Encrypted, opening xxxxq or xxxxp, short intlv, var bps 75-2400. (DW)

10352: ZPO, Romanian EMB ?LOC MIL. STD 188-141A ALE monitored on USB. Responding to CENTR2/Bucharest, then into 188-110A. (DW)

10493.7: ---, FF PORT BOUET? ARQ/E3// 48/E/400 8rc. Betas. No app tfc monitored before 2030Z. (DW)

10536: CFH, CF Halifax FAX// 120/ 576/N/800 Sfc analysis for NE Atlantic. (DW)

10536: CFH, CF Halifax RTTY// 75/N/800 Opening ID then met tfc. (DW)

10555: VMW, BOM WILUNA FAX// 120/576/N/800 Weak, grainy. Land area in black but remaining detail vague. 0800Z similar but slightly better chart. (DW)

10600: PAR, ROCKWELL-COLLINS Paris MIL.STD 188-141A ALE on USB. Sounding. (DW)

10658: 1020, RED CRESCENT ?LOC MIL.STD 188-141A ALE on USB. Sounding. (DW)

10873.7: RFVI, FF LE PORT ARQ/E3// 100/E/400 8rc. Betas. 1950 cct [REI] Controle de voie svc RFVI de RFVI. (DW)

10917.7: RFTJ, FF DAKAR ARQ/E3// 48/E/400 8rc. Betas. 1107 cct [TJF] Controle de V svc RFTJ de RFTJ. (DW)

10945: CFH, CF Halifax RTTY// 75/N/850 Marker "NAWS de CFH zkr fl 2822 3394 4167 6236 8303 12380 16576 22200 ar." (DW)

10945: 4RV, UNID MIL.STD 188-141A ALE on USB. Clng 7EU. 1005 clng 5QI, also at 1014 1017 1029. 1037Z sounding. 1045 clng 5QI. (DW)

10945: 4RV, UNID MIL.STD 188-110A on USB, 39 tone option? pilot on 394. After data brief encrypted RT followed by Mil.std 188-141A 4RV clng 7EU. (DW)

10945: 7DD, UNID MIL.STD 188-141A ALE on USB. Clng 8PD. (DW)

10991.7: RFFVAY, FF Sarajevo ARQ/342// 200/E/400 8rc. 2 chan tdm. Weak sync. Chans A: B: betas thru 1125 when faded. (DW)

11030: VMC, BOM Charleville FAX//120/ 576/N/800 gradient wind chart A. Noisy. (DW)

11145: LFI, GW NODE ROGALAND CW Chan free marker (Globe Wireless) "LFI". Wkngs ship in Globe Wirelessdata/dataplex on 10415 kHz. (DW)

11175: EAGLE 34 (B-1B, 77th BS "War Eagles", Ellsworth AFB) with p/p via GHFS McClellan to EAGLE OPS to discuss AR issues. (CR)

11175: REACH 401Y with p/p via GHFS Anderson to HILDA WEST to provide ETA to PGUM, load information, and PAX count followed by p/p to EXPO OKAY (DSN 312-779-xxxx). (CR)

11175: ROVING 12 with p/p via GHFS Elmendorf to Travis CP (ref.mission 6JR008W11217) to provide ETA of 1630Z to Travis and advises no cargo and 65 pax then p/p to Travis CP for arrival wx at Travis and 1900Z wx at Minot AFB. (CR)

11175: QUEST 21 (KC-10A, 60th AMW, Travis AFB) working San Francisco with a progress report. (CR)

11175: SHADOW 47 (MC-130P, 550th SOS, Kirtland AFB) with p/p via GHFS McClellan to COYOTE to request 2240 local slip for AR with JOLLY 86 in USB at 0335Z. (CR)

11175: TOTEM 31 (C-130H, 517th AS, Elmendorf AFB) with p/p via GHFS Hickam to ARCTIC WARRIOR (Elmendorf CP) to advise of three hour ETA to Elmendorf with alpha-2 status for inoperative radar and heater followed by p/p to Elmendorf Metro for arrival wx in USB at 1225Z. (CR)

11232: CANFORCE 4134 (very weak) checks-in with Trenton Military to advise of departure from Zagreb at 0840Z and requests wx for St.Johns in USB at 1221Z. (CR)

11282: NAVY RS 621 (DC-9, VR-61, NAS Whidbey Island) working San Francisco ARINC (MWARA CEP-2) with position and altitude report then is advised to contact Oakland Center at 127 west on 134.150 in USB at 2355Z. (CR)

11282: NAVY PD 610 (P-3C, VP-9, MCAF Kaneohe Bay) working San Francisco ARINC (MWARA CEP-2) with position report and request to climb from 210 to 230 in USB at 0024Z. (CR)

11282: NAVY RG 827 (C-20G, VR-51, MCAF Kaneohe Bay) working San Francisco ARINC (MWARA CEP-2) with request for clearance to occupy the block from flight level 420 to 450 in USB at 0417Z. (CR)

11282: GRIZZLY 11 (KC-135R, 196th ARS, March ARB) working San Francisco ARINC (MWARA CEP-2) with position report and advises established in the block from 210 to 230 in USB at 0144Z. (CR)

11282: TAHOE 41 (KC-135E, 314th ARS, Beale AFB) working San Francisco ARINC (MWARA CEP-2) with position report and advises established in the block from 240 to 270 in USB at 0256Z. (CR)

11282: NAVY RG 641 (C-20G, VR-51, MCAF Kaneohe Bay) working San Francisco ARINC (MWARA CEP-2) with request for clearance to climb and maintain the block from 410 to 450 in USB at 1850Z. (CR)

11282: AIR FORCE RESCUE 126 working San Francisco ARINC (CEP-2) with position report and requests clearance to climb to 150 or 190 then estimates Moffett at 0304Z in USB at 0125Z. (CR)

11384: New Zealand 32 (B767-300 Osaka to Aukland) working San Francisco ARINC (MWARA CWP-2) to accept ATC clearance to climb and maintain the block from flight level 330 to 350 in USB at 1357Z. (CR)

11384: Asiana 601 (B777-28E/ER Seoul to Sydney) working San Francisco ARINC

(MWARA CWP-2) with request for clearance to climb and maintain 350 in USB at 1416Z. (CR)

11396: Qantas 78 (B767-338ER HKG to SIN to QSY) working Jakarta Radio (SEA-2/3) with position report and SELCAL check in USB at 1323Z. (CR)

11396: Qantas 10 (B747-438 Singapore to YSSY) working Brisbane Radio (MWARA SEA-3) with position report and request for clearance to climb and maintain flight level 350 in USB at 1402Z. (CR)

11396: Speedbird 15 (B747-400 LHR to SIN to SYD) wkg Jakarta Radio (MWARA SEA-3) with position report and request to maintain mach speed .84 in USB at 1448Z. (CR)

11396: Qantas 18 (B747-438 Singapore to Sydney) working Jakarta Radio (SEA-3) with position report and SELCAL check in USB at 1336Z. (CR)

12235: P5O UNID Indonesian Mil 0755 CW w/VVV P5O 1/2/3/4 mkr, 0800 5LG msgs for 7CB & 7CJ. (ML)

12510: XUFU3 M/V Pasifik Briz 0914 ARQ w/KYPS SELCAL & UFZ DE XUFU PASIFIK BRIZ log on to Vladivostok, nil tfc. (ML)

12564: UBIR M/V Matvei Kuzmin 1107 ARQ w/VVOCZ seq SELCAL & 53456 UBIR log on to Petropavlovsk Kamchatskiy, no tfc. (ML)

12564.5: UDKS, SHIP K EDEMSKIJ 3SC// 50/R/170 tfc in 3SC, and s/off. (DW)

12565: UDHM, SHIP BMRT 566 3SC// 50/R/170 tfc in 3SC. Formatted reports, inc psn 72.45N 07.57E. (DW)

12570: UBCT RTMS Geya 0950 ARQ w/KYPS SELCAL, 54669 UBCT log on & crew msgs to Vladivostok. (ML)

12570: UDFA SRTM Iklarand 0930 ARQ w/SRTM IKLARAND/UDFA log on & tfc to Vladivostok, UDFA log off. (ML)

12570: UGWM TK Ust'-kut 1047 ARQ tfc to Vladivostok. (ML)

12574: UEPZ, SHIP AW-7580 3SC//50/ R/170 Clng UDK/2 (Murmansk). Report in 3SC, inc psn 6117N 2830W. (DW)

12574: UCBD, SHIP MB-0356 3SC//50/ R/170 tfc in 3SC. (DW)

12574: ---, SHIP MI-716 3SC//50/R/170 tfc in 3SC. (DW)

12612.5: UFZ Vladivostok rdo 0916 ARQ msg to XUFU3 Pasifik Briz. (ML)

12654: TAH, Istanbul Radio SITOR/ B//100/E/170 wx fcst EE then in TT. (DW)

12704.5: PKD Surabaya rdo 0000 CW w/CQ CQ DE PKD PKD QSW 12552/12554KHZ QRU? K mkr. (ML)

12771.8: 7TF, Skikada Radio, CQ in CW at 0615. (RW)

12800.4: TAH, Istanbul Radio, 0200 CW, sending CQ. (RW)

12970.5: PKX Jakarta rdo 1100 CW w/QSWs of 470/8542/12970.5 kHz to wx EE for Indonesian & adjacent waters. (ML)

12987: UNID Indonesian Mil 0620 CW w/VVV 7CE 7CE VV 7CA 7CA 1/2 mkr to 5LG msgs. (ML)

13002: HEC, GW NODE Bern CW Chan free marker (Globe Wireless) "HEC" and wkng ships in Globe Wirelessdata/dataplex on 12430. (DW)

13015.5: IAR, Rome Radio CW Marker "vvv de IAR K 4 8 12 16 22 MHz—we lsn 22 and reply on 17206.1 kHz." (DW)

13022: SPB, SZCZECIN RADIO CW Chan free marker "SPB"—slightly rough note or overdriven. (DW)

13031.2: FUF, FN FT DE France RTTY// 75/R/850 Marker "de FUF testing ry's sg's figs testing de FUF". (DW)

13033.5: VCS, GW NODE Halifax CW Chan free marker (Globe Wireless) "VCS". Wkng ships in Globe Wireless/ dataplex on 12463. (DW)

13149: ASI, UK MIL/DIPLO ASCENSION MIL.STD 188-141A ALE tuned on USB. Sounding. (DW)

13149: CYP, UK MIL/DIPLO EPISKOPI MIL.STD 188-141A ALE heard on USB. Sounding. (DW)

13149: KUW, UK MIL/DIPLO Kuwait MIL. STD 188-141A ALE monitored on USB. Sounding. (DW)

13149: PRI, UK MIL/DIPLO PRISTINA MIL.STD 188-141A ALE on USB. with sounding. (DW)

13215: 200173, USAF AIRCRAFT C-17 00-0173 MIL.STD 188-141A ALE on USB. Sounding. At 1351Z clng CRO/ Croughton. 1423, 1508 sounding. (DW)

13215: 230601, USAF AIRCRAFT C-17 93-0601 MIL.STD 188-141A ALE on USB. Sounding. (DW)

13215: 280049, USAF AIRCRAFT C-17 98-0049 MIL.STD 188-141A ALE on USB. Clng CRO/Croughton. (DW)

13215: 290061, USAF AIRCRAFT C-17 99-0061 MIL.STD 188-141A ALE on USB. Clng ADW/Andrews. 2159 clng HAW/Ascension. (DW)

13215: 19008, USAF AIRCRAFT C-5 69-0008 MIL.STD 188-141A ALE on USB. Sounding. (DW)

13215: 100453, USAF AIRCRAFT C-5 70-0453 MIL.STD 188-141A ALE on USB. Sounding. (DW)

13215: 1A90008, USAF AIRCRAFT ? MIL.STD 188-141A ALE on USB. Sounding. (DW)

13215: ADW, USAF ANDREWS MIL.STD 188-141A ALE on USB. Sounding. Also 2133 2152. (DW)

13215: HAW, USAF ASCENSION MIL. STD 188-141A ALE on USB. Also at 2118 2148 2152. (DW)

13215: USAF DIEGO GARCIA MIL.STD 188-141A ALE on USB. Sounding. (DW)

13215: PLA, USAF LAJES MIL.STD 188-141A ALE on USB. Sounding. (DW)

13215: JNR, USAF ROOSEVELT ROADS MIL.STD 188-141A ALE on USB. Sounding. Also 2016 2144 2214Z. (DW)

13215: CEF, USAF WESTOVER MIL.STD 188-141A ALE on USB. Sounding. Also 2137. (DW)

13215: MPA, USAF ?LOC MIL.STD 188-141A ALE on USB. Also 2131. (DW)

13321: 14, ARINC KRASNOYARSK HFDL// on USB. Squitters. Operating on 10087/13321 kHz. (DW)

13354: Aloha 474 (B737-700 POGG to OAK to LAS) working San Francisco ARINC (CEP-1) at 0108Z in USB to request block altitude 380 to 400 followed by ATC clearance to occupy the block. (CR)

13354: Delta 1579 (B767-400 SLC to LAX to HNL) working San Francisco ARINC (CEP-1) with position report and is advised to contact Honolulu Center on 126.600 in USB at 0213Z. (CR)

13442: 055, E ASIAN NET? MIL.STD 188-141A ALE on USB. Sounding. (DW)

13444.2: RFQP, FF DJIBOUTI ARQ/E3// 100/E/400 8rc. Betas. Cct[DJI] tfc in FF. 1413Z Controle de voie svc RFQP de RFQP, also at 1501Z, 1531Z. (DW)

13455: SCLC442, Venezuelan Army ?LOC MIL.STD 188-141A ALE on USB. Clng CLC. (DW)

13455: CLC44, Venezuelan Army ?LOC MIL.STD 188-141A ALE on USB. Clng SCLC442. (DW)

13457: FAAZMA, US FAA MIAMI MIL.STD 188-141A ALE on USB. Sounding. Also at 2106 2211. (DW)

13475: CDDA, Venezuelan Navy ?LOC MIL.STD 188-141A ALE on USB. Clng MARGARITA. (DW)

13503.6: KMN94, US DOS FT Lauderdale MIL.STD 188-141A ALE on USB. Sounding. Also 2124 2154. (DW)

13503.6: KMN93, US DOS Springfield MIL. STD 188-141A ALE on USB. Sounding. (DW)

13510: CFH, CF Halifax FAX//120/ 576/ N/800 Sig wx chart. (DW)

13510: CFH, CF Halifax RTTY//75/ N/850 Met tfc. (DW)

13530: BRIM1, Colombian Navy ?LOC MIL.STD 188-141A ALE on USB. Clng CESYP. (DW)

13530: AFS, USAF AWS OFFUTT RTTY// 75/N/850 Met tfc. (DW)

13572.5: ---, FF Paris ? ARQ/E// 184.7/ I/400 8rc. Betas. No app tfc thru 2359Z. (DW)

13593.7: ---, FF Paris ? ARQ/E3// 192/E/400 8rc. Betas. Offair 0947 w/o opchat, restored 0953. No tfc thru 1030Z. (DW)

13630: FAAZMA US FAA Miami MIL.STD 188-141A ALE on USB. Sounding. (DW)

13630: FAAZMP, US FAA Minneapolis MIL.STD 188-141A ALE on USB. with sounding. (DW)

13650: TUD, Tunisian MIL/MOI ?LOC MIL.STD 188-141A ALE on USB. Clng STAT3. (DW)

13850: PAR, ROCKWELL-COLLINS Paris MIL.STD 188-141A ALE on USB. Sounding also at 1908Z. (DW)

13855: OXT, Copenhagen MET FAX//120/ 576/N/800 Ice chart. (DW)

13879: DEPT, Moroccan MOI ?LOC MIL.STD 188-141A ALE on LSB. Sounding. (DW)

13879: DG, Moroccan MOI ?LOC MIL.STD 188-141A ALE heard on LSB. Sounding. (DW)

13882.5: DDK6, Hamburg MET FAX/ 120/576/N/800 Schedule. (DW)
13885.9: ---, Moscow MET FAX// 120/ 576/N/800 End of chart—prognosis 400hPa. 1047z sfc analysis/stn obs for Scandinavia/W Russia. (DW)
13900: DEPT, Moroccan MOI ?LOC MIL.STD 188-141A ALE on LSB. Sounding. Also 1104. (DW)
13900: DG, Moroccan MOI ?LOC MIL.STD 188-141A ALE on LSB. Sounding 1122Z. (DW)
13900: BMF, Taipei MET FAX//120/ 576/ N/800 End of chart. 2000Z 200hpa 48hr wind prog. Grainy. (DW)
13907: CS5, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding. (DW)
13907: PR1, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding. Also 0245 0331 0416Z. (DW)
13907: CS1, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Also 0259 0430 0515Z. (DW)
13907: CS3, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding. Also 0347 0432 0517Z. (DW)
13907: CS9, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding. Also 0323 0454. (DW)
13907: CS6, US CUTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding. (DW)
13920: VMC, BOM CHARLEVILLE FAX//120/576/N/800 Gradient wind chart B. Weak/noisy. (DW)
14640.7: 8AA Indonesian Nvy Jakarta 0700 CW w/CP CP CP DE 8AA 8AA 8AA to Directorate of Sea Transport tfc (ML)
15603: 106, Chinese NET ? MIL.STD 188-141A ALE on USB. Clng 141. (DW)
15603: ASI, UK MIL/DIPLO ASCENSION MIL.STD 188-141A ALE heard on USB. Sounding. (DW)
15603: DLL, UK MIL/DIPLO DHEKELIA MIL.STD 188-141A ALE monitored on USB. Sounding. (DW)
15603: CYP, UK MIL/DIPLO EPISKOPI MIL.STD 188-141A ALE on USB. Sounding. (DW)
15603: KUW, UK MIL/DIPLO Kuwait MIL.STD 188-141A ALE on USB. Sounding. (DW)
15603: PRI, UK MIL/DIPLO PRISTINA MIL.STD 188-141A ALE on USB. Sounding. Also 2019. (DW)
15615: VMW, BOM WILUNA FAX// 120/576/N/800 Sea/swell chart. (DW)
15615: VMW, BOM WILUNA FAX//120/ 576/N/800 Textual product. Current wrngs summary. 0824Z off air midchart. 0831, nxt startup ok, but signal fading. (DW)
15633: HMF26, KCNA PYONGYANG RTTY//50/R/250 Marker "qra de freq 10580 /8152/ 15633/ 11430 kHz k.c.n.a. pyongyang ry's" 320Hz high. 0958Z press in EE. (DW)
15820: S53, Swedish Emb AMMAM MIL.STD 188-141A ALE on USB. Also 1453 1832. (DW)
15851: FAAZBW, US FAA Boston MIL. STD 188-141A ALE on USB. Sounding. (DW)
15860: S00, MFA Stockholm MIL.STD 188-141A ALE on USB. Clng S97/Abidjan. (DW)
15860: S97, Swedish Emb ABIDJAN MIL.STD 188-141A ALE on USB. Sounding. Also 1613 1653 1733 1816 2018. (DW)
15867: FL2, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding. Also 2102. (DW)
15867: CS9, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding. (DW)
15867: CS1, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding. Also 1937. (DW)
15867: CS5, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding. (DW)
15867: D90, US CUSTOMS ?LOC MIL.STD 188-141A ALE on USB. Sounding. (DW)
15877: DKL, UK MIL/DIPLO DHEKELIA MIL.STD 188-141A ALE on USB. Sounding. Also 1822 1952. (DW)
15877: CYP, UK MIL/DIPLO EPISKOPI MIL.STD 188-141A ALE on USB. Sounding. Also 1706 1848 2039. (DW)
15877: HSP, UK MIL/DIPLO HANSLOPE PARK MIL.STD 188-141A ALE on USB. Sounding. (DW)
15877: KUW, UK MIL/DIPLO KUWAIT MIL.STD 188-141A ALE on USB. Sounding. Also 1837 2019. (DW)
15877: PRI, UK MIL/DIPLO PRISTINA MIL.STD 188-141A ALE on USB. Sounding. Also 1612 1753 1939. (DW)
15877: ASI, UK MIL/DIPLO SCENSION MIL.STD 188-141A ALE on USB. Sounding. Also 2002. (DW)
15920: CFH, CF Halifax RTTY// 75/N/850 Marker "NAWS de CFH zkr f1 2822 3394 4167 6242 8303 12380 16576 22200 ar" thru 1316Z. (DW)
15940: OLZ88, MFA PRAGUE MIL.STD 188-141A ALE on USB. Sounding. 0845 Clng OLZ65/UNID. (DW)
15988: DDK7, Hamburg MET RTTY//50/ N/440 Met tfc (obs) then marker "CQ de DDK8 DDK7 frequencies 11638 kHz 15988 kHz ry's." (DW)
15988: DDK, Hamburg MET RTTY//50/ N/450 Met tfc. (DW)
16785: UEPZ SHIP AW-780 3SC//50/ R/170 tfc in 3SC. Report (weak, corrupted). (DW)
16789.5: ---, SHIP UNID SITOR/B// 100/E/170 Relay by Philippine ship of PNA press in Tagalog. Closes with "Resend by: r2cr(cahayan de oro city) delta 4 (naess)." (DW)
16792: ---, SHIP UNID SITOR/A// 100/E/ 170 SELCALs TPETPVV. Weak. (DW)
16801.5: LYOX RTMS Sakalas-1 0726 RTTY 50/170 clg Kaliningrad UIW DE LYOX to tfc, LYOX s/off (ML)
16804: ---, SHIP UNID 3SC//50/R/170 Tfc in 3SC. End of msg. (DW)
17175.2: UFL Vladivostok rdo 0800 FEC tfc list, exchange rates & blind tfc. (ML)
17239.7: PKD Surabaya rdo 0140 CW w/CQ CQ DE PKD PKD QSX 16735.0KHZ AND 16737.5KHZ QRU? K. (ML)
17239.7: PKX Jakarta rdo 0600 CW w/CQ CQ CQ DE PKX PKX PKX QRU? K mkr. (ML)
17946: American 129 (B777-223/ER SJC to RJAA) working San Francisco ARINC (MWARA NP-2/3) to accept ATC clearance to climb and maintain flight level 370 in USB at 2337Z. (CR)
17946: United 851 (B777-200/ER ORD to ZBAA) working San Francisco ARINC (MWARA NP-2/3) with initial position report and SELCAL check in USB at 2331Z. (CR)
18060: VMW, BOM WILUNA FAX// 120/576/N/800 500hPa streamline analysis. Good/fair fading thru course of chart. (DW)
18980: P5O UNID Indonesian Mil 0755 CW w/VVV P50 1/2/3/4 mkr, 0800 tfc in Indonesian. (ML)
18980: ???? BATM Mars 0702 ARQ msg to Kaliningrad. (ML)
20469: VMC, BOM Chareleville FAX// 120/576/N/800 Weak/noisy. Analysis. Shows typhoon developing E of Philippines. (DW)
20550: YT315A, Chinese DIPLO MIL.STD 188-141A ALE on USB. Clng ZT201A. Flwd by brief RT in SS using "cambio". 0944z qso btwn YL/OM in SS thru 0947Z—assuming not related. (DW)
20550: ZT201A, Chinese DIPLO ?LOC MIL. STD 188-141A ALE tuned on USB. Clng YT315A. (DW)
20550: YT315A, Chinese DIPLO ?LOC MIL.STD 188-141A ALE on USB. Clng ZT201A. (DW)
20550: YT315A, Chinese DIPLO ?LOC MIL.STD 188-141A ALE on USB. Clng ZT201A. (DW)
20550: RELJADI, Moroccan MIL MIL.STD 188-141A ALE on USB. Clng ETATMA-JOR. (DW)
22126: ---, UNID RTTY//50/R/170 "nnnn" and end of transmission. (DW)
22311: UDSA RTMKS Maironis 0635 ARQ crew msgs to Kaliningrad. (ML)
22311: ELQZ5, SHIP FROST-1 SITOR/ A//100/E/170 In irs mode. "fone x+?". Wkng Kaliningrad/UIW, with op[chat and tfc. (DW)
22352: ---, SHIP UNID 3SC//50/R/170 Tfc in 3SC. Long report (medical?) w/daily sections. Signed "Fmed Bereznak" and "FM Zwwezda 4er." (DW)
22380.5: CBV, VALPARAISO RADIO CW Chan free marker "CBV." (DW)
22387.5: SVO, OLYMPIA RADIO CW Chan free marker "de SVO." (DW)
22403: UIW, KALININGRAD RADIO CW Chan free marker "de UIW KLD". 0720Z arq wkng ship Frost-1/ELQZ5. (DW)
22447: RFQPME, FN DJIBOUTI RTTY// 75/N/850 Marker "OO FAAA de RFQPME znr uuuu zui testing ry's sg's figs." (DW)
22456: A9M, GW NODE Bahrain CW Chan free marker (Globe Wireless) "A9M". Wkng ship in 22223.5 kHz in Globe Wireless data/dataplex. (DW)
22537: FUF, FN FT DE France RTTY// 75/N/850 Marker "de FUF testing ry's sg's figs testing de FUF." (DW)

22575.5: PKX Jakarta rdo 0150 CW w/CQ CQ CQ DE PKX PKX PKX QRU? K (ML)
22590: VCS, GW NODE HALIFAX CW Chan free marker (Globe Wireless) "VCS" QSX 22246.5. Wkng ship in Globe Wirelessdata/dataplex. (DW)
22600: LSD836, GW NODE Buenos Aires CW Chan free marker (Globe Wireless) "LSD836". Wkng ship on 22259.5 kHz in Globe Wirelessdata/dataplex. (DW)
22847.4: CPK, GW NODE Santa Cruz CW Chan free marker (Globe Wireless) "CPK". Wkng ship on 22151.4 kHz in Globe Wirelessdata/dataplex. (DW)
22853.4: CPK, GW NODE Santa Cruz CW Chan free marker (Globe Wireless) "CPK". QSX 22157.4 kHz. (DW)
22928.6: S97, Swedish Emb ABIDJAN MIL.STD 188-141A ALE on USB. Sounding. Also 0732Z. (DW)
25120: I5, Moroccan NET ? MIL.STD 188-141A ALE on USB. Clng 01. (DW)
25120: U7, UNID MIL.STD 188-141A ALE on USB. Clng J501. (DW)
25120: B1, UNID MIL.STD 188-141A ALE on USB. Clng DP2. (DW)
25120: DP2, UNID MIL.STD 188-141A ALE on USB. Clng GLOBAL. Also heard at 1303Z. (DW)
25222: S00, MFA Stockholm MIL.STD 188-141A ALE on USB. Sounding. (DW)
25222: S72, Swedish Emb KINSHASA ALMIL.STD 188-141A ALE on USB. Sounding. Also 1650Z. (DW)
26161.4: CPK, GW NODE Santa CruzCW Chan free marker (Globe Wireless) "CPK". QSX 25086.4. (DW)
26170.4: CPK, GW NODE Santa CruzCW with chan free marker (Globe Wireless) "CPK." (DW)
26241.7: RFVI, FF LE PORT ARQ/E3// 100/E/400 8rc. Betas. No tfc thru 1412Z. (DW)

Our few, but appreciated, contributors this month are:

Col DX (RW)
Craig Rose (CR)
Murray Leman (ML)
Day Watson (DW)

Many thanks to each of you for your great assistance by sharing your logs.

Next Month

More changes are in the future and I plan on introducing three more assistant editors to you over the coming months. Frankly I've been batting zero so many times with my predictions as to what the topic is going to be (how many months was it going to be the Coast Guard?) that I am going to give it a few months and I'll have everything back under control.

Don't forget what I said at the beginning of the column—you are welcome to make your own contributions in the form of letters, logs, or articles. Remember that I am here to fix up any problems, so don't be worried about making the first draft perfect. I'll work with you to make the project a success.

In the meantime, continue to say a prayer for our security forces—local police and fire fighters, as well as the military services overseas. Each and every one of them is appreciated for everything they do. ■

HF Aero Voice Frequencies (Pacific Area)

Note: All transmissions in USB and all frequencies in kHz

LONG DISTANCE OPERATIONAL CONTROL
3013
6640
11342
13348
17925
21964

CENTRAL WEST PACIFIC NETWORK
2998
4666
6532
8903
11384
13300
17904
21985

NORTH PACIFIC NETWORK
2932
5628
5667
6655
8915
8951
10048
11330
13273
13339
17946
21925

SOUTH PACIFIC NETWORK
3467
5643
8867
13261
17904

CENTRAL EAST PACIFIC (ONE NETWORK)
3413
3452
5574
6673
8843
10057
13354

CENTRAL EAST PACIFIC (TWO NETWORK)
2869
5547
11282
13288

overheard

by Ken Reiss, <radioken@earthlink.net>

strategies and techniques to keep YOU informed

A Brief History Of Scanning: Part II

Last month we started on a trip down memory lane with some of the older radios that have been a significant part of the hobby over the years. This month, we'll continue with the beginning of the "modern" receiver.

Digital frequency entry is probably the single most important factor to distin-

The Yaesu FRG-9600 represents one of the first communications receivers offered to the consumer market. Unfortunately, it left users with that "What were they thinking?" feeling. Coverage was from 60–905 MHz, completely ignoring the low VHF portion of the band. Scanning with this receiver was limited to 10 channels at a time and even that was slow and awkward. It was, however, an excellent receiver and was somewhat popular in that role. It also was one of the earliest, if not the first, receivers to include a computer interface option: the Yaesu CAT interface. If you're familiar with ScanCat, this was the first receiver that ScanCat controlled (which was a much-welcomed addition to the poor scanning capabilities of this receiver) and is where the name ScanCat comes from!

Another communications receiver that was slightly ahead of its time was the AR-3000, which can still be bought today. Performance on this little wonder is quite good. Its size makes it an ideal mobile communications receiver if you need such a unit.

One of the sneaky things that was beginning to happen in the early '80s was public safety users moving to the 800-MHz band that scanners didn't cover. It was quite stealth for some time. This BC-800 was one of the first commercial receivers to include that 800-MHz public safety band and was a big hit in areas where the switch had been made.

The RadioShack PRO-43 is another classic receiver. The ECPA (Electronic Communications Privacy Act), which was the first law dealing with restrictions on listening to cellular phone frequencies, required new radios, so there were lots in 1986. The PRO-43 fixed a bunch of problems that were present in earlier designs and represented a truly great handheld in a package that was easy to carry. While not perfect by any means (they were still subject to scanner overload and interference like most wide-band receivers in those days), it was a giant leap forward and a favorite of many scanner enthusiasts.

Some receivers didn't have to be discontinued in 1986 because they weren't affected by the new anti-monitoring law. This Realistic PRO-2021's coverage stopped at 512 MHz, so it was in their lineup for several more years.

Here's a classic base station receiver. A radical new front panel design, which you either loved or hated, was the main feature of this receiver. Released in 1987, it had the dubious distinction of being the first blocked receiver. It didn't take enthusiasts long to find which diode to clip to fix that little ailment, and the PRO-2004 went on to be quite a favorite for many years.

No history of scanning would be complete without this receiver either. The RadioShack PRO-2006 was a follow-on to the now famous 2004/2005 series. Featuring 400 channels and easily unblocked, this receiver was the top of the Realistic line for many years. Many add-on and aftermarket products were made for this receiver (as well as the rest of the 2004/5/6 line), including the CE-232 interface made famous by Bill Cheek and the Optoscan interface from Optoelectronics. Both provided for computer interface with the radio in one way or another. The Optoscan 456 Lite is still available if you have an old 2005 or 2006 sitting in the closet!

The state of the art in handheld communications receivers was advanced a long way in one step with the introduction of the AOR AR-8000 receiver. The newer 8200 and its mobile cousin, the 8600, are both in MK2 versions (second generation) and both are excellent receivers today! You did have to forget just about everything you knew about how a scanner works to run this receiver, and many users gave up in frustration or resorted to programming the radio with a computer.

This early workhorse was one of the first models to include "Service Search" recognizing that most frequencies were assigned based on the use of the agency. Today, service search has to be used with a grain of salt as anyopen frequency can be requested by a licensee.

Yupiteru decided not to bring their line of receivers to the U.S. market, but they were quite popular in Europe and Canada. These came along prior to the AR-8000 series and represented the first truly wide-band, full-coverage receiver in a handheld unit. The 7100 was probably one of their more popular lines. This receiver is still available from some deaers in Europe.

This R2 handheld is probably one-third the size of many of the earlier units, and the features and performance will run rings around the old stuff. We definitely don't want to go back to the "good old days" of receivers!

guish this crowd from last month's. It's probably also one of the most important features ever added to scanners. It made scanning much easier and more accessible for everyone, without the added cost of a new crystal every time you want to change channels.

Frequency Of The Month

Our local scanner club met recently and my good friend Ray came up and said, "You never have a frequency of the month that I can hear!"

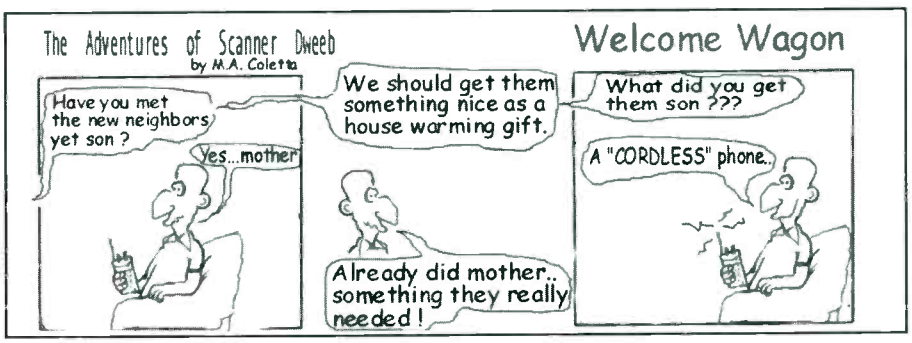
So I said, "Ray, you can still send a letter and tell me that you *didn't* hear anything and you'll be entered in the contest." Ray responded "Yeah, but that's no fun."

"What frequency is your local police on, Ray?" I asked.

"453.225," he responded.

So, our frequency this month is 453.225. Ray should be happy (and you'd better send in the entry, Ray!)—and everyone else, well, let's see what you hear. Send it in and we'll enter you into our drawing for a one-year subscription to *Pop'Comm*! Please note that I have a new e-mail address effective immediately. The old AOL address will still work, but please send all entries and questions to the new address which is <radioken@earthlink.net>, or via snail mail at ever-increasing rates, to Ken Reiss, 9051 Watson Rd, #309, St. Louis, MO 63126.

Got a scanner frequency you'd like to see in the "Frequency of the Month"? As you can see, I'm open to suggestions. Got a question? You can send those to the addresses above, too. Until next month, Good Listening! ■



the propagation corner

by Tomas Hood, NW7US
<pc-prop-man@hfradio.org>

up-to-the-minute forecasts helping you get the most from the radio spectrum

Summer And Winter SW Radio Reception—Any Difference?

What is the difference between summer and winter shortwave radio reception? Are conditions better in the winter?

A change in propagation conditions in the northern hemisphere can be observed as we move away from the long sunlit days of summer into the longer hours of winter's darkness. But the change in the length of daily darkness is not the *only* influence on the propagation of radio waves through the atmosphere. The amount and strength of radiation arriving and passing through our atmosphere varies from season to season, as well as from the solar cycle minimum to the solar cycle maximum.

During the northern hemisphere's winter months, the earth is closer to the sun than during any other time of its orbit. This makes the daytime ionization more intense than during summer daytimes. Think of a wood stove, where you open the front door to add more fuel to the fire. When you open the door and are very close to the fire, you feel intense heat; when you close the door and back away, the heat decreases. This is much like the position of the earth in the winter—closer to the sun than during the summer—but the "door" is only open during the short period of daylight. With the more intense ionization during winter's daylight hours, and with the denser atmosphere due to colder temperatures, the radio waves refracted off of the ionosphere are relatively *higher* in frequency than those of summer. During the longer winter hours of darkness, the ionosphere has more time to lose its electrical charge. These conditions cause a wide daily variation in the maximum frequency that can be refracted by the wintertime ionosphere.

Common Shortwave Bands And Frequencies

Band	Frequency
120 meters	2.3–2.495 MHz
90 meters	3.2–3.4 MHz
75 meters	3.9–4.0 MHz
60 meters	4.75–5.06 MHz
49 meters	5.9–6.2 MHz
41 meters	7.1–7.35 MHz
31 meters	9.4–9.9 MHz
25 meters	11.6–12.1 MHz
22 meters	13.57–13.87 MHz
19 meters	15.1–15.8 MHz
16 meters	17.48–17.9 MHz
15 meters	18.9–19.02 MHz
13 meters	21.45–21.85 MHz
11 meters	25.6–26.1 MHz

Maximum Usable Frequency (MUF)

At any given time during the day, a fairly wide range of frequencies will be refracted from the ionosphere. The highest frequency that will still be refracted by the ionosphere is called the *critical frequency*, or *Maximum Usable Frequency* (MUF). This critical frequency varies with the amount of ionization at the point where it enters the ionosphere. In winter months, the noticeable rise in this critical frequency brings a steady parade of DX signals through the higher shortwave bands during the day.

When ultraviolet radiation from the sun penetrates through the outer atmosphere, it ionizes the various gases found there. Ionization causes electrons of neutral gas atoms to become detached, leaving the originally neutral gas atoms unbalanced, with an excess of positive charge. Such unbalanced atoms are referred to as positive ions. Since it takes the radiation of the sun to charge up the ionosphere, a *lack* of radiation that occurs during hours of darkness causes the ionized gases to lose their charge. This allows the detached electrons to recombine with the positive ions, forming balanced, neutral gas atoms. This process, the opposite of ionization, is called *recombination*.

In the summer, the long hours of sunlight keep the ionosphere from recombining, but because the heating of the gases causes the layers to expand and thin out, the daytime critical frequency is generally lower than during the winter. But, the nighttime critical frequencies of summer are typically higher than nighttime critical frequencies during the winter. This gives us better nighttime DX in the summer, but better daytime DX in the winter over paths that propagate through sunlight regions. In addition, winter nights are far quieter on lower shortwave bands due to the seasonal low in tropical storms, and because the lower critical frequencies won't propagate as much of the atmospheric and man-made noises.

It is the combination of these conditions that cause many radio enthusiasts to celebrate the arrival of the winter shortwave season. From October through November, 2002, we will see a steady improvement in the shortwave bands.

Current Solar Cycle 23 Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean radio flux of 175 for July, up from June's 149. The 12-month smoothed 10.7-cm radio flux centered on January, 2002, is 195, up a point from December 2001. Predictions for October 2002 call for a 10.7-cm radio flux of 135, with a high expected of 152 and a low of 118. In November, expect a radio flux of 129, with a high of 148 and a low of 110.

The Royal Observatory of Belgium, the world's official keeper of sunspot records, reports an observed monthly mean sunspot number of 100 for July, 2002, up from 89 for June. The 12-month running smoothed sunspot number centered on January, 2002, is 114, one point down from December. The sunspot minimum for July, 2002, was 52 on July 12. The sunspot maximum of 192 occurred on July 28. The predicted sunspot count for October, 2002, is 81, with a high of 93 and a low of 69. In November, we expect the sunspot count to be 76, with a high of 89 and a low of 63.

The observed monthly mean planetary A Index (Ap) for July 2002 is 13, up a bit

from an Ap of 11 for June. The 12-month smoothed Ap index centered on January, 2002, is 12. Expect a seasonal decrease in the Ap through November, with less storminess than what we observed in the late summer season.

November Propagation

Paths on 31 through 19 meters are becoming ever more reliable between North America and Europe in the morning, and between North America and Asia during the late afternoon hours. The strongest openings occur for a few hours after sunrise and during the sunset hours. Thirty-one and 25 meters will often remain open into many areas late into the night and will open early in the morning, especially when part of the propagation path moves through sunlit regions. Twenty-two and 19 may still offer nighttime paths, though these will become less reliable later in November.

Thirteen and 16 meters will be open reliably during most days through October and November when flux levels remain above 120. Paths from Europe and the South Pacific as well as from Asia, at least during days of higher solar flux levels, are common, especially on 16 meters. Look for best conditions from Europe and the northeast before noon and from the rest of the world during the afternoon hours. Reception from the South Pacific, Australia, New Zealand, and the Far East should be possible well into the early evening. When flux levels fall below 120, though, these openings may be short.

Nineteen and 22 meters compete with 16 for the best daytime DX band during October and into November. Twenty-five and 19 will become the hot daytime DX bands during November. They will open for DX just before sunrise and should remain open from all directions throughout the day, with a peak in the afternoon. Nighttime conditions will favor openings from the south and tropical areas. Since the southern hemisphere has long daylight hours, DX paths on these bands from stations in the south will be common.

The all-season bands, 31 and 25 meters, are crowded. Signals are usually very strong and steady. Twenty-five meters is expected to be an excellent band for medium distance (500 to 1,500 miles) reception during the daylight hours. Longer distance reception (up to 2,000 to 3,000 miles) should be possible for an hour or two after local sunrise and again during the late afternoon and early evening. Heavy congestion will occur here since many international and domestic broadcasters make use of 25 meters. Thirty-one meters, the backbone of worldwide shortwave broadcasting, will provide medium distance daytime reception ranging between 400 and 1,200 miles. During November, reception up to 2,500 miles is possible during the hours of darkness and until two to three hours after local sunrise. This band is also highly congested, making reception of weak, exotic signals a bit more of a challenge.

Seventy-five through 120 meters are coming alive in late October. Throughout November, expect an improvement in nighttime DX conditions. Since the night is longer, and there is the seasonal decrease in the static levels, expect long-range DX on the low bands, starting close in right after sunset and extending farther as the night develops, with Europe possible in the late evening. DX paths will move farther west through the night. By morning openings from Asia should be common.

Signals below 120 meters have improved, with the night paths growing larger in the northern hemisphere. Seasonal static, which makes it difficult to hear weak DX signals, is still decreasing as we move into the depth of winter.

Aurora is still a strong possibility during October and somewhat in November, as we are still in the peak years of this cycle. Those interested in long-range DX of VHF signals might be able to catch a few auroral openings these two months.

Wanted: Your Feedback

If there is something that you would like me to cover in an upcoming issue, please send me an e-mail or letter. Is the information I am presenting helpful? I look forward to hearing from you. Happy hunting those signals! ■

The Ap Index And Understanding Propagation Terminology

The Ap index, or Planetary A index, is a 24-hour averaging of the Planetary K index. The Planetary K index is an averaging of worldwide readings of earth's geomagnetic field. High indices (Kp > 5 or Ap > 20) means stormy conditions with an active geomagnetic field. The more active, the more unstable propagation is, with possible periods of total propagation fade-out. Especially around the higher latitudes and especially at the Polar Regions, where the geomagnetic field is weak, propagation may disappear completely. Extreme high indices may result in aurora propagation, with strongly degraded long distance propagation at all latitudes. Low indices result in relatively good propagation, especially noticeable around the higher latitudes, when transpolar paths may open up. Maximum K-index is 9, and the A-index can exceed well over 100 during very severe storm conditions, with no maximum.

Classification of A-indices is as follows:

A0–A7 = quiet	A30–A49 = minor storm
A8–A15 = unsettled	A50–A99 = major storm
A16–A29 = active	A100–A400 = severe storm

Solar Flux (SFI): This flux number is obtained from the amount of radiation on the 10.7-cm band (2800 MHz). It is closely related to the amount of ultraviolet radiation, which is needed to create the ionosphere. Solar Flux readings are more descriptive of daily conditions than the Sunspot Number. The higher the Solar Flux (and, therefore, the higher the Sunspot Number), the stronger the ionosphere becomes, supporting refraction of higher frequencies.

Ionosphere: A collection of ionized particles and electrons in the uppermost portion of the earth's atmosphere, which is formed by the interaction of the solar wind with the very thin air particles that have escaped earth's gravity. These ions are responsible for the reflection or bending of radio waves occurring between certain critical frequencies with these critical frequencies varying with the degree of ionization. As a result, radio waves having frequencies higher than the Lowest Usable Frequency (LUF) but lower than the Maximum Usable Frequency (MUF) are propagated over large distances.

Sunspot Number (SSN): Sunspots are magnetic regions on the Sun with magnetic field strengths thousands of times stronger than the earth's magnetic field. Sunspots appear as dark spots on the surface of the Sun. Temperatures in the dark centers of sunspots drop to about 3700° K (compared to 5700° K for the surrounding photosphere). This difference in temperatures makes the spots appear darker than elsewhere. Sunspots typically last for several days, although very large ones may last for several weeks. They are seen to rotate around the sun, since they are on the surface, and the sun rotates fully every 27.5 days.

Sunspots usually occur in a group, with two sets of spots. One set will have positive or north magnetic field while the other set will have negative or south magnetic field. The field is strongest in the darker parts of the sunspots (called the "umbra"). The field is weaker and more horizontal in the lighter part (the "penumbra").

Galileo made the first European observations of sunspots in 1610. The Chinese and many other early civilizations have records of sunspots. Daily observations were started at the Zurich Observatory in 1749; continuous observations were begun in 1849.

The sunspot number is calculated by first counting the number of sunspot groups and then the number of individual sunspots. The "sunspot number" is then given by the sum of the number of individual sunspots and 10 times the number of groups. Since most sunspot groups have, on average, about 10 spots, this formula for counting sunspots gives reliable numbers even when the observing conditions are less than ideal and small spots are hard to see. Monthly averages (updated monthly) of the sunspot numbers show that the number of sunspots visible on the sun waxes and wanes with an approximate 11-year cycle.

For more information, see <http://prop.hfradio.org>.

computer-assisted radio monitoring

by Joe Cooper <joe@provcomm.net>

CAT: Computer Assisted Tuning—Part I

This is the user interface for the WorldStation program by DXtra. It is designed to be used by Ten-Tec's RX350 DSP receiver and is unique in that it is programmed in JAVA. As a result it has a look and feel that is very different from most programs of its type.

Today you can tune from "DC to daylight" without having to change bands on some of the specialty radios that are available. Even "standard" monitoring radios provide a wide range of frequencies that can be tuned in one continuous cycle. Tuning readout is now digital, with accuracy down to 1 Hz! As a result you now have a lot of RF real estate that you can cover in extremely fine steps.

The trick, however, is in making the best use of your radio monitoring equipment in order to hear the stations that you want to monitor. As you'll quickly learn when looking for a particular type of radio service to monitor, each has its own characteristics. It is relatively easy to hear a station on the AM and FM broadcast bands because many are in continuous operation, so all you need to do is chose a frequency and tune in. If they are close enough to your receiver, or if atmospheric conditions are right, you will hear them.

This is much the same for someone who is listening to a shortwave broadcaster, or to a service that is performed on a fixed channel. All you need to do is know what time and frequency to choose, and they either will be there or they will not.

Monitoring becomes more difficult when you have many stations that operate over a wide range of frequencies or channels at random times. Many radio manufacturers have built into their modern radios various ways of storing frequencies and scanning them.

For many people this is a satisfactory way of using their radios, and they are able to capture and log many stations in this way. However, as with all things, many people have been looking for ways of improving their radio's performance. The most popular way of making these improvements has been through the operation of a compatible radio through software used on a personal computer.

This month is Part I of two columns looking at Computer Assisted Tuning (CAT) software for compatible monitoring radios. If there has been a single major advancement in the combined use of personal computers and radios over the last five years that has significantly changed the way in which people monitor signals, it has to be found in this type of software program.

I am going to focus on four software companies that I believe are creating some of the best products for the radio monitoring market today. This is not to say that these software packages are the only ones available, so I will be presenting a list of alternative software packages that are available on the market (some of which are not available to the general public, but are used by military and government agencies only).

After introducing these packages and their features, next month's column will examine their specific application, with a look at their use in remotely controlling a radio over a local area network (LAN). Today's modern monitoring radio, when combined with the best software technology available, can be used in ways that were only speculated on a few short years ago.

It should be made clear for those who are not familiar with the application of CAT software that only those radios which have built-in computer control circuitry can use this type of control software. It is not possible to adapt a non-compatible radio through modification or the addition of new circuitry.

Likewise, CAT software is not the same as simple "virtual control panels." These are software packages that allow you to control the features of a compatible radio with your computer, but they do not provide the tuning features that I will be writing about here. If you have any questions regarding the compatibility of a particular make and model of radio, please check the owner's manual or specification sheet.

What Is CAT Software?

The most fundamental task that a CAT software program performs is the tuning of a desired frequency in a compatible radio. It does this by sending a tuning command, along with a specific frequency, from the software running on a personal computer to the compatible radio via an appropriate connecting cable. It really is as simple as that when you get down to the essentials of the task.

However, if tuning a single frequency was all there was to it, then all you'd really need would be a numerical keypad con-

nected to the radio through which you'd select the frequency you wanted to tune. There are, in fact, a number of radios that already have this function, using either a keypad connected via a cable or by using an infrared beam to get the data into the radio remotely.

What makes the current batch of CAT software programs such an attractive alternative to the keypad method is how they use a personal computer to tune in groups of selected frequencies (called "banks") very quickly and easily. This type of tuning is made even more useful because frequencies can be tuned either concurrently (one after another) or randomly (a collection of individual frequencies accessed one after another).

This capability of quickly tuning these banks of frequencies in pre-determined order allows the person using the monitoring radio to quickly scan a range of frequencies that have been determined to have the type of radio station the listener wants to hear. By using this technique, the radio monitor can access more frequencies over a given time, and with greater chances of actually hearing a station in operation on them.

So, simply put, using a personal computer to tune a radio is faster and more accurate than by doing so by hand. Those of us who can remember tuning across the dial on the radios of the 1960s and '70s (or earlier) which used analog dials, band spread, and multiple ranges of frequencies know that it was fun, but often consumed a lot of time with out any real results. Even using the built-in scanning functions of a monitoring radio can be less efficient due to the amount of time it often takes to load in the desired frequencies and the generally slower operation of the built in circuits.

Another feature of some CAT programs is their sophisticated methods of keeping track of what is received when tuning. This can be a graphic of signals encountered over a range of frequencies, the actual logging of a signal encountered (either automatic or with operation assistance for more details), or the audio recording of a received signal, either through a tape recorder operated by the computer, or the sound card found in the computer itself.

So let's take a closer look at the features that make up a typical CAT program in order to understand what you should expect when you run one on your personal computer.

A Closer Look

Today's modern radio has changed a great deal from the popular designs of the mid-20th Century. It is safe to say that since the 1970s most monitoring radio designs moved away from using discrete components (e.g., tubes, individual transistors, coils, and capacitors) to integrated solid-state circuits. These integrated circuits were later replaced with miniature computer circuits with built-in software (called firmware, because it was "firmly" in place and un-erasable due to being permanently stored in the circuits).

These computer circuits controlled the tuning and functions of the radio, allowing the operation of the radio to be defined by the selection of a particular firmware program routine by the simple push of a button. While these built-in "firmware" programs allow you to operate a radio properly, they sometimes limit the performance of the radio. This is because the speed at which a firmware program is run is often slow due to some performance limitations found in the built-in computer circuits.

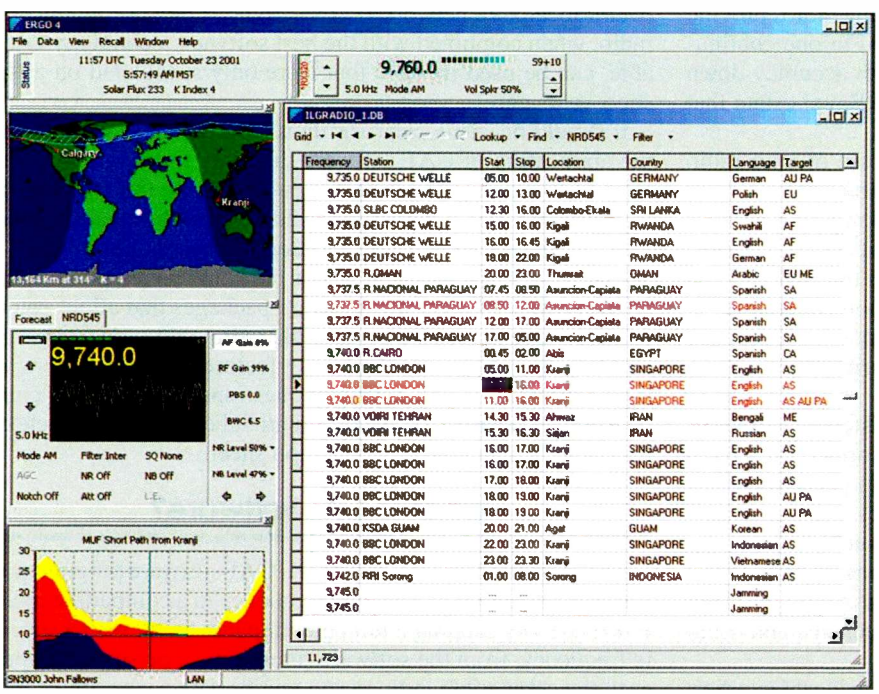
Because of these performance limitations, many radios today allow you to control them using a faster external computer. This control is performed through the aforementioned CAT software packages run on a personal computer, which is connected to the radio by a serial cable via the personal computer's serial port.

At the most basic level of operation, a CAT software program will provide you with a "virtual control panel" that will let you have access to the most basic functions of the radio it is connected to. For example, some functions which you could be able to control in this way, would be,

Mode (e.g., AM, FM, USB, LSB, CW)
Bandwidth
Squelch
Noise Reduction
AGC (Slow, Medium, and Fast)
Speaker and Line Output volume
BFO
Signal Strength

However, most CAT software programs today do more than simply control the radio's features. Many allow a higher degree of tuning control by allowing you to scan a range of pre-set frequencies in various ways; these can be through the selection of a single frequency, a range of frequencies, or a list of frequencies from a computer file.

The management and control of the frequencies that you want to listen to are what really determines the purpose and value of an individual software package. This is because simply throwing frequencies into a radio and expecting it to access them is just not that simple. Yes, the radio and computer can perform these tasks at very high speeds and cover an amazing range of frequencies, but if you



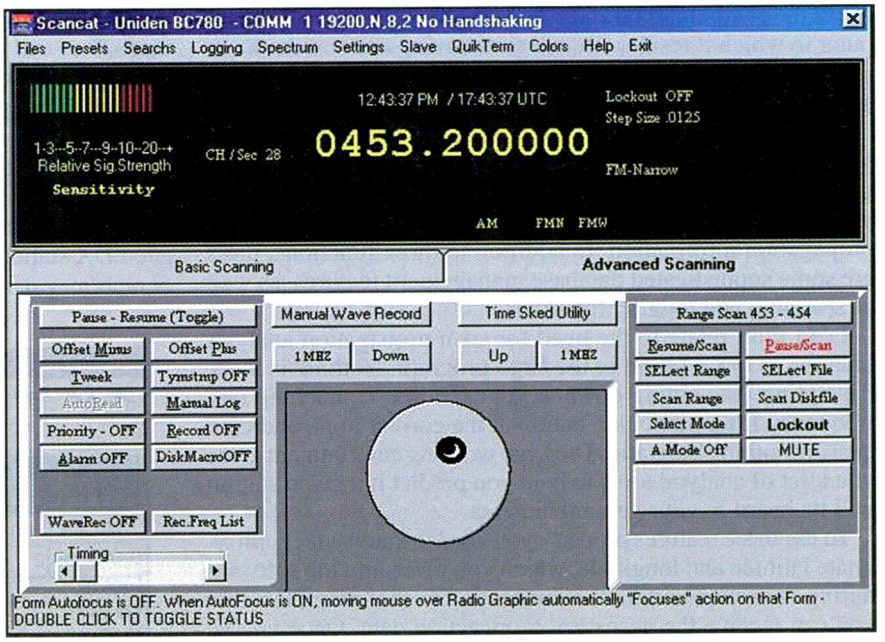
This is Ergo, Version 4, which is still in the Beta (testing) stage. It shows how the programmer has separated the different functions into separate windows, with each performing its own unique task. The tuning of the radio can be achieved through the tuning interface or the database of frequencies.

can't *hear* a station because it has been skipped over too quickly, then there is no real value in that software program.

To overcome these problems, a good CAT software program will allow you to control the speed at which scanning takes place, and also allow for the recording of a station's presence when signal levels on a frequency indicates activity. This can be handled in several ways, for example,

- Variable squelch settings that stop the scanning at a given signal level
- Spectroscope that graphically shows activity over a given range of frequencies
- Alarms when signals are encountered
- Automatic database logging of any signal activity

When evaluating all of these features in a CAT software package, keep in mind that there is a wide range of monitoring tasks that people perform with their radios and that these are based upon the type of service they are listening to. Simply, the monitoring needs of a person who wants to listen to shortwave broadcasters in the High Frequency (HF) bands is different from someone who is using a VHF/UHF scanner.



Here's ScanCat Gold shown in the advanced setting. This software is particularly good for UHF/VHF scanners, as is illustrated here. The basic scanning functions shown on the tab on the left give access to pull-down menus for bands of frequencies or database files stored on the computer.

It is the successful computer programmer who understands what those monitoring needs are when it comes to creating a good CAT software program. Obviously one group of features that satisfies the needs of one listener will not be of use to another, but a software package can appeal to *too broad* of a market in order to generate as many purchases as possible. It is important when purchasing the software to make sure you are getting the correct package to properly meet your monitoring needs.

To illustrate how to make the best choice, I'll outline the features of four representative software packages that represent some of the best programming techniques available to the general radio user today. Along with showing their features, I am also going to focus on how each package targets a particular radio user's needs and then satisfies them through a good software programming strategy.

Which Software Is Right For You?

The best way to really illustrate this will be to take a look at the four representative programs that will be used to illustrate good CAT software design. In this column, I will outline the features found in each and give a bit of their history. In my next column, I will give a detailed examination of their installation, operation, and performance.

As to be expected, each of these CAT programs has its own particular strengths and weakness based upon the type of radio monitoring they are being used for. The key point in making your own evaluation is to first understand what it is that you want to do with your own CAT compatible radio, and then see how these software programs can help you achieve your goals.

Here are the software programs that I have chosen to evaluate (shown in no particular order of preference):

Ergo (Creative Express, <www.swldx.com>)—allows you to control up to two of the leading shortwave receivers at the same time (off separate serial ports), while providing real-time propagation information from the Internet (when connected). Also provides access and control of custom and commercial frequency databases. Future versions will allow remote control of a receiver over a local area network or the Internet.

Smart Control (FineWare, <www.fineware-swl.com>)—a CAT program designed for use with four of the top computer-controlled radios on the market today, with uses that include the support of multiple subscription databases of pre-defined radio frequencies.

WorldStation (Dxtra, <www.dxtra.com>)—a CAT program designed specifically for the Ten-Tec RX 320 and RX 350. It has many advanced features, such as the control of the radio across a network and a unique scanning function that includes a sophisticated analysis of the data you capture from your scans. Since WorldStation is programmed in JAVA, you can use this software in the Windows, UNIX, or Mac operating systems.

SCANCAT Gold (Computer Aided Technologies, <www.scancat.com>)—a CAT program that supports over 70 models of computer controlled radios. It provides excellent control for HF receivers and VHF/UHF scanners (supporting functions such as trunk tracking). Its most notable feature is its ability to create and manage complex databases of frequencies or import commercial frequency databases.

Let's look briefly at each one, and then next month I'll report to you in detail how each one is installed and used, as well as its best application to a particular radio monitoring need. Part of the information I will be sharing with you is the "hands-on" experience I had using the software in some real world monitoring situations.

Ergo

Unlike many CAT software programs that try to provide a "virtual" control panel that emulates the look and feel of a conventional radio, Ergo focuses entirely upon making the most

use of the computational and communication power of the computer in which it resides. Rather than having one screen showing the controls for the radio, you work with multiple windows, each having their own particular function.

If you look at the screen shot of the Ergo program in action, you will see that you are provided with a number of tools that go beyond the control of the radio. The big support feature that you notice right away is the display of "real-time" radio wave propagation information. In addition to these functions, there are some sophisticated database management features, as well as scanning and logging functions.

I can fully relate to the need for such propagation analysis features as those found in the Ergo program. Nothing is more frustrating than sitting down at your HF radio, punching in a frequency for a particular station at the correct time, and then hearing nothing but static. The Ergo working environment gives you a set of analytic tools to help you predict if a given station will be heard in your geographic area.

To use these features properly you need to know your approximate latitude and longitude, which you place into the software during the setup, and have a connection to the Internet so that you can receive the necessary propagation data. Once you've done that you can then use the propagation forecaster to punch in the Solar Flux number, K index, and the location of the target station to get the MUF (Maximum Usable Frequency) for a given time.

Ergo allows you to use downloadable database files of frequencies from services such as ILGRadio. Likewise you can also create your own database using any program that supports dBase file format.

From its use and appearance Ergo is designed for the serious DXer who wants to listen to some of the rarer broadcast stations on the shortwave bands. It does not have a fancy interface, but it does the job that it is designed to do, which is to help you quickly find shortwave broadcast stations to monitor.

Smart Control

Smart Control is a series of four separate programs that have been developed by FineWare (also known for their Radio Listener's Database program) for four of the most popular computer-controlled monitoring radios on the market. The computer controlled radios that Smart Control supports are ICOM IC-R75, Japan Radio NRD-535/545, Drake R8 (A and B), and Kenwood R-5000 and TS-440S.

The computer screen that is provided is very much in the "virtual control panel" design style in that it emulates the look of the original radio very closely. However, there are many more features that take the program beyond a simple control interface.

The program allows access to databases of frequencies stored in the computer, as well as the frequencies stored in the radio itself. This allows you to use the features of either the radio or the computer as it suits your needs.

One feature that stands out is the way in which database information is managed in these programs. You can either get a listing of all of the stations that are available at a given time, or on a given frequency. Likewise you can get the entire schedule for a single station. A band plan is also provided to quickly take you to areas in the radio spectrum where SWBC, HAM, and Utility stations are to be found.

A logging program is provided that will automatically begin with time, date, and frequency information. You can then add any additional information and notes. The database can be exported in a popular format used by many radio monitoring magazines and groups.

Despite all of the different operating features found in the Smart Control program, it is very simple and intuitive to use, no matter what version of the radio you're using. Still, the program is more than a "point and click' alternative to using the radio itself. The real potential of the radio is fully exploited when used with this program, particularly if you want to find good DX stations to log and then use those logs for QSL cards or club/magazine activity.

Smart Control, showing the interface for the Drake R8. While more in the "virtual control panel"-style than the other three software programs profiled in this column, it still contains all the features of a good CAT program. Note how easy the frequency database display is to see and access. Stations are selected by pointing and clicking on them.

WorldStation

I have profiled this program before in the "Utility" column, and I still think highly of its features. It is a software program dedicated to the operation of Ten-Tec's RX 320 and 350 DSP receivers. Since the program is focused on those radios, the design of the software optimizes their performance to a very high degree.

WorldStation has all the features you would expect of a CAT program, plus a few more. As would be expected, it has excellent scanning, bandplan, and database management functions. But what really makes the program stand out is its use of JAVA programming. By using JAVA, the WorldStation program is not restricted to operating in the Microsoft Windows environment. This means that if you have a Mac or UNIX-based computer you are able to use the program with no difficulty at all. JAVA itself is notable for its stability and features. As a result, you will find that the look, feel, and operation of the program is superior to most Windows-based programs.

What this translates into is finding more functions on the screen rather than being hidden in pull down menus. You will also find some interesting innovations in the way that the display screen operates with 3-D buttons and controls. It may seem to be a minor point, but if you are going to be using the software for many hours, you will find the display less fatiguing than other programs.

Included in the programming is a very sophisticated scanning function that allows you to build a graphical analysis of that portion of the radio spectrum where you are looking for stations to monitor. By simply allowing the software to scan over a given period of time you build up a record of activity

that provides a prediction of the expected occurrence of a station, and whether it is truly DX or not.

In addition to these features, you can also operate the radio remotely over a local area network. This is becoming increasingly popular as people discover how inexpensive it is to set up and operate a LAN in their homes.

ScanCat Gold

This is definitely the program to buy if you want to control a VHF/UHF scanner. Likewise, the number of makes and models of radios that this software controls is exceptional, with somewhere over 70 models being listed at this time.

The main feature of this program is scanning large banks of frequencies, by defining a range of frequencies or by using a database of frequencies. You can create, modify, link, or filter these files to get to the frequencies you need. Simply clicking on a button on the screen adds a frequency to a file with optional description and time stamp.

You can then build a log file from those frequencies which can be exported to a text file in a format recognized by the major DX clubs and magazines. Likewise dbase, Access, and retrieve files of frequencies that can be downloaded from various subscription services or purchased on CD can also be used with ease.

The ScanCat Gold control panel is dual featured and you can switch between basic and advanced scanning functions. The basic functions provide pull-down menus that give you access to popular bands in both the HF and VHF/UHF frequencies, as well as dbase files that you have placed into your computer. With these you can scan selected ranges or banks of frequencies using the controls provided.

The advanced scanning feature allows you to have either direct control over the radio, or use single or multiple files of frequencies for scanning. The controls also allow you to log "hits," record lists of frequencies from those hits, or record the station as a wave file, if you have connected your radio's audio output to your computer's sound card.

In addition to these general features, the ScanCat also supports the individual functions of certain radios. For example, if you have the BEARCAT Trunk Trackers (BC895, 245, and 870) it will enable you to use these features properly. If you own an ICOM HF and VHF radio, you will be able to scan through both, moving up and down the RF spectrum as needed.

The key word to remember, though, with this software is "scanning." What this software package does well is cover lots of RF real estate quickly and efficiently; and if that is your monitoring requirement, then this software will fit your needs very well, especially at the UHF/VHF frequencies.

What's Next?

Next month I'll be looking at the actual setup and use of each of these programs in more detail and discussing the hands-on experiences I had using each. I will outline in plain language exactly how these programs are used so that those of you out there who have been thinking of going this route, but have been concerned about the complexity of the software, will be able to see exactly how it is done.

For the more advanced computer users I will be looking at two important issues in some detail: the management of database files of frequencies and the use of the LAN-enabled programs across networks. Both of these topics are critical for those of you who really want to get the most out of your computer-controlled radio.

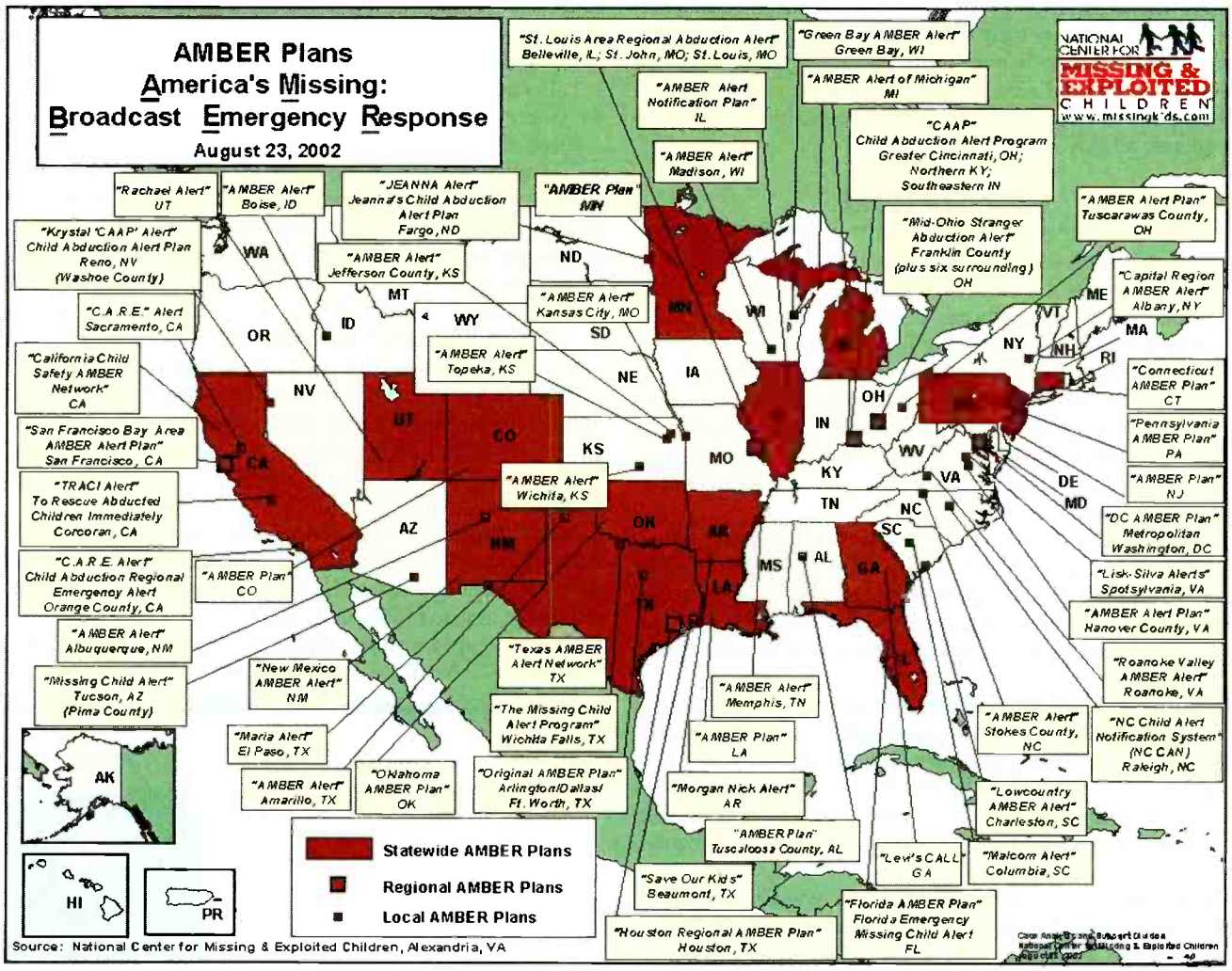
I also welcome any comments on this series and suggestions for where to go next. I am planning on having a "letters only" column at the end of this series in three months time where I will be answering your questions about this series of columns.

What I would also welcome are guest columns on specialized topics, once the basics have been laid down. There is a lot of interesting and exciting work going on out there that needs to be brought to the pages of *Popular Communications*. I know of great experiments going on using personal computers and monitoring radios from the VLF up into the GHz range. How about some of you sharing your knowledge and experiences?

Don't forget that you can e-mail or write to me with ideas, comments, and suggestions about *your* column at <joe@provcomm.net>. My mailing address is "Computer Assisted Radio Monitoring," c/o Joe Cooper, PMB 121, 1623 Military Rd., Niagara Falls, NY 14304-1745.

Don't forget that I cannot answer general questions about computers, software, or operating systems, but I will do my best with any questions about the content of the columns or computer-assisted radio in general.

Thanks again and enjoy experimenting with the software and hardware that has been described here! ■



Map showing AMBER Plans across the USA.

sideration? More public safety agencies need to come on board *immediately* with similar, simple, inexpensive warning systems. There are literally hundreds of thousands of scanners out there, and not all of them are in criminal's hands as many folks would have you believe. It costs *nothing* for police—and even the Feds—to warn the public about a speeding car with a wanted felon or armed bank robbery suspect that got away from a police chase. The cost of inaction, or slow action, is lives lost at a time when it seems—statistics aside—like there's a rash of kidnappings and car jackings. Granted, we'll never catch all the dirtbags, but every one we do nab is one less that's on the streets.

So the next time you hear someone talking about more anti-monitoring legislation or a cop say "our communications are private" and "only criminals have scanners," politely inform them they're incorrect. As we've said for decades, if anyone thinks the demented thugs who think nothing of abducting your children, breaking into your home, stealing your TV and money, or pushing you in front of a moving train, will come to their senses because it's a crime to listen to a radio, they're as tormented as the criminal.

When we get serious in this country about *total* crime prevention we'll have regionally available warning system receivers in our vehicles, say a simple flashing in-dash LED alerting the driver to an official law enforcement bulletin. Push a button and the message repeats the warning and even scrolls an abbreviated message on a small screen. The possibilities are practically limitless, including scrolling messages on those wall-mounted TVs at major rest stops and airports, daily, same-time announcements on news/talk radio stations, and even short scrolling messages on your cellphone that you can access by pressing an "news alert" button.

"When we get serious in this country about total crime prevention we'll have regionally available warning system receivers in our vehicles."

For those who think these things are too "in your face" or alarmist, please turn on your 24-hour all-news radio station, check out the evening news or read the newspaper. Trouble is, much of that coverage is hours and days after the fact. Please tell me which is more worthwhile: simple messages that can save the lives of our most precious resource, our children, or the constant barrage of mindless advertising with those '70s and '80s hits playing as SUVs do off-road stunts. If your vote is for common sense, please contact your Congressional representative and Senators with your thoughts today. Remember, time is *not* on our side. ■

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loose connection

radio communications humor

by Bill Price, N3AVY

Dr. Norm?

As I sit pondering the opening line of this month's *Loose Connection*, a large gray rat crawls slowly up my chest, sniffs at my moustache, then looks me directly in the right eye through the lens of my glasses. With apologies to fellow-journalist, Snoopy, that's a far better opening than "It was a dark and stormy night."

But my line is for real. The large gray rat is Rattie, who is my very favorite rodent and shares my office with me. There's a mouse, too, but his name is (uh-oh, I forgot who will be offended by this) Harold. Really.

Harold is not another editor, but a mouse who found his way past the cats and into my office where he survives on crumbs, which are plentiful around my desk. He is a wild mouse. Not ferocious, just feral. Rattie, on the other hand, is an official pet, bought at a pet store—and, to admit to another secret, I picked this nice gray rat (a young lady, by the way) because she was the least likely to find a home that didn't include a large snake looking for a meal. Having a gray rat also lets me call all my friends bigots when they say "Ewwwwwww. It's GRAY! Why didn't you get a WHITE one!" We lunatics have so much more fun than ordinary folks.

So Rattie joins me as co-columnist here at the ostentatious Price Manse. She helps type when I'm on-line, but I can't let her help me with my column because Harold (the editor, not the rodent) is so fussy about having ";lsajd0tr98y4tbnpoaiunpoifjxxx" in the middle of a line. My on-line friends understand perfectly.

Rattie is a communicator. When I put her on my bedside table before settling in for a nap, she walks around on my Sangean shortwave receiver, which lies face-up so I don't knock it over. She always selects a good station. My wife, Shannon (not her real name), says that it's just an accident that she finds classical music on the shortwave broadcast bands, but I say it's a sign of her good taste.

She completely ignores my computer mouse (probably just professional courtesy) when she roams around my desk, but she has found my Vibroplex "Bug," which some of you will know as a "speed-key." For those of you who don't live in the wonderful world of CW (continuous wave, or Morse code) communications, it's a mechanical gadget which makes "dits" automatically by having a weighted spring-arm bounce a pair of silver contacts together at a pre-determined speed when a paddle is pressed to one side, and makes "dahs" manually when pressed to the other side. If an electronic keyer compares to an electronic organ, my "bug" is an old upright piano.

I know for a fact that Rattie has things to tell me, and after letting her roam freely on my keyboard, I realized that she might not speak English. It could be that she does speak English but was never taught to read and write, which would explain why her typing is such jibberish. When she stands with her front paws (really little hands) on the paddle of my speed-key, she does send a recognizable letter or two amid all the other dits and dahs. These letters, I'm sure, when properly arranged and spaced, will make up some profound message which I'm sure that she, on behalf of rodentia worldwide, is trying to send to humankind, through me, the chosen seer and liaison between humans and rodents. I am humbled by the honor.

My friend Norm might not feel so honored being included in a column about my long-tailed friend, but he should be; I like him every bit as much as I like Rattie, even though I don't regularly provide him with meals and a place to sleep. Don't even look for a transition between Rattie and Norm—there isn't one.

Norm has surfaced recently after a long incommunicado period during which he was probably in the Himalayas studying at the foot of some Tibetan guru while trying to set a world record on the 2-meter ham bands. It never surprises me that he surfaces in the most unlikely places (this time the wilds of the Pacific Northwest), but to hear that Mr. Skeptic himself was studying Holistic Healing stopped me dead in my tracks as I read the (postage-due) postcard over and over. It has taken me a while to figure why this apparently enlightened change has come over Norm, but I finally figured it out. It's money. The bottom line. Cash-ola. The root of all evil.

I've never known Norm to be sick a day in his life, but he must have caught a real doozie of a cold or fallen from a tower and broken his arm and had to pay the doctor's bill from his own moth-infested pocket. At that moment, the future became clear to him. He envisioned himself getting older, seeking more and more medical care as the years passed, and watching all that money trickle between his solder-stained fingers.

Norm knows all too well that he's not about to go back to college, take a pre-med course, fight his way into med school, endure an internship, and become his own physician. Even if he had that "something special" which pushes a mere mortal toward the practice of medicine, he'd NEVER part with the bucks for all that schooling.

I'll bet the scene was just like the classic full-page ad in an old radio magazine, the one showing a guy buried in a construction site cave-in. In the next frame, he's recuperating in his hospital bed when he finds the prepaid postcard in his magazine and enrolls in the HPJIES (High Paying Job In Electronics School). When he returns to work, he is called to the office of his boss, the evil Mr. Bemis, who tells him his job is in jeopardy.

"Ha!" replies our hero. "I don't need you and your lousy, dead-end job. I've got a high paying job in electronics," he says.

"Don't be ridiculous!" says Bemis. "Who'd hire YOU?" after which our hero shows Bemis the ad for the HPJIES and the rest is history.

So Norm found an ad for the STMAOEDBALHHS (Stop Throwing Money Away On Exorbitant Doctor Bills And Learn Holistic Healing School) and expects never to pay another dime for medical care. I wish him well, and I hope he never again has to pay a dime for medical bills.

What's that? Rattie is sending me a message in Morse code! Wait while I copy it. R-U-N A-W-A-Y I-F H-E S-A-Y-S T-U-R-N Y-O-U-R H-E-A-D A-N-D C-O-U-G-H. ■

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