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POPULAR **NOVEMBER 2005** COMMUNICATIONS

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VX-7R/VX-7RB



5 W Heavy Duty
 Submersible 2 m/70 cm
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VX-6R



5 W Heavy Duty
 2 m/70 cm
 Dual Band FM Handheld
FT-60R



1.5 W Ultra Compact
 2 m/70 cm
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VX-2R



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The **etón E1 XM** (originally announced as the Grundig Satellit 900) is the world's first radio that combines AM, FM, shortwave and XM Satellite radio into one ultra high-performance unit. In development for nearly ten years, in collaboration with RL Drake Company and XM Satellite Radio, the E1 is simply the finest full-sized portable in the world. The E1 is an elegant confluence of performance, features and capabilities. The look, feel and finish of this radio is superb. The solid, quality feel is second to none. The digitally synthesized, dual conversion shortwave tuner covers all shortwave frequency. Adjacent frequency interference can be minimized or eliminated with a choice of three bandwidths [7.0, 4.0, 2.5 kHz]. The sideband selectable Synchronous AM Detector further minimizes adjacent frequency interference and reduces fading distortion of AM signals. IF Passband Tuning is yet another advanced feature that functions in AM and SSB modes to reject interference. AGC is selectable at fast or slow. High dynamic range permits the detection of weak signals in the presence of strong signals. All this coupled with great sensitivity will bring in stations from every end of the globe. Organizing your stations is facilitated by 500 user programmable with alpha labeling, plus 1200 user definable country memories, for a total of 1700 presets. You can tune this radio many ways such as: direct shortwave band entry, direct frequency entry, up-down tuning and scanning. Plus you can tune the bands with the good *old fashion* tuning knob (that has *new fashion* variable-rate tuning). There is also a the dual-event programmable timer. Whether you are listening to AM, shortwave, FM or XM, you will experience superior audio quality via a bridged type audio amplifier large built in speaker and continuous bass and treble tone controls. Stereo line-level output is provided for recording or routing the audio in to another device such as a home stereo. The absolutely stunning LCD has 4 levels of backlighting and instantly shows you the complete status of your radio. Many receiver parameters such as AM step, FM coverage, beep, kHz/MHz entry etc., can be set to your personal taste via the preference menu. The E1 has a built in telescopic antenna for AM, shortwave and FM reception. Additionally there is a switchable antenna jack [KOK] for an external antenna. Universal also offers a PL259 to KOK antenna jack adapter (#1052 \$10.95).

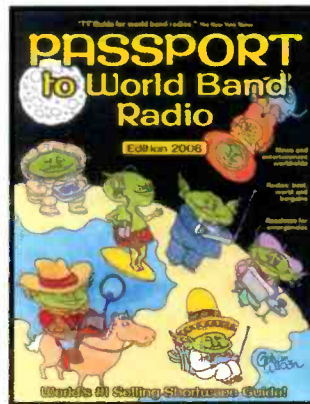
The etón E1 comes with an AC adapter or may be operated from four D cells (not included). 13.1"L x 7.1"H x 2.3"W Weight: 4 lbs. 3oz.
E1 XM Order #0101 \$499.95

Note: The XM antenna (shown above) and XM subscription are sold separately. Activation and monthly subscription fee required for XM. Please visit the Universal Radio website for additional important details.

ICOM
IC-R75



Universal Radio is pleased to continue to offer the ICOM R75 receiver. With full coverage from 30 kHz to 60 MHz; all longwave, medium wave and shortwave frequencies are supported plus extended coverage to include the 6 meter amateur band. Some of innovative features of the R75 include: Synchronous AM Detection, FM Mode Detection (but not the FM broadcast band), Twin Passband Tuning, Two Level Preamp, 99 Alphanumeric Memories, four Scan Modes, Noise Blanker, Selectable AGC (FAST/SLOW/OFF), Clock-Timer, Squelch, Attenuator and backlit LCD display. Tuning may be selected at 1 Hz or 10 Hz steps plus there is a 1 MHz quick tuning step plus tuning Lock. The front-firing speaker provides solid, clear audio. The back panel has a Record Output jack and Tape Recorder Activation jack. The supplied 2.1 kHz SSB filter is suitable for utility, amateur, or broadcast SSB. However, two optional CW/SSB filter positions are available (one per I.F.). The formerly optional **UT-106 DSP board** is now included and factory installed! A truly a great value. Order #0175 \$569.95



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Our new **2005-2006 Universal Communications Catalog** is the largest ever! Printed in July 2005, it features 108 pages of everything for the radio hobbyist. An impressive selection of antennas, headphones, books and accessories is also featured. Please call toll-free to request your free copy today.

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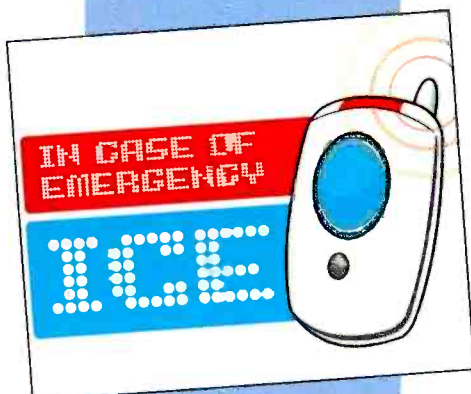
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On The Cover

The Space Shuttle *Discovery* and its seven-member crew launched into space on July 26, 2005, beginning the Return To Flight STS-114 mission. The Shuttle program is scheduled to continue in March 2006, and there's still plenty of Shuttle related communications you can hear—best of all you don't have to live near the Cape! Be sure to read Allan Stern's Military Radio Monitoring column thismonth on page 14, "The Space Shuttle: Are You Ready For STS-121?" (Photo courtesy NASA)

Visit us on the Web: www.popular-communications.com

We Can See Clearly—Now

One of Bill Cosby's routines that I recall from years ago was his bit about how it'd be pretty neat if, as you make your way around town, when you come to a corner where you feel uncomfortable, you had an extra eyeball on your fingertip so you could just stick your arm out around a building, wiggle your finger, and see if it was safe to continue on. I just hope some pencil-pushing nerd at the Pentagon doesn't read this and take the idea too seriously!

Not to worry, because seeing around corners—and beyond this moment in time—isn't something Uncle Sam typically does very well. The events of 9/11 stand as the premier evidence of that, bolstered by the findings of the 9/11 Commission. Seeing around corners isn't important *right now*; besides, there are plenty of *us* ordinary folks to do what the three-lettered agencies should have done prior to 9/11 and, yes, even today. The other day I got thinking about security at our nation's military installations in conjunction with our radio hobby, in light of some letters and e-mails we received regarding the Air Force's Eagle Eyes program.

I've recently come to believe that many of us radio folks like to think of ourselves as 21st Century Maxwell Smarts. Remember him? Clearly it's a good thing to be able to listen in (at this writing it's still legal) and be prepared to help our communities in their time of need. And if not our community, at least our families have the added benefit of being in the know when radio people are around.

According to the U.S. Air Force's "Eagle Eyes Program" guidelines, "Categories of Suspicious Activities" include our mere presence on the installation or even near the gate of, for example, an airshow or other public event. This raises concern. Under the first category, "Surveillance," it says, "Someone recording or monitoring activities. This may include the use of cameras (either still or video), note taking, drawing diagrams, annotating on maps, or using binoculars or other vision-enhancing devices."

Darned, I guess that means I never should have ordered those Spy Eyeglasses that let me see things I shouldn't see without prior approval of someone in charge. But, what the heck, at least they look pretty cool with my hamfest hat.

What's not cool is when the enemy becomes us. That's not to say sometimes it isn't true; witness Timothy McVeigh, Eric Rudolph, and a truckload of other homegrown terrorist loonies who somehow slipped off our radar screen, only to reappear down the pike.

So there you are, perhaps driving the perimeter of a military installation, stopping here and there, with at *least* one antenna more than the average vehicle, or maybe you're camped out near the Amtrak northeast corridor with a notepad, tape recorder, camera, and scanner. Suspicious? You bet—even before 9/11! Fact is, we both know that you're as harmless as Bill Price and me listening to the BBC and shooting rubber bands across the room. We're just exercising our right to listen and be part of the action.

All's right in your world as long as you don't hop the fence, or even linger too long near the perimeter or at the rail yard.

Remember, it's not September 10, 2001, anymore. You could be acting suspiciously, you know.

But today you certainly *would* raise the eyebrows of folks who know about the Eagle Eyes program. It's really very similar to the Nation's Nifty Color-Coded Alert Levels. Remember them? Listed in (almost) each color-coded category is "Be alert to suspicious activity and report it to proper authorities." Ironically, at the *lowest* level (green, in case you've forgotten), that's not listed. Therefore one could assume, it's not important, but unless I'm missing something, that's *precisely when* we should have our eyes open and be aware of our surroundings. After all, that green light doesn't stay green forever.

My eyes are always open. I might not always see things as everyone else does, but I sure as heck try to help. Honestly, I don't know about you, but I've always been a spy of sorts. It's not a paying job, but I suppose if I talked to the right person in Washington I could turn my inquisitiveness into a very lucrative government position, a sort of Traveling Spy. You know, something like those mystery shoppers that stores hire to check on retail operations at the grassroots level. Heaven knows, I could even write a book, *The Spy with the Handheld Scanner*, or *Chunky Spies Like Us*. Maybe better forget the book.

I once saw flames and smoke shooting from under a moving New Jersey Transit commuter train and called the Transit Police. It just didn't look right to me. Naturally they were delighted that someone took the initiative to call because it was apparently a "hot box," or some train gizmo-contraption gone haywire. Today it could be anything; a flare placed there by terrorists to test the response of train security, or just a squirrel that short-circuited something.

Just last week on Ft. Monmouth I observed a fellow in an old beat-up blue Chevy van with out-of-state tags, driving slower than Grandma coming back from bingo. So being the patriotic Eagle Eyes I am, I promptly alerted the contract MPs at the gate. (Truth be known, I think I interrupted their lunch, but they said the van was okay because, "he had just come on the post a few minutes earlier.") And this is the cream of the crop security on the nation's communications research facility!

I'm okay with it, if the authorities are, so I went about my business. But I'd bet a million bucks that a year after 9/11 dozens of Men In Black and Large Black Silent Helicopters would be surrounding and hovering over that van in five minutes. Well, heck, it sure looked a little odd to *me*, especially given that most people are going 10 miles an hour *over* most speed limits, even on-post.

The entire fort has a chain-link fence around it. It always has, but today there's even some concertina wire on the top and large, expensive concrete barriers in certain special places I can't mention here, like the entrance to the installation. They've done a pretty good job of zigzagging those barriers, so if a nutcase wanted to drive a vehicle through without an ID check and a smile from the MPs it would be nearly impossible. Key word: nearly.

No problem, though, if I *really* wanted "in" and didn't have a sticker or ID, I'd just dig a few shovelfuls of dirt under a side

(Continued on page 20)

OUR READERS SPEAK OUT

Each month, we select representative reader letters for "Our Readers Speak Out" column. We reserve the right to condense lengthy letters for space reasons and to edit to conform to style. All letters submitted must be signed and show a return mailing address or valid e-mail address. Upon request, we will withhold a sender's name if the letter is used in "Our Readers Speak Out." Address letters to: Harold Ort, N2RLL, SSB-596, Editor, Popular Communications, 25 Newbridge Road, Hicksville, NY 11801-2909, or send e-mail via the Internet to popularcom@aol.com.

Doing The Right Thing

Dear Editor:

My son joined the National Guard and was trained to be an MP. Over the period of his enlistment he went with the Regular Army and was sent to Paratroop School. This was all before the current Iraq war, but still at a time of high overseas commitments.

When he came back from Jump School I talked with him about his training and equipment. He said that troops in combat were allowed to carry a combat knife but weren't issued any. I didn't ask myself about the politics of the world situation or the implications of the New World Order. I talked to some paratroops, found out what kind of knife my boy would need. Then I bought him one. I didn't do that because I agreed or disagreed with our country's national policies. I did it to keep one specific paratroop safe. MP humvees already had radios, so he didn't need one of those. Guess what I would have done if he did need a radio?

Bob Sturtevant, KD7KTS
Bandon, Oregon

Small Solution For A Big Problem

Dear Editor:

Portable shortwave receivers, handheld transceivers with wide-band receive capability, and wide-spectrum scanning receivers are all subject to overloading and other RF problems when connected directly (electrically) to an external antenna to receive MW and HF frequencies. A direct connection to an antenna by way of an alligator clip can cause signals from local AM stations to crash in on one's SW listening and can introduce other locally produced noises as well. Similarly, using the antenna jack on the side of one's Sony or Sangean can bring unwanted signals, ranging from static to roars, buzzes and howls into the receiver, as well as harmonics from strong local AM stations.

Wind-up portable antennas provided with some of the portable world-band receivers may not do the job one needs, especially at the lower end of the HF bands. In addition, there are almost no readily available commercial antennas on the rack that enable one to make effective use of the 500 to 30,000 receiving capabilities on amateur transceivers, such as the Kenwood TH-F6 or the ICOM R-10 (the supplied rubber ducks being notoriously less than adequate for any purpose).

There is a simple solution for this problem, a fix that has been known to old hands in the hobby, but with which novice SWLs may not be familiar. It consists of a piece of solid, insulated 14-gauge wire wrapped four or five times around the base of the antenna of the portable receiver. A section of the wire is left straight, stripped at its end, and whatever antenna one uses (preferably outside; remember the old ham adage "10 feet of wire outdoors is better than 100 feet indoors") is alligator-clipped to the coil. The coupling then becomes inductive rather than electrical. The coil has an attenuating effect, nulling out harmonics generated by local transmitters as well as canceling out static, stray RF, or other interference that can be brought into the radio.

In the case of wideband receive transceivers or wideband receivers, a coil dropped over a rubber duck or HT antenna and connected to an outside longwire can produce gratifying results, particularly if the HT antenna (such as the Pryme 98 or the Smiley Super-Stick II) has some receive capabilities well outside the bands on which it was designed to transmit and receive. The higher-end HT antennas do not do this quite as well. Although it may have not been designed to display this capability, the less expensive (\$16.95) MFJ mag-mount antenna for 2 meters and 440 does a magnificent job of sending usable MW and SW signals into receivers such as the Kenwood TH-F6, the ICOM R-10, and can even be fashioned to turn one's Sangean, Sony, or Grundig into an in-car shortwave receiver.

John A. Orzel, KG6ZAN
Salinas, California

(Continued on page 43)

POPULAR COMMUNICATIONS

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25,000-512,000 MHz., 764,000-775,9875 MHz., 794,000-823,9875 MHz., 849,0125-868,8765 MHz., 894,0125-956,000 MHz., 1240,000 MHz.-1,300,000 MHz.

The handheld BCD396T scanner was designed for National Security/Emergency Preparedness (NS/EP) and homeland security use with new features such as **Fire Tone Out Paging**. This feature lets you set the BCD396T to alert if your selected two-tone sequential paging tones are received. Ideal for on-call firefighters, emergency response staff and for activating individual scanners used for incident management and population attack warning.

Close Call Radio Frequency Capture - Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. Useful for intelligence agencies for use at events where you don't have advance notice or knowledge of the radio communications systems and assets you need to intercept. The BCD396T scanner is designed to track Motorola Type I, Type II, Hybrid, SMARTNET, PRIVACY PLUS, LTR and EDACS® analog trunking systems on any band. Now, follow UHF High Band, UHF 800/900 MHz trunked public safety and public service systems just as if conventional two-way communications were used. **Dynamically Allocated Channel Memory** - The BCD396T scanner's memory is organized so that it more closely matches how radio systems actually work. Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 3,000 channels are typical but **over 6,000 channels are possible** depending on the scanner features used. You can also easily determine how much memory you have used and how much memory you have left. **Preprogrammed Systems** - The BCD396T is preprogrammed with over 400 channels covering police, fire and ambulance operations in the 25 most populated counties in the United States, plus the most popular digital systems. **3 AA NiMH or Alkaline battery operation and Charger** - 3 AA battery operation - The BCD396T includes 3 premium 2,300 mAh Nickel Metal Hydride AA batteries to give you the most economical power option available. You may also operate the BCD396T using 3 AA alkaline batteries. **Unique Data Skip** - Allows your scanner to skip unwanted data transmissions and reduces unwanted birdies. **Memory Backup** - If the battery completely discharges or if power is disconnected, the frequencies programmed in the BCD396T scanner are retained in memory. **Manual Channel Access** - Go directly to any channel. **LCD Back Light** - A blue LCD light remains on when the back light key is pressed. **Autolight** - Automatically turns the blue LCD backlight on when your scanner stops on a transmission. **Battery Save** - In manual mode, the BCD396T automatically reduces its power requirements to extend the battery's charge. **Attenuator** - Reduces the signal strength to help prevent signal overload. The BCD396T also works as a conventional scanner to continuously monitor many radio conversations even though the message is switching frequencies. The BCD396T comes with AC adapter, 3 AA nickel metal hydride batteries, belt clip, flexible rubber antenna, wrist strap, SMA/BNC adapter, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. Not compatible with AGEIS, ASTRO or ESAS systems. Order on-line at www.usascan.com or call 1-800-USA-SCAN.



Bearcat® BC246T Trunk Tracker III

Suggested list price \$399.95/CEI price \$214.95
Compact professional handheld TrunkTracker III scanner featuring Close Call and Dynamically Allocated Channel Memory (up to 2,500 channels), SAME Weather Alert, CTCSS/DCS, Alpha Tagging. Size: 2.72" Wide x 1.26" Deep x 4.6" High

Frequency Coverage:

25,000-54,000 MHz., 108,000-174,000 MHz., 216,000-224,9800 MHz., 400,000-512,000 MHz., 806,000-823,9875 MHz., 849,0125-868,9875 MHz., 894,0125-956,000 MHz., 1240,000 MHz.-1,300,000 MHz.

The handheld BC246T TrunkTracker scanner has so many features, we recommend you visit our web site at www.usascan.com and download the free owner's manual. Popular features include **Close Call Radio Frequency Capture** - Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. **Dynamically Allocated Channel Memory** - Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 1,600 channels are typical but **over 2,500 channels are possible** depending on the scanner features used. You can also easily determine how much memory is used. **Preprogrammed Service Search (10)** - Makes it easy to find interesting frequencies used by public safety, news media TV broadcast audio, Amateur (ham) radio, CB radio, Family Radio Service, special low power, railroad, aircraft, marine, racing and weather frequencies. **Quick Keys** - allow you to select systems and groups by pressing a single key. **Text Tagging** - Name each system, group, channel, talk group



ID, custom search range, and S.A.M.E. group using 16 characters per name. **Memory Backup** - When power is lost or disconnected, your BC246T retains the frequencies that were programmed in memory. **Unique Data Skip** - Allows the BC246T to skip over unwanted data transmissions and birdies. **Attenuator** - You can set the BC246T attenuator to reduce the input strength of strong signals by about 18 dB. **Duplicate Frequency Alert** - Alerts you if you try to enter a duplicate name or frequency already stored in the scanner. **22 Bands** - with aircraft and 800 MHz. The BC246T comes with AC adapter, 2 AA 1,800 mAh nickel metal hydride batteries, belt clip, flexible rubber antenna, wrist strap, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. For more fun, order our optional deluxe racing headset part #HF24RS for \$29.95. Order now at www.usascan.com or call 1-800-USA-SCAN.

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Bearcat 796DGV 1,000 channel TrunkTracker III base/mobile.....	\$519.95
Bearcat BCD396T APCO 25 Digital scanner with Fire Tone Out.....	\$519.95
Bearcat 246T up to 2,500 ch. TrunkTracker III handheld scanner.....	\$214.95
Bearcat Sportack 230 alpha display handheld sports scanner.....	\$184.95
Bearcat 278CLT 100 channel AM/FM/SAME WX alert scanner.....	\$129.95
Bearcat 248CLT 50 channel base AM/FM/weather alert scanner.....	\$104.95
Bearcat 92XLT 1RH5 200 ch. handheld scanner with headset.....	\$119.95
Bearcat 92XLT 200 channel handheld scanner.....	\$109.95
Bearcat 72XLT 100 channel handheld scanner.....	\$99.95
Bearcat BCT8 250 channel information mobile scanner.....	\$169.95
Bearcat 350C 50 channel desktop/mobile scanner.....	\$104.95
AOR AR16BQ Wide Band scanner with quick charger.....	\$199.95
AOR AR3000AB Wide Band base/mobile receiver.....	\$1,079.95
AOR AR5000A+3B Wide Band 10 KHz to 3 GHz receiver.....	\$2,599.95
AOR AR8200 Mark III B Wide Band handheld scanner.....	\$594.95
AOR AR8600 Mark II Wide Band receiver.....	\$899.95
AOR AR-ONE Government/Export sales only 10 KHz-3 GHz.....	\$4,489.95
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Going Above 30 MHz: What's The Right MILCOM Receiver For You?

Here's The Inside Scoop On What's Hot And What's Not

by Steve Douglass

Do the sounds of fighters cruising the skies on terrorist alert appeal to you? Or how about air refueling tankers topping of the tanks of a tactical bombers or stealth fighters on a simulated bombing run? If so, military monitoring seems to be the hobby for you. Well, then, you've come to the right place. In this article, we'll take a look at the best scanning receivers, both old and new school, to feed your MILCOM monitoring.

Old School: Realistic PRO-2004/2005/2035

My first true military aviation band (225 to 400 MHz) scanner was a PRO-2004. It was one of the first scanners that offered complete UHF MIL band coverage that not only was within the price range of most monitoring hobbyists, but was also a very sensitive (yet selective) receiver, capable of capturing even weak signals yet also rejecting unwanted out-of-band noise, essential in an urban environment. With it coupled with a good outside scanner antenna, it was not uncommon to intercept military communications from aircraft flying at high altitudes from hundreds of miles away.

The Realistic PRO series models are champs at bringing in those weak UHF AM signals, including some limited UHF nar-



Here's the Realistic PRO-2006 400-channel scanner. Around for a number of years now, it's generally found for about \$300.

row band FM military satellite communications, although it helps to have an antenna pre-amp to boost those signals.

The PRO-2004 was originally a 300-channel scanner, but is easily modifiable to expand its memory capacity to 400 channels. Plus by clipping just one diode, one could open up the scanner to receive the full VHF/UHF frequency bands, including the restricted cellular bands. This was one reason why the PRO-2004 and its successors, the PRO-2005 and PRO-2006,



KC-135R tanker from Altus Air Force Base skirts a severe storm near Amarillo. Aerial refuelings are just one exciting part of MILCOM monitoring above 30 MHz.

were such big sellers. There are dozens of other modifications that can be done on these scanners as well, including tapping the first IF so you can interface the scanners with an SSB-capable HF receiver, making it possible to listen to UHF military sideband communications. Also available are computer interfaces enabling you to program these scanners via a home PC.

Drawbacks of the PRO series of scanners include a display backlight that had the tendency to grow dim after a few years of use or suddenly not light up at all. However, there are some intrepid scanner enthusiasts who sell replacement kits that you can install yourself or (for a few more bucks) have installed by a qualified technician who can breathe new life into a tired or dead frequency display.

Also, the PRO-2004 membrane keyboard had the tendency to go flat and early PRO-2005s had power supply problems, but all in all the PRO-2004, 2005, and 2006 are very capable and quality scanners. My PRO-2004 has been chugging away since 1986 without any of the aforementioned glitches.

Realistic replaced the PRO-2004, 2005, and 2006 with a 1,000-channel version, the PRO-2035 (also a smart choice), but since then has not offered a good base scanner with UHF military coverage that worked as well as the early PRO series. The major drawback with the PRO-2035 was its lack of computer interface, which made this 1,000-channel beast a bear to program by hand.

Good used PRO-2004s can be found in eBay for under \$250 with PRO-2005/2006/2035s fetching closer to \$300.

New School: Uniden BC780/785D/796DGV

In my opinion, as military VHF/UHF scanners go, you cannot do better than the Uniden BC780/BC785D/796DGV receivers. (The only difference is that the BC780 and the BC785D/796DGV can decode digital APCO 25 public safety communications; the BC785D with optional decoder board installed and the 796DGV without a card, something the BC780 isn't equipped to do). Since there are no APCO digital signals in use in my area, so far, I have no need for the digital version, so my MILCOM workhorse is the BC780 XLT.)

The radios are sensitive and yet highly selective, being able to intercept even weak transmissions and still reject



The Uniden 396T is a full-featured handheld scanner that receives 25 MHz to 1.3 GHz.

unwanted RF interference. They are computer controllable/or field programmable via a great looking backlit keypad and big bright LCD display or computer interface. An alphanumeric option lets you enter the names of the channels in use so you can see at a glance if that tanker is on "WINCHESTER" (303.000 MHz) or on "MAGNUM" 357.000 MHz. You can individually program the mode and antenna attenuation of each channel, as well as set the specific frequencies' intercepts to be recorded (on an external cassette recorder) or to alert you with a loud beep when communications take place on a channel that you have a particular interest in.

Great for use as base scanners, they're also small enough (6 x 6 x 2 inches) to mount in a vehicle. Used BC780s can be had for just at \$300, with the newer models closer to \$550.

Old School: Handheld Realistic PRO-43

This is basically a portable version of the famous PRO-2004 in a compact package, and although it is out of production, the PRO-43 is still a favorite among military monitoring hobbyists.

The PRO-43 has 200 memory channels (no computer control), a bit of a dinky display, and is a bit chunky compared to

today's mini-handhelds. But it is a strong performer, especially on the UHF MILAIR bands, and can be modified as well to open up the entire VHF/UHF frequency bands, including cellular.

Back in the early '90s, when word got out that the PRO-43 was easily modifiable to receive cell phone calls, it became a big seller. Nowadays with everything having gone digital, cellular band reception isn't quite the selling point it once was. Still, if you want a simple-to-use and reliable handheld scanner capable of VHF/UHF MILCOM reception, then you could do much worse. Despite having been dropped several times and been dragged to more air shows and war games than I can count, my PRO-43 is still up and running, although it does look a bit worse for wear.

New School: ICOM R-3

The ICOM R-3 is my new everyday portable MILCOM scanner. I take it almost everywhere with me, but it's really not a scanning radio per-se. It's more like a very smart and portable communications receiver and piece of test equipment gear rolled into one highly sophisticated package.

Not as user friendly as most portable handheld scanners, it can do things that aren't possible on standard scanners, such as direction finding, displaying the active users on a good chunk of the radio spectrum (like a spectrum analyzer), and even display television signals including commercial, amateur and microwave relay (although very limited in reception range of TV microwave signals) up to 2.4 GHz!

Although this is a very capable and sophisticated communications receiver, some MILCOM scanner buffs would not like its seriously slow scan rate (five channels a second), plus for novices it can be a bit complicated to program.

However, I think it is (as my mom used to say) "just the berries!" It's a great scanner, especially if you need a very versatile receiver that you can also watch TV on! New ICOM R-3s can be had from various radio suppliers for around \$350.

New School/Old School: Yupiteru MVT-7100/7200

I have to admit, I've never used one but I have several friends who swear by their "Yupi." So, what's not to like? A thousand channels and a full spectrum receiver in a portable package, the Yupiteru

Re_Inventing Radio through Innovation



E1XM \$500*

The E1XM is the world's first radio to combine AM, FM, Shortwave, and XM Satellite Radio Ready technology into one ultra-high-performance unit.

- AM/FM/Shortwave/XM Satellite Ready Radio
- 1700 station presets
- Digitally synthesized PLL tuner with synchronous detector
- Passband tuning, selectable bandwidth filters and Selectable Single Sideband (SSB) reception
- Dual conversion superheterodyne circuit design
- Stereo line-level audio inputs and outputs and external antenna connections
- Dual Clocks and programmable timers
- Headphone jack
- Built-In Antenna: telescopic antenna for AM, FM and Shortwave reception
- External Antenna Connection for the addition of auxiliary antennas
- Calibrated LCD signal strength meter
- Power Source: 4 "D" Batteries (not included); AC Adapter (included)
- Dimensions: 13"W x 7-1/2"H x 2-1/2"D
- Weight: 4 lb 3 oz.

E5 \$150*

AM/FM/Shortwave Radio

The E5 is the world's leading multi-band and Single Side Band (SSB) enabled radio, uniting performance and mobility into one compact unit, and bringing the power of local and world radio into the palm of your hand.

Features

- _ FM-Stereo, AM and full-Shortwave coverage (1711-29999 KHz)
- _ PLL dual conversion AM/SW circuitry with SSB
- _ 700 programmable memory presets with memory scan and auto tuning storage (ATS)
- _ Clock, sleep timer and alarm functions with world zone settings
- _ Tunes via auto-scan, manual-scan, direct key-in entry and tuning knob
- _ Internally recharges Ni-MH batteries
- _ Station name input
- _ Dimensions: 6-5/8"W x 4-1/8"H x 1-1/8"D
- _ Weight: 12.2 oz.

Features are subject to change

E10 \$130*

AM/FM/Shortwave Radio

Intelligence meets performance in the E10. With 550 programmable memories, manual and auto scan, precision tuning and alarm clock features, the E10 provides the sophisticated tools for listening to news, sports, and music from around the world. The E10 even allows internal recharging of its Ni-MH batteries (charger and batteries included). With excellent AM, FM, and Shortwave reception, intermediate frequency shift and shortwave antenna trimmer—the E10 gives you the performance you want with the digital ease you deserve.

Features

- _ Shortwave range of 1711 – 29,999 KHz
- _ 550 programmable memories with memory page customization
- _ Manual and auto scan, direct keypad frequency entry, ATS
- _ Clock with alarm, sleep timer, and snooze functions
- _ Earphones
- _ Supplementary wire antenna
- _ Power Source: 4 AA Batteries (included) or AC Adapter/Charger (included)
- _ Dimensions: 7-1/2"W x 4-1/2"H x 1-1/2"D
- _ Weight: 1 lb. 1oz.

E100 \$100*

AM/FM/Shortwave Radio

The E100 fits full-sized features into your palm or pocket. This little marvel is packed with all the latest radio features you want: digital tuning, 200 programmable memories, digital clock and alarm, plus AM/FM and Shortwave reception. And, it is small enough to fit in your coat pocket.

Features

- _ Shortwave range of 1711 – 29,999 KHz
- _ 200 programmable memories
- _ Memory page customization
- _ Manual and auto scan, direct keypad frequency entry
- _ Earphones
- _ Power Source: 2 AA Batteries (included) or AC Adapter (not included)
- _ Dimensions: 5"W x 3"H x 1-1/4"D
- _ Weight: 7 oz.



* Prices do not include Shipping/Handling and applicable taxes. To order please call us toll free at 1-800-793-6542

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MVT-7100 (and its follow-on Yupiteru 7200) offer excellent advanced features and frequency coverage and are a favorite of many MILCOM monitors.

Manufactured in the UK, it can sometimes be hard to find in the States, but with features like SSB capability and HF reception, it's worth tracking down. The best source for Yupiteru and service seems to be Javiation (www.javiation.co.uk or info@javiation.co.uk). Used Yupiteru are still a bit pricey (\$450 to \$500), with new ones going for about \$50 more.

New School/Old School: Uniden BC-895XLT/898T

The Uniden BC-895 is an old-school scanner (having been discontinued), but is virtually identical to its follow-on 898T, with both offering good MILCOM band coverage at a modest price. I owned a BC-895 and a friend of mine liked it so well that he badgered me until I sold it to him. I put the money toward purchasing a BC-780XLT, which I like even more. But from time to time I still miss my old trusty BC-895 and its big clunky tuning knob.

The upgraded version, the Uniden BC-898T features include extended frequency coverage of 25–54, 108–174, 216–512, and 806–956 MHz (excluding cellular), DCS/CTCSS Rapid Decode, which instantly detects and displays the sub-audible tone, S.A.M.E. (Specific Area Message Encoding) Weather Alert, and conventional and trunked monitoring operations.

While new BC-898Ts go for about \$250, you can find good used BC-895s for under \$150 on various Internet auction sites. If computer control isn't a major consideration for you and you want a good novice MILCOM monitoring device for a good price, either of these radios should serve your needs well.

New School: ICOM R-5

If you want a MILCOM-capable receiver that's small and easy to conceal and you aren't too concerned about scan speed, then the ICOM R-5 just might be the radio for you. Offering full spectrum coverage (minus cellular, of course) and loaded with features, it's hard to believe they were able to cram so much into such a small package (3.4 x 2.3 x 1.1 inches, and weighing a whopping six ounces).

The R5-11-GOVT model is the same as the standard R-5, but *without* the cellular gaps and can be purchased via the

*New from ICOM
America is the R5. It
comes in a small
package, but really
packs a wallop!*



government or qualifying commercial customers or for export only. The ICOM R-5 is computer programmable via a USB interface. Expect to pay \$200 to \$250, depending on provided accessories.

New School: AOR 8200 MARK 3

The follow-on to the very popular AOR 8000, the AOR 8200 is one *helluva* receiver. Don't expect it to be as user

*The AOR 8200 is light years
beyond most other handhelds
in features and performance.*



friendly as a Uniden, but it's lightyears beyond most handhelds in features and performance. Features include coverage up to 3 GHz, computer interface and control, 1,000 memories, and alpha-numerics.

The 8200 can also be used in conjunction with the Optoelectronics Scout or Watson's Super Searcher frequency counters for automatic and instantaneous tuning of any detected frequencies. An optional RT-8200 cable is required. There is also a wide array of optional slot cards capable of storing frequency information (as a back-up) to record digital audio, and even one that will let you decode voice-inverted speech scrambling!

A great review of the AOR 8200 and other radios mentioned here can be found on the Web at www.ukmidlandscanner.co.uk/8200mk3.htm.

Newest School: Uniden 396T

Not much is known about the MILCOM reception on Uniden's newest super-duper handheld scanner, touting an amazing 6,000-channel memory capacity. The specs on the 396T are impressive, including Uniden's patented "Close Call" frequency capture technology that locks onto nearby radio transmissions, even on frequencies not programmed into the scanner's memory allocations.

At press time, it's not known if the Close Call feature works on VHF or UHF AM aviation transmissions, but Uniden promises me a sample to do some fiddling with, and I'll let you know how it works as soon as possible. A full review will appear in *Pop'Comm* in a future issue.

The new Bearcat 396T scanners list from \$520 to \$700, depending on who you buy from. Don't expect any good used units to appear on eBay for quite some time, although some gray market units will most likely pop up on the Internet shortly.

What Are You Using?

Knowing what to buy and how to use it can make all the difference in the world in hearing those high-flying MILCOM signals. Chances are you've found your niche receiver, and I'd like to hear about it—what are you using? While you're at it, send along some photos of you at your monitoring post! I can be reached online at webbfeat@1s.net or at *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801. ■

News, Trends, And Short Takes

Vanuatu Gets Two New Mediumwave DRM-Capable Transmitters

The New Zealand government has given funds to Vanuatu for two new mediumwave transmitters, one for the Vila area, the other for the Santo area. Both will be installed by the time you read this, and each will be DRM (Digital Radio Mondiale)-capable. MW broadcasts in many parts of the Pacific are in danger of shutting down from high power costs (usually diesel generators), lack of technical expertise, weather damage, and old equipment.

Currently, Radio Cook Islands 630, SBC Samoa 540, and SIBC Honiara 1035 are all running at half or reduced power because of power costs, while Nauru 1323 is off air, KJAL American Samoa 580 is on reduced power after a cyclone, WVUV American Samoa 648 has been operating only at very low power awaiting an FCC frequency and tower change, and part of Papua New Guinea's MW network is being rebuilt with Japanese aid.

Comments from the New Zealand government reflect a real concern that neighboring island broadcasters are under severe pressure to survive. Both RNZI and Radio Australia now provide much of the technical and training expertise needed to keep stations on the air as far away as the Marshall Islands and as close as Tonga and Niue. This assistance is expected to expand in the future. The model emerging is for island stations to get help buying new DRM-capable MW transmitters so they can relay RNZI DRM and RA DRM broadcasts to local repeater FM stations while providing a stable MW signal for continued reception on analog radio sets.

National Television Of Tamileelam Extends Coverage

The National Television of Tamileelam (NTT), the TV station run by Sri Lanka's Tamil Tigers, has begun television broadcasts to Southeast Asian countries. The new service can reach India, parts of Pakistan, Afghanistan, Bangladesh, Nepal, Myanmar, and China for two hours at 1330 to 1530 UTC. NTT started broadcasts to European countries in March.

Delphi And WorldSpace To Bring Mobile Satellite Radio To India

Delphi Corporation, a supplier of automotive systems and components, announced that it has signed an agreement with WorldSpace to make mobile satellite radio available in Asia for the first time. The companies will launch and market Delphi-WorldSpace Mobile Satellite Audio receivers in India, and subsequently plan to expand availability into China. The product is expected to be available on the Indian market in the first half of 2006.

The agreement calls for Delphi to provide hardware that will deliver uninterrupted access to the WorldSpace satellite radio network, which provides more than 35 radio stations across India. Digital satellite programming offered by WorldSpace

includes a combination of news, sports, music, brand name content, and education programming developed by WorldSpace or provided through sources such as the BBC and CNN International. Delphi-WorldSpace Mobile Satellite Radio receivers will be designed to receive and decode the WorldSpace satellite signal throughout India and, in the future, in other markets where WorldSpace service is available.

Brazilian Regulator Closes Down 1,199 Illegal Radio Stations

This year the Brazilian telecommunications regulatory agency Agência Nacional de Telecomunicações (Anatel) has stepped up its policing of illegal radio stations. So far this year, 1,199 of them have been taken off the air; that works out to around 200 per month (last year, 1,807 were closed down over the entire year). Anatel estimates that there are almost 4,500 pirate radio stations operating in the country. Edilson Ribeiro dos Santos, a superintendent at Anatel, says that the illegal radio stations interfere with legal stations, as well as air traffic communications.

Study Says 80 Percent Of Americans Have Little Interest In Satellite Radio

The interest in satellite radio seems unchanged over the past four years, according to a new study. Eighty percent of Americans remain unlikely to subscribe to satellite radio in the future. The findings are from an Eastlan Resources study of 2,512 Americans (12 years or older) conducted during the first quarter of 2005. The new data seem to echo the findings of an Eastlan study in the Spring of 2001, in which 80 percent of Americans questioned would have no interest in purchasing a new satellite-delivered radio service that offered dozens of commercial-free radio channels for a monthly fee of around \$10.

In the new study, Eastlan found that five percent of those questioned are currently subscribing to satellite radio, while another nine percent are likely to subscribe to satellite radio sometime in the future. Surprisingly, five percent of those participating in the study had never heard of satellite radio. Only 37 percent of those unaware of satellite radio were 65 or older.

XM Satellite Radio Makes Strategic Investment In WorldSpace

U.S. broadcaster XM Satellite Radio announced that it has made a strategic investment of \$25 million in the common stock of WorldSpace, Inc., a leading satellite radio provider for Asia, Europe, the Middle East, and Africa. In connection with the investment, XM will cooperate with WorldSpace to develop satellite radio products, technology, and distribution and supplier networks. In addition, XM will have warrants to acquire \$37.5 million in additional WorldSpace stock and an option to invest along with WorldSpace and other partners in various countries around the world. ■

Re_Inventing Radio through Design and Necessity



FR250 \$50* Multi-Purpose

Stay informed and prepared for emergencies with this self-powered 3-in-1 radio, flashlight and cell-phone charger — no batteries required.

- _ AM/FM/Shortwave Radio Reception
- _ Built-in power generator recharges the internal rechargeable Ni-MH battery (Included)

- _ Cell-phone charger output jack 3.5mm (various cell phone plug tips included)
- _ Built-in 2 white LED light source and one flashing red LED
- _ Dimensions: 6-1/2"W x 6"H x 2-1/2"D
- _ Weight: 1 lb. 3 oz.
- _ Power Source: Built-In Rechargeable Ni-MH Battery Pack; 3 AA Batteries (not included); Crank power alone; AC Adapter (not included); AC Adapter recharges built-in Ni-MH battery pack



FR200 \$40* Crank it Up

Without the need for batteries, this self-powered 2-in-1 radio and flashlight helps you stay informed and prepared for emergencies.

- _ AM/FM/Shortwave Radio Reception
- _ Built-in power generator recharges the internal rechargeable Ni-MH battery (Included)

- _ Built-in white LED light source
- _ 12 international bands
- _ Dimensions: 6-1/2"W x 5-3/4"H x 2-1/4"D
- _ Weight: 1 lb. 2 oz.
- _ Power Source: Built-In Rechargeable Ni-MH Battery Pack; 3 AA Batteries (not included); Crank power alone; AC Adapter (not included); AC Adapter recharges built-in Ni-MH battery pack
- _ Available colors: Metallic Blue, Metallic Red, Sand



FR300 \$50*

All-In-One



This all-in-one unit offers functionality and versatility that makes it ideal for emergencies.

- _ AM/FM/TV-V-HF/NOAA Radio Reception
- _ Built-in power generator recharges the internal rechargeable Ni-MH battery (Included)
- _ Can be powered from four different sources:
 1. The built-in rechargeable Ni-MH battery that takes charge from the dynamic crank and from an AC adapter (AC adapter not included)
 2. 3 AA batteries (Not included)
 3. The AC adapter alone (AC adapter not included)
 4. The dynamo crank alone, even with no battery pack installed
- _ Cell-phone charger output jack 3.5mm (various cell phone plug tips included)
- _ Built-in 2 white LED light source and one flashing red LED
- _ Weather alert
- _ Dimensions: 6-1/2"W x 6"H x 2-1/2"D
- _ Weight: 1 lb. 3 oz.



S350 Deluxe \$150*

High-Performance Field Radio with Stereo Headphones

For S350 devotees the deluxe model combines a sporty new exterior with the same unrivalled functionality.

- _ Highly sensitive analog tuner with digital display
- _ Large, full range speaker with bass & treble control
- _ Clock, alarm, and sleep timer
- _ Built-in antennas and connections for external antennas
- _ Headphones included
- _ Dimensions: 12-1/2"W x 7"H x 3-1/2"D
- _ Weight: 3 lb. 4 oz.
- _ Power Source: 4 D or AA Batteries (not included) or AC Adapter (included)
- _ Available colors: Metallic Red, Black ■■

Improvements over S350:

- _ FM- stereo via headphones
- _ AM/SW Frequency Lock
- _ Set clock and alarm while radio plays
- _ Operates on 4D or 4AA batteries



S350 \$100*

Ruggedly Retro

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- _ Power Source: 3 AA Batteries (included) or AC Adapter (not included)



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The Space Shuttle: Are You Ready For STS-121?

NASA's hard work on the Space Shuttle continues, and there is a multitude of Shuttle comms to hear. Let's get ready now for the next launch, STS-121, which NASA has scheduled for March 2006. This will be the second test flight to the International Space Station in the Shuttle Return to Flight series. NASA Administrator Mike Griffin and Associate Administrator for Space Operations William Gerstenmaier made the announcement at a briefing on August 18.

"We are giving ourselves what we hope is plenty of time to evaluate where we are," said Griffin. "We don't see the tasks remaining before us being as difficult as the path behind us."

The Space Shuttle is indeed providing comms for us to monitor, but no longer the wonderful EVA (Extravehicular Activity) comms we used to be able to hear on UHF. Instead, we can monitor only the pre- and post-launch ground comms of the Kennedy Space Center (KSC) digital trunk, as well as the post-launch air-ground comms on the primary 259.7 MHz for a short while after lift-off.

Upon arriving at NASA-KSC for launch preparations, the STS-114 Return to Flight Mission astronaut crew of seven flew the Shuttle Training Aircraft (STAs) in simulated landings at the Shuttle Landing Facility, and they were heard loud and clear on freq 126.65 MHz in both air-ground comms and air-air comms. Here's a short summary of the NASA aircraft that participated in the pre-launch activities:

NASA 4: Gulfstream II
 NASA 950: Gulfstream II
 NASA 945: STA
 NASA 926: WB-57F High-Altitude Research Acft
 NASA 928: WB-57F High-Altitude Research Acft
 NASA 902: T-38N

The frequencies they used included: 133.75 MHz (Patrick Tower), 132.65 MHz (Daytona Beach Approach/Departure), 124.8 MHz (Orlando Approach/Departure), 125.075 MHz (Miami Center at Vero Beach, Hi-Altitude), 133.475 MHz (Miami Center), 128.55 MHz (KSC Shuttle Landing Facility Tower), 126.65 MHz (KSC SLF Tower, Weather Base), 284.0 MHz (KSC SLF Tower), 264.8 MHz (Cape Control), 235.4 MHz (NASA air-air).

In addition, NASA comms were transmitted locally on ham repeater freq 146.94 MHz. In Dade and Broward counties of southern Florida, repeater freq 444.175 MHz rebroadcast the comms, while in Central Florida, South Orlando Amateur Radio Repeater (KE4TTE) carried the comms on 442.1 MHz.

What's That Aircraft With The Huge Wings?

Marine frequencies were also busy with comms from aircraft and vessels performing range clearance activities to free the Launch Hazard Area around KSC of vessels and aircraft. Callsign "Coast Guard Range Control" was heard on freqs



*This is NASA's WB-57F High-Altitude Research Aircraft, callsign NASA 928, during its mission in support of the Space Shuttle STS-114 Return To Flight Mission. For its work in photographing the Shuttle Orbiter right after launch, it used the callsign "Wave 01."
 (All photos by Al Stern)*

156.8, 157.075, 157.1, 157.15 MHz, along with USCG aircraft callsigns CG 2117, CG 6538, CG 6595 and many CG auxiliary vessels.

NASA's two WB-57F High Altitude Research Aircraft were used to photograph the orbiter after liftoff to detect any damage that might have occurred to the orbiter's surfaces. These two old aircraft attracted a lot of attention in the area as they departed Patrick AFB, ascending in a spiral to work at 55,000 feet. They were in communications with Miami Center on 119.825 MHz. Several commercial airliner pilots overheard their request to climb to super-high altitudes and asked the Miami Center Air Traffic Controller, "What is that aircraft with the huge wings going to 55,000 feet?" (A photo I took of one of the WB-57F aircraft accompanies this month's column.)

Florida Civil Air Patrol aircraft supported the launch as well. They launched from Patrick AFB and used callsigns "FLORIDA CAP" and "RENO." They were heard on Cape Control frequency 133.8 MHz and on Civil Air Patrol frequency 148.15 MHz in support of range clearance activities. They were also heard on 149.5375 MHz, and were transmitting slow-scan TV images to the ground via frequency 149.9 MHz.

Combat Air Patrol (CAP) Flights, Too!

Combat Air Patrol flights, consisting of Shaw AFB 55 Fighter Squadron F-16s using the callsign "Pitman," were also heard around launch time, orbiting the KSC area and in communication with Tyndall AFB's NORAD function (callsign "Oakgrove") and with Tanker 71 on frequency 252.2 MHz. They also used frequencies 228.9 and 265.4 MHz for communication with NORAD, 133.8 MHz for communication with Cape Control, as well as 128.65 and 343.7 MHz for communi-



NASA's WB-57F, callsign NASA 926, during its mission in support of the Space Shuttle STS-114 Return to Flight Mission. It was using the callsign WAVE 02. This photograph shows the aerodynamically clean underside of these high altitude airplanes.

cation with Miami Center Air Traffic Control. They used 141.9 MHz (AM Mode) for their air-air comms.

Cape Radio

KSC's "Cape Radio" maintained comms with "KING" C-130s and others on HF freq 10780.0 kHz USB during the pre-launch period. The KSC (Kennedy Space Center) and CCAFS (Cape Canaveral Air Force Station) Talk Groups on the Space Center's 400-MHz trunk system were hot with communications of blue-shirters hustling to satisfy the whims of the VIPs brought to the Cape for the STS-114 launch. There was lots of talk about the Governor of Mississippi, for example. Among the Talk Groups monitored were:

- Talk Group 336: Camera alignment, zoom adjustments
- Talk Group 1936: Security
- Talk Group 1952: Re late arrival of Mississippi governor
- Talk Group 2128: Re holding the Shuttle flight crew at road-block, due to Phase 1 lightning status at KSC
- Talk Group 13776:
- Talk Group 16976: re NASA G-IV (Gulfstream 1) arriving
- Talk Group 32656:
- Talk Group 34928: re a Patrick AFB C-130 2102 fueling
- Talk Group 35856: PAFB crew van comms with tower

Plug In 259.7, Even If You're In...The UK!

People in places as far away from Florida's launch pads as Alabama, Georgia, and North Carolina reported hearing the Space Shuttle air-ground comms on 259.7 MHz during the shuttle's ascent. In fact, monitors from as far away as Southampton and Poole in the *United Kingdom* also reported hearing shuttle air-ground comms on 259.7 MHz. A listener in the United States as far north as Connecticut reported hearing the 259.7 MHz comms at the point of confirmed release of the External Tank.

Randall Landers, KG4EUD, up in Oxford, Alabama, reported to me that he heard the frequency strongly, and Mac McCormick in Savannah, Georgia, logged Shuttle Commander Eileen Collins with the following exchange:

"Go with throttle up"

"2 engines Zaragoza"
 "DISCOVERY is negative return"
 "DISCOVERY is press for ATO"
 "DISCOVERY single engine..."
 "Press to MECO, single engine Zaragoza 104"
 "Go for the pitch maneuver"

Mac also logged comms between the Solid Rocket Booster Recovery Director at KSC and the Booster Recovery Ship *Liberty Star* on HF freq 5711 kHz USB. They were passing launch information and booster trajectories after jettison. Mark Cleary in South Carolina also reported hearing the SRB-related comms on 5711 kHz USB. Duke Rumley in North Carolina reported hearing comms in Russian from the ISS on 143.625 MHz AM Mode, and the timing suggests they could have been STS-114 related.

Table 1. COMPTUEX Aircraft And Frequencies

Bear 20, Bear 30, Bear 600: E-2C, Norfolk
 Lion 31, Lion 32: F-14, Oceana
 Felix 31, Felix 32, Felix 33: F-14, Oceana
 Party: F/A-18
 Pride 57: F/A-18 #164655, Oceana
 Showtime: F-16
 Scout: S-3B
 Magic: Royal Air Force E-3 AWACS
 Omega 14, Omega 70: Tankers
 Rhet 12: KC-135R, Robins AFB
 Bolt 88: KC-135R, MacDill AFB

COMPTUEX Frequencies

142.850 Showtime Air-air
 226.825 Omega 70
 245.100 Felix Tactical
 252.200 Lion Tactical
 258.700 Tango Papa
 262.650 Lion, Felix Air-air
 267.500 Sealord South
 268.300 *USS Theodore Roosevelt* Strike
 269.300 Miami Center
 270.125 Tango Xray
 273.350 AR Boom
 274.375 Party Tactical
 280.350 Lion Tactical
 284.500 Sealord North
 284.850 Bear Tactical
 286.100 *USS Theodore Roosevelt* Strike; Bolt AAR comms
 292.000 Magic w/Lion, Felix
 292.200 Avon Park Bombing Range Control
 301.000 Scout Tactical
 303.000 Molson with Trident
 317.975 *USS Theodore Roosevelt* Marshalling
 340.450 Air-Air
 341.100 Sealord Discrete; AAR
 343.700 Bear, ACM BRAAs, Lion, Pride
 344.600 Patrick AFB Metro
 357.000 Sealord Check-in for Pinycastle
 357.950 ACM
 364.075 Red Crown, with Magic, etc.
 380.800 Pinycastle Range



This is Keesler AFB's 403rd Wing 53rd WRS Hurricane Hunter WC-130H. This aircraft, serial 65-0977, and its AFRC crews have logged many hours in flight through hurricanes and other weather anomalies.



This is Widget 47, one of only two existing E-9A aircraft. Based at Tyndall AFB with the 53rd Weapons Evaluation Group, 82nd Aerial Targets Squadron, its duties include support of Cruise Missile test launches from U.S. Navy vessels offshore near Kennedy Space Center.

And the old standby, the Goddard Space Flight Center Amateur Radio Club, WA3NAS, continues its rebroadcasting of the Shuttle prelaunch comms, which were heard on both 3860 and 7185 kHz LSB, and on 14292 kHz USB.

USS Theodore Roosevelt Completes Exercise

The *USS Theodore Roosevelt* completed its COMPTUEX (Composite Training Unit Exercise), and its aircraft, including E-2C "Bear 27," were monitored on 261.425, 357.0, and 364.075 MHz. Weather hampered a lot of the aircraft operations, but some of their sorties were heard at both Avon Park Bombing Range and Pinecastle Range in Florida.

Avon Park frequencies used included 292.2, 285.725 and 264.625 MHz, while Pinecastle activities were on 380.8 and 357.0 MHz. A new call sign, "Showtime," appeared during this period, and it is believed to have been used by F-16s. They were heard working with "Bristol GCI" on Sealord frequency 133.950 MHz, and with Bear on 380.8 MHz at the Pinecastle Range; they used 141.275 MHz (AM Mode) for air-air. See **Table 1** for a partial listing of these and other *USS Theodore Roosevelt* aircraft, along with frequencies heard during this period.

Other Vital Comms During COMPTUEX

U.S. Customs and Border Patrol aircraft were busy on 164.775 MHz with both secure and clear communications. Also, on CBP "Net 2" 169.45 MHz, "Omaha 558" was heard in communications with "HAMMER."

Hurricane Hunter WC-130s (callsign "Teal") from Keesler AFB (403rd Wing, 53 Weather Reconnaissance Squadron) were heard in Florida airspace using frequency 338.0 MHz for communications with NAS Key West Base Ops. Also WC-130H "King 77," a Keesler Hurricane Hunter (serial 65-0977), spent quite a bit of time at Patrick doing training. They were heard mostly on the Patrick Tower frequency of 133.75 MHz and Daytona Departure frequency of 132.65 MHz, as well as on Patrick's metro (weather) freq, 344.6 MHz, including once when requesting some airspace with bad weather to fly through for training purposes. Check out the photograph I was able to take of King 77.

Patrick's own HC-130P "King 55" was busy as well. One day it was heard in a live-fire exercise offshore in comms with "Blueball," and also in pararescue jumper drops over Patrick AFB's Judy Drop Zone and BamBam Drop Zone. Among the frequencies used were Patrick's Rescue Ops freq 321.0 MHz and the PJ drop air-ground freq 251.9 MHz.

JSTARS aircraft were quite busy on their freqs. STARGATE was heard on 225.725 MHz with JSTARS Ground Station "Star 01," and up on 376.125 MHz with "Brigham." STARGATE also got a signal check on 364.2 MHz, NORAD's Airborne Intercept Control Common (AICC) freq. Stargate also was heard on 323.9 and 328.025 MHz. Brigham was also heard in comms with SNAKE 11 on 376.125 MHz. JSTARS Strikestar was heard on 395.15 MHz, and Strikestar air-air comms with Stargate were reported on 149.15 MHz (AM Mode).

Hydraulic Emergency

MAKO 11, an F-16C from Homestead ARB's 483 Fighter Wing, was heard communicating about an hydraulic emergency. He was in comms with Avon Park Bombing Range at the time and said he was burning off gas before landing at the MacDill AFB Auxiliary Field there. Comms with Avon Park Bombing Range were on 292.2 MHz, and comms with his home base Supervisor of Flying (SOF) were on 138.025 MHz. He managed to land there safely.

Some of the U.S. Air Force's new F/A-22 Raptors are being heard training out of Tyndall AFB. Recently I heard their air-air comms on 256.6 MHz. They seem to favor use of freqs that are assigned to NORAD, perhaps because they are co-located with them at Tyndall AFB.

Many Kingsville NAS Training Wing Two T-45s were heard performing aircraft carrier qualification landing and departures. Among the frequencies used were: 351.8 MHz, Jacksonville Departure; 291.55 MHz, the aircraft carrier's Marshaling Freq; and 336.5 MHz, air-air. The callsign the T-45s use is "CD ###!"

Mark Cleary reports that Shaw AFB's 77 Fighter Squadron is now using 273.7 MHz as its GAMBLER OPS freq. Comms from "Widget 47," a rare E-9A acft, were heard during his pattern work at Patrick AFB. His comms were on the 133.75 MHz Patrick Tower freq as well as on ATC freqs for his return to his Tyndall AFB home. This unusual aircraft, one of only two ever

built, participates in cruise missile test launchings as well as other military tests.

Some Milsatcoms were also heard, with unidentified parties in the clear on 269.95 MHz (NFM Mode) saying: "Red, Red, you hear me now? Blue, Blue, you hear me. Power that down, but stay on D too." The signal was very strong.

MARS Operators

I also heard MARS operators discussing a change in their USAF phone patch freqs. The MARS phone patch net primary has changed and is now 13927.1 kHz USB. This is a formal permanent change, not just an adjustment for conditions. So the MARS phone patch freqs are now: 13927.1 Primary, 4557.1, 7633.6, and 14389.1 kHz USB.

The 22nd MEU TRUEX Urban Exercise

And, finally, Mac McCormick contributes this from the very interesting 22nd MEU TRUEX Urban Exercise he was able to monitor from his vantage point in Savannah. TRUEX stands for "Training in an Urban Environment Exercise" and is part of MOUT (Military Operations in Urban Terrain) training. TRUEX is a standard pre-deployment training exercise for all deploying MEUs (Marine Expeditionary Units) and helps prepare the unit

Table 2. TRUEX Callsigns And Frequencies

ELVIS: HMM-261 Reinforced
 ELVIS BASE: HMM-261 Reinforced Base at Savannah CRTC
 ELVIS 1#: UH-1N, AH-1W
 ELVIS 2#: CH-46E
 ELVIS 33: Cessna O-2, N84NX, Naval Post Graduate School
 ELVIS 34, 35, 36, 37: AV-8B, VMA-223
 ELVIS 41, 42: CH-53E
 ELVIS 45: KC-130T, VMGR-452
 CADILLAC: CH-53E
 HEARTBREAK: AH-1W
 RANGER: KC-130T, VMGR-234
 YANKEE: KC-130T, VMGR-452
 VEGAS: AV-8B, VMA-223

TRUEX Frequencies

118.400	Savannah Approach/Departure
119.100	Savannah IAP Tower
120.400	Savannah Approach/Departure
121.900	Savannah IAP Ground
125.300	Savannah Approach/Departure
140.5875	Savannah CRTC
148.500	Savannah CRTC
149.7875	Savannah CRTC
237.000	Savannah CRTC CP
244.875	Route Common?
257.175	CH-46 a2a (ELVIS 20)
257.800	Savannah IAP Tower
276.900	Aerial Refueling
299.400	AV-8B a2a (ELVIS 36/37)
307.225	Savannah Approach/Departure
308.200	AV-8B a2a (ELVIS 34/35)
346.800	Savannah IAP Ground
380.025	Savannah Approach/Departure
387.100	Savannah Approach/Departure



Widget 48, the second of the two existing E-9A aircraft, is seen here with its belly-mounted sensor pod clearly visible.

for operating in urban terrain, ranging from major metropolitan cities to mid-sized towns and small villages. TRUEX exercises are held throughout the year at various locations in the United States. (See Table 2 for callsigns and frequencies.)

Wanted: Logs And Frequencies

Remember to send along to me any frequencies or loggings you think other folks might find useful or interesting. My e-mail address is AllanStern@aol.com.

Your questions, comments, and short write-ups about your military monitoring experiences—with photos if you have them—are always welcome! Stay the quest. See you again next month. ■

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Keeping It Simple, And Learning To Love The BC-246T

I heard a great quote the other day: “Why can’t technology be as simple as the box it comes in?” Wow! What a concept! And that, dear reader, is what leads us into this month’s “Homeland Security” column.

Without a doubt, the place you go to find out what is happening in your immediate locale is the VHF/UHF “action bands.” That’s right—your scanner is your very best friend when it comes to keeping on top of what’s going on in your community or rural area. A good scanner (and there are a lot of them out there) is worth its weight in gold when you need to stay informed on rapidly changing events.

Simple Is As Simple Does

My very first VHF monitoring radio was a simple low-band VHF converter that physically attached to a small mid-1960s AM/FM portable radio, which enabled me to hear the Spokane City (WA) PD and FD from my college dorm room. The converter received the low-band VHF frequencies and up-converted them to the standard FM band (remember this was in the heyday of AM radio, so FM stations were few and far between) where they could be heard by us diehard radio buffs. True, you could only hear one service at a time, like SPD Dispatch. If you wanted to tune the car-to-car, fire frequencies, or county sheriff, you had to retune the radio to receive them. Scanning hadn’t been invented yet, but it was not far off.

As ancient and ostensibly un-user-friendly as this early system now seems, it was state of the art in the mid-’60s, and I had a ringside seat for some of the action. Best of all it was ultra-simple to implement and use.

My next VHF monitoring setup was a little more sophisticated and consisted of a set of Regency analog tunable low- and high-band VHF receivers. Now I could monitor both low-band and high-band action around Whitman and Spokane counties, but still only hear one service per radio at a time. I added an aeronautical AM receiver for local tower activities, in the

hopes of capturing some of the military air traffic at Fairchild and Geiger AFBs north of Spokane, but I never heard much. I hadn’t yet discovered the joys of MilAir monitoring (or that most military air-to-air/air-to-ground tactical comms were relegated to the UHF bands between 225 and 400 MHz). Again, this station was simple to use, and it gave a college kid living away from home for the first time loads of fun.

I entered the state of Nirvana when I procured my first four-channel RadioShack PRO-4 handheld scanner (which I still have, by the way). It was capable of handling four crystals, which yielded four discrete frequencies in either the low- or high-band VHF spectrum. Scanning speed was relatively slow, but with only four channels, what the heck!

This was followed by several eight-channel Bearcat (they were not owned by Uniden, yet) crystal-controlled scanners that covered low/high-band VHF and UHF. Things were getting better. All one had to do was plop the correct crystal (RadioShack sold these for about \$5 each until about five years ago!) into the scanner and turn it on. The unit started stepping through the channels at a blinding speed—for that time—and would stop when the squelch opened up on an active channel. Life was good, I was having fun, and things were *simple*.

As my scanning habits and needs matured, the technology I employed to capture the communications I wanted to listen to evolved to include programmable scanners from RadioShack (PRO-2020, 2021, 2005, 2006, 2026) and Uniden (BC-210XL, BC-895XLT, BCT-7, BCT-8). All these scanners had some serious memory capabilities and required some intense learning curves to make use of their various features. Another thing all these units had in common was the ability to control what you listened to via bank switching of the channels.

In simple (there’s that word again!) terms this means that, depending upon the firmware programming of the individual radio, you were allotted a specific number of channels per bank (10, 20, 25, or 50 channels per bank). The



Here’s the topic of this month’s column, the Uniden BC-246T. It offers a multitude of features, but with a steep learning curve.

firmware was organized to provide a series of banks (groups of channels) that could be turned on and off, controlling the total number of channels that you were exposed to at any given time. If you had a 200-channel scanner, like my old reliable PRO-2021, you had 10 banks of 20 channels, totaling 200 channels. You could load the various FD, PD, EMS, EMA, AIR, UTE, etc. frequencies into

selected banks and listen to only the police, or fire, or police *and* fire, or EMS, or EMS *and* fire *and* EMS—well, you get the picture.

At any rate, once you understood the concept of bank switching it was a simple (ah, that word...) matter to allocate the channels in a given bank or banks to cover whatever you most wanted to hear to the exclusion of everything else. With the punch of a button, you could bring other banks on line and hear expanded coverage, as you would want to do with a large-scale fire, natural/man-made disaster, multi-district car chase, etc. While these radios were some serious rigs in their day, they were still simple to use once you understood the concept of bank switching.

Scotty Knew

“The more complicated they make the plumbing, the easier it is to stop up the toilet!” This is a quote from Captain Montgomery Scott, Chief Engineer, USS Enterprise, NCC-1701A.

Mr. Scott was a genius. He was also a prophet when it came to technology. In late 2004, Uniden (they bought out Bearcat many years ago) marketed a small handheld scanner, the model BC-246T that was to revolutionize scanning as we knew it. Anyway, that was the plan. It sounded like a good idea at the time. But so did booking passage on the *Titanic* in 1912!

After reading the manual of my newly acquired 246T several times, fiddling with the various programming menus, and twisting a mixture of controls trying to load and manipulate the discrete frequencies I wanted to monitor on my new handheld scanner, and generally becoming extremely frustrated with this newest offering from Uniden, I re-read Captain Scott's missive. My blood pressure dropped, and I stepped away from the unit for a while to cool down. This was definitely *NOT* simple! (Fear not as you read on, however. The feature “Scanner Programming: Man-Machine Interface” found elsewhere in this issue will help you avoid some of my hard lessons.)

I hit the Internet in an attempt to gain some insight as to where I was going so terribly wrong with this tiny little radio. I joined two of the more populated newsgroups/listserv boards that specialized in this scanner. I posted several things and basically was told that if I couldn't read the directions I might need to take a course in English as a second language, have an interpreter handy, or go back to

the CB bands where I belonged. Gee, was it something I said? (Sometimes the Internet can be a terrific information resource; other times it can be a cesspool of frustrated egomaniacs who desperately need to get lives). As you can imagine, I was not terribly impressed with these scanner newsgroups, nor was I emotionally filled with brotherly love for a couple of my fellow scannists who felt the need to belittle someone genuinely in need of some direction.

Learning To Love The BC-246T

I liked this new little handful of RF Love. It was cute. I mean, *REALLY* cute. It weighed almost nothing and was about the size of a pack of king-sized cigarettes. It sported over 1,000 channels with really nice frequency coverage (*EXCEPT* that Uniden *could* have provided MilAir coverage on this little puppy but they *didn't*, and for the life of me I cannot imagine why!). The 246T can handle the conventional systems (CTCSS and digital squelch systems) that are very common in my area, along with selected analog trunk tracked systems (but, alas, no digital trunked systems are supported). All in all, this nifty little “magic talking box” was a nice machine for slightly over \$200. But, why, *oh why*, did Uniden make it so complicated to program and use?

The main selling points of the BC-246T (for me, anyway) were the ability to program the scanner via computer software (admittedly, third-party software had to be employed to do anything really useful), the dynamic memory allocation that does away with bank switching, and its Close Call near-field frequency capture system. On the surface, the dynamic memory thing may not sound like much of a big deal, but I really think that this and the Close Call system are the biggest selling points of the radio.

Dynamic memory allocation is the ability of the radio (in this case, the BC-246T) to store and group channels of interest regardless of the total number of channels the radio is capable of handling, *without resorting to using channel banks and bank switching!*

For example, let's say you have 67 local, county, and state police frequencies you're interested in monitoring on a regular basis. On a conventional bank-switched scanner, you would have to allocate several banks of channels to handle all 67 discrete frequencies. This

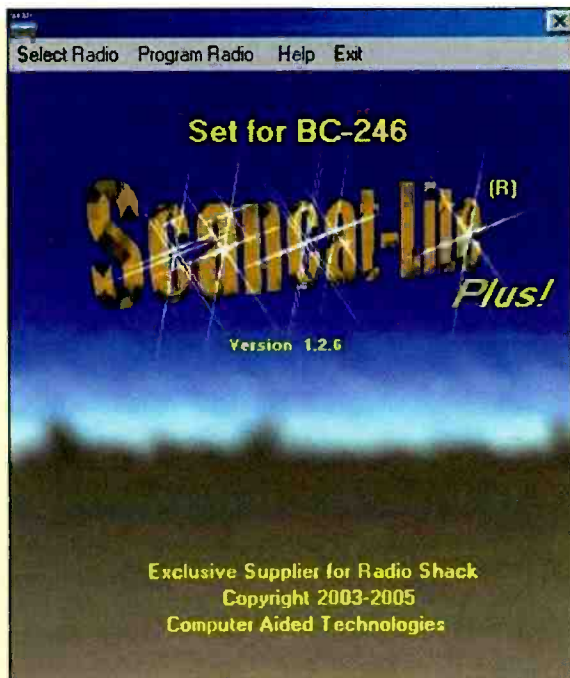
would inevitably leave you with the last bank with a few blank channel slots that are totally useless unless you want to plug some repeat freqs into these slots just to fill up that bank. In other words, you're not making best use of the total frequency storage capabilities of your scanner. With a 20-channel/bank scanner, say, you'll end up filling up three banks (60 channels) and then have only seven channels of the fourth bank of 20 to fill for coverage of your PD freqs, leaving 13 channels unavailable. This is definitely *not* efficient or effective channel memory management.

The BC-246T, on the other hand, allows you to create a conventional group of frequencies in memory (you name it whatever you want) and then load in the discrete frequencies up to the total of 67 channels to provide the necessary coverage you desire. No wasted space. No unused channel allocations inside a partially filled bank. Neat! Your next step is to take those, let's say, 44 Fire/EMS frequencies you want to monitor on a regular basis and create another conventional group in memory (again, you can name it anything you want) and load in the next 44 channels. You now have the first 111 channel allocations within the 246T filled, with no wasted spaces, and you can control the “conventional groups” just like you would banks on a standard scanner.

Of course, you can continue this process, adding group after group, filling in the channels as you go, adding comments for alpha-numeric readout (alpha-tags) on the nice orange display. You can select and/or deselect the desired groups to control what you need to monitor as you go. This is a *GREAT* concept, and my hat is off to Uniden for developing and implementing this idea.

Of course, the 246T will handle most of the analog trunked systems now in use, but no digital systems are supported. Maybe there will be an upgrade or, most likely, a newer model in the future to address this oversight. This is almost, but not quite, as sad as the lack of MilAir frequency coverage!

The other great selling point of the 246T, Uniden's Close Call system, mimics the Optoelectronics series of near-field receivers (the Opto Explorer and the Opto Scout) that captures the frequency of a nearby transmitter, detects the frequency and CTCSS/DCS info, and logs it in memory for examination at a later date. The really nice thing about the Uniden BC-246T Close Call system is that it costs



ScanCat Lite works miracles in programming the BC-246T.

standard 5-watt HTs and up to 100 to 150 meters with a 50-watt mobile radio.

With all these really neat features, why did Uniden make it so difficult to program and use this little ball of RF lovability? Darned if I know, but let me tell you from first-hand experience, my initial dealings with the BC-246T left me highly frustrated and seriously thinking of introducing it to the 2.5-pound sledge hammer that I keep in the truck!

Super Norm To The Rescue!

Enter one Norm Schrein, KA8PGJ, owner of the Hobby Radio Shop, where I bought my BC-246T in early April 2005. Norm explained to me that the 246T was a great little scanner, but it was not what he would recommend for a beginner. Well, I definitely was *NOT* a beginner (despite what some have said on certain Internet talkgroups/listservs), so I queried him as to how I could reduce the headaches and make this little cutie work for me. He said one word: "ScanCat Lite." Okay, it was two words! Shortly after that conversation I had a copy of ScanCat Lite, a stripped down version of the famous and highly touted ScanCat Gold computer control program for radios.

ScanCat Lite is a great little program that's offered to people just like me who prefer to load and move frequencies around using computer control. It offers no *controlling* software, only routines that will *upload and download frequency files between scanners*. After loading the software (it comes on a standard CD ROM) and reading through the 16-page PDF manual included on the CD, I was ready to start "doing things."

First, I decided to try to upload, into my computer, all the frequencies inside my BCT-8 that I use in my truck. At first, the software could not detect the radio, but after a few abortive

nothing extra—it's free with the scanner! When compared to the \$500 to \$800 extra it costs for counters, this is one heck of a good deal. Tests done by myself and others using the 246T in Close Call mode yielded an effective distance of around 30 meters for

TUNING IN (from page 3)

fence every day until my bigness could crawl *under* the fence. I might have to dig for a few weeks, but eventually I'd get in.

Or you could just play dumb near the main gate. While I've never seen anyone with a scanner or binoculars and a notepad spying on the fort, I'm sure at one time or another, an over-zealous hobbyist has been questioned in a parking lot or detained by the authorities.

Not really intent on "testing" the security at the fort, but still a little spy-curious, I stopped the car outside the gate across the road the other day for a few moments—antennas on the rear windshield and trunk—just to check things out. It wasn't easy to see the barriers, so I got out of the car with my scanner strapped to my belt. I was in full view and probably only a couple hundred yards from the fort's gate. The radio crackled with a call that ended up being just another routine plate check in a nearby fort parking lot; probably somebody in a handicapped spot about to be towed.

As I stood there I could clearly see, with my untrained non-government spy eyes, them; and they could see me. That comes under Item No. 5, "Suspicious Persons out of Place" on the Eagle Eyes fact sheet.

I don't think it really matters whether we're sporting a scanner on our belts or have the volume turned up on the scanner as we drive around sensitive areas today, because, as the Eagle Eyes program says, "...people know what looks right and what doesn't look right in their neighborhoods, office spaces, commutes, etc, and if a person just doesn't seem like he or she belongs, there's probably a reason for that."

As I was leaving Ft. Monmouth yesterday after spying around I couldn't help noticing lots of Military Commotion around a group of about a half-dozen or so older officers. A few cameras flashed and there was a news crew filming the action. What I saw is reported here for the first time anywhere: the biggest and bulkiest of the group, and probably the

highest ranking fellow, had his sleeves rolled up and right arm extended outward with his index finger bent around the corner of the MP shack. It looked strange to me, but I haven't told anyone—until now.

All this hubbub came only moments after the Base Realignment and Closure Commission announced that the nation's premier communications research post, Ft. Monmouth, was closing its doors.

Hindsight, I believe they'll see, is indeed 20-20. ■

Editor's Note: Our thoughts and prayers are with those people in the Gulf States that suffered the wrath of Hurricane Katrina. I'm confident that—as we always do—Americans will help one another get through this crisis, and rebuild our communities and lives. Once again, our Nation's radio operator's are helping others in time of need. Next month we'll have special reports on the emergency preparations leading up to Katrina's landfall, how radio continues to play a role in this disaster, and what frequencies were—and still are—a vital part of the recovery.

attempts, I was rewarded with a connection (interesting enough I was using the RS-232 cable that I made up specifically for my Elecraft K2 transceiver).

After uploading the frequencies in the BCT-8, I massaged them for a while, added a few dozen more, including informational tags, and then downloaded them from the computer back into the BCT-8. Since the BCT-8 does not display alpha-tags, I thought it wise to print out the four banks of 50 channels and keep them in the glove compartment of the truck for future reference. ScanCat Lite offers this print feature which is nice for archiving your programmed channels in hardcopy format.

Although it took me roughly two hours to do this, I had some specific thoughts in mind as to how I wanted to rearrange my banks within the BCT-8, and it also took some time getting used to the new software and topping the learning curve to get things accomplished as needed. Once everything was reloaded, I saved the file (remember this is in the bank-switching format for the BCT-8) and then tried reloading it into my BC-895XLT. This is where things got really interesting.

The BCT-8 has five banks of 50 channels each for a total of 250 user programmable channels. I was using only 200 of the total 250 channels or four 50-channel banks (the BC-895XLT, on the other hand, has 10 banks of 30 channels each for a total of 300 user programmable channels). I was able to take the original 200-channel frequency file for the BCT-8, upload it to the BC-895XLT and, even though there was a disparity regarding the number of channels per bank, the channel slots were sequentially loaded into the 895, 30 channels at a time. Out of the total 200 frequencies, not one was lost; though the program ended up using a couple of extra banks to load all 200 channels into the 895. Wow! No need to re-type or cut and paste freqs/channel allocations between files from one scanner to another. I was impressed!

Of course, when it came to programming the BC-246T, I grabbed the same 200 channels, created a conventional group in the BC-246T memory allocation, and slid all 200 discrete frequencies into place. No sweat! Things worked great!

Feeling my oats, I decided to go back into the 246T, create several more conventional groups for local PDs, local FDs, PSP (Pennsylvania State Police), DoC (Department of Corrections), other State-wide systems, Air/EMS ops, etc., and then split the frequencies in the file up into

their respective conventional groups and reload them into the 246T. This took a while, but it was relatively easy—much, much easier than trying to do it by typing line-by-line or, God forbid, entering each of these frequencies by hand into the scanner! Now my little Uniden Beauty purrs along a lightening speed, scanning the local conventional group allocations, and providing me with on-the-go action. Life is, once again, good. Simple? We'll see; the jury is still out on that one.

Okay, so now that the initial shock of using this cutting edge, state-of-the-art shirt pocket-full of scanning heaven has passed, how do I like my BC-246T? Great! It really *is* a new concept in scanning. However, I am with Norm Schrein in his assessment that this scanner is *NOT* for a neophyte. Anyone purchasing a BC-246T must realize that this scanner takes some getting use to. It has a rather steep learning curve. However, the unique features of this scanner, coupled with some good third-party software can really make life easy for the serious scannist. I'm still working on the "simple as the box it came in" concept.

What Can You Hear?

Get out there with your BC-246T and use the Close Call system to hunt some frequencies and do some electronic sleuthing of your own. You never can tell what you might run across. A good friend of mine recently told me over coffee that he had his portable scanner on "search mode" and heard some heavy breathing and footsteps when the receiver locked onto a signal. He stopped the scanner and proceeded to monitor that frequency, and it turned out that he was listening to a body wire used by police/law enforcement to collect evidence about criminal behavior from wary suspects. *He was actually listening to a person who was "wired"* (to use a phrase from the movies).

The interesting thing was that these tiny body wire transmitters are extremely low-power devices and you have to be within about 100 to 150 meters of the transmitter to hear them well. Hmmm, maybe someone in the neighborhood was under investigation! Like I said earlier, you never can tell what you might pick up when searching the airwaves!

I'm very interested in your thoughts on the 246T, obtaining frequencies, and programming this little marvel. I can always be reached at *Popular Communications*, "Homeland Security," 25 Newbridge Road, Hicksville, NY 11801. ■

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Scanner Programming: Man-Machine Interface

Getting The Most From The New Uniden Scanners

by Paul Opitz

Editor's Note: No doubt about it, scanners have changed dramatically over the past few years; they're smaller, feature-packed and truly remarkable engineering marvels. But they're also more complicated in many aspects, and in many cases, they can be downright frustrating. Paul Opitz (aka "UPMan") is the Product Manager for Scanner, GMRS, CB, and emerging products at Uniden America Corporation. He is the architect of the Dynamic Memory system used in Uniden's latest generation of Trunking scanners. Paul will be helping us with the technology in use today, and give us some much-needed insight into making this new breed of scanner more user friendly over the coming months.

Uniden's current crop of scanners uses a radically new programming method. The Dynamic Memory system used in the BC246T, SC230, BCD396T, and BR330T is very different from the banked scanners we've been using for decades. To get the most out of these scanners, you need to unlearn a few old concepts, then learn a couple of new ones. Over the next couple of articles, we're going to look at how to use the latest scanner technology to get the most out of these new scanners.

This month, we'll introduce some new terminology (see box) and dive right into programming with what has traditionally been the simplest thing to program: conventional channels.

VOCABULARY

First, let's purge a word from our vocabulary: "Bank." Instead, we will use System which is a group of channels and settings that are related by function, geography, or type. All channels in a system must be of the same type.

Channels are settings that define a specific user. For conventional systems, a channel consists of frequencies, alpha tags, CTCSS/DCS tones, and other associated settings. For trunked systems, a channel consists of Talk Group ID's, alpha tags, and other associated settings.

Quick Keys (QK) are keys that let you quickly select a system or group of systems. You can assign multiple systems to the same key, giving you the same functionality of combining trunked and conventional systems into one bank on banked scanners.

Group Quick Keys (GQK) are keys that let you quickly select a group or groups of channels within a system.

Scroll Control is the rotary encoder knob on the top of the radio used to access many features and settings.

So, Systems contain Channel Groups which hold our Channels. You can assign a Quick Key to a system, and a Group Quick Key to a channel group. Sounds simple enough...

Planning Our System

I cannot emphasize enough the need to do a little homework before you sit down to program the scanner. Programming is pretty straightforward, if you know in advance what you need to program. I use several major internet resources to collect my planning information.

For conventional systems, there are many resources including www.scannermaster.com, (home of Police Call), and the FCC's website at www.fcc.gov.

To keep our example simple, let's program a system with channels full of stuff we're all familiar with. We'll make a system called "Common Channels," assign it to QK 0 and set up 4 channel groups: FRS as GQK 1, GMRS as GQK 1, MURS as GQK 2, and CB as GQK 3.

See the "Planning" sidebar for all the information we collected to accomplish our task. To keep things a little easier, I've only listed the first 5 channels for each group.

Putting it All Together

I'm going to assume that you have the Owner's Manual for your scanner. So, refer to the manual for such things as how to set alpha tags, and the specific menu sequence to change settings (each scanner is slightly different). I'm also assuming that you delete all other information from the scanner before you start. You can make a backup, first, using a free utility from Butel (www.butel.nl), if you want to be able to restore settings, later.

Power the scanner, and press MENU. The very first option, "Program Systems" is the one we want, so give the scroll control a tap. The scanner now displays the name of one of the systems in the scanner. Give the scroll control a twist and select "New System."

The scanner asks what type of system you want to program. We want "Conventional" for these channels so select that option and tap the scroll control.

Now, you need to set the system-level settings. These settings are the System Name ("Common Channels"), Quick Key ("0"), System Hold Time (this determines the minimum time the scanner will spend scanning this system before moving on to any other enabled systems), Channel Delay (this determines how long the scanner pauses after a transmission before resuming scanning), and Data Skip (which you should usually turn off).

Planning Worksheet

System: "Common Channels"

Quick Key	0		
Delay:	2 Seconds		
Hold Time	1 Second		
Group:	"FRS"	Alpha	Frequency
Quick Key	1		
Channels:			
	FRS 1		462.5625
	FRS 2		462.5875
	FRS 3		462.6125
	FRS 4		462.6375
	FRS 5		462.6625
Group:	GMRS		
Quick Key	2		
Channels:			
	GMRS 1		462.5500
	GMRS 2		462.5750
	GMRS 3		462.6000
	GMRS 4		462.6250
	GMRS 5		462.6500
Group:	MURS		
Quick Key	3		
Channels:			
	MURS 1		151.8200
	MURS 2		151.8800
	MURS 3		151.9400
	MURS 4		154.5700
	MURS 5		154.6000
Group:	CB		
Quick Key	4		
Channels:			
	CB 1		26.9650
	CB 2		26.9750
	CB 3		26.9850
	CB 4		27.0050
	CB 5		27.0150

Next, we need to create a channel group to hold our first set of frequencies. Select "Channel Groups," then select "New Group" to create this group. Name it "FRS" and set the channel group-level settings which includes Group Name ("FRS"), Quick Key ("1"), and Lockout (we'll leave the group unlocked).

Finally, we are actually to the point where we can enter our channel information. Select "Channels," then select "New Channel" to create the first channel. You are prompted to enter the frequency for the channel (start with 462.5625, which corresponds to FRS Channel 1). Then, use the next menu selections to set the channel Name ("FRS 1"), Lockout (we'll leave all the channels unlocked), Alert (which you can turn on if you want the scanner to alert you with beeps when the channel becomes active), Modulation (which you can leave at AUTO for FRS, which will select NFM for this band), Attenuation (turn on only if you get strong-signal interference in your area), CTCSS/DCS (leave turned off), Step (which you can leave at the default), and Priority.

Repeat the above for all the FRS channels, then create the groups for GMRS, MURS, and CB and populate those channels, as well.

Of course you could have done all of this much faster and easier using software in your PC, but we'll leave that for a future time.

Scanning The Results

Let's see how the scanner behaves with this programming. Press SCAN. The scanner should start scanning through the channels you programmed in. "0" appears on the "SYS" line at the bottom of the scanner (indicating that Quick Key 0 is enabled), and 1, 2, and 3, appear on the "GRP" line (indicating that channel groups 1, 2, and 3 in the current system are enabled). Press 0 – the scanner displays "All Locked" because you've turned off all the programmed systems.

Press 0 again to turn the system back on, then hold F and press 1, 2, and 3, in turn. As you press each button, the corresponding channel group number turns off. When you press 3, the scanner again displays "All Locked" because there are no channels enabled for scanning. Press F+1, 2, 3 again to turn the groups back on.

If you have multiple systems stored in the scanner, operation is a little less straightforward. Enabling/disabling systems works about the same, but to enable/disable a channel group, you must first be sure that the scanner is scanning that group. If it is not, after you press F, you need to scroll to select that system before pressing the channel group quick keys.

Well, that's it for this month. Next time, I'll tackle programming Trunked systems, which really shows off what makes Dynamic Memory better than banked. ■

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Capitol Hill And FCC Actions Affecting Communications

FCC Proposes Elimination Of Amateur Radio Morse Requirement

In a Notice of Proposed Rule Making, the FCC has recommended dropping the five-word-per-minute Morse code requirement to obtain an amateur radio license. "Based upon the petitions and comments, we propose to amend our amateur service rules to eliminate the requirement that individuals pass a telegraphy examination in order to qualify for any amateur radio operator license," the FCC said. The Commission said it believes dropping the five-wpm code test would attract more people into the amateur ranks. It added that the current Morse requirement is "now unnecessary" and could discourage operators from improving their skills.

According to the American Radio Relay League,

Changes to Part 97 that the FCC proposed in the NPRM (Notice of Proposed Rule Making in WT Docket 05-235) would not become final until the Commission gathers additional public comments, formally adopts any new rules and concludes the proceeding with a Report and Order specifying the changes and an effective date. That's not likely to happen for several months.

The ARRL quickly reacted in comments carried in the League's publication, *The ARRL Letter*. The proposal has already drawn reaction—both for and against—from the amateur community.

In making its case for dropping the code requirement, the FCC pointed to changes in Article 25 of the international Radio Regulations adopted at the World Radiocommunication Conference 2003. WRC-03 eliminated the Morse testing requirement for amateur applicants desiring high-frequency privileges. It was left to individual countries to determine whether or not they want to require code testing. That option has already been exercised in several countries.

David Sumner, K1ZZ, chief executive officer of the ARRL, said he was not surprised to see the FCC propose scrapping the Morse requirement altogether. The organization had called for retaining the five-wpm requirement only for Amateur Extra class applicants. Sumner expressed disappointment, however, that the FCC turned away proposals from the League and other petitioners to create a new entry-level Amateur Radio license class. "We're disappointed that the Commission prefers to deny an opportunity to give Amateur Radio the restructuring it needs for the 21st century," he said. "It appears that the Commission is taking the easy road, but the easy road is seldom the right road."

According to the ARRL, "The FCC said it did not believe a new entry-level license class was warranted because current Novice and Tech Plus licensees will easily be able to upgrade to General once the code requirement goes away." The Commission also said its "Phone Band Expansion" (or "Omnibus") NPRM in WT Docket 04-140 already addresses some of the other issues petitioners raised. In 2004, the League asked the FCC to create a new entry-level license, reduce the number of license classes to three, and eliminate code testing for all classes except for Amateur Extra. The League recommended that the FCC automatically upgrade Technician

licensees to General, and Advanced licensees to Amateur Extra. In the NPRM—released in July—the FCC said it was not persuaded such automatic upgrades were in the public interest.

Sumner said ARRL officials and the Board of Directors will "closely study the 30-page NPRM and comment further once they've had an opportunity to consider the Commission's stated rationales for its proposals."

Police Call Ends 42-Year Run

Gene Hughes, publisher of *Police Call*, has announced his retirement and has ceased publication of what readers have referred to as the "scanner user's Bible." The 2005 edition, now being sold in stores and on the Internet, is the last.

Police Call began in 1963 as a 16-page list of radio frequencies used by emergency services in Southern California. As Hughes recalled, "We gambled our rent money to print the first 800 books. What happened after that still seems like a dream." In 1974 he serendipitously met George Switlyk, a computer specialist in Washington, D.C., and utilizing Switlyk's skills at programming raw FCC data, they expanded *Police Call* into nine annual volumes (recently reduced to seven) covering the entire continental United State. In 1996, Rich Barnett of *Monitor America* fame was appointed Editor, and it was his suggestion that they test a special edition called *Beyond Police Call*, which proved to be so popular that it became a regular part of every volume. Constantly improved and enlarged, millions of copies have been sold since that first edition in 1963.

Switlyk passed away suddenly in 2000, and Hughes says, "Losing my partner took something out of me, and that's when I started to think about retiring." He plans to spend his newfound time with his family and with the Los Angeles Police Department where he is a Specialist Reserve Police Officer working at the front desk of a division station, and is also a Crime Prevention Specialist. Hughes offers a "special thanks to all of *Police Call's* readers and especially those who took the time to send us the extra information that enhanced the books' usefulness to everyone."

Technology To Focus On Reducing Military Radio Interference

A system to reduce interference from military transmissions by allowing radios to scan across the spectrum to find frequencies unused by others is in development by Shared Spectrum Co., based in Vienna, Virginia. A \$17 million contract was awarded to the company from the U.S. Air Force Research Laboratory in Rome, New York.

The FCC has noted that among the systems affected by contemporary military radios are garage door openers, according to a report by United Press International. The low-powered openers work on frequencies that have been largely unused by the federal government since the 1940s. However, the U.S. Department of Defense is now making more use of those frequencies.

Shared Spectrum develops advanced radio frequency and networking technologies for both government and industry cus-

tomers. The project is scheduled for completion in August 2007.

APCO International Executive Director Resigns

John Newman, executive director of the Association of Public Safety Communications Officials (APCO), announced his resignation, citing health issues. The organization's board of directors accepted Newman's resignation on July 20, announcing that he'd step down in mid-August. "On behalf of the Board of Officers, I would like to express my most heartfelt appreciation for John's dedication and service," APCO International President Greg Ballentine said. "We wish him the best in the future." APCO International participated in an APCO Asia Conference in Kuala Lumpur, Malaysia, in August and hosted its 71st Annual Conference and Exposition in Denver from August 21-25.

VoIP Enhanced 911 Task Force Formed

A task force has been created by the FCC and National Association of Regulatory Utility Commissioners "to facilitate the timely and effective enforcement of the commission's VoIP (Voice over Internet Protocol) E911 rules," according to an FCC announcement.

People from the federal and state levels are examining and developing educational materials "to ensure that consumers understand their rights and the requirements of the FCC's VoIP E911 Order and rules and how best to expedite compliance and facilitate enforcement, where necessary," the Commission said.

"One of the FCC's core missions is to promote public safety," said FCC Chairman Kevin Martin. "I look forward to working with my colleagues in the states to advance our common goal that all Americans, no matter their provider, have access to life-saving emergency 911 services." Staff from both the FCC and state public utility commissions will serve as members. Representatives will also coordinate with public safety organizations, including the Association of Public-Safety Communications Officials (APCO), and the National Emergency Number Association (NENA).

According to the FCC, rules adopted in May 2005 for VoIP E911 require interconnected VoIP providers to:

- Deliver all 911 calls to the customer's local emergency operator;

- Give emergency operators the call back number and location information of their customers where the emergency operator is capable of receiving it; and

- Inform their customers of their E911 capabilities as well as the limitations of their service.

Radio Amateur Cited For Satellite Communications Interference

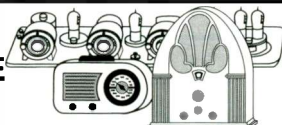
A Brentwood, California, man has been issued a Forfeiture Order by the FCC for allegedly operating an unauthorized station "that obstructed and interfered with satellite communications." Raimundo P. Silva, who had held the amateur callsign KD6SXG, operated on a frequency reserved for federal government use only, the FCC said.

After receiving complaints of interference, agents from the FCC Field Office in San Francisco, using electronic direction finding techniques, detected unauthorized civilian terrestrial transmissions. Taking bearings, officials determined "the source of the signal to be a station in the vicinity of Silva's residence." Between April and October 2004, agents "detected, traced, and documented numerous instances of both stationary and mobile unauthorized radio operations by Silva."

The citation noted that the frequency band 267-322 MHz is for "Federal Government only." Subsequently, the FCC issued a Notice of Apparent Liability for Forfeiture in the amount of \$20,000 to Silva, who the commission said "admitted operating radio equipment in the frequency band reserved for federal government use without a license, but asserted he was unaware that his unauthorized radio transmissions interfered with the federal government users' authorized operations. Silva voluntarily relinquished all of his radio equipment "for both the mobile and fixed systems and surrendered his amateur license."


Following an appeal from Silva for cancellation or reduction of the proposed forfeiture, the FCC reduced his fine to \$500. According to the FCC, Silva's appeal was made on the grounds that "when notified of the violation, Silva voluntarily relinquished his operating equipment to the San Francisco agents and then surrendered his amateur license to the Commission." He also said he was unable to pay the proposed forfeiture and, to support his claim, supplied three years of tax records, the commission said. ■

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ICE Saves Lives, And Other Good Stuff

Ice means hockey and skating fun for many this time of year. Ice means a nice cold drink when you're thirsty. And now ICE can mean the difference between life and death.

ICE (short for In Case of Emergency) is a new cell phone safety initiative. REACT is urging cell phone owners to take advantage of this simple, but effective, safety measure. REACT launched ICE in September as its contribution to "National Preparedness Month."

You will find details of the ICE safety campaign elsewhere in this issue of *Popular Communications*. Take time to learn about ICE, and follow the simple steps to implement it. Someday, it could help paramedics or other emergency personnel save your life.

Kudos In Order

The editorial staff of *Pop'Comm* and particularly Editor Harold Ort merit an honorable mention here. Readers know how vital reliable radio communications are to REACT monitors and those they serve. In emergencies, lives can hang in the balance. Your favorite radio magazine continually reminds readers that GMRS radio use requires an FCC license and callsign.

In these days of FRS/GMRS combination radios, it's easy for users to wander onto the licensed GMRS frequencies. Untrained, unskilled operators on those GMRS frequencies pose a real hazard to REACT emergency operations. Unintentional interference to those GMRS frequencies can place lives at risk. REACTers thank them for those reminders. They help make GMRS safer to the benefit of all.

Nice Touch

Everyone likes to be appreciated. Great Lakes REACT (Ohio) let its members know that they were appreciated. Each REACTer

renewing his membership this year received a handsome and useful REACT lanyard as a gift from the Team. Nice touch.

The lanyard had been developed by Oklahoma County REACT (Oklahoma). The Oklahoma Team designed the lanyard so it could be used by other Teams, like Great Lakes—a great example of one REACT Team helping others. Several more REACT Teams have initiated similar projects that expand resources available to all. Another nice touch.

Free For the Asking

Illinois REACT Teams liked the mail they recently received from the Illinois REACT Council. The letter reported on a new public service announcement (PSA) on CD, produced by REACT International, Inc. Better yet, the letter offered each Team one free copy of the PSA. To get started, all they had to do was return a form asking for their free copy. Teams need a copy for each local radio or TV station. How's that for a REACT Council supporting its member Teams?

REACT In Convention

Delegates who attended this year's REACT International convention in Corona, California, enjoyed great speakers and workshops as well as fine hospitality and accommodations. About 100 REACTers from the United States, Canada, and Trinidad heard *Pop'Comm* columnist Gordon West, WB6NOA, remind them of just how important a role REACT volunteers play in safety and emergencies.

Carl Gardenias, WU6D, Orange Section Manager for ARRL, complimented delegates on the increasing level of interaction between REACT Teams and ARES members. He stressed how essential it is that this trend continues to expand.

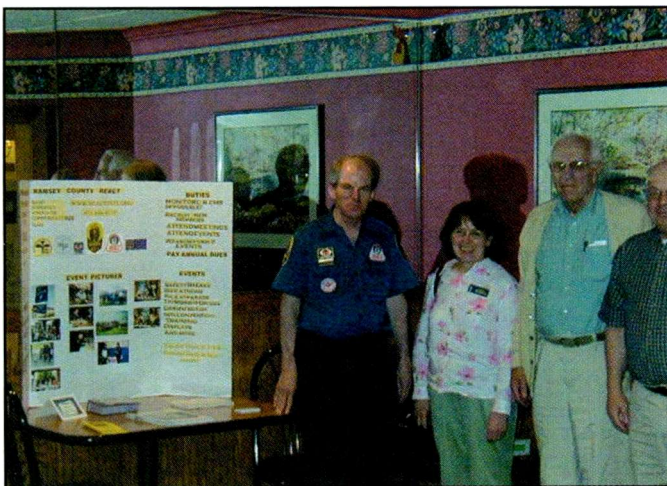
Lynn Mata, Corona Fire Dept. Emergency Services Coordinator, outlined FEMA's new "National Incident Management System" (NIMS). She detailed how badly needed it was and how REACT Teams must certify in it. NIMS becomes mandatory nationwide next year for volunteers responding to disasters.

After a busy but enjoyable three days, delegates headed home a lot wiser, thanks to the efforts and planning of the host Team, Crest REACT.

Bridge Building

Ramsey County REACT (Minnesota) would have made Carl Gardenias proud indeed. Team president Paul Oby recently was invited to speak to the Quarter Century Wireless Association, a group of St. Paul, Minnesota, amateur radio operators. Each member has held a ham license for at least 25 years.

After Oby spoke to about 30 members and friends on the topic "REACT and Amateurs Together," there followed a lively 45-minute question period. Asked, among other things, about the Morse code requirement, Oby said he favored retain-



Ramsey County (Minnesota) President Paul Oby (left) was invited to address Quarter Century Wireless Association members and friends in St. Paul. An extensive question period followed his presentation on "REACT and Amateurs Together."



REACT Lake Simcoe (Ontario) members serve up hot dogs and safety information at a Zehrs Food Store fund-raiser BBQ. Customers seem to be enjoying the fare.

ing it for at least one license class. "There is no doubt," Oby explained, "that in bad conditions code will go where voice will not."

On The Run

Dallas County REACT (Texas) coordinated transport for the White Rock

Marathon Relay. REACTers were aboard buses that carried runners to relay points at five-mile intervals along the 25-mile course. They also delivered back to the start/finish point any runners who found the event a little much. Likewise, the REACT-staffed buses shuttled runners between their hotel and the staging area. Radio links fill a vital role in logistics and

safety when an event such as this one covers a large area.

Safety With Your Hot Dog And Soda

When REACT Lake Simcoe (Ontario) hosts its annual fund-raiser BBQ at a Zehrs Food Store, safety is always on the menu. Along with hot dogs and drinks, REACT serves up safety key tags and leaflets.

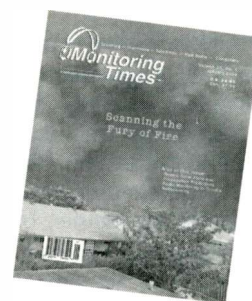
The safety key tag project arose from the Team's visit to a 911 dispatch center. REACTers heard the problems dispatchers had with emergency cell calls "dropping." Grants from an area Optimist Club and a Lions Club helped fund the key tags, which the Team gives to cell users. They remind cell callers to state WHERE exactly they are as soon as a dispatcher answers. If the call "drops," the dispatcher is then still able to send help.

Time To Go!

Thanks again for joining us, and remember we'll do it again in January. Meanwhile, if you'd like information about joining REACT, just send an e-mail to membership@REACTintl.org, or visit www.reactintl.org.



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ICE? In Your Cell Phone?

You Bet! It Can Save Your Life

by Ron McCracken, KG4CVL / WPZX486

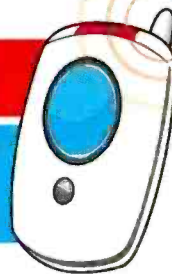
ICE! Not the kind you can break your neck slipping on at this time of year. In fact, this ICE can actually help save your neck. You'll be mighty glad to have it around in an emergency.

ICE stands for In Case of Emergency, and it puts your cell phone to good use if you are unconscious and your life may be on the line. Your cell phone's directory becomes a guide for paramedics or other emergency personnel trying to help you.

Think back. You can likely recall being in at least one really tight spot at some time—on the road, on water, in the backcountry. Now, imagine yourself in that same tight spot, but unconscious and perhaps seriously injured. Someone finds you and summons help. How do emergency responders contact relatives or friends to gain medical information about you? That can be a time-consuming process, and possibly life-threatening when time is critical.

IN CASE OF
EMERGENCY

ICE



Have you ICEed your cell phone? It can save your life!

ICE Forms

A British paramedic, Bob Brotchie, devised the ICE concept almost two years ago. Frustrated by delays in reaching next of kin for vital information in emergencies, Brotchie hit on an idea. He could put the popular cell phone to work. It would tell emergency workers immediately whom to contact. Brotchie won an award for his simple, but brilliant, notion. It turns your cell phone into an important emergency tool.

For a year, the new cell phone safety concept went unnoticed. Suddenly, terrorist attacks in London, Egypt, and elsewhere brought ICE to the world's attention very forcefully. It leapt across the Atlantic in an instant and is catching on quickly here.

How It Works

REACT International, Inc., has become the lead volunteer organization in advocating ICE throughout North America and beyond. REACT Teams are providing ICE information to the public locally in their safety displays and speaking engagements. REACT initiated its ICE safety campaign in September as its contribution to "National Preparedness Month." Paramedic, fire, and police professionals were quick to see its potential for saving lives. They are also stressing the safety value of ICE in their public education programs.

Here's how it works: Storing ICE numbers in your cell phone is easy. Enter your emergency contacts in your directory as ICE-

Mom, ICE-Bro, ICE-Dad, ICE-Sis, ICE-Ken, etc., each with the appropriate number. If you have pre-existing medical problems, the person with detailed knowledge of those can show as ICE-Med. All your ICE contacts will appear together in your cell phone directory.

Entering a space, a period, etc., before the "I" in each ICE entry may permit you to place your ICE contacts right at the head of your directory list. That saves emergency personnel even more time. The method varies by your phone's make and model, so check your phone's manual to see if it has this feature and how you can activate it.

More Is Better

Authorities stress that multiple ICE contacts are very important. REACT and others recommend at least five. They allow emergency staff a choice of whom to call. Depending on the

circumstances, Sis or Bro may be a more appropriate contact than an elderly Mom or Dad. Multiple entries also increase the probability that emergency responders will be successful in reaching at least one of your ICE contacts.

Out-of-town numbers are another important consideration. We all recall what happened to local cell phone calls on 9/11, so smart planning demands that at least one of your ICE contacts be an out-of-town number. Try to cover as many contingencies as possible in selecting your ICE contacts.

Ensure that you tell in advance those you choose to be your ICE contacts. You want them able to assist emergency authorities capably if they are called. That is especially true of your ICE-Med contact. You want to minimize the shock of getting such a call for those who have agreed to be your ICE contacts.

Another feature of ICE is that you can use your ICE listings routinely to call those people. Authorities urge you to do so. It will keep the numbers current and correct. It will also eliminate double listings to conserve your cell phone's memory.

Back-up Matters

Being prepared for emergencies means always having a back-up plan. Back up the ICE contacts in your cell by carrying an "Emergency Card." Each is as vital as the other. Your "Emergency Card" can carry details on your allergies, drugs, medical condition, etc. It will greatly assist emergency personnel, especially if for any reason they can't reach your ICE contacts. It will also confirm data they get from your ICE-Med contact to minimize the risk of error.

Get an "Emergency Card" from your local REACT Team, Red Cross chapter, insurance agent, etc. Carry it in your wallet, immediately behind your driver's license or other primary identification. To be useful, it must be readily available to authorities. Laminate your "Emergency Card" to protect the life-saving information on it. Remember, your ICE contacts and your "Emergency Card" work together to help you. You need both.

You Never Know

Be cool. Chill out. ICE your cell phone directory today. One day it may help rescuers save your life. ■

ICE* Tips

- Enter contacts as ICE-Mom, ICE-Bro, ICE-Ken, etc., with appropriate numbers.
- Use ICE-Med for a contact with details about any existing medical condition.
- All ICE contacts will appear together in your cell phone directory.
- Tell in advance those you choose as ICE contacts.
- Use your ICE entries routinely, to keep numbers current and correct.
- At least one ICE contact should be an out-of-town number.
- Carry an "Emergency Card" in your wallet as a back-up.
- For more information, visit the following websites:

www.reactintl.org
www.icecontact.com
www.eastanglianambulance.com

(*In Case of Emergency)

When Disaster Strikes...



REACT is Ready!

REACT Teams work with local, state, and national disaster response agencies. Often **REACT** plays a unique role in disaster relief because **REACT** is the only volunteer communications organization whose members are trained to use **all types of two-way communications** from CB to packet radio, Amateur radio to GMRS.

Fortunately, disasters don't happen every day. **REACT** Teams maintain their readiness and serve the public by monitoring emergency channels and by providing communications services for a variety of activities and community events.

Find out how **you** can be part of the **REACT** Team! Visit www.reactintl.org to find a Team in your area – or information on starting your own Team.



REACT International, Inc.

(301)316-2900 or (866)REACT99
5210 Auth Rd., Ste. 403 * Suitland, MD 20746

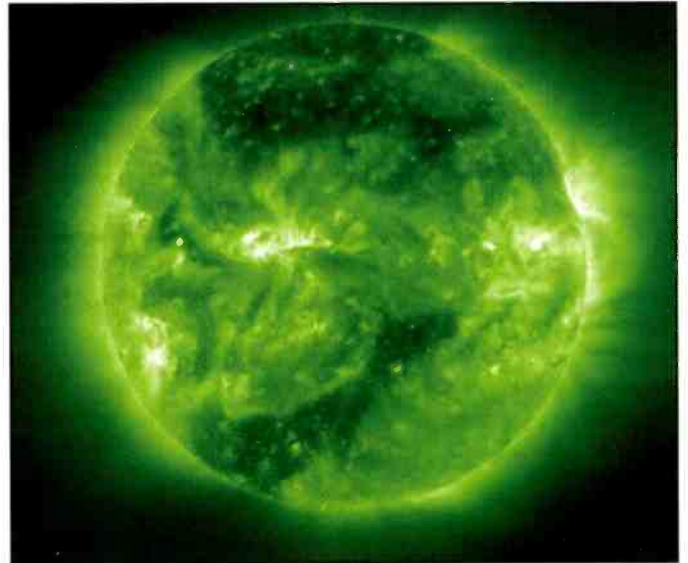
Cycle 23 Is Dying— And Sunspots Are Disappearing!

Three times during July 2005, observers of the sun were unable to find any sunspots. On July 18, 20, and 21, the side of the sun facing Earth was clear of *all* sunspots.

Sunspots are magnetic regions on the sun, appearing as dark spots, with magnetic field strengths thousands of times stronger than the Earth's magnetic field. Plasma flows in these magnetic field lines of the sun. Temperatures in the dark centers of sunspots (the "umbra") 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 persist 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 form in groups containing two sets of spots. One set will have a positive, or north, magnetic field, while the other set will have a negative, or south, magnetic field. The magnetic field is strongest in the darker parts of the sunspot. The field is weaker and more horizontal in the lighter part (the "penumbra"). Sunspot numbers give us a way to measure the sun's overall activity. The more active the sun, the higher the sunspot count. Scientists have studied the correlation between the sun's activity, and resulting events (like a solar flare or coronal mass ejection), and our ionosphere and geomagnetic field activities.



Even close to the demise of Solar Cycle 23, the sun continues to have a moment or two when it flares up and creates space weather. This image was made during a period when the sunspots climbed above the 100 mark, and we saw a series of M-class flares along with several coronal mass ejections and a proton event. Even during the solar cycle minimum, these events can occur.

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 ($K_p > 5$ or $A_p > 20$) mean 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 (SF1): 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 fre-

quencies 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>.

Optimum Working Frequencies (MHz) - For November 2005 - Flux = 77, Created by NW7US

UTC TO/FROM US WEST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	18	14	11	11	10	10	10	9	9	9	9	9	9	9	15	18	19	20	21	21	21	21	20	19
NORTHERN SOUTH AMERICA	25	23	18	15	14	13	13	12	12	12	12	12	12	11	11	19	23	25	27	28	28	28	28	27
CENTRAL SOUTH AMERICA	25	22	15	15	14	13	13	13	12	12	12	12	12	11	20	24	26	27	28	28	28	28	28	26
SOUTHERN SOUTH AMERICA	27	25	21	16	15	14	13	13	13	12	12	12	12	12	16	23	25	26	27	28	28	29	29	28
WESTERN EUROPE	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	13	14	13	13	11	9	9	9	8
EASTERN EUROPE	8	8	8	8	8	8	8	8	8	8	8	8	8	8	10	12	11	9	9	9	8	8	8	8
EASTERN NORTH AMERICA	19	17	13	12	11	11	11	10	10	10	10	10	10	10	10	17	19	21	22	23	23	23	22	21
CENTRAL NORTH AMERICA	11	10	9	7	6	6	6	6	6	6	5	5	5	5	5	10	11	12	12	12	13	13	12	12
WESTERN NORTH AMERICA	6	6	5	4	3	3	3	3	3	3	2	2	2	2	4	5	6	6	6	6	7	7	7	6
SOUTHERN NORTH AMERICA	19	18	15	11	11	10	10	10	9	9	9	9	9	9	12	17	19	20	21	21	22	21	21	20
NORTHERN AFRICA	9	8	8	8	8	8	8	8	8	8	8	8	8	8	11	14	15	16	15	12	10	10	9	9
CENTRAL AFRICA	10	10	9	9	9	9	8	8	8	8	8	8	8	8	10	13	14	15	15	13	12	12	11	11
SOUTH AFRICA	17	14	12	11	11	10	10	10	10	10	9	9	9	9	16	18	20	21	21	21	21	21	20	19
MIDDLE EAST	8	8	8	8	8	9	8	8	8	8	8	8	8	8	11	13	10	10	9	9	9	9	9	8
JAPAN	17	17	16	15	13	10	10	9	9	9	8	8	8	8	8	8	8	8	8	8	8	14	16	17
CENTRAL ASIA	17	17	16	15	13	10	9	9	9	9	8	8	8	8	8	8	8	10	10	10	10	10	16	17
INDIA	8	13	12	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
THAILAND	16	16	15	14	12	10	9	9	9	9	8	8	8	8	8	8	8	10	11	10	10	10	10	14
AUSTRALIA	24	25	26	24	21	15	14	14	13	13	12	12	12	12	12	11	15	14	14	17	19	21	23	23
CHINA	15	16	15	14	12	10	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	13
SOUTH PACIFIC	27	27	26	24	19	15	14	14	13	13	12	12	12	12	11	15	15	17	19	22	23	25	26	26

UTC TO/FROM US MIDWEST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	19	14	13	12	12	11	11	10	10	10	10	10	10	18	21	22	24	24	25	25	24	24	23	21
NORTHERN SOUTH AMERICA	22	18	15	14	14	13	12	12	11	11	11	11	11	18	21	23	25	26	27	27	27	26	25	24
CENTRAL SOUTH AMERICA	23	16	15	15	14	13	13	13	12	12	12	12	12	22	24	25	26	27	28	29	29	28	27	25
SOUTHERN SOUTH AMERICA	25	22	18	17	16	15	14	13	13	13	12	12	12	18	22	23	25	26	27	28	28	29	29	27
WESTERN EUROPE	8	8	8	8	8	8	8	8	8	8	8	8	8	13	14	15	15	14	13	11	9	9	9	8
EASTERN EUROPE	8	8	8	8	8	8	8	8	8	8	8	8	8	10	12	12	11	11	10	8	8	8	8	8
EASTERN NORTH AMERICA	13	9	9	8	8	8	8	7	7	7	7	7	7	11	14	15	16	17	17	17	16	16	15	
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SOUTHERN NORTH AMERICA	13	12	8	8	8	7	7	7	7	6	6	6	6	6	11	13	14	15	15	15	15	15	14	
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AUSTRALIA	24	25	23	19	15	14	14	13	13	12	12	12	12	12	11	17	16	15	14	14	17	19	21	23
CHINA	14	14	11	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	11
SOUTH PACIFIC	27	26	23	17	15	14	14	13	13	12	12	12	12	12	11	16	15	15	18	21	22	24	25	26

UTC TO/FROM US EAST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	14	12	11	10	10	9	9	9	8	8	8	8	13	16	18	19	20	20	20	20	19	18	17	17
NORTHERN SOUTH AMERICA	19	17	16	14	13	13	12	11	11	10	10	10	14	18	20	22	23	24	24	24	24	24	23	21
CENTRAL SOUTH AMERICA	20	19	17	16	15	15	14	13	13	12	12	15	20	22	24	25	26	27	28	28	29	28	27	24
SOUTHERN SOUTH AMERICA	24	21	19	18	17	16	15	14	13	13	13	12	18	21	22	24	25	26	27	28	28	29	28	26
WESTERN EUROPE	8	8	8	8	8	8	7	7	7	7	7	12	14	15	16	16	15	15	14	12	9	8	8	8
EASTERN EUROPE	8	8	8	8	8	8	8	8	8	8	8	10	14	14	14	13	13	12	11	9	9	8	8	8
EASTERN NORTH AMERICA	5	4	4	4	4	3	3	3	3	3	3	3	5	7	7	8	8	8	8	8	8	7	7	7
CENTRAL NORTH AMERICA	14	10	9	9	9	8	8	8	8	8	7	7	7	12	15	16	17	17	18	18	17	17	16	16
WESTERN NORTH AMERICA	20	17	13	12	11	11	11	10	10	10	10	10	10	10	17	20	21	22	23	23	23	23	22	21
SOUTHERN NORTH AMERICA	15	11	10	10	9	9	9	8	8	8	8	8	8	14	16	18	18	19	19	19	19	19	18	17
NORTHERN AFRICA	11	11	10	10	10	10	10	10	10	10	10	17	20	21	22	23	23	22	21	18	13	12	12	11
CENTRAL AFRICA	11	11	10	10	10	10	10	10	10	10	10	17	20	21	22	23	23	21	19	14	13	13	12	12
SOUTH AFRICA	16	15	14	13	13	13	12	12	12	12	12	21	25	27	28	28	28	29	28	28	27	25	23	17
MIDDLE EAST	10	9	9	9	9	8	8	8	8	8	8	13	15	17	18	18	18	18	13	12	12	11	11	10
JAPAN	14	10	10	9	9	9	8	8	8	8	8	8	8	9	8	8	8	8	8	8	8	11	14	15
CENTRAL ASIA	12	10	9	9	9	8	8	8	8	8	8	8	8	12	11	11	11	10	10	10	10	10	10	15
INDIA	8	8	8	8	8	8	8	8	8	8	8	8	11	14	15	13	10	10	9	9	8	8	8	8
THAILAND	10	9	9	9	9	8	8	8	8	8	8	8	9	13	12	12	11	11	11	10	10	10	10	10
AUSTRALIA	24	21	15	15	14	13	13	12	12	12	12	12	12	11	18	17	16	15	14	15	18	20	22	23
CHINA	10	10	9	9	9	8	8	8	8	8	8	8	8	9	9	9	8	8	8	8	8	8	8	8
SOUTH PACIFIC	25	22	17	16	15	14	14	13	13	12	12	12	12	18	17	16	16	17	20	22	24	25	26	27

Early Observations, And The 11-Year Cycle

Galileo Galilei made the first European observations of sunspots in 1610. The Chinese and many other early civilizations have records of sunspots dating even earlier. Daily sunspot observations were started at the Zurich Observatory in 1749. By 1849, continuous sunspot observations were recorded.

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.

The sun directly influences the Earth's environment. By keeping a close record of the sunspot number and the overall propagation conditions, scientists have developed models that help us forecast HF openings on any given path.

Close To The End

The recent increase in the number of days with "non" activity indicates that we are getting close to the period in this cycle of minimum activity. This "solar cycle minimum" marks the end of one cycle and the start of the next. Based on the timing of these days with no sunspots, some are speculating that the cycle may end earlier than anticipated. Most have forecast an end to the cycle sometime in 2007.

This is welcome news for Top Band (160 meters) and mediumwave DXing enthusiasts, who look for low solar activity with low geomagnetic disturbances, and a quiet winter season. This year we should see a vast improvement on the low HF and MW bands.

HF 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.

Nineteen, 22, and 25 meters compete with 16 for the good daytime DX 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 and 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 of up to 2,500 miles is possible during the hours of darkness, and until two to three hours after local sunrise. Thirty-one meters, too, is highly congested, making reception of weak exotic signals a bit more of a challenge.

Thirteen and 16 meters will be open during a fair number of days through November when flux levels remain above 100. 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. At this stage in the solar cycle where the end is in site (probably in the middle of 2007), the 10.7-centimeter flux levels are too low to sustain band openings at these frequencies for long, if at all.

Seventy-five through 120 meters are coming alive now. 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.

VHF Conditions, And The Leonid Meteor Showers

One of the largest yearly meteor showers occurs during November. Appearing to radiate out of the constellation of Leo on the night of November 17, the Leonids are known to create intense meteor bursts. Since the source of the Leonids, the Tempel-Tuttle comet, passed closest to the sun in February of 1998, the years following were expected to produce very strong displays.

The greatest display since 1998 was the peak of 3,700 per hour in 1999. Every year since has been significantly less spectacular. However, a few forecasters think that we still might have a meteor storm with an hourly rate of thousands sometime in the next several years. If this year is more typical of the last few, we'll see a rate of several hundred per hour. The large, spectacular visuals might only be 10 to 20 per hour, but when we're talking about meteor scatter (Ms) radio propagation, we count any meteor-formed plasma clouds that will support VHF radio signals.

The best time to work Ms off the Leonids is around 11:30 p.m., local time, in the Northern Hemisphere. The shower should increase in rate the closer you get to midnight, and then move toward pre-dawn.

Working Meteor Scatter

Meteors are particles (debris from a passing comet) ranging in size from a spec of dust to a small pebble, and some move slowly while some move fast. When you view a meteor, you typically see a streak that persists for a little while

after the meteor vanishes. This streak is known as the *train* and is basically a trail of glowing plasma left in the wake of the meteor. They enter the Earth's atmosphere traveling at speeds of over 158,000 miles per hour. Besides being fast, the Leonids usually contain a large number of very bright meteors. The trains of these bright meteors can last from several seconds to several minutes. It is typical for these trains to be created in the *E* layer of the ionosphere.

Ms propagation is a mode in which radio signals are refracted off these trains of ionized plasma. Because these plasma trains are in the *E* layer of the ionosphere, the range of a Ms contact is between 500 and 1,300 miles. The frequencies that are best refracted are between 30 and 100 MHz. However, with the development of new software and techniques, frequencies of up to 440 MHz have been used to make successful radio contacts off these meteor trains.

Lower VHF frequencies are more stable, and last longer, off these ionized trails. A 6-meter contact may last from a second to well over a minute. The lower the frequency, the longer the specific "opening" made by a single meteor train. Conversely, a meteor's ionized train that supports a 60-second refraction on 6 meters might only support a one-second refraction of a 2-meter signal. Special high-speed digital modulation modes are used on these higher frequencies to take advantage of the limited time available; for instance, high-speed CW in the neighborhood of hundreds of words per minute.

Current Cycle 23 Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-centimeter observed monthly mean solar flux of 96.6 for July 2005, just a bit higher than June's 93.7. The 12-month smoothed 10.7-centimeter flux centered on January 2005 is 100.3. The predicted smoothed 10.7-centimeter solar flux for November 2005 is about 77, give or take about 17 points.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for July 2005 is 39.9, up from June's 39.6, but still lower than May's 42.6. The lowest daily sunspot value during July 2005 was zero, occurring three days (July 18, 20, and 21). The highest daily sunspot count for July was 107 on July 4. The 12-month running smoothed sunspot number centered on

January 2005 is 34.7. A smoothed sunspot count of 18 is expected for November 2005, give or take about 12 points.

The observed monthly mean planetary A-Index (Ap) for July 2005 is 16. The 12-month smoothed Ap index centered on January 2005 is 14.7. Expect the overall geomagnetic activity to be quiet during most days in November, with possibly one major storm during the month.

I'd Like To Hear From You

You can join in with others in discussing space weather, propagation, and shortwave or VHF listening, at <http://hfradio.org/forums/>. Be sure to check out

the latest conditions, as well as the educational resources about propagation, which I have put together for you at <http://prop.hfradio.org/>. I also provide a WAP/WML resource for wireless devices. If you want the latest propagation information, like the solar flux, Ap reading, and so forth using a cell phone or other WAP device, check out <http://wap.hfradio.org/>, the wireless version of my propagation site.

Please don't hesitate to write and let me know about any interesting propagation you may have noticed. Do you have questions about propagation? I look forward to hearing from you. For now, happy signal hunting! ■

Popular Communications November 2005 Survey

I have cable or satellite TV in my home

Yes	1
No	2

I receive broadcast TV with an outside antenna

Yes	3
No	4

In a typical week how much time do you spend listening to your AM/FM news station?

Less than an hour	5
About an hour	6
More than two hours	7
Three or four hours	8
More than four, but less than eight	9
More than eight hours	10

The approximate population of my community is

Under 2,500	11
2,500 to 10,000	12
10,000 to 30,000	13
30,000 to 50,000	14
50,000 to 100,000	15
100,000 to 250,000	16
250,000 to 1,000,000	17
1,000,000 and above	18

I have a personal/family disaster plan and have discussed it with my family

Yes	19
No	20
I'm planning on it	21

My radios are an integral part of my disaster/preparedness plan

Yes	22
No	23

Weirder And Weirder— Fallout From “Is It Safe?”

The response to my first column, “Is It Safe?”, has been gratifying. It pointed out that some hams have been harassed and ticketed for possession in their vehicles of radio equipment apparently capable of receiving police frequencies, despite the fact that a 1993 ruling from the FCC *exempts* hams from such state and local laws.

Ray Babecki, KA2YAK, from New Jersey e-mailed to say:

Thanks for a great column with fantastic info! If everything you write is like that, you may be in line for a Pulitzer. Your column ALONE was worth the price of my ongoing subscription (3-plus years). I’ve subscribed to *Popular Communications* since 1986.

Do you know if Colonie, New York (due west of you) is still harassing scanner monitors and amateur radio operators? I checked their website (<http://www.colonie.org>). They now even provide a LIST of PD and emergency frequencies (!) I’ve included the PD’s “mission statement” at the end of this message. If you search Google for Colonie and “Police Brutality,” or “Scanner Enforcement,” there are many links.

I recently visited a friend in Congers, New York (west side of the Hudson River near the Tappan Zee Bridge). I was never bothered.

I live in central New Jersey (about 25 miles south of New York City, within view of the Twin Towers on 9/11). In 1993, Gov. Florio signed a repeal of our anti-mobile scanner law. Even back then, most PDs I know were not actively enforcing the state law. I’d like to know where in New Jersey (and the northeast) this harassment is continuing, if any.

Q. You list www.P-C.com/fcc.pdf as pointing to “FCC-93-114.” But, what I downloaded was “FCC-93-410.” Which is right?

*Colonie, NY Mission Statement
(06/2005)*

The mission of the Colonie Police Department is to interact with all citizens with dignity, honor and respect...to protect and maintain human and constitutional rights...All members of the Police Dept have been empowered to be an agent for this partnership.

Ray, thanks for the kind words and the information about the Colonie Police Department. It’s good to know that Colonie is taking the high road now, and

I am unaware of any recent problems with the Colonie PD. However, harassment of hams in and around the Capital District of New York State does continue, and we’ll get to that in a moment.

Anyway, www.popular-communications.com/FCC.pdf is the correct link to the FCC order that holds that,

State and local laws that preclude the possession in vehicles or elsewhere of amateur radio service transceivers by amateur operators merely on the basis that the transceivers are capable of the reception of public safety, special emergency, or other radio services frequencies, the reception of which is not prohibited by federal law, are inconsistent with the federal objectives of facilitating and promoting the amateur radio service and, more fundamentally, with the federal interest in amateur operators’ being able to transmit and receive on authorized amateur service frequencies. We therefore hold that such state and local laws are preempted by the federal law.

More Reader Mail

Reader Scott Anderson, NØXJO, of Plymouth, Minnesota, sent the following e-mail:

Hi, I just wanted to write and say I enjoyed your article on monitoring police frequencies on the go. I lost a scanner to the police a number of years ago because I did not have my ham radio license with me in the car, although I would have been able to produce it had the officer been willing to follow me about 10 more houses to my home. I learned my lesson.

Here’s the new dilemma going on here and in other places in the country. Many city/county radio systems are switching to digital trunked radio, APCO 25. Uniden is already releasing their second-generation APCO-25 scanner, the 396T. I’d love to be able to have just a ham radio in the car, but amateur radios have not kept up with technology and then there’s their lack [of] ability to follow a digital radio system. For this reason, it’s hard to get away not having a scanner in the car if I want/need to listen to anything interesting. All city police, fire, and utility radio within 10 miles of here are now on the new radio system. I’d be curious if you see [that] ham radio manufacturers have plans on building a “do it all” ham transceiver, trunk tracking scanner.

Scott, sorry, I don’t know of any transceiver that incorporates APCO 25, but maybe one of the other readers does, or perhaps a sharp-eyed manufacturer will read this and take the hint!

Hector Perez also responded:

My name is Hector (Luigi) Perez, NP4FW, from San Juan, Puerto Rico. Just a few notes regarding your interesting article in *Popular Communication*’s July issue. My congratulations.

This is the kind of article people must read. It not only keeps people informed, but it also teaches while helping both the common citizen and amateurs as well.

Regarding the laws and actions taken by police officers and how day by day our scanning hobby gets tighter and running closer to prohibition and censorship, sometimes I tend to think they have gone far beyond common sense.

This is my view point: Anyone with the intention to use a scanner for a wrong purpose or to commit a crime will always find a new way of doing the wrong thing one way or the other, with or without a scanner. Unfortunately for us, we ended up paying for the broken dishes.

At the present time in some states, if you don’t have an FCC amateur license, or some type of permission, or if you are not a firefighter or a police officer, carrying a scanner in the car in some states is a violation to the law.

I feel sorry for fellow hams that day by day will be detained by a police officer to inquire on the car’s 5/8-wave trunk ham antenna. And there we go at gunpoint trying to pull out of our briefcase the permit, our FCC license, ID, and the Lord may have mercy on you if by some reason you have any resemblance to Osama.

Then I ask, how is it that the market continues to sell scanners to ordinary citizens and how long will the market sustain with such pressure around?

Far beyond and looking deeper into the dark side of the problem, one day, scanners will be illegal, scanner clubs will also be illegal, passing or sharing scanner frequencies with friends and colleagues might end up to be violations of the law and not long [from now] our hobby will become “clandestine.”

I have my own scanner here at home. I love to scan around a lot. Scanning gives me a chance to hear different and new things when the ham bands are closed or too noisy. It’s quite interesting to hear the police chasing the

bad guys. For the police, it's safer to think that out there a law abiding citizen is on the road and may be of great help in identifying that stolen car or a possible suspect.

It's interesting to hear the emergency response team on their way to save someone's life. It's very important to scan and be alert and ready just in case you have to respond adequately in an emergency situation. And this not only goes for hams but for the ordinary citizen that bought his scanner, got interested, and could be out there on time to respond to an emergency situation heard on a scanner. I mean, scanning is important both on the road as well as at home.

During August I will be traveling to New York to visit my son who lives in Brooklyn. I am planning to take my VK-1 Yaesu 2-meter handheld scanner. I already took your advice and downloaded the FCC rules, which I will carry just in case, but after reading your article regarding the law in New York, I ask myself if I'm better off leaving it at home.

Hector, I heartily agree with you. In my view, you cannot be over-prepared for sending and receiving emergency communications. For anyone who is interested in the subject, I personally recommend *Guide to Emergency Survival Communications*, by Dave Ingram. Universal Radio carries it, and it is an excellent primer on the subject.

Three MORE Incidents!

If you recently read the "Our Readers Speak Out" section at the front of the magazine, you already know that Tom Ciciora didn't think kindly of "Is It safe?" Unfortunately, I cannot report that these were isolated incidents. Since the original story was filed, I have become aware of three *more* incidents, all in the Capital District of New York State.

In August, 2004, Dan Novak, KC2KOF, a third-generation ham, was stopped by the Altamont, New York, police for speeding and was also charged with misdemeanor possession of a Yaesu VX-7 (a ham transceiver) capable of receiving police frequencies (it was under the passenger seat of the car). The speeding charge and another traffic violation were dropped, but the misdemeanor went to a jury trial. Novak tried to act in his own defense and was convicted. Sentencing, however, was delayed two weeks, and at this point Novak hired an attorney. At sentencing, the judge lowered the charge to disorderly conduct (which is not a misdemeanor). In all it cost Novak \$450. His radio was returned after sentencing, but he no longer carries the VX-7 in the car.

In December, 2004, Tim Maxwell, KA2PKH, was stopped by a blanket patrol checking licenses and registrations in Rensselaer, New York, and was ticketed for possession of a scanner. He showed the officers his ham license, but his scanner was confiscated on the basis that it was contraband. He hired a lawyer and the Rensselaer County District Attorney agreed to drop charges, but it cost Maxwell at least \$600 and it took six months to get his radio returned.

In the spring of 2005 (just after the original "Is It Safe?" story was sent in for publication), a ham (who prefers anonymity because, as he put it, "it's a small town") was having lunch in a McDonald's in Bethlehem, New York, when police officers noticed a scanner on the seat of his car. They came *into the restaurant* to ticket him. The ham hired a lawyer and the case was dismissed, but it cost \$250 to defend against this bogus charge.

To try to understand why police officers were issuing these tickets when there is a clear exemption for licensed ham radio operators, I contacted all three police departments and the district attorneys offices in both counties that were involved. The Bethlehem PD did call

back, but the Lieutenant I spoke with said he wasn't the right person to answer the question. Otherwise, the silence was deafening. I called the office of the New York State Senate Majority Leader, and they said that they would look into revising the New York State Law based on the FCC ruling that I sent them.

The bottom line: If you're a ham and out and about with a handi-talkie or a scanner, make sure you have the FCC ruling, FCC 93-410 (see the link above), and your license with you.

Have Fun—But Stay Legal

See you again next month. Until then, have fun when mobile, but be mindful of the law!

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Radio Fun And Going Back In Time

Q. Commando and Ranger raiding parties usually maintain radio silence. Do they have radio operators with them?

A. Usually they do, just in case there is a recall order before they make the raid. There are other reasons, too. In March of 1940, a British Commando unit made a raid against the northern Norwegian shipping center of Narvik. Shipping, supplies and port facilities were destroyed. Volunteers were also gathered to go to England to join the Norwegian Forces, Norwegian collaborators and Germans were taken prisoner and general havoc was raised to hamper the German war effort before the raiding force was withdrawn. I once met a man who was a corporal in the Commandos on that raid. He told me that he and the radio operator broke into the Narvik Telegraph Office and then spent their time sending rude telegrams to various Nazi leaders. One was addressed to A. Hitler, Berlin. It read, "You said in your last speech German troops would meet the British wherever they landed. Where are your troops?"

Q. When was the first underwater telegraph cable laid?

A. The first submarine telegraph cable was laid down from Dover, England, to Cape Gris Nez on the French coast on August 28, 1850, by the tug *Goliath*. Unfortunately for its owners, John and Jacob Brett, it didn't work. The first message was garbled on the printing telegraph receiver and stopped dead after six minutes. It wasn't until the summer of 1851 that the two English wire manufacturers laid a cable across the 22 miles of channel linking England to the continent and got a message through to the Honorable Louis Napoleon Bonaparte, President of France.

Q. While we're already underwater, when was the first time a radio was used on a submarine?

A. I've spent a lot of time finding this one. The Navy's 16th submarine was called the C-5. She was commissioned in February of 1910 and fitted out at the Boston Naval Yard. She then began a three-year tour of training and testing along the East Coast and Chesapeake Bay. She tested different battery types, submarine signaling apparatus and, especially, radio. Her first commander was Ensign Chester W. Nimitz. Wonder what ever happened to him?

Q. Why is there no Channel 1 on a TV set?

A. Back in 1937 when the FCC started planning for television there was a Channel 1, which was scheduled for 44 to 50 MHz, but there wasn't much action then. Other channels were planned up to 19 but nobody could get out a signal above Channel 8, because there were no tubes to work those short wave lengths. In 1940, the FCC allocated 42 to 50 MHz to FM radio and moved Channel 1 to 50 to 56 MHz. All the other channels moved as well. Then, in 1945, FM radio moved to 88 to 106 MHz and Channel 1 was back at 44 to 50, but nobody could put a station on the air there until all the FM folks moved. Before the move was completed, 44 to 50 MHz was allocated to other services and everyone in the 54 to 60 slot was already established as Channel 2.

Q. We've all heard about the great job Commando Solo did in Afghanistan and the Gulf War. What did we do before we had C-130s to carry the message?

A. Back in 1951, Harry Truman and Voice of America envisioned a fleet of seven ships with transmitters aboard to carry the message of truth around the world. The plan was to get closer to communist countries in order to reduce the effect of Soviet jamming. The first (and only) of these ships was the U.S. Coast Guard Cutter *Courier*, a 338-foot cargo carrier of 5,800 tons taken over from the Navy and fitted with a 150-kW transmitter and two 35-kW transmitters for good measure. She was commissioned in February of 1952, then shown off at dedication ceremonies in Washington, D.C.

After a six-week shakedown cruise in the Caribbean, she headed for the Isle of Rhodes in Greece. She briefly withdrew to Turkey because of communist threats to send submarines after her. After that threat was over, she took up station at Rhodes where her mixed Coast Guard and Information Agency crew kept Freedom's message on the air. At first she flew a barrage balloon to keep her antenna aloft. After losing several balloons, an inverted delta antenna was rigged between her masts, which worked pretty well.

Cost and international law scuttled the rest of the fleet. It became illegal to broadcast from international waters. That made building shore stations in host countries cheaper than building six more transmitter ships. Nevertheless, *Courier* kept at her post until 1964, when her transmitters and related equipment were donated to the Greek government and she returned to the U.S. for conversion to a reserve training ship. In 1974, she was retired and cut up for scrap.

Looking Back...

Five Years Ago In Pop'Comm

The topic of Joe Cooper's "Utility Radio Review" column in November 2000 was "Monitoring Emergency Services," which is as helpful to monitors today as it was a scant year before 9/11. MACO, of Memphis, Tennessee, was advertising its M107C "high-performance" seven-element "Maximum" beam, and Grundig's latest entries were the Yacht Boy 400 Professional Edition, and Yacht Boy 300 Professional Edition.

Ten Years Ago In Pop'Comm

The JRC NRD-535D was the talk of the town and was touted by *Passport To World Band Radio* as having "unsurpassed DX performance." One of the more interesting ads was from the Cellular Security Group, which offered scanner mods including unlocking 800-MHz coverage on many popular scanners. Also advertised was the Select-A-Tenna, Nevada 1300 Discone, and JPS Communications' noise/interference reducers!

Twenty Years Ago In Pop'Comm

"Spy Number Transmissions—Spy Or '?'—The Mystery Continues," was the title of a feature in our November 2005 magazine. Covert intelligence? Why use HF when other sophisticated methods might be more efficient? The mystery still continues. Another hot monitoring topic—terrorists and monitoring them—offered lots of the usual "suspect" frequencies, but I couldn't find any reference to terrorists (insurgents) in *Iraq*. Time sure is a funny thing.

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

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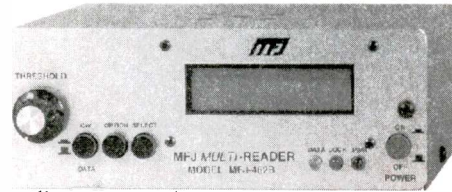
Eavesdrop on the World

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

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

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

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



-- all over the world --
Australia, Russia, Japan, etc. MFJ-462B
Printer Monitors
24 Hours a Day \$179⁹⁵

MFJ's exclusive *TelePrinterPort™* lets you monitor any station 24 hours a day by printing transmissions on an Epson compatible printer. Printer cable, MFJ-5412, \$9.95.

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

High Performance Modem
MFJ's high performance *PhaseLockLoop™* modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference --

greatly improves copy on CW and other modes.

Easy to use, tune and read

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

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

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

Copies most standard shifts and speeds. Has MFJ *AutoTrak™* Morse code speed tracking. Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, \$12.95. 5 1/4"Wx2 1/2"Hx5 1/4"D inches.

No Matter What™ Warranty

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

Try it for 30 Days

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

Super Active Antenna

"World Radio TV Handbook" says MFJ-1024 is a "first-rate easy-to-operate active antenna ... quiet... excellent dynamic range... good gain... low noise... broad frequency coverage." Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz-30 MHz.

Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED.

Switch two receivers and auxiliary or active antenna. 6x3x5 in. Remote has 54" whip, 50 feet

coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, \$12.95.

Indoor Active Antenna

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

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, \$12.95.

Compact Active Antenna

Plug this compact MFJ all band active antenna into your receiver and you'll hear strong, clear signals from all over the world, 300 KHz to 200 MHz including low, medium, shortwave and VHF bands. Detachable 20" telescoping antenna. 9V battery or 110 VAC MFJ-1312B, \$12.95. 3 1/4"x1 1/4"x4 in.

Eliminate power line noise!

MFJ-1026 \$179⁹⁵

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

Matches your antenna to your receiver so you get maximum signal and minimum loss. MFJ-959C \$99⁹⁵

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, \$12.95.

High-Gain Preselector

High-gain, high-Q receiver preselector 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, \$12.95.

Dual Tunable Audio Filter

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 inches. MFJ-752C \$99⁹⁵

MFJ Shortwave Headphones

MFJ-392B \$19⁹⁵ Perfect for shortwave radio listening for all modes -- SSB, FM, AM, data and CW. Superb padded headband and ear cushioned design makes listening extremely comfortable as you listen to stations all over the world! High-performance driver unit reproduces enhanced communication sound. Weighs 8 ounces, 9 ft. cord. Handles 450 mW. Frequency response is 100-24,000 Hz.

High-Q Passive Preselector

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

Super Passive Preselector

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. MFJ-1046 \$99⁹⁵

MFJ Shortwave Speaker

This MFJ ClearTone™ restores the broadcast quality sound of shortwave listening. Makes copying easier, enhances speech, improves intelligibility, reduces noise, static, hum. 3 in. speaker handles 8 Watts. 8 Ohm impedance. 6 foot cord. MFJ-281 \$12⁹⁵

MFJ All Band Doublet

102 ft. all band doublet covers .5 to 60 MHz. Super strong custom fiberglass center insulator provides stress relief for ladder line (100 ft.). Authentic glazed ceramic end insulators and heavy duty 14 gauge 7-strand copper wire. MFJ-1777 \$49⁹⁵ Ship Code A

MFJ Antenna Switches

MFJ-1704 \$69⁹⁵ MFJ-1702C \$24⁹⁵

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.

Morse Code Reader

Place this pocket-sized MFJ-461 MFJ Morse Code Reader near your receiver's speaker. Then watch CW turn into solid text messages on LCD. Eavesdrop on Morse Code QSOs from hams all over the world! MFJ-461 \$79⁹⁵

MFJ 24/12 Hour Station Clock

MFJ-108B, \$19.95. Dual 24/12 hour clock. Read UTC/local time at-a-glance. High-contrast 5/8" LCD, brushed aluminum frame. Batteries included. 4 1/2"Wx1Dx2H inches.

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World News, Commentary, Music, Sports, And Drama At Your Fingertips

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	UTC	Freq.	Station/Country	Notes
0000	11935	Radio Romania Int.	SS	0200	9805	Radio Farda, USA	Farsi
0000	12085	Radio Damascus, Syria	AA	0200	9560	Radio Korea Int., S. Korea, via Canada	
0000	15720	Radio New Zealand Int.		0230	4750	Radio Peace, Sudan	
0000	9580	Int. Radio of Serbia & Montenegro		0230	9795	Radio Budapest, Hungary	
0000	11690	Radio Vilnius, Lithuania		0230	4005	Vatican Radio	unid
0000	9700	Radio Bulgaria		0230	4780	Radio Cultural Coatan, Guatemala	SS
0000	4796	Radio Malku, Bolivia	SS	0230	6150	Radio Record, Brazil	PP
0030	5890	Radio Thailand, via USA		0230	4985	Radio Brazil Central	PP
0030	9870	Radio Budapest, Hungary	HH	0230	5010	Radio Misiones Int., Honduras	SS
0030	7305	Vatican Radio	PP	0230	3320	Radio Sondergrense, South Africa	Afrikaans
0030	13605	All India Radio		0230	6010	La Voz de su Concencia, Colombia	SS
0030	11730	Radio Veritas Asia, Philippines	unid	0230	11925	Radio Bandeirantes, Brazil	PP
0100	9460	Voice of Turkey	TT	0245	5915	ZNBC/Radio Zambia	
0100	11735	Voice of Korea, North Korea	SS	0300	7190	RT Tunisienne, Tunisia	AA
0100	13720	Deutsche Welle Relay, Sri Lanka	RR	0300	4910	ZNBC/Radio Zambia	
0100	11800	RAI Int., Italy		0300	9780	Rep. of Yemen Radio	AA
0100	11710	Radio Nacional, Argentina	SS	0300	4885	Radio Clube do Para, Brazil	PP
0100	6135	Radio Aparecida, Brazil	PP	0300	7120	BBC via South Africa	
0100	7345	Radio Prague, Czech Republic		0300	5910	Marfil Estereo, Colombia	SS
0100	11975	Radio Free Asia, USA via Germany	Tibetan	0300	4780	RTD Djibouti	FF
0100	4820	LV Evangelica/HRVC, Honduras	SS	0300	7110	Radio Ethiopia	Amharic
0100	6957	La Voz del Camposinos, Peru	SS	0300	7200	Radio Omdurman, Sudan	unid
0130	12070	Voice of Russia	RR	0300	6140	Voice of Turkey	
0130	9880	Voice of Russia		0300	7135	Radio France Int.	
0130	3340	Radio Misiones Int., Honduras	SS	0300	7210	Radio Minsk, Belarus	
0130	9870	Radio Austria Int.	GG	0330	7440	Radio Ukraine Int.	
0130	9400	Radio Bulgaria	SS	0330	15215	Radio Taiwan Int., via USA	
0130	4052.5	Radio Verdad, Guatemala	SS	0330	4976	Radio Uganda	
0130	4780	Radio Buenas Nuevas, Guatemala	SS	0330	6175	Voice of Vietnam, via Canada	
0130	7250	Voice of Russia via Armenia		0330	6005	Deutschland Radio, Germany	GG
0130	6215	Radio Baluarte, Argentina	SS	0330	11875	Voice of Justice, Iran (VOIRI)	
0130	6480	Radio Altura, Peru	SS	0330	7260	Radio Cairo, Egypt	unid
0200	17660	Sudan Radio Service, USA, via UK		0330	7215	Trans World Radio via South Africa	Amharic
0200	9720	RT Tunisienne, Tunisia	AA	0330	15310	BBC Relay, Oman	
0200	3250	Radio Luz y Vida, Honduras	SS	0330	6115	Radio Tirana, Albania	
0200	4810	Radio Transcontinental de America/XERTA, Mexico	SS	0400	5446	AFN/AFRTS, Florida	
0200	5545	Radio San Andres, Peru	SS	0400	4890	Radio France Int. Relay, Gabon	FF
0200	9737	Radio Nacioinal, Paraguay	SS	0400	6000	Radio Havana Cuba	
0200	9935	VOIRI, Iran	AA	0400	9470	Voice of Croatia, via Germany	
0200	9440	Radio Slovakia Int.	FF	0400	6315	Voice of the Tigray Revolution, Ethiopia	unid
0200	4900	Radio San Miguel, Bolivia	SS	0430	5025	Radio Rebelde, Cuba	SS
0200	9925	Voice of Croatia, via Germany	SS	0430	4775	Trans World Radio, Swaziland	
0200	9690	China Radio Int., via Spain	CC	0430	5985	RTV Congolaise, Congo Rep.	FF
				0430	4950	Radio Nacional, Angola	PP

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0500	9685	Channel Africa, South Africa		1600	15100	Radio Pakistan	
0500	11665	Radio Solh, USA via UAE	Pashto/Dari	1600	15785	Galei Zahal, Israel	HH
0500	9575	Radio Mediterranee Int., Morocco	AA	1600	9795	KNLS, Alaska	RR
0500	7255	Voice of Nigeria		1600	11800	Minivan Ind. Radio, USA via Germany	Dhivevi
0500	9865	The Voice-Africa, Zambia		1640	11545	Voice of Korea, North Korea	
0530	7275	Radio Nigeria		1730	15205	BSKSA, Saudi Arabia	AA
0530	4915	GBC/Radio Ghana		1730	15580	VOA Relay, Botswana	
0530	5005	Radio Nacional, Equatorial Guinea	SS	1730	15475	Africa No. One, Gabon	FF
0600	5470	Radio Veritas, Liberia		1730	17570	RTBF Int., Belgium, via Germany	FF
0600	6185	Radio Educacion, Mexico	SS	1800	15120	Voice of Nigeria	
0600	7125	RTV Guineenne, Guinea	FF	1800	15190	Radio Pilipinas, Philippines	Tagalog
0700	6070	CFRX relay CFRB, Canada		1830	17705	Voice of Greece via USA	Greek
0700	9525	Star Radio, Liberia, via Ascension		1830	17780	RAI Int., Italy	II
0730	6020	Radio Victoria, Peru	SS	1830	17680	Voz Cristiana, Chile	SS
0830	4990	Radio Apinte, Suriname	DD	1830	9685	Trans World Radio via South Africa	Hausa
0900	4754	Radio Educacao Rural, Brazil	PP	1830	11760	Radio Ndeke Luka, Cent. Af. Rep, via UAE	FF
0930	4939	Radio Amazonas, Venezuela	SS				PP
0930	9775	CNR/CPBS, China	CC	1830	15560	RDP Int., Portugal	PP
1000	6135	Radio Santa Cruz, Bolivia	SS	1900	13780	Deutsche Welle, Germany	
1000	3280	La Voz del Napo, Ecuador	SS	1900	15640	Kol Israel	
1030	7280	Voice of the Strait, China	CC	1900	13615	All India radio	HH
1100	9885	Radio New Zealand Int.		1900	13685	China Radio Int., via Mali	AA
1100	3385	Radio East New Britain, Papua New Guinea		1900	15190	Radio Africa, Equatorial Guinea	
1100	9605	Radio Rebelde, Cuba	SS	1900	12050	Radio Cairo, Egypt	AA
1100	9695	Radio Rio Mar, Brazil	PP	1930	15560	RDP Int., Portugal	PP
1100	3925	Radio Nikkei, Japan	JJ	2000	17810	Radio Nederland, Netherlands	
1100	9405	Far Eastern Bc. Co., Philippines	unid	2000	11625	Vatican Radio	AA
1130	3365	Radio Milne Bay, Papua New Guinea		2000	11635	Radio Jamahiriya, Libya, via France	AA
1130	4790	RRI FakFak, Indonesia	II	2030	11705	Radio France Int.	FF
1200	9280	WYFR/Family Radio, via Taiwan	CC	2030	17765	Radio Canada Int.	
1200	9715	Radio Nederland Bonaire Relay	SS	2030	11735	Radio Tanzania, Zanzibar	Swahili
1200	11555	KWHR, Hawaii		2030	12140	VOA Relay, Kuwait	
1200	9465	Trans World Radio/KTWR, Guam	unid	2100	11965	Star Radio, Liberia, via Ascension Is.	
1200	9605	BBC, via Japan		2100	15495	Radio Kuwait	AA
1230	15240	Radio Sweden		2100	15410	VOA Relay, Morocco	AA
1230	11965	VOA Relay, Philippines	CC	2100	15345	RTV Marocaine, Morocco	AA
1230	12040	Radio France Int., via Russia	unid	2100	11825	Radio Japan/NHK World	
1230	11740	Radio Japan/NHK World, via Singapore	JJ	2130	11905	Radio Tashkent, Uzbekistan	
1230	6350u	AFN/AFRTS Hawaii		2130	11940	Radio Romania Int.	
1300	11805	Voice of America Relay, No. Marianas	CC	2130	11600	Radio Prague, Czech Republic	
1300	6150	Mediacorp Radio, Singapore		2130	15345	Radio Jordan	AA
1300	15400	YLE/Radio Finland	Finnish	2200	9830	Voice of Turkey	
1300	9525	Voice of Indonesia		2200	11820	BSKSA, Saudi Arabia	AA
1300	9590	Radio Australia		2200	15345	Radio Argentina Exterior	SS
1400	15350	Voice of Turkey	TT	2215	7210	Cyprus Bc Corp.	Grk, Wknds
1400	15140	Radio Sultanate of Oman	EE	2300	11760	Radio Nacional Venezuela, via Cuba	SS
1400	15205	Voice International, Australia		2300	17680	RDP Int., Portugal	PP
1430	15630	Voice of Greece	Greek	2300	11620	All India Radio	
1430	17535	Kol Israel	HH	2300	15525	HCJB-Australia	
1500	7125	Russian Int. Radio, via Moldova	RR	2300	11690	Deutsche Welle, Germany, via Canada	GG
1500	12105	Trans world Radio/KTWR, Guam		2330	15385	Radio Exterior de Espana	FF
1500	15400	BBC Relay, Ascension		2330	13600	Radio Bulgaria	RR
1500	13800	Radio Marti, USA	SS	2330	13680	Radio Havana Cuba	SS
1500	9745	HCJB, Ecuador	SS	2330	11670	Radio Free Asia Relay, No. Marianas	unid
1500	17870	Radio Rhino Int., via Germany		2330	9435	Democratic voice of Burma, Norway, via Germany	Burmese
1500	13870	Radio Farda, USA, Sri Lanka relay	Farsi				
1500	17660	Sudan Radio Service, via England					
1600	17850	Radio Exterior de Espana	SS				

New, Interesting, And Useful Communications Products

Alinco's DJ-X7T Credit Card-Size Wideband Communications Receiver

Alinco has announced a new wideband communications receiver, the DJ-X7T that, according to the company "builds on the success of the DJ-C7T" and offers five operating modes, three different antenna modes, triple conversion AM/NFM plus double conversion WFM in a package only a little larger than the average credit card. It also features newly redesigned audio circuitry for improved sound quality.

The DJ-X7T, that has an MSRP of \$199, receives 100 kHz to 1.3 GHz (with cellular frequencies blocked in the U.S.) and features 1,000 memory channels that are easy to program using free software available for download from www.alinco.com. It weighs less than 4 ounces and operates using a long-lasting lithium ion battery, which is included along with a standard adapter that charges the battery and operates with AC power at the same time so you can monitor frequencies even while charging. It also comes standard with a large, easy-to-read illuminated LCD screen, 39-tone Tone Squelch, Auto Power Off, Monitor/Mute, cable-cloning capabilities and priority receive.

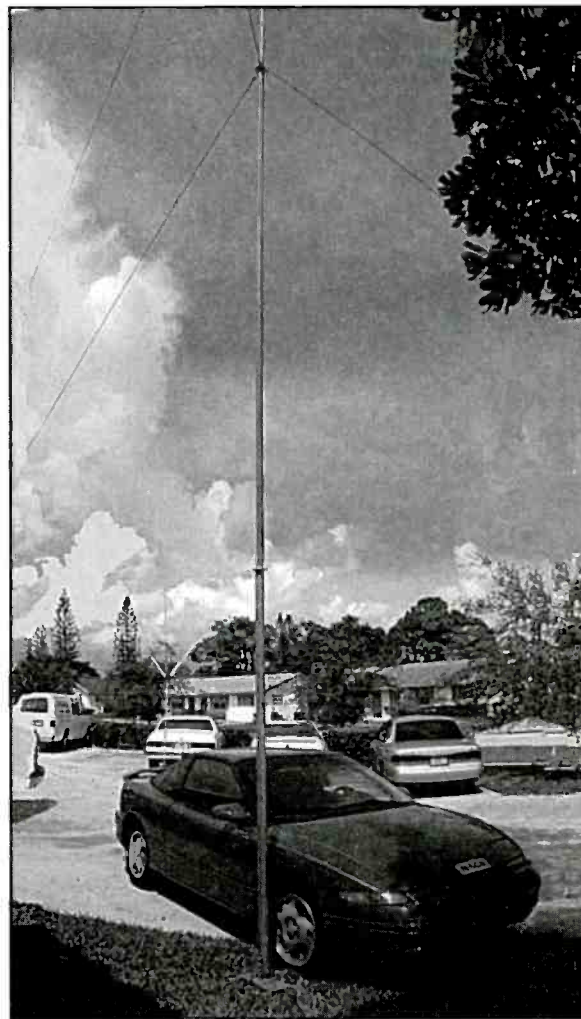
The Alinco DJ-X7T measures 2.28 x 3.78 x 0.57 inches. For more information on the new DJ-X7T, contact Alinco at www.alinco.com.



Alinco's new DJ-X7T is a credit card-size wideband receiver that tunes 100 kHz to 1.3 GHz.

Cubex "SKYPOLE" Portable Antenna Support System

Cubex Company of Jupiter, Florida, has recently added the SKYPOLE to its line of HF (40 to 10 meters), VHF, and UHF quad antennas and related accessories. The SKYPOLE is a portable antenna support system that's capable of supporting wire dipoles and small VHF antennas at heights of up to 40 feet,



Ideal for DXpeditions and Field Day operations, the Cubex SKYPOLE antenna support system is capable of supporting wire dipoles and small VHF antennas at heights of up to 40 feet.

making it appropriate for Field Day and expedition-style operations. Larger arrays may be accommodated at lower heights where mast diameter is larger.

The system is comprised of a 2-inch aluminum pipe base section and five heavy-duty 8-foot telescoping fiberglass sections. Also included are stainless steel pins to lock the telescoping sections, a swivel lanyard support, two guy attachment plates, "S" hooks, Dacron/Polyester guy lines, and tensioners. For set-up convenience, there's an optional "Easy-Up" drive-on tilting and rotatable base plate. A pivoting arrangement in the base plate lets users manually rotate directional antennas.

The new Cubex SKYPOLE and guying set is priced at \$225; the "Easy-Up" Base is \$125. For further information and to place

orders, contact Cubex Company, 228 Hibiscus St. #9, Jupiter, FL 33458; Phone: 561-748 2830; Web: www.cubex.com; CubexCo@cubex.com.

Uniden Introduces Enhanced Clock/Radio Scanner Lineup

Uniden Corp. is offering two new desktop clock radio scanners: the Bearcat BC340CRS and the Bearcat BC370CRS. These models offer enhancements to key scanner features in a new, easier-to-use design.

The BC340CRS features 100 scanning channels, 30 AM and FM presets, and an alarm clock. It covers all popular scanning bands, including public safety, amateur radio, aircraft, and VHF TV broadcast. Service search allows quick access to common police, fire, ambulance, aircraft, amateur radio, and marine radio frequencies. Weather reception allows the user to instantly tune in to hear local weather conditions, forecasts, and emergency information.

The BC370CRS offers 300 scanning channels, 30 AM and FM presets, All-Hazards Weather Radio, as well as an alarm clock that automatically synchronizes with the National Institute of Standards and Time's (NIST) atomic clock broadcast, for up-to-the-millisecond accuracy. Scanning bands include public safety, amateur radio, aircraft,

VHF TV broadcast, and Military Aircraft reception. The BC370CRS's All Hazards warning alerts you to local emergency conditions broadcast on National Oceanic & Atmospheric Administration (NOAA) Weather Radio, or broadcast AM or FM stations.

These models will be available in spring 2006. For more information, visit Uniden on the Web at www.uniden.com.

New AccuWave GPS Products From Sigma 6

Sigma 6 has just launched its new AccuWave global positioning system (GPS) product line. It's designed to improve the performance and reduce the size and cost of GPS antennas for high-precision applications. The product line includes GPS antennas specifically designed for the challenging deployments on Marine vessels due to the rolling seas, as well as a full line of RF interference and RF rejection filters specifically made for GPS L1 and L2 applications.

The Sigma 6 GPS product includes helix and patch style antennas, incorporating L1 and or L1 and L2 RF rejection filters, and line amplifiers including L1 or L1-L2 filters. These anti RF interference devices are appropriate for GPS high-accuracy applications, such as precise time or navigating crowded harbors.

For more information, visit Sigma 6 on the Web at <http://www.sigma6inc.com>.

OUR READERS SPEAK OUT (from page 4)

Getting Off Our Tails

Dear Editor:

In a few days the governor of Texas will probably sign a bill supporting BPL (broadband over power line) in Texas. I have sent you a copy of the legislation, which you might find interesting. If this legislation goes forward, HF operations in Texas will become impossible in three to five years. Of course, CB and SWL will be in the same boat.

Many radio-amateurs are very unhappy about the lack of ARRL leadership in this matter in Texas. Tom Blackwell, N5GAR, led the fight in Austin. He is the ARRL North Texas Section Manager. He did all he could along with two or three others in Austin. I and a few others mailed, e-mailed, and made phone calls to every member of the Texas Senate and House. A few members voted

against the telecomm bill that included BPL support for reasons other than BPL.

Hams and other HF users better get ready for the pro-BPL lobby when they descend on their state capitol. It seems obvious to me that the FCC is trying to limit and/or prevent the future use of HF. I hope all hams and SWLs will begin to make plans to resist BPL developments in their state. Texas was a test case for the pro-BPL lobby, so get your act together now and get off your rear end on this BPL issue.

Richard Nielsen, K5RN

(Editor's Note: At press time, the bill, SB5, had not been signed. There are details about it on Tom Blackwell's website at <http://www.n5gar.info/>. Tom tells us that he expects the governor will sign it, "even though there are political risks.")

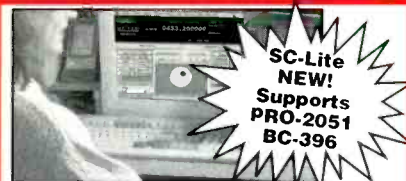
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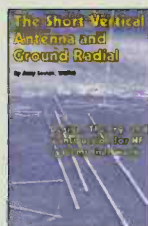


Order No. MILSPEC ~~\$27.95~~

The Short Vertical Antenna & Ground Radial

by Jerry Sevick, W2FMI

Small but solid guide walks you through the design & installation of inexpensive, yet effective short HF vertical antennas. Antenna restrictions a problem? This book could keep you on the air!



Order No. SVERT ~~\$10.00~~

Heathkit - A Guide to the Amateur Radio Products

by Chuck Penson, WA7ZZE



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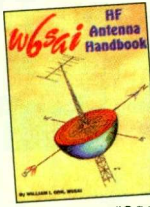
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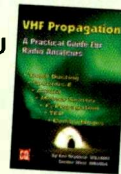
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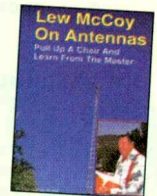
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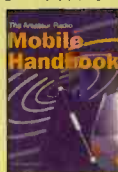


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RSGB, 2002 Ed., 128 pages.

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RSGB, 1st Ed., 1992. 233 pages. A collection of outstanding articles and short pieces which were published in Radio Communication magazine during the period 1968-89. Includes ingenious designs for single element, beam and miniature antennas, as well as providing comprehensive information about feeders, tuners, baluns, testing, modeling, and how to erect your antenna safely.

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Practical Projects

Edited by Dr. George Brown, M5ACN
RSGB 2002 Ed, 224 pages. Packed with around 50 "weekend projects," Practical Projects is a book of simple construction projects for the radio amateur and others interested in electronics.

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RSGB, 2nd Ed, 1996. 160 pages. Takes the guesswork out of adjusting any antenna, home-made or commercial, and makes sure that it's working with maximum efficiency. Describes RF measuring equipment and its use, constructing your own antenna test range, computer modeling antennas. An invaluable companion for all those who wish to get the best results from antennas!

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RSGB Prefix Guide

By Fred Handscombe, G4BWP.

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IOTA Directory - 11th Edition

Edited by Roger Balister, G3KMA.

RSGB, 2002 Ed., 128 pages. This book is an essential guide to participating in the IOTA (Islands on the Air) program. It contains everything a newcomer needs to know to enjoy collecting or operating from islands for this popular world-wide program.



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Sangean's WR-2 Digital AM/FM Receiver

Back in August's *Pop'Comm* I reported to you on Sangean's WR-1 AM/FM radio, finding it very impressive. Its sound quality is outstanding and it's easy to operate, whether you're a dyed-in-the-backyard-stringing-antennas radio nut like me, or a homemaker, or a student just looking for a great radio!

It wasn't long after that review appeared in these pages that I got a call from Sangean asking if we'd like to review its brand new radio, the WR-2. A few days later the WR-2 arrived.

It now sits prominently on my dresser. It doesn't seem misplaced or strange there at all, and actually gives that dresser-top real estate a rather cool look. Hey, any radio that passes muster with your wife or family *outside* the "shack" is an excellent radio right off the bat!

My wife "helped" me with some stations "we" wanted to program into the radio's 10 memories (there are five presets for AM, five for FM). We haven't had to fight over the WR-2's remote control—yet!

Remote? You bet! The WR-2 can be tuned at the radio using the large tuning knob on the right side of the box *or* with the *included* remote! It's more than handy, especially given the number of radio functions I can control from the prone position. (More on the remote in a moment.)

While the WR-1 has a basic horizontal analog tuning dial (what folks today might call an "old-fashioned" or "classic" dial tuning), the WR-2 has a very visible, lighted window with large numerals (and letters) that show a *digital* frequency read-out. You can also adjust the brightness of the display window with the simple push of a button. A highly visible clock is displayed once you set it manually, or—here's a high-tech surprise—you tell it to set *automatically*!

It's So Easy...

The Sangean WR-2 receiver weighs about 5.5 pounds and measures 4.5 x 9.5 x 6 inches (HWD). It features a large three-inch, 7-watt front speaker, RDS (Radio Data System) display of station call letters and other short-text information sent by many radio stations, clock and alarm (radio/buzzer), infra-red remote, variable bass and treble controls plus bass compensation.

There are external rear terminals for AM antenna, FM antenna, record output, auxiliary input (you can plug a CD player into this radio and get that outstanding sound!), and a 9- to 15-Vdc power adapter jack. On the front is the 3.5-mm headphone jack and buttons for the memories, scan function, tuning, volume, and a small button that lets you control the brightness of the display.

The manual, as I've come to expect from Sangean, is well written and easy to follow. But you don't need to be an engineer or ham radio operator to figure out the radio, even *without* the manual.

Want to take *full* advantage of this high-tech marvel? You can set the clock to automatically update itself (if you've got RDS in your area), and it can also be set for either a 12- or 24-hour format. You can set the tuning steps to either 9 or 10 kHz



Here's New York's 101.1 FM RDS display showing the station's new slogan, "Jack FM." The WR2 "fits" perfectly in any room and can easily fill any room with rich sound!

on the AM band and 50 or 100 kHz on the FM band. (European AM stations are separated by 9 kHz; here in the United States and Canada the spacing is 10 kHz; i.e., 1050, 1060, 1070, etc.)

Turn the radio on by simply pressing the small orange power button on the right front panel. You can then manually tune the radio, and when you like what you hear, simply press one of the memory preset buttons for a couple of seconds, locking that station into the WR-2's memory. Starting with the left memory position, we've programmed our favorite FM stations beginning with 94.3, sequentially through 107.1.

How many times have you heard a tune and couldn't remember the name of the group or title? Sometimes I've got a case of the "geez, I remember that one, but what's it called?" syndrome. No problem for you now. If the station has RDS, stations will likely automatically scroll their call letters and/or catchy nickname on the WR-2's large LCD display and some local stations also scroll the title of the song that's playing, along with the artist. How cool is that?

What if there's a power failure? What happens to those memory presets? The Sangean WR-2 will hold those programmed stations in memory for about an hour, and the clock will run for about six minutes. After that, you'll have to reset the stations in the memory—but not to worry, it takes only a minute or less to do so.

Warning: Using The WR-2 Can Be Addictive

Did I say this radio is loaded with high-tech features? Trust me, you'll love it. And if you're a DXer, it really does pull in those faraway stations. I found the selectivity to be great and



The remote operates on a single CR-2025 battery (included) and controls a multitude of functions.

the sensitivity, particularly on AM, is as good as receivers costing much more.

FM reception is excellent. You know how FM operates; sometimes you can turn the radio slightly or move away from it and the desired signal might improve or disappear. *Without* an external FM antenna connected, all five of our favorite stations were loud, clear, and stable!

Connecting an FM antenna to the rear terminal greatly improved distant FM reception, and I was then able to pull in stations from Philadelphia and Long Island with ease. The tuning knob is smooth and firm, giving you a positive in-control feeling when tuning either the AM or FM band.

The volume control is a multi-function device. A simple clockwise turn increases volume, obviously, but push the control gently and it becomes the treble control, and you rotate the knob to the desired treble level. Push it twice and it becomes the bass control. It's not complicated, and incidentally, I found both the treble and bass to be superb with rich tones without that thumping muffled sound!

The WR-2 also has a sleep timer which you can set to turn the radio off after 15, 30, 45, 60, 90, or 120 minutes, and *that* function can be controlled using the

remote. The sleep function works flawlessly, but I rarely get to the point of hearing the WR-2 turn off for the night!

The remote is outstanding! It also controls a multitude of functions, including the obvious power on/off, recalling or setting a memory in any of the five positions for each band, band selection, tone, volume, mute, and, of course, tuning.

The Sangean information sheet says the WR-2 is "The Ultimate." To that I'd simply say, "ditto!"

That's One For Me, And One For You

The Sangean WR-2 is available in any of three attractive models: walnut, black, or white. I'm even thinking that it's the

perfect holiday gift for you to consider; maybe white for someone's kitchen or walnut for a den or living room. The radios would certainly be *very* good looking with virtually any décor, in my opinion.

It's time to hit the sleep timer now, but before I do, I ask you this question: Are you looking for an AM/FM receiver with advanced features, that's great-looking, with superb audio and signal quality that will make you smile from ear to ear? You know the radio to get, I think.

For more information on the Sangean WR-2, contact Sangean at www.sangean.com or e-mail the company at sales@sangean.com. You can also write to them at 2651 Troy Avenue, South El Monte, CA 91733 or phone 626-579-1600.

Please tell them you read about the WR-2 in *Popular Communications!* ■

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Another Close Call, And Radio Tanzania-Zanzibar Is Back!

Radio Slovakia International nearly disappeared from shortwave this summer. Fingers were pointed at the usual culprit in these matters: money, or more accurately, the lack of it. Lost "subscriber fees" and other under-funding issues made serious cutbacks necessary, so a decision was made to leave shortwave. But, at the last minute, the group that oversees the government broadcaster decided that funding for this service should come from the government. It's not a done deal yet, but RSI has escaped the ax, at least for now. We'll keep you posted.

On a more positive note, **Radio Tanzania-Zanzibar** is back on the air! This exotic locale, which had been missing from shortwave for some time, suddenly reappeared, having straightened the picture on the wall, as it were. They're not on 11734 any longer, but are even-Stephen on **11735**. RTZ is broadcasting in Swahili from around 1600 and running to 2100 when they rather abruptly depart.

Another returning African is **Star Radio** in Liberia. This one, based in Monrovia, is transmitting via one of the VT Merlin sites, believed to be Ascension. The new schedule has them on from 2100 to 2200 on **11695** and on **9525** from 0700 to 0800. Both channels are being heard in various parts of North America, mostly at a fair level.

And, in South America, **the Voice of Guyana** has returned to the air on **3291**. Your best shot at Guyana is during the very early morning, say around 0800 or 0900, although sometimes they'll pop through in the evenings.

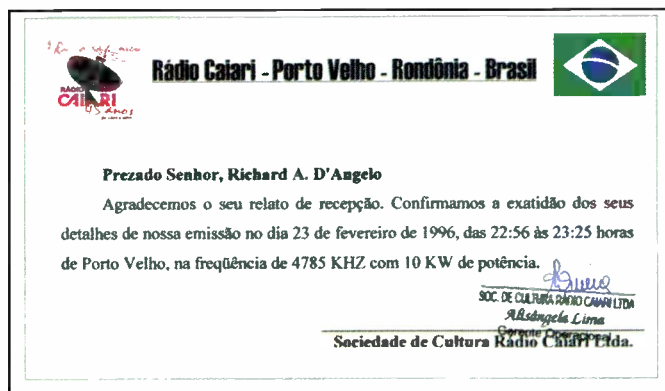
The anti-Zimbabwe **SW Radio Africa** has done another flip-flop. They were going to leave shortwave due to the high costs of fighting the jamming against them, but then continued past their announced departure date. Word went round that they had come up with some additional funding. But it seems the extra money—if there ever was any—was too little for the task at hand, because the station only managed to keep going for a couple of additional weeks. And then they disappeared from **15145** where they were being widely heard.

Yet another new opposition-type program has come on the air. This one is **Radio Waaberi**, targeted at Somalia/Somaliland. It's based in the States and airs via the DTK Julich site in Germany Fridays from 1330 to 1400 on **17550**. It was earlier announced as using the name **Radio Solmal**. The Waaberi Broadcasting Service, based in California, produces the program.

There's little English coming out of Middle Eastern shortwave stations, and for a while there, the number of weekly hours had taken another hit. But now the English broadcast from **Radio Sultanate of Oman** is said to have been reinstated at 1400 to 1500 on **15140**.

South Korea's **KBS World Radio** has been showing up on **7385** with English at 0230, but it's just another relay, in this case over WRMI in Miami.

A long time occupant of 60 meters, absent for several months, has returned. It's good to be hearing **La Voz Evangelica** (HRVC), Tegucigalpa, Honduras, again. Apparently they've



Rich D'Angelo (PA) got this nice QSL from Radio Caiari, the Brazilian on 4785.

fixed whatever technical problem kept them off the air, although their frequency is still maladjusted at **4819** instead of their assigned **4820**.

The already sparsely populated 90-meter band will soon be without any regional All India Radio outlets. Longtime 90-meter band users AIR-Shimla, Gangtok, Delhi and Bhopal will, or have already, moved to 60 meters. Actually, this may make them somewhat easier for us to hear in North America.

Reader Logs

Your shortwave broadcast station logs are always welcome, but please be sure to double or triple space items, list them by country, and include your last name and state abbreviation after each log. Also much wanted are spare QSLs you don't need returned, station schedules, brochures, pennants, station photos, and anything else you think would be of interest. And how about sending a photo of you at your listening post? Step right up and get your 15 minutes of fame!

Here are this month's logs. All times are in UTC. Double capital letters are language abbreviations (SS = Spanish, RR = Russian, AA = Arabic, etc.). If no language is specified the broadcast is assumed to be in English (EE).

Let's head this way. Everyone please stay together!

ALASKA—KNLS, 9615 in CC at 1620. (MacKenzie, CA) 9795 at 1021 with e-mail address, then "American Forum" feature. (Foss, Philippines) 1600 in RR. (MacKenzie, CA)

ARGENTINA—Radio Nacional, 11710 in SS at 0110 with sports coverage. (MacKenzie, CA) 15345 in SS to Europe at 2026. (DeGennaro, NY) SS at 2229. (Charlton, ON)

ASCENSION IS.—BBC Relay, 15400 at 1525. (Wood, TN)

AUSTRALIA—Radio Australia, 6020 to the Pacific at 1055. 9560 to East Asia at 1109, 9580 to the Pacific at 1046, 9590 to the Pacific at 1049 and 9710 to the SW Pacific at 1046. (DeGennaro, NY) 9475/9580/9710 with news at 1702. (Burrow, WA) 9580 to 1400 close. (Maxant, WV) 9580/9590 at 1209. (Brossell, WI) 9580 at 1705, 9590 at 1559, 9710 at 1640. (MacKenzie, CA) 15515 at 2121. (Charlton, ON) HCJB-Australia, 15525 on mother-daughter arguments at 2314.

Help Wanted

We believe the "Global Information Guide" consistently presents more shortwave broadcast loggings than any other monthly SW publication! (This month we processed 405 loggings!)* Why not join your fellow SWLs, let us know what you're hearing, and also become eligible for our monthly shortwave book prize! Send your logs to "Global Information Guide," *Popular Communications*, 25 Newbridge Rd., Hicksville NY 11801-2953. Or e-mail them to Editor Harold Ort at popularcom@aol.com, or to your "GIG" columnist at gdex@genevaonline.com (please see the column text for basic formatting tips.) Come join the party—we look forward to hearing from you!

**Not all logs get used; there are usually a few which are obviously inaccurate, unclear, or lack a time or frequency.*

(MacKenzie, CA) Voice International, 13635//15205 with news at 1701. (Burrow, WA) ABC Northern Territories Service—Alice Springs, 2310 with sports at 1030 with heavy Ute QRM. (Wilkner, FL)

AUSTRIA—Radio Austria Int., 9870 in GG to North America at 0135. (DeGennaro, NY) 0143 in EE. (Brossell, WI) 13775 via Canada at 1415. (Maxant, WV)

BELARUS—Family Radio/WYFR via Minsk, 7440 in SS at 1922. (Foss, Philippines)

BELGIUM—RTBF, 17570 via Germany in FF to Central Africa at 1734. (DeGennaro, NY)


BOLIVIA—Radio Santa Cruz, 6134.8 at 0035 with man in SS, ID, vocals, and ad string. Echo effect ID and off at 0102. (D'Angelo, PA) Radio Pio Doce, Llalagua-Siglo XX, 5952v at 0015 with SS talk, local music, sign off anmts at 0230 f/by the River Kwai march. (Alexander, PA) Radio San Miguel, Riberalta, 4900.5 at 0215 in SS with talk, pops, CP music, ID. Off at 0307. (Alexander, PA)

BOTSWANA—VOA Relay, 15580 with program on democracy at 1751. (Brossell, WI)

BRAZIL—(all in PP) Radio Difusora, Londrina, 4815 at 0900 sign on. (DeGennaro, NY) Radio Nacional Amazonia, 11780 at 0036.

Abbreviations Used In This Month's Column

<p>* — before or after a time (time the station came on or left the air)</p> <p>(l) — after a frequency (lower sideband)</p> <p>(p) — presumed</p> <p>(t) — tentative</p> <p>(u) — after a frequency (upper sideband)</p> <p>v — variable</p> <p>// — in parallel</p> <p>AA — Arabic</p> <p>ABC — Australian Broadcasting Corporation</p> <p>AFN — Armed Forces Network</p> <p>AFRTS — Armed Forces Radio TV Service</p> <p>AIR — All India Radio</p> <p>Anmt(s) — announcement(s)</p> <p>Anncr — announcer</p> <p>AWR — Adventist World Radio</p> <p>BSKSA — Broadcasting Service of Kingdom of Saudi Arabia</p> <p>CC — Chinese</p> <p>Co-chan — co-channel (same frequency)</p> <p>Comm1(s) — commercial(s)</p> <p>CP — Bolivia, Bolivian</p> <p>CRI — China Radio International</p> <p>DD — Dutch</p> <p>DJ — disc jockey</p> <p>DW — Deutsche Welle/Voice of Germany</p> <p>EE — English</p> <p>ECNA — East Coast of North America</p> <p>f/by — followed by</p> <p>FEBA — Far East Broadcasting Association</p> <p>FEBC — Far East Broadcasting Company</p> <p>FF — French</p> <p>GBC — Ghana Broadcasting Corp</p> <p>GG — German</p> <p>GMT — Greenwich Mean Time</p> <p>HH — Hebrew, Hungarian, Hindi</p> <p>HOA — Horn of Africa</p> <p>ID — station identification</p> <p>II — Italian, Indonesian</p> <p>Int — international</p> <p>IRRS — Italian Radio Relay Service</p> <p>IS — interval signal</p> <p>JJ — Japanese</p> <p>KK — Korean</p>	<p>LSB — lower sideband</p> <p>LV — La Voz, La Voix</p> <p>NBC — National Broadcasting Corporation (Papua New Guinea)</p> <p>ORTB — Office de Radiodiffusion et Television du Benin</p> <p>PBS — People's Broadcasting Station</p> <p>PP — Portuguese</p> <p>PSA — public service announcement</p> <p>QQ — Quechua</p> <p>RCI — Radio Canada International</p> <p>Rdf. — Radiodifusora, Radiodiffusion</p> <p>REE — Radio Exterior de Espana</p> <p>RFA — Radio Free Asia</p> <p>RFE/RL — Radio Free Europe/Radio Liberty</p> <p>RNZI — Radio New Zealand International</p> <p>RR — Russian</p> <p>RR1 — Radio Republik Indonesia</p> <p>RTBF — RTV Belge de la Communate Françoise</p> <p>Relay — transmitter site owned/operated by the broadcaster or privately operated for that broadcaster</p> <p>relay — transmitter site not owned by the broadcaster</p> <p>SCI — Song of the Coconut Islands (transition melody used by Indonesian stations)</p> <p>s/off — sign off</p> <p>s/on — sign on</p> <p>SIBC — Solomon Is. Broadcasting Corp.</p> <p>Sked — schedule</p> <p>SLBC — Sri Lanka Broadcasting Corporation</p> <p>SS — Spanish</p> <p>TC — time check</p> <p>TOH — top of the hour</p> <p>TT — Turkish</p> <p>TWR — Trans World Radio</p> <p>Unid — unidentified</p> <p>USB — upper sideband</p> <p>UTC — Coordinated Universal Time (as GMT)</p> <p>UTE, ute — utility station</p> <p>Vern — vernacular (local) language</p> <p>(via) — same as "relay"</p> <p>VOAS — Voice of America</p> <p>VOIRI — Voice of Islamic Republic of Iran</p> <p>WCNA — West Coast of North America</p> <p>ZBC — Zimbabwe Broadcasting Corporation</p>
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radio hoa-mai
Voice of Hoa-Mai Foundation

To: Richard & Susan D'Angelo

We are pleased to confirm your reception report of our programs. It has been checked and found to be correct.

Date: June 12, 2005 on 11555 kHz. at: 1300 UTC

We appreciate your interest and hope you will continue to enjoy our programs and tell other about us, including Vietnamese in your areas. For more information about our efforts to the cause of restoring democracy and human-rights in Vietnam, please frequently visit our web sites.

Again we thank you for your kind concern and support.

Sincerely Yours,
Radio Hoa-Mai

www.hoamai.org
www.hoamai.org

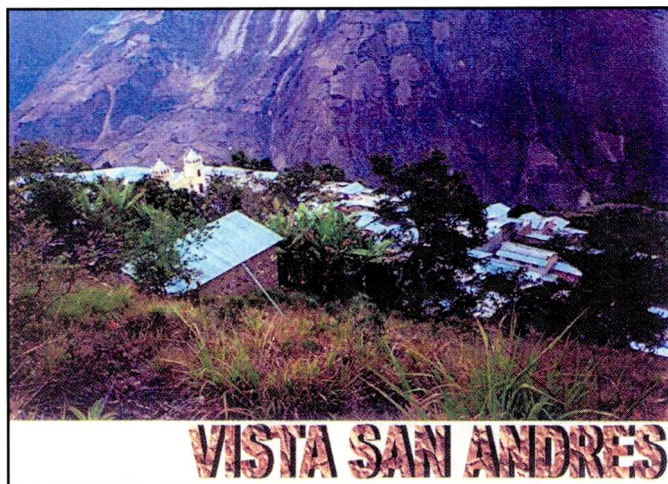
P.O. Box 4175 - Garden Grove, CA 92842 - U.S.A.

The new Radio Hoa-Mai, an anti-Vietnamese broadcaster aired over KWHR-Hawaii seeks democracy for that country. Do you really think Mrs. D'Angelo was also listening? (Thanks Rich D'Angelo)

(Charlton, ON) 2104 with ID. (DeGennaro, NY) Radio Brazil Central, Goiania, 4985 at 0240 with romantic vocals, man, ad string, ID and pops from 0301. (DeGennaro, NY) 0342. (DeGennaro, NY) Radio Nacional, Macapa, 4915 with ID at 0336. (DeGennaro, NY) Radio Rio Mar, Manaus, 9695 with news at 1048. (DeGennaro, NY) Radio Congohas, Congohas, 4775 with music at 0856. (DeGennaro, NY) Radio Alvorada, Londrina, 4865 with woman reciting prayers at 0903. (DeGennaro, NY) Radio Anhanguera, Goiania, 4915 with religious message at 0912. (DeGennaro, NY) Radio Educacao Rural, Tefe, 4925 with commls and local events at 0120. (DeGennaro, NY) Radio Educacao Rural, Campo Grande, 4754 with religious message at 0849. (DeGennaro, NY) Radio Clube do Para, Belem, 4885 with up-tempo LA music at 0322. (Wood, TN) Radio Aparecida, Aparecida, 6134.9 in the clear after Santa Cruz signed off at 0102 in SS with religious talks, prayers and children chanting (KJES-like!). ID at 0130. (D'Angelo, PA) Radio Record, Sao Paulo, 6150 at 0235 with two fast-talking ancrs covering a futebol match. University Network in Costa Rica cranked up at 0254 but Record could still be heard underneath. (D'Angelo, PA)

BULGARIA—Radio Bulgaria, 9400 in SS to Central America at 0142, 11700 in BB to East North America at 0022, 11800 to West Europe at 2113 and 13600 in RR to Asia at 2355. (DeGennaro, NY) 9700 in FF at 0155, EE at 0200. (Brossell, WI) 9700 at 0010 and 11700 at 2354, both in EE. (Charlton, ON) 11700 at 2323. (MacKenzie, CA)

CANADA—Radio Canada Int., 9690 possibly via China at 0048



This is San Andres in Cajamarca Department, Peru, home of Radio San Andres on 5544. (Thanks Rich D'Angelo)

discussing the late Scott Young. (Foss, Philippines) 15325 with "Business Sense" at 2018 and 17820 in AA at 1640. (Charlton, ON) 15360 at 1520 on fishing and other outdoor activities in Canada. (Wood, TN) 15455 in SS at 2333 to Central and South America. (DeGennaro, NY) 17765 at 2050. (Maxant, WV) CFRX, 6070 at 1415. (Maxant, WV)

CHILE—Voz Cristiana, 11745 in PP heard at 0248. (Brossell, WI) 11745 in PP at 0035, 15585 in SS at 0105 and 17680 in SS at 1848. (Charlton, ON)

CHINA—China Radio Int., 6020 with news at 0007, 15260 at 1359 and 15440 via Russia in CC at 2207. (Charlton, ON) 6090 (via Canada?) at 0420 with talk on Chinese fishing fleet. (Wood, TN) 9440 in CC at 1126, 9690 via Spain at 0229, 11660 in FF to Europe at 2045, 11790 to Europe at 2107, 13650 via Cuba in PP to South America at 2348 and 17490 to Western Europe at 1316. (DeGennaro, NY) 9570 via Cuba with "What's New?" program at 0005, 13680 at 2310 and 13740 at 1330. (Maxant, WV) 9695 via Canada at 1745 and 9810 in CC at 1606; //9830, 9845 and 9860. (MacKenzie, CA) 11670 in RR at 1200 and 13685 via Mali in AA at 1903. (Brossell, WI) China National Radio/CPBS, 9645 in CC at 1735. (MacKenzie, CA) 9775 in CC at 0942. (Foss, Philippines) Music Jammer, 7130 at 1627 against Taiwan. 7185, 9350, 9445 and 9540 were also in use at that hour. Also 9670 and 9680 at 1740 and 9905 at 1613. (MacKenzie, CA) 11605 at 1200. (Brossell, WI)

CLANDESTINE—Radio Farda, 9805 via Morocco in Farsi at 0215. (DeGennaro, NY) Radio Free Asia, 7540 in CC at 1638. Also 11670 in VV at 2355, //11605-Taiwan, 13735-Saipan and 15560 unknown site. (MacKenzie, CA) Radio Marti, 13800 in SS heard at 1500. (Wood, TN)

COLOMBIA—Marfil Estereo, 5910, 0220 with SS pops, ballads, campo music, and anmts, IDs. RTTY QRM on the high side. (Alexander, PA)

CROATIA—Voice of Croatia, 7285 via Germany, to the Americas at 0037. Also 9925 via Germany in Croatian to the Americas at 0124. (DeGennaro, NY) 0222 in SS. (Burrow, WA)

COSTA RICA—University Network, 6150 with Dr. Gene Scott at 0515 and 13750 at 2305. (Maxant, WV)

CUBA—Radio Havana Cuba, 6000 in EE at 0414. (Wood, TN) 11655 in SS at 1251. (Brossell, WI) 11760 in SS at 2125. (Charlton, ON) 13680 in SS at 2344 and 15230 in SS at 0124. (DeGennaro, NY) Radio Rebelde, 5025 in SS at 0921 and 9605 in SS at 1100. (DeGennaro, NY)

CZECH REPUBLIC—Radio Prague, 7325 with "Stories from Prague" at 0310. (Brossell, WI) 0325. (Weronka, NC) 7345 at 0103 and 11665 via Ascension in SS at 0025. (Charlton, ON) 7345 in SS at 0054 and 11600 in EE at 1959. (DeGennaro, NY) 9870 at 0319 to 0327 sign off. (Burrow, WA) 11600 at 2130. (Maxant, WV)

DJIBOUTI—RTD Djibouti, 4780 0300 sign on with local instl music, vern talk at 0301, Koran at 0302, HOA music at 0308. (Alexander, PA; Brossell, WI; D'Angelo, PA)

ECUADOR—HCJB, 9745 in SS for Mexico at 1445. (Wood, TN)

EGYPT—Radio Cairo/Egyptian Radio, 7260 at 0302 with woman talk and AA music. Ham QRM. (MacKenzie, CA) 0326 with ME music, national anthem and off at 0329, 12050 at 1903 in AA. (Brossell, WI) 9990 in AA at 2223 and 11865 in AA at 0012. (Charlton, ON) 12050 in AA at 0014. (DeGennaro, NY)

ENGLAND—BBC, 9605 via Japan at 1213. (Brossell, WI) 15225 to Western Asia at 1903 and 15400-Ascension Relay to West Africa at 2105. (DeGennaro, NY) 15390-Ascension on bird flu at 2115. (Maxant, WV) 15390-Ascension at 2139, 17640 at 1451, 17830-Ascension Relay at 1810 and 21470-Ascension Relay heard at 1513. (Charlton, ON) 1400. Weronka, NC)

EQUATORIAL GUINEA—Radio Nacional, Bata, 5005 at 2256 with long orchestral version of national anthem. Off at 2258. (D'Angelo, PA) Radio Africa, 15190 with religious programming at 1915. "This is Radio Africa" at 1928. (Brossell, WI)

ETHIOPIA—Radio Ethiopia, 7110 with IS on stringed instrument at 0258, ID and talks in presumed Amharic. (Brossell, WI) 0324 in Amharic, HOA vocals, ID heard at 0330 and news. (D'Angelo, PA)

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To help you reach some of the pirate stations we report on each month, whether you wish to contact them for QSLs, general information, or just to send a report on their programming, here's the latest contact information.

Belfast, Box 1, Belfast, NY 14711

Blue Ridge Summit, Box 109, Blue Ridge Summit, PA 17214

Elkhorn, P.O. Box 69, Elkhorn, NE 68022

Huntsville, Box 11522, Huntsville, AL 35814

Lone Pine, Box 929, Lone Pine, CA 93545

Lula, Box 24, Lula, GA 30544

Merlin, Box 293, Merlin, ON, N0P 1W0, Canada

Pittsburgh, Box 25302, Pittsburgh, PA 15342

Providence, Box 28413, Providence, RI 02908

Wellsville, Box 422, Wellsville, NY 14895

FINLAND—YLE/Radio Finland, 15400 with church service in Finnish at 1307. (Brossell, WI)

FRANCE—Radio France Int., 9825 with news at 0505. (Maxant, WV) 11700 via Canada at 0420. (Weronka, NC) 11705 with multi-lingual ID at 2058, schedule, and news in FF. (DeGennaro, NY) 12040 via Russia in unid Asian language at 1236. (Brossell, WI)

GABON—Africa Number One, 15475 in FF at 1748. (Brossell, WI) 1830 in FF. Also 17630 in FF at 1523. (Charlton, ON) Radio France Int. Relay, 4890 in FF at 0400 with news, ID at 0410. (D'Angelo, PA)

GERMANY—Deutsche Welle, 9655-Sri Lanka in GG at 1610, //13780 and 15275, both direct. (MacKenzie, CA) 11690 via Canada in GG at 2306, 15275 in GG at 1400, 15410 (formerly Antigua) in GG at 2207 and 17680 via UAE in GG at 1827. (Charlton, ON) 11865-Portugal in GG to South America at 0105, 11955-Portugal in GG to Central America at 0006 and 13720-Sri Lanka in RR to Asia at 0113. (DeGennaro, NY) 13789 at 1920. (Weronka, NC) Deutschlandradio, 6005 with conversation in GG at 0354. (DeGennaro, NY)

GHANA—GBC/Radio Ghana, 4915 with African music and talk in vernaculars at 0530. (Maxant, WV)

GREECE—Voice of Greece, 7475 in Greek at 0107, 9375 in Greek at 0139 and 9420 in Greek at 0145. (DeGennaro, NY) 12105 in Greek at 1857. (Brossell, WI) 15630 at 1445, 17565 via Greenville at 2134 and 17705 via Delano at 1847, all in Greek. (Charlton, ON) 17705 via Delano at 1845. (Maxant, WV)

GUAM—Trans World Radio/KTWR, 9465 in Asian language at 1225. (Brossell, WI) 12105 with music, EE ID at 1500. (Burrow, WA)

GUATEMALA—Radio Cultural Coatan, 4780 heard at 0216 with Latin music, man in SS talks, sign off anmt at 0257 and off at 0258. QRM from intermittent RTTY and numbers station. (D'Angelo, PA)

HAWAII—KWHR, 11555 with Jack Van Impe program heard at 1225. (Brossell, WI)

HONDURAS—Radio Luz y Vida, 3250 in SS at 0210. (Brossell, WI) Radio Misiones Int., (t) 3340 at 0155 with religious music, SS talk. (Alexander, PA)

HUNGARY—Radio Budapest, 9590 at 0105 with feature on history of radio in Central Europe. (Maxant, WV) 9795 at 0231. (Burrow, WA) 9870 in HH at 0038. (Charlton, ON)

INDIA—All India Radio, 9950-Aligarh in EE at 0037. (Foss, Philippines) 10330-Bangalore, in Hindi to South Asia at 0041, 11620-Delhi in EE to SE Asia at 2300 and 13605-Bangalore in EE to Asia at 0022. (DeGennaro, NY) 13615-Bangalore in HH heard at 1900. (Maxant, WV)

INDONESIA—Voice of Indonesia, 9525 at 1300 on former president Suharto. (Maxant, WV) EE/SS at 1745. (MacKenzie, CA)

IRAN—VOIRI/Voice of Justice, 9495 with "Justice" program, ID for same at 0130. Also VOIRI, 9935 in AA at 0217 and 15085 (p) in FF at 1910. (Brossell, WI) 9635//11650 with IS, ID at 1530, anthem; ID again, then schedule and Koran. Also 11860 in EE at 1932. (Burrow, WA) 11875 at 0330 with severe QRM from Cuba. (Maxant, WV)

ISRAEL—Kol Israel, 9345 with U.S. pops at 0221. (Brossell, WI) 9345 in HH to Europe at 0135, 11585 in HH to Europe at 2253 and 11590 in SS at 1955. (DeGennaro, NY) 15640 in EE/HH at 1740. (Maxant, WV) 15640 in EE at 1908 and 17535 in HH at 1448. (Charlton, ON)

Galei Zahal, 15785 in HH at 2005. (Wood, TN)

ITALY—RAI, 11800 in II to North America at 0011. (DeGennaro, NY) 11800 in II at 2300 and 17780 in II at 1843. (Charlton, ON) 15320 via Ascension in African dialect at 1740. (Brossell, WI)

JAPAN—Radio Japan/NHK, 6110 via Canada at 0500. (Weronka, NC) 6120 via Sackville in EE at 1115, 11705 via Canada in JJ at 1409. (DeGennaro, NY) 6145 via Canada at 0050, 11895 via French Guiana in JJ at 2222, 15220 via Ascension in JJ at 1332 and 17605 in JJ at 2228. (Charlton, ON) 7200 with "Hello From Tokyo" at 1521. (Foss, Philippines) 9535 in EE/JJ at 1700. Also active were 11970, 15355 both in EE and 9750, 9835, 12045 in JJ. (MacKenzie, CA) 11740 in JJ at 1255 and off at 1300. (Brossell, WI) 17825 with news at 2100. (Maxant, WV)

JORDAN—Radio Jordan, 15345 in AA at 2110. (DeGennaro, NY)

KUWAIT—Radio Kuwait, 15495//15505 in AA at 1944. (Brossell, WI) Same at 2118 and 2122. (DeGennaro, NY) 15505 in AA at 2035. (Charlton, ON)

LIBERIA—Star Radio, 11965 via Ascension at 2100 opening with vocal group, man anner with "This is Star Radio broadcasting to you from Monrovia, Liberia" f/by woman with news. (D'Angelo, PA) Radio Veritas, 5470 at 2259 with soft music, man with EE ID, s/off anmts and "Lord's Prayer." "You are listening to Radio Veritas, Monrovia, Liberia. If you enjoyed listening to this station please write to P.O. Box 3569, Monrovia, Liberia. Well, listeners, we come to the end of today's transmission." (D'Angelo, PA)

LIBYA—Radio Jamahiriya, 11605 via France in AA at 2007. (DeGennaro, NY) 15615 via France in AA at 1753. (Brossell, WI)

LITHUANIA—Radio Vilnius, 11690 in Lithuanian to North America at 0026. (DeGennaro, NY)

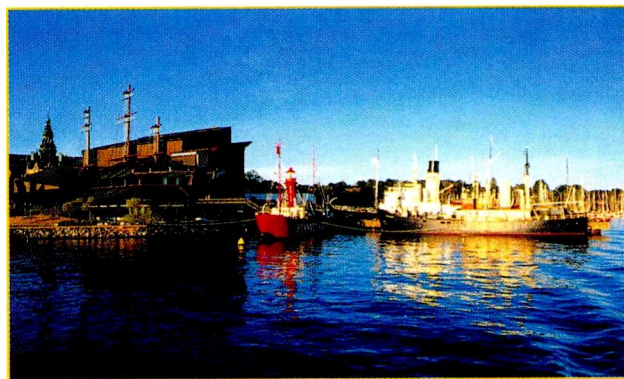
MEXICO—Radio Educacion, 6185 at 1120 with music. Some QRM from Radio Nacional Amazonia. (DeGennaro, NY) Radio Transcontinental de America/XERTA, 4810 at 0209 with pgm of Latin vocals, canned ID at 0215, frequency anmts at 0229. (D'Angelo, PA)

MOLDOVA—Voice of Russia, 9665 with IS, ID at 0158 and "Please stand by for the news from Voice of Russia." (Brossell, WI)

MOROCCO—RTV Marocaine, 15345 in AA at 1940. (Brossell, WI) 2101 with news in AA. (DeGennaro, NY) VOA Relay, 15410 with editorial at 2128. (Charlton, ON)

NETHERLANDS—Radio Nederland, 9845 at 0014 and 17660 via Canada at 2038. (Charlton, ON) 9895 in SS to South America at 0126 and 11655 in EE to West Africa at 2041. (DeGennaro, NY) 17660 at 1845. (Maxant, WV)

Stockholm



Here's a current card being issued by Radio Sweden. This one went to Ray Paradis (ME).



Good grief! Shack pics two months in a row! This is David Weronka at his listening post in Benson, North Carolina. Thank you, David!

NETHERLANDS ANTILLES—Radio Nederland Bonaire Relay, 6165 with island music and commentary at 0433. (Wood, TN) 9715 in SS at 1218. (Brossell, WI) 9790 to Australasia at 1039. (DeGennaro, NY) 17810 at 2025. (Weronka, NC)

NEW ZEALAND—Radio New Zealand Int., 6095 at 1303. (Brossell, WI) 9885 to the Pacific at 1035. (DeGennaro, NY) 11820 with kiwi IS and sign on at 0500. Also 15720 at 0315. (Maxant, WV) 0527 with "Checkpoint" program. (Burrow, WA) 15720 heard at 0016. (Charlton, ON)

NIGERIA—Voice of Nigeria, 7255 at 2202 in unid language. (Foss, Philippines) 15120 in EE at 1857, news at 1900. (DeGennaro, NY) 1730 on peace in the Congo. (Maxant, WV) 0628 ending news, time check, feature on politics in Nigeria. Strong but with the usual poor, muffled audio. (Alexander, PA) Radio Nigeria, Abuja, 7275 at 0528 with pops, man in long talk. more pops at 0545. Nice IDs at 0559 and 0600, the news. (D'Angelo, PA)

NORTH KOREA—Voice of Korea, 9325 in GG at 1644, //9335 and 12015. (MacKenzie, CA) 9650 in KK at 1054. (DeGennaro, NY) 11545 in EE at 1644. (Burrow, WA) 11735 in SS at 0115. (MacKenzie, CA) Korean Central Broadcasting Station, 9665 in KK at 1617. (MacKenzie, CA) 11735 at 1245 to 1250 sign off. (Brossell, WI) Pyongyang Broadcasting Station, 3250 in KK with large mixed choir at 1910. (Foss, Philippines)

NORTHERN MARIANAS—VOA Relay, 11805 in CC heard at 1305. (Brossell, WI)

PAKISTAN—Radio Pakistan, 11570//15100 at 1558 with IS, time pips, ID and into news. Very good on 15100. (Burrow, WA)

PAPUA NEW GUINEA—Radio Milne Bay, 3365 with music at 1040. (Wilkner, FL) Radio East New Britain, 3385 with sports monitored at 1030. Parallel to ABCNT, Australia on 2310. (Wilkner, FL)

PARAGUAY—Radio Nacional, 9737 at 0000 with SS talk, IDs at 0004, 0006 and. SS ballads. (Alexander, PA) 0028. (Charlton, ON) 0032. (DeGennaro, NY) 0145. (D'Angelo, PA)

PERU—Radio Victoria, Lima, 6020.2 with man preaching in SS at 0736. (D'Angelo, PA) Radio San Andres, Cutervo, 5544.6 at 0200 with OA folk music. SS anmts. Abrupt off at 0305. (Alexander, PA) Radio Cusco, Cusco, 6193.4 at 0235 with variety of OA music, SS pops & ballads, SS anmts. Many mentions of Cusco. Wiped out by BBC-6195 sign on at 0300. (Alexander, PA)

PHILIPPINES—VOA Relay, 9740 at 1628. Also 9760 at 1650. (MacKenzie, CA) 11965 in CC at 1237. (Brossell, WI) Radio Philipinas, 11720//15190 in Tagalog at 1822. (Burrow, WA) FEBC, 7375 in CC at 1633. (MacKenzie, CA)

PIRATES—Undercover Radio, 6925 at 2310 "broadcasting from the middle of nowhere...don't let them see what we're doing." Pop. rock and rap. (Hassig, IL) 2338 with pop/rap, Dr. Benway with the usual slogans and address. Also 2340 with rock, usual remarks, undercoveradio@mail.com and Merlin mail drop address. Also 0103 sign on with a test lasting under a minute. (Zeller, OH) WHYP, 6925 at

2355 with James Brownyard show on how to be a pirate radio operator, parody ads and interviews with other operators, rock and parody tunes. (Wood, TN) Mystery Radio, 6220.2 at 0145 with continuous pops and occasional canned IDs. (Alexander, PA) 0243 with non-stop pop/dance with periodic IDs. (D'Angelo, PA) KC3, 6925u at 0232 sign on with mostly political /philosophical criticism of the way the world is today, some rock here and there. USA is now like the Nazis, there's no privacy anymore, all subject to government snooping, etc. Apparently a new station. No ID or address except for a definite "KC3" anmt at 0222 close. (Zeller, OH) Voice of Captain Ron shortwave, 6925u at 0133 sign on with ancd test broadcast to test a microphone and other new equipment. Off at 0148. (Zeller, OH) Grasscutter/Sunshine Radio, 6935u at 0100 with The Who, other pops. heavy metal. QSL via grasscutterrado@yahoo.com. (Hassig, IL) WMPR, 6925u at 0023 opening with a WMPR Micropower Radio ID, f/by instl dance things. No address, as usual. (Zeller, OH) WHGW, 6925u at 0310 with old radio drama called "Crowders Folly" from the X-Minus One series of the 1950s. (Hassig, IL) The Crystal Ship, 6854.2 at 0230 with Bruce Springsteen, clips from various movies. Switched to 6875 at 0251. They said they were also on 8000 but I was barely able to detect a carrier there. (Hassig, IL) Radio Weather, 15785 in EE at 2127 with music. songs and "gibberish." (DeGennaro, NY)

PORTUGAL—(All in PP)—RDP Int., 9835 to Europe at 2303, 13660 to South America at 0109, 13700 also to South America at 0111 and 15295 to South America at 0130. (DeGennaro, NY) 15560 at 1526. (Burrow, WA) 1945 with songs. ID and frequencies. (Brossell, WI) 17680 at 2327. (Charlton, ON)

ROMANIA—Radio Romania Int., 11820//15140 in EE at 0435 with "Romanian Report." (Burrow, WA) 11935 in SS to South America with news at 0002. (DeGennaro, NY) 11940 at 2130 with news. (Maxant, WV)

RUSSIA—Voice of Russia, 7210 via Moldova in SS at 2350, 9665 via Moldova in EE to North America at 0232, 9725-Armavir in RR to North America at 0225, 9830-Armavir in SS to South America at 0142.



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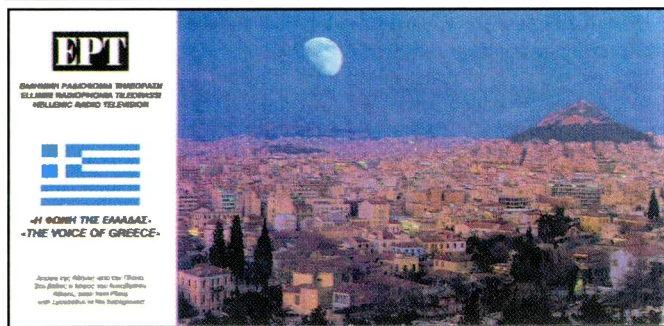
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Moon over Athens. Robert Charlton (Ontario) got this attractive card from the Voice of Greece last year.

9860 via Vatican at 0211, 9880-Armavir in RR at 0130, 12010-Samara in SS to South America at 0010 and 12070-Moscow in RR to Central/South America at 0119. (DeGennaro, NY) 15455 at 2031, 15510-Samara in RR at 1435 and 15605 at 1440. (Charlton, ON) 15595-Petropavlovsk in EE at 0330. //9860-Vatican, 9880-Armavir and 15545-Armavir. (MacKenzie, CA) Yakutsk Radio (t), 7200 in unid language at 0029. (DeGennaro, NY) Radio Rossii, 9480 in RR at 0222. (Brossell, WI) Russian International Radio, 7125 via Moldova in RR at 0020. (DeGennaro, NY)

SAO TOME—VOA Relay, 9850 with news clips at 1610. (MacKenzie, CA)

SAUDI ARABIA—BSKSA, 11820 at 2254 with Holy Koran program. ID and sign off at 2259. (D'Angelo, PA) 15205 with Koran at 1736. (Brossell, WI)

SERBIA AND MONTENEGRO—International Radio of Serbia and Montenegro, 9580 at 0000 with ID, into news. (Brossell, WI) 0010 with news items. (Maxant, WV) 0429 with IS, ID, schedule, news. (Burrow, WA)

SINGAPORE—Mediacorp Radio, 6150 at 1511 with talk, ID. (Burrow, WA) BBC Kranji Relay, 3915 with world news at 2111. (Foss, Philippines)

SLOVAKIA—Radio Slovakia Int., 9440 with domestic news monitored at 0148. (DeGennaro, NY) 0203 in FF. (Brossell, WI)

SOUTH AFRICA—Channel Africa, 9685 with Africa news items at 0515. (Maxant, WV) BBC Meyerton Relay, 7120 with news at 0300. (Brossell, WI)

SPAIN—Radio Exterior de Espana, 15160 in SS at 0120, 15385 in FF at 2330. (DeGennaro, NY) 15290 in EE at 2025 with news, ID, feature, more news. (Burrow, WA) 0010 in EE and 17850 in SS at 1617. (Charlton, ON)

SUDAN—Radio Peace, 4750 at 0247 with group singing, vern talk, EE ID and frequency at 0259: "Thank you for listening to Radio Peace, broadcasting on 4750 kHz in the 60-meter band." Then brief choir vocals, another ID and into another program in local language. (D'Angelo, PA)

SWEDEN—Radio Sweden, 15240 via Canada, at 1250 with a report on the economies of France and Poland. (Brossell, WI) 1330 on Swedish Grammy awards. (Maxant, WV) 1350 with "Sweden Today." (Charlton, ON)

SYRIA—Radio Damascus, 12085 at 2349 with apparent SS program with woman talking and AA vocals. After 0000 was define AA programming. (D'Angelo, PA) 0017 in AA to South America. (DeGennaro, NY)

TAIWAN—Radio Taiwan Int., 11720 via Florida in SS at 2315. (DeGennaro, NY) 2304 in SS. (Charlton, ON) 15215 via Florida with mailbag at 0332. (Burrow, WA) CBS, 9680 in CC at 1633. China Music Jammer in the background. (MacKenzie, CA) 11665 in CC at 1200. (Brossell, WI) Voice of Han, 9745 in CC at 1625. (MacKenzie, CA) Family Radio via Taiwan, 9280 in CC at 1222. (Brossell, WI)

THAILAND—Radio Thailand, 5890 via Greenville in EE at 0030 and 9570 with EE news at 0006. (Charlton, ON)

TUNISIA—RT Tunisienne, 7190// 7275 in AA at 0307. Also 9720 in AA at 0225. (Brossell, WI)

This Month's Book Winner

To show our appreciation for your loggings and support of this column, each month we select one "Global Information Guide" contributor to receive a free book. Readers are invited to send in loggings, photos, copies of QSL cards, and monitoring room photos to me at *Popular Communications*, "Global Information Guide," 25 Newbridge Road, Hicksville, NY 11801, or by e-mail to popularcom@aol.com. The e-mail's subject line should indicate that it's for the "Global Information Guide" column. So come on, send your contribution in today!

This month's book winner is **Robert Brossell** of Pewaukee, Wisconsin, who will soon be in possession of a 2006 edition of *Passport to World Band Radio*, courtesy of our friends at Universal Radio. And here's the question: "Are you on Universal's mailing list?" Do you get their fabulous catalog every time it's issued? If not, it's as easy as making a phone call to 614-866-4367, or sending an e-mail to dx@universal-radio.com, or you can send a postcard to Universal at 6830 Americana Pkwy, Reynoldsburg, OH 43068.

TURKEY—Voice of Turkey, 6140 with news at 0300. (Weronka, NC) 9460 in TT to North America at 0154. (DeGennaro, NY) 9830 opening in EE at 2200. (Burrow, WA) 2245 to 2300. (Maxant, WV) 15350 in TT at 1402. (Charlton, ON) 1516. (Wood, TN)

UGANDA—Radio Uganda, 4976 at 0337 with vocals and man hosting. News at 0400. (D'Angelo, PA)

UKRAINE—Radio Ukraine Int., 7440 in Ukrainian to North America at 0100. (DeGennaro, NY) 0005. (Maxant, WV) 0018 with program called "Close Up." (Charlton, ON) 0115 with "Ukrainian Diary." (Brossell, WI) 0335 with music selections. (Weronka, NC)

USA—AFN/AFRTS-Key West, 5446.5u at 0400 with baseball and commls for local restaurants. (Wood, TN)

UZBEKISTAN—Radio Tashkent, 9545 with local disc jockey at 2130. (Maxant, WV) (t) 11905 at 2130 with IS. ID was missed. (Burrow, WA)

VATICAN—Vatican Radio, 4005 with talks in unid language at 0234. (Brossell, WI) 7305 in EE/SS at 0310. (MacKenzie, CA) 7305 in PP to South America at 0043 and 11625 in AA to West Africa at 2003. (DeGennaro, NY)

VENZUELA—Radio Amazonas, Puerto Ayacucho, 4939.7 in SS at 0215 to 0300 close. (Alexander, PA) 0916. (DeGennaro, NY) Radio Nacional, 11760 via Cuba in SS heard at 2302. (Charlton, ON)

VIETNAM—Voice of Vietnam, 6175 via Canada at 0330 with ID, contents and into news. (Burrow, WA)

YEMEN—Republic of Yemen Radio, 9779.5 at 0258 sign on with ID, AA anmts, and brief music bridge at 0300 f/by the same man with news. Drama program at 0315. (D'Angelo, PA)

ZAMBIA—ZNBC/Radio Zambia, 4910 with fish eagle IS heard at 0249, choral anthem, opening ID, anmts and talk in local languages and music. (D'Angelo, PA)

And once again, order is restored! Sound the trumpets and bring on a monster round of applause for the following who braved the angry propagation gods and came up with the goods this time: Robert Wilkner, Margate, FL; Stewart MacKenzie, Huntington Beach, CA; George Zeller, Cleveland, OH; William Hassig, Mt. Prospect, IL; Charles Maxant, Barboursville, WV; Brian Alexander, Mechanicsburg, PA; Robert Brossell, Pewaukee, WI; Bruce Burrow, WA; Joe Wood, Greenback, TN; Marty Foss, Guinayangan, Philippines; Richard D'Angelo, Wyomissing, PA; Robert Charlton, Windsor, ON; David Weronka, Benson, NC and Ciro DeGennaro, Fuera Bush, NY.

Thanks to everyone. Until next month—good listening! ■

More Time To Monitor, And Tuning Florida

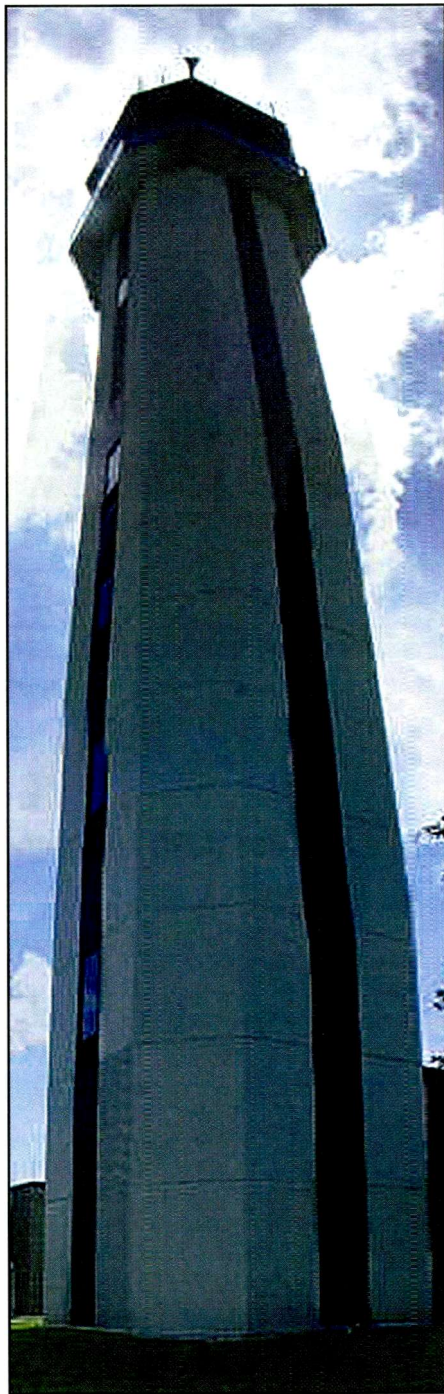
Happy Thanksgiving! By the time you read this, something wonderful will have happened—I'll be retiring from the FAA as an air traffic controller. I'll know within two weeks of this writing whether or not I'll still be working as an air traffic controller after being picked up by the contractor—a small company called Lockheed Martin. I am a little bit nervous. More on that later.

Now that it appears I'll have more time, I've made a commitment to visit and report on as many control towers in the state of Florida as I can, hopefully to give you a controller's eye view of things. Thus, I start with three of the airports in the Tampa area: Tampa International (TPA), St. Petersburg/Clearwater International (PIE), and St. Petersburg Albert Whitted Airport (SPG). In the next issue, I hope to report on MacDill AFB and the Lakeland (LAL) and Bartow (BOW) airports, and after that to offer reports on the Orlando/Daytona Beach/Fort Myers/Miami areas.

Tampa International

The Tampa International Airport is located on the west side of Tampa and was first opened in 1928 as Drew Field. This was 14 years after the world's first commercial airline run, between St. Petersburg's Albert Whitted Field and Tampa (the St. Petersburg-Tampa Airboat Line). Six years after its opening in 1934, National Airlines was using Tampa as a stop on its run between Albert Whitted Field and Daytona Beach (DAB).

During WWII, Drew Field was operated by the U.S. Army to train USAAF crews. Over 120,000 air crews went through there. After WWII, the field was turned back over to the city. The military still flies in the Tampa area both through



MacDill AFB (MCF) on the south side of Tampa and at St. Petersburg International Airport. MacDill aircraft consist primarily of the KC/KR-135 Stratotankers.

The nearby Coast Guard station at St. Pete is the largest Coast Guard air base in the country, sporting both the C-130 Hercules and HH-60 Seahawk helicopters used for both search and rescue (SAR) and drug interdiction.

Currently, the Tampa TRACON controls airports from north of Brooksville (BKV) to Lakeland and Bartow to the east and down to the Venice (VNC) airport south of Sarasota (SRQ). While the airports are operated by the various city and county governments and the military, the control towers are run by the FAA, the Air Force, and private contractors.

Tampa is the largest and most active of all the airports in the area. In 2004, it boasted 238,100 takeoffs and landings from 24 different airlines, the military, and civilian planes. There were even a few hearty student pilots using Tampa. Some 17 million passengers flew commercially through there.

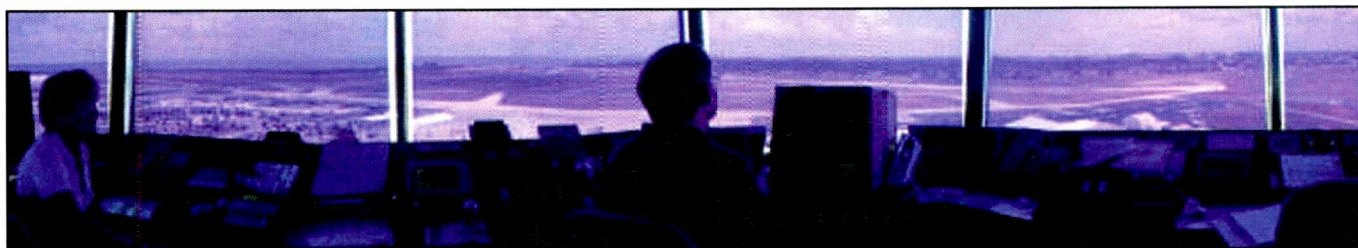
St. Petersburg International

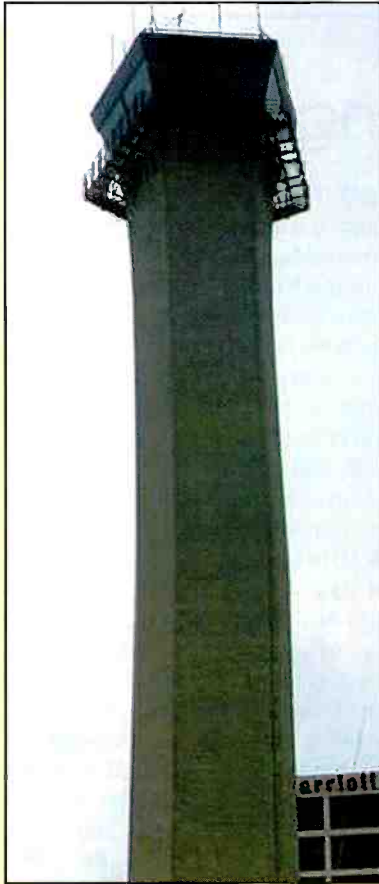
St. Petersburg International (PIE) was built in March 1941 and was used by the military to train both P-40 and P-51 pilots. The last commander of the then Pinellas Army Airfield was Brigadier General James H. Howard, the only European Theater fighter pilot to be awarded the Congressional Medal of Honor in WWII.

Today, St. Pete International is home of the busiest Coast Guard Air Station in

Here's a look at the outside of the St. Pete International Airport Tower. ←

Looking at runway 17L/35R at St. Pete International Airport. ↓





Tampa International's Airport Tower.



A look at the outside of the St. Pete Albert Whitted Airport.

the world, U.S. Customs, FAA-operated control tower, and the Central Florida Region Automated Flight Service Station (AFSS), the busiest in the United States. Only six airlines are flying through St. Pete; they are USA3000, Pan Am, Canjet, Conquest Vacations, SeaCoast, and everybody's favorite restaurant's airline, Hooters Air. St. Pete has three fixed base operators serving the charter business and flight training. More information can be found at www.fly2pie.com.

St. Petersburg Albert Whitted

Finally, St. Petersburg Albert Whitted airport is located on the east side of St. Petersburg's downtown, literally on the water. The Whitted airport is the first and oldest commercial airport, opening in 1934. National Airlines got its start at Whitted. Today the main street south of Whitted is still called National Avenue.

The tower is an older, short tower—about 50 feet tall—but has a beautiful view of the two runways at Whitted, Tampa Bay, and both the St. Petersburg and Tampa skylines. In 2004, there were just under 99,000 total operations controlled by the contract air traffic control

Glossary Of Terms And Acronyms

ARTCC (Air Route Traffic Control Center)—A facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace, principally during the en route phase of flight.

ATC (Air Traffic Control)—Means what it sounds like.

FSS (Flight Service Station)—Air traffic facilities that provide pilot briefing, en route communications and VFR search and rescue services. They also assist lost aircraft and aircraft in emergency situations, and relay ATC clearances.

ICAO (International Civil Aviation Organization)—Headquartered in Montreal, Canada, this agency of the UN develops the principles and techniques of international air navigation and fosters the planning and development of international air transport to ensure safe and orderly growth.

IFR (Instrument Flight Rules)—A set of rules governing the conduct of flight under instrument meteorological conditions.

ILS (Instrument Landing System) Approach Plate—Diagram published by the FAA and privately that depicts the procedure pilots need to follow to execute an ILS approach.

NAVAID (Navigational Aid)—Transmitter that helps pilots navigate from one point to another.

NOTAM (Notices To Airmen)—A notice of information that contains timely data concerning the establishment, condition, or change in any component (facility, service, or procedure of, or hazard in the National Airspace System) which is essential to personnel concerned with flight operations.

UNICOM—An aeronautical advisory station primarily for private aircraft.

VFR (Visual Flight Rule)—A set of regulations that a pilot may operate under when weather conditions meet certain minimum requirements. They are to be followed when there is sufficient visibility for aircraft to be seen and avoided.

VORTAC—The VOR system is the backbone of air navigation in the US and most other countries. It is composed of usually round buildings, about 30-feet in diameter, with a cone sticking out of the top. Many are painted in a red and white checkerboard pattern. VOR is an acronym for Very high frequency Omni Range. VORTAC is the same with TAC, standing for TACAN, a military designation for its distance information on a VOR signal.

WSI (Weather Services International)—Headquartered in Andover, Massachusetts with offices in Birmingham, England, WSI provides weather-related products and information to professionals in the energy, aviation, and media markets, as well as multiple federal and state government agencies.

tower at Whitted, including extensive banner-towing operations. Most of the controllers are retired FAA controllers. (Hmmm, I see a possible future job...) As one controller told me when I visited recently, "it's beer money—and I don't drink beer."

Most of the frequencies you'll hear in the Tampa area (west side) are:

TPA Apch: 119.65, 118.15, 118.8, 125.3
TPA LC: 119.5, 119.05
TPA GC: 121.7, 121.35
TPA CD: 133.6
TPA UNICOM: 122.95
TPA ATIS: 126.45

PIE LC: 127.4
PIE GC: 121.8
PIE UNICOM: 122.95
PIE ASOS: 118.875
PIE AFSS: 123.6, 122.45

SPG LC: 118.3
SPG GC: 121.9
SPG UNICOM: 122.95
SPG ASOS: 134.5

Can You "Spot The Not?"

In the next issue we'll cover more of the Tampa Area. In the meantime, let's have some fun. Can you "Spot the Not?" I normally try to give you examples of "fixes" throughout the national airspace system. Here are seven "fixes" with names of air demo teams. Six are real and one is not. Now Spot the Not:

TBIRD BLUUE ANGEL SNOWW
BIRRD REDDD BARON

In actuality there are two fixes for Blue, as in Blue Angels, I only picked one. Most would believe that REDDD is the fake, but really you'd be wrong. Surprisingly it is ANGEL. There is no fix named ANGEL in the system. TBIRD is 15 west of Stuart, Florida (SUA); BLUUE is 35 southeast of Beaufort, North Carolina (MRH); SNOWW is 38 southwest of Oscoda, Mississippi (OSC); BIRRD is 8 west of French Lick, Indiana (FRH); REDDD is 22 miles southwest of Auburn—Opelika Alabama (AUO); and, finally, BARON is miles 15 north-northeast of Gainesville, Georgia (GVL).

Until next time, happy monitoring. Happy Thanksgiving. See you again in January 2006! ■

V.I.P. SPOTLIGHT

Our November Winner: Congratulations To William H. Clay Of Rhode Island!

Pop'Comm reader William H. Clay of West Greenwich, Rhode Island, tells us:

It was small-town Georgia in the '30s. There wasn't much going for teenagers—raising 10 cents for the Saturday "Hoot Gibson" at the picture show could take all week. Lloyd Moore let me hang around his ham shack. His transmitter was homebrew and the receiver was store bought.

I wasn't much good at ham talk, but tuning the receiver on the international shortwave bands soon became my thing. Years later, after some GI Bill education, I found myself on Amchita, an island in the Aleutian chain, doing communications engineering work for the Air Force. The station mostly relayed RTTY between the U.S. mainland and General MacArthur's command in Japan. Station equipment included receivers, teletype terminals, medium power transmitters, and acres of antennas for transmission and space-diversity receiving. It wasn't long before a sergeant and I rigged a transmitter with screen-grid modulation and began working the U.S. mainland and Pacific Rim on 40 and 20 meters. The station's high performance receivers also provided rich shortwave listening.

After a long career in the radio communications field, I retired in 1988. Since then I have divided my time between serving on the local school board and attending antique radio auctions and hamfests, and picking up tube-type radios to restore and auction off.

Now, in the early morning hours I get my Southeastern Asian news from Radio Australia; at night it's Eastern Europe on Radio Bulgaria. In the meantime, I prowl the bands searching for pirates and other clandestines.



Here's our November "V.I.P. Spotlight" winner, William Clay, with his National models 57 and 183D. He says his "tube-type keeper" is the Navy RBS pictured next to the more modern ICOM IC-R75 and Yaesu FT-840. His 140-foot longwire is connected to an MFJ-948 tuner, and the Carolina Windom to a Denton MT-3000A.

Popular Communications invites you to submit, in about 300 words, how you got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, your photo should be included.

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

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to *Popular Communications*. Address all entries to: "V.I.P. Spotlight," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801 or e-mail your entry to popularcom@aol.com

Going Down To The Sea For Enhanced Transoceanic Radio Reception—Part I

Everyone is at least somewhat familiar with long-distance reception of mediumwave AM radio signals. When the sun goes down, the AM broadcast band comes alive with radio stations on every frequency thanks to changes in the ionosphere that allow signals to propagate over considerably longer distances than intended. Turn on any AM radio at night and you'll hear all sorts of activity between the local radio stations.

Even if you're not a DXer or long distance radio listener, as a reader of *Popular Communications* magazine, you've probably been curious enough to try to identify some of those signals. Well there's a group of hardened DXers that takes it to the extreme, visiting remote coastal locations worldwide on radio expeditions, or DXpeditions as they say, to take advantage of something called the *sea gain phenomenon* for enhanced transoceanic reception of exotic AM radio signals found between frequencies. What follows is a brief look at the phenomenon and the stories of some hardy souls who amassed on shorelines near and far over a couple of weeks during the summer in an experiment to get a snapshot of the coastal effect on AM reception.

Sea Gain

The term "sea gain" is perhaps a misnomer, since signals aren't actually amplified by the ocean. Instead there's very little signal loss over a saltwater path, thus some prefer to call it the coastal effect. According to a BBC research paper, "Ground loss for sea water is less than that for land. The difference in decibels between the two losses is known as sea gain; this is the increase in signal strength which occurs when land is replaced by sea water." ("LF and MF Propagation: The Effect of Earth Curvature on Sea Gain," P. Knight, M.A., Ph.D., M.I.E.E., BBC 1976.)

No matter how you look at it, there's a definite difference in the strength of transoceanic mediumwave signals received at a seashore location. A signal that's received loud and clear on the shore can become undetectable as little as a mile inland. Where transoceanic signals have been received at an inland location, strength has been measured to be as much as 40 dB down from that of a site with an ocean view.

Another research paper investigating work by Dr. Knight and others supports the benefits of a saltwater path, especially at low frequencies:

The strength of low-angle sky waves radiated by a medium-frequency aerial depends on the conductivity of the ground extending for many wavelengths in the direction of propagation. The field strength is greatest if the aerial radiates over open sea from the coast, and falls to a limiting value as the distance between the aerial and the sea increases...Sea gain will be highest for path distances greater than 6500 km, for antennas very near the sea, and for low mediumwave frequencies, with no offshore land. ("Sea Gain," Randy Seaver, IRCA 1987.)

All this means the high conductivity of seawater combined with a clear horizon, versus the comparatively poor conductiv-



The rustic cottage of the Seefontein DXpedition.

ity of soil and varying altitude of the terrain, enhances transoceanic signals received at coastal locations.

Between The Frequencies

In addition to sea gain, transoceanic mediumwave DXers take advantage of how frequencies are assigned on various continents. In the Americas, radio stations transmit on assigned frequencies, or channels, at 10-kilohertz intervals between 530 and 1700 kilohertz. In other words, radio stations are assigned frequencies of 530, 540, 550, 560, and so on, up to 1700 kHz.

Of course there are a few exceptions. For instance, radio stations in the Caribbean and Latin America were once upon a time assigned "split" frequencies, offset by 5 kHz from the standard 10-kHz interval. Because the digital tuning of AM radios today is designed to step in increments of 10 kHz, most of the split frequency radio stations have been reassigned, but a few remain on their original frequencies. Radio stations on 535 kHz from Grenada and 555 kHz from St. Kitts are prime examples, and thus have become popular targets worldwide since no other stations transmit on those frequencies.

The rest of the world, for the most part, transmits on assigned frequencies at 9-kHz intervals between 531 and 1611 kHz (that is, 531, 540, 549, 558, and up to 1611 kHz). One radio station in particular stands out as an exception to the 9 kHz rule. A signal from Malaysia can be found all alone on 1475, off the standard frequency of 1476 kHz. A few radio stations from Angola are also off-frequency by as much as 1 kHz because they never updated transmitters properly when new international standards shifted frequency assignments by 1 kHz. So Angola can still be heard on 1088 instead of the standard 1089 kHz, or poorly retuned at 1457.65 instead of the standard 1458 kHz.

Other examples of off-frequency signals popular with DXers include Western Sahara on 711.06 kHz, Algeria on 890.98 kHz, and Iran on 1169 kHz.

Aside from attempting to receive these off-frequency signals, transoceanic DXers are able to receive signals between the

frequencies of their local radio stations because of the different intervals used in frequency assignments. In North America, DXers may receive Spain on 855 kHz free of interference with local signals on 850 and 860, or DXers in Europe may find the United States in the clear on 850 kHz with local signals out of the way on 846 and 855.

Now imagine receiving the same signals at a coastal location with the effect of sea gain in your favor. This is where the fun really begins! Here are, in their own words, the coastal DXpeditioners' accounts and selected logs; all times are UTC.

Vince Stevens, Seefontein, South Africa

Fellow DXer John Plimmer recently discovered the site Seefontein, 180 km north of Cape Town on the west coast of South Africa. He immediately noted its favorable location, right on the coast, and relatively isolated, which seemed to make it an ideal DXpedition spot. Having already made one trip up there to do some listening, John suggested Seefontein for our 2005 DXpedition.

Seefontein is a private farm, with its own stretch of pristine beach, and loads of space to string up Beverage antennas. There is no electricity, and no other houses nearby, so we hoped for minimal interference from electrical appliances and people alike. Those in attendance were John Plimmer, Gary Deacon, and me.

I strung up some Beverage antennas as soon as I arrived, one pointing at Australia, then a second aimed at southeast Asia. These ran behind the house into the *sandveld* (Afrikaans for the typical west coast ecology of the area). The last antenna ran from the front of the house on a bearing of magnetic north more or less, towards the sea, and actually stopped just short of the high water tidal mark, or so I thought! Mother Nature and King Neptune formed an anti-DXer alliance, resulting in my aerial being swept down the coast. Turns out the tide was low when I set up the antenna, and of course it came in later and swept all my hard work away.

To make matters worse, the extra wire that I couldn't string out was still on the plastic reel so the nasty water promptly unraveled the lot and turned it into a bizarre new form of aquatic creature.

Looking back on the DXpedition, the radio side was good, but not record breaking. We have heard most of the stations received before at some time or other. There were one or two surprises and some old favorites. I look forward to going back soon, though.

Here's a list of some of the stations we received:

555 ZIZ Basseterre, St. Kitts, heard at 0401 very poor with reggae music, splatter from "Cape Talk" at 567 kHz. Signal later improved but was relaying BBC World Service.

800 PJB Bonaire, Netherlands Antilles, at 0320 poor to good with "Insight for Living" religious program, then station ID, "We're delighted that you found this spot on your radio dial. You're listening to TransWorld Radio, Bonaire, Netherlands Antilles."

1140 WRMQ Orlando, Florida, at 0330 heard with "Newsradio WRM" ID. Nighttime power only 245 watts, and the antenna beam favors west.

1449 Voice of Maldives, Maldives, heard at 1612 a good steady signal with an interview in English about teenage social problems, then a local Dhivehi language program.

1460 WTKT Harrisburg, Pennsylvania, heard at 0500

AM And FM Station Changes And Updates

Pending

New Call	Location	Freq.	Old Call
WYYC	York PA	1250	WQXA
KTTO	Spokane WA	970	KTRW
WMTI	Picayune MS	106.1	WKSX
WOLI-FM	Easley SC	103.9	WOLI
KPLI	Olympia WA	90.1	KWGV

Changes

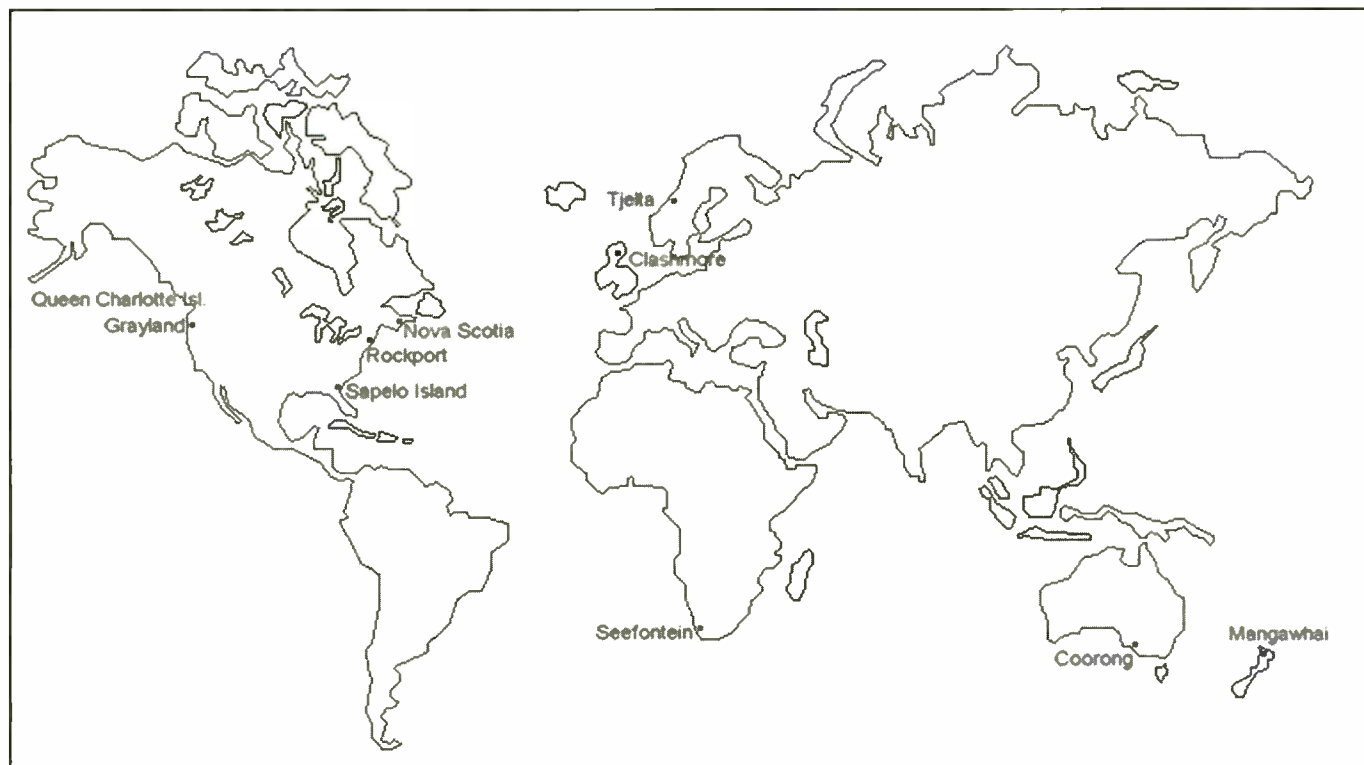
New Call	Location	Freq.	Old Call
KNUV	Tolleson AZ	1190	KMYL
WDDV	Venice FL	1320	WAMR
WODJ	Whitehall MI	1490	WUBR
WTWG	Columbus MS	1050	WACR
KVMN	Cave City AR	89.9	KZIG
KXZM	Felton CA	93.7	KTEE
KXSM	Hollister CA	93.5	KOTR
KPGS	Pagosa Springs CO	88.1	New
KAIO	Idaho Falls ID	90.7	New
WMYJ	Oolitic IN	88.9	WXVW
KAIG	Dodge City KS	89.9	New
KHBQ	Sulphur LA	89.1	KJJN
WICE	Ironwood MI	88.3	New
WIAB	Mackinaw City MI	88.5	WDQV
WODJ-FM	Newaygo MI	92.5	WODJ
WACR-FM	Aberdeen MS	105.3	WWKZ
WWKZ	Columbus MS	103.9	WACR-FM
KQLU	Belgrade MT	90.9	New
KWLY	Moapa Valley NV	104.7	KBHQ
KUSW	Farmington NM	89.7	New
KKNM	Gallup NM	88.1	New
KLLU	Gallup NM	88.9	New
KPKJ	Mentmore NM	88.5	New
WENI-FM	Big Flats NY	97.7	WCBA-FM
WHAZ-FM	Hoosick Falls NY	97.5	WZEC
KRVX	Wimbledon ND	103.1	New
WHKC	Columbus OH	91.5	New
KWXC	Grove OK	88.9	New
WFHU	Henderson TN	91.5	WFHC
KHFD	Hereford TX	88.7	New
KJJN	San Angelo TX	89.3	KHBQ
WDYK	Ridgeley WV	100.5	New
KCWW	Evanston WY	88.1	New

with no ID heard, but many slogans of "The Ticket" and sports format, which was subsequently checked on the Web and it seems to be WTKT.

1503 Family Radio, Taiwan, at 1442 with religious program at fade in, the first to fade in, eventually producing a very good signal, the best and most consistent from the Far East.

1510 WLAC Nashville, Tennessee, at 0604 heard in English with ID. Earlier WWZN Boston also on 1510 kHz appeared underneath WLAC.

1540 ZNS1 Nassau, Bahamas, at 0404 a good steady signal with excellent peaks, ID, "This is AM 1540, the National Voice of the Bahamas," followed by a discussion program.



Locations of the worldwide DXpedition sites.

1650 KWHN Fort Smith, Arkansas, at 0305 heard with ID and weather, "Now, News/Talk 1650 KWHN Oklahoma weather. Good evening, your official K-WHN forecast..."

Jan Alvestad, Tjelta, Norway

Fair conditions were noted on southwest paths before local sunrise, while 10 to 90 minutes after sunrise propagation was very good to Argentina, Uruguay, Chile and the southeastern part of Brazil. Audio on a few stations was heard until more than two hours after local sunrise. One of the best mornings all summer.

The next night, somewhat more westerly paths were open, allowing 1480 WMDD and 1660 WGIT, both from Puerto Rico, to be heard. Several stations from Venezuela were audible as well (best signals on 1420, 1470, and 1500 kHz), as were a few from Peru (CPN Radio on 1470 and Radio Santa Rosa on 1499.92 kHz). After local sunrise, propagation as usual favored Argentina and Uruguay. 590 Radio Continental, 710 Radio Diez and 790 Radio Mitre all had good signals. 610 Radio Rural and 930 Radio Monte Carlo were also good in peaks. The best transatlantic signal of all was that of ZYH520 Radio Cristal, Salvador, Brazil, on 1350 kHz, peaking above S9+10 dB.

840 LU2 Radio Bahia Blanca, Argentina, with a fair signal. Another station was heard during fades, this surprisingly turned out to be Radio General Belgrano, also from Argentina.

1430 ZYJ200 Radio Clube Paranaense, Curatiba, Brazil, had a weaker than usual signal. CW25 Radio Durazno, Uruguay, was the second station on the frequency reaching a fair signal level in peaks, while an unidentified station from Argentina was the third and weakest station.

1590 CX159 Radio Real, Colonia, Uruguay, occasionally

noted in fair peaks, however, three stations from Brazil, all slightly off frequency, had the best signals most of the time.

Martin Hall, Clashmore, Scotland

The band was quite noisy in the morning, with much Europlatter, and several stations were noted on many channels, all making IDs difficult. Low A/K indices allowed more stations from the eastern Caribbean area and Newfoundland to get through, though the more common Argentinians were present at fair levels. A strong, short peak to Newfoundland was noted just after 0500. On many channels the 240 and 290 degree Beverage antennas had different signals (Brazil and Argentina on the 240 degree, Venezuela, Puerto Rico, etc. on the 290 degree).

560 CHVO Carbonear, Newfoundland, heard at 0507 country music, ID, "590 VOCM," parallel 590 and 620 kHz.

620 CKCM Grand Falls, Newfoundland, at 0207 ads for Grand Falls-Windsor, "The All Newfoundland and Labrador Radio Network."

640 CBN St. John's, Newfoundland, at 0358 heard "You are listening to CBC Radio 1."

740 ZYH446 Salvador, Brazil, at 0401 dominating the channel on the 240-degree Beverage, "AM 740 kHz Radio Sociedade da Bahia."

770 CX12 Radio Oriental, Montevideo, Uruguay, at 0425 heard ID, "Transmite CX12, Radio Oriental, 770 AM, Montevideo, Uruguay."

1070 YVMA Mundial Zulia, Maracaibo, Venezuela, at 0415 received on 290-degree Beverage, ID and time check, "En Mundial Zulia primer lugar del sintonia, 12, 14 minutos."

1070 LR1 Radio El Mundo, Buenos Aires, Argentina, at

0416 received on 240-degree Beverage with time check and ID, "La Voz de la Liberacion." The distance between Clashmore and Buenos Aires is about 11,650 km (7,130 miles).

1280 WCMN Arciba, Puerto Rico, heard at 0302 Spanish ID, "Esta es WUNO NotiUno 630," and list of network stations.

1470 CX147 Radio Cristal del Uruguay, Las Piedras, Uruguay, monitored at 0101 Spanish announcements, ID, "AM 1470 Radio Cristal del Uruguay," and Website; dominant for the next 90 minutes.

1640 Radio Juventus Don Bosco, Santo Domingo, Dominican Republic, monitored at 0222 heard ID, "Radio Juventus Don Bosco, en la frecuencia de 1,640 kHz," and program from Radio Catolica Mundial.

1660 WGIT Canovanas, Puerto Rico, at 0332 Spanish pops, network list, then ID, "Transmite WGIT 1660 Canovanas, Carolinas, La Gigante, Cadena Radio Voz Television."

Jean Burnell, Nova Scotia, Canada

In the spirit of the worldwide DXpedition, I headed to a campsite about 40 km from Halifax (but 30 km from the coast) and set up a tent plus the Drake R8A on 12-volt battery. The brush was thicker than I expected, so after some hours of effort, I managed two disappointingly short antennas: about 100 m towards Europe and about 150 m going south. I'm not used to hauling wire in humid 30-degree C weather!

I sat in the tent and waited for MW signals to arrive. None to speak of did on the European wire. I had hets on almost every 9-kHz channel, but no audio except for some very marginal burbling on a few of the Spanish channels (684, 1575, and 1584 kHz). Stuff from Brazil started appearing on the southern wire at 2330 UTC. This was followed pretty quickly by signals in Spanish, but by 0130 UTC all that was left was domestic North American stuff, and I monitored to nearly 0700 UTC.

Was it worth it? Yes! One log, a station heard in the clear for only a minute, was the reward: "Radio Cima" from Costa Rica on 1500 kHz, first time heard here in the Maritimes.

1220 ZYJ458 Radio Globo, Rio de Janeiro, Brazil, heard at 2342 heard talk,

many IDs; interference from a Spanish station (sounded Venezuelan) with a slogan that sounded to me like "Competente AM 1-2."

1300 ZYH586 Radio Iracema, Fortaleza, Brazil, at 2331 heard with preaching in Portuguese.

1500 YVRZ Radio Dos Mil, Cumana, Venezuela, at 0002 with IDs, many time checks, and mellow Latin American music.

1500 TIRC Radio Cima, Ciudad Quesada, Costa Rica, at 0006 under Radio Dos Mil most of the time with lively Latin American music, one clear ID following a little chime sequence.

1580 YVTK Manzanera 1580, Cumana, Venezuela, at 0022 faded up during a long network ID in which every member station was IDed, then faded away very quickly.

1640 Radio Juventus Don Bosco, Santo Domingo, Dominican Republic,

at 0025 Catholic talk and music; noise seemed a lot worse on the x-band.

And These Are Just A Few Reports!

This compilation of worldwide DXpeditions is an impressive demonstration of the effect of sea gain. Visit www.dxing.info for complete reports and more photos from these and other DXpeditions worldwide. Then get out to the seashore to experience the DX-citement first-hand.

Next month we'll present Part II of this special report with outstanding loggings from Rockport, Massachusetts; Sapelo Island, Georgia; Queen Charlotte Islands, British Columbia; Coorong National Park, Parnka Point, Australia; Mangawhai, New Zealand; and Grayland, Washington.

Until then, 73 and good DX! ■

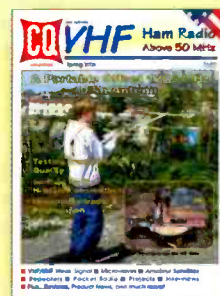


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How To Make Weak Reception A Memory

The proliferation of higher-frequency trunked systems has lead to a dilemma for scanner listeners located outside the area of coverage for these systems. Since 800- and 900-MHz frequencies do not travel as far or as well as their VHF counterparts, those (including myself) located just outside a city may find reception a bit more challenging. If you're behind a hill or other geographic feature that may block a UHF signal, you may also experience this problem. Interestingly, the VHF signal would make the trip with no problem.

It's tempting to think that a preamp might be in order to boost those weak signals out of the mud. Be aware, however, that you may cause unwanted side effects in other parts of the spectrum if your radio can't handle the boosted signal. In fact, sometimes what appears to be weak reception is actually caused by *too much* signal someplace else. Let's take a look at some things you might consider adding to your antenna system to help things along.

The first thing to consider is an antenna specifically tuned to the band you're interested in monitoring. While not as glamorous as some of the other solutions, it's probably the best one and can increase the signal in the *desired* band considerably if you can find a directional antenna with some gain that can be pointed straight at the weak signal.

Another possible solution might be a filter for the specific band you're interested in (a pass filter) or a filter that can reject a signal that's causing interference (reject and notch filters). These all work by helping to shape the types of signals that actually reach your radio for processing.

Believe it or not, sometimes reducing the signal in one part of the spectrum can actually help reception in another. Filters help with this process, but there are also attenuators that can just reduce the overall amount of signal that reaches your antenna jack. These are usually only necessary in dense urban settings where all the signals are strong, but it's not uncommon to use both a filter and an attenuator. If that doesn't work, or if you need to use the radio for other things, you may need to consid-



Higher-end receivers have built-in attenuators. On newer receivers, attenuation can be set by channel, while older ones have an on/off switch (frequently on the back) and it's either on for everything or off for everything. This receiver has two stages of attenuation.

er a preamplifier. Preamps, as they're called, boost the incoming signal, but with some consequences.

Accessories For Reception

Preamps, filters, and attenuators are all gizmos you can add to the signal processing capabilities of your radio in the hopes of curing some reception problem or another. Some folks will swear by one or the other, while others swear *at* them. The truth is, most folks have never tried any of them, but still seem to harbor strong opinions on their use and functionality.

What's all the fuss? Well, a lot of it has to do with misunderstanding how the radio works, and some of it has to do with misunderstanding how these devices work and what they're intended to do. And the rest of it has to do with the physical location of the person using or swearing at the device. The bottom line is that if they work for you, great! If they don't, then take them out of your system.

Amplifier Equals More Signal, Right?

The preamp seems to be the device that everyone wants to add first. As a result, preamps seem to be the cause of more problems than the other devices. A preamp amplifies the signal before it reaches the radio (pre-amplifier). Preamps can be placed in-line at the receiver end of the coax, or better still, up at the antenna. Having the amplifier at the bottom of the coax allows for weaker signals (due to losses in the coax) and noise to creep in. The amplifier amplifies this right along with the signal! Putting it up at the antenna eliminates this problem so that you're amplifying the strongest signal possible. While this sounds like a good idea, and should in theory make more signals available to your receiver, it rarely works out that way.

Unfortunately, the preamp can't tell what's important and what's not, so it tends to amplify everything equally. Unless you're in an area where there are weak signals from everywhere, a preamp will probably be more trouble than good. The leading causes of that trouble are desensitization, where the radio just doesn't hear anything so the condition is worse than before the preamp, and overload, where you hear pagers and other signals in places on the band where they don't belong. If you're in any kind of an urban area, a preamp is usually a problem.

To understand why this is a problem, it's useful to remember just what your radio is doing. All sorts of signals are arriving at the antenna at the same time. It's the job of the receiver to convert the signals into something you can hear, but only one signal—the one on the frequency to which you are tuned—is of interest at any one time. Overload is simply strong signals getting through the radio's internal filtering process and showing up in places where they shouldn't. By putting an amplifier in the circuit, you increase the chances of overload if there are strong signals already present on the antenna.

Desensitization happens when a strong signal near the frequency that the receiver is tuned to causes the receiver's radio frequency amplifiers to shut down. The amount of amplifica-

tion necessary to process an incoming signal varies quite widely, and there are circuits in the receiver designed to figure out how much amplification is necessary for the signal that you're currently tuned to. If a weak signal hits the antenna, the amplifiers step up to make the signal stronger for processing by the rest of the receiver. If a strong signal arrives, the amplifiers drop down to provide the subsequent stages with a more appropriate signal level and to help prevent overload.

The problem occurs if the signal you're trying to hear is a relatively weak one, but a strong signal is nearby, say 15 or 30 kHz away. Because the strong signal is *so* strong and so close in frequency, the receiver may not be able to tell that it's not the right one, and the amplifiers will drop down in response to that. But the signal you *want* is now gone because the amplifiers have dropped to a level too low for it to be heard. Bummer. That's desensitization, or desense as it's often called, and it can be a major problem with preamplifiers.

Remember, though, that's their job—to amplify. And the preamp *will* amplify the strong signals, along with everything else, making them stronger still. Not a good situation. To make matters worse, most consumer-grade scanners don't have enough filtering, or high enough quality components to adequately deal with strong signals. Overload and adjacent channel interference are the frequent outcomes of these shortcomings. Here's one of the biggest reasons for the "communications"-grade receivers like the ICOM 8500 or AR-5000 (or much more expensive stuff used by government agencies!).

Are They Useful? Sometimes!

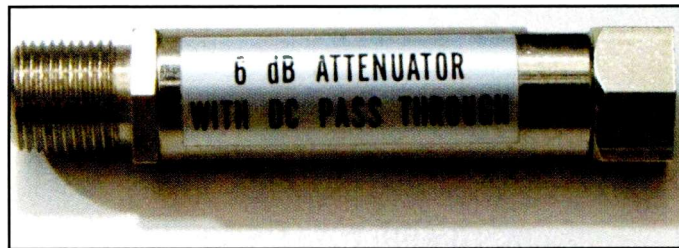
Preamplifiers *are* useful in certain circumstances. If you're trying to hear a weak signal and there aren't strong signals around, it may help. If you're away from a city in an area where all the signals are weak, then you're a good candidate for a preamp. The problem is that these days, with the proliferation of pagers and cellular systems all across the country, those RF quiet spots are getting harder and harder to find. Inserting a preamp into your system is a good way to find out about nearby paging transmitters that you didn't know about.

It may also be appropriate to use preamps in combination with filters for specific reception problems. We'll talk more about this option in a bit, but for most of us, we want the radio to hear everything, on any frequency that the receiver can tune. So filters are not what we're after either, but let's take a quick moment to discuss how they work anyway.

Filters

Filters come in essentially five varieties, but they all do the same job: allow some signals to pass on to the receiver while blocking others. Essentially, a filter provides some sort of a gate that's wide open to certain signals, or closed to other signals. The gate can be very wide, covering many MHz of spectrum, or as narrow as a few kHz either side of a particular frequency.

The first type of filter we'll look at provides a wide gate that's closed for several MHz of frequencies. This can be extremely useful if there's a group of signals that you can identify as a problem and want to eliminate. A common example of such a *band reject* filter is an FM Broadcast band filter, sometimes called an "FM Trap." (I think I'm showing my age again, but that's okay, I'm not as old as "How many Kilo Cycles in a Hertz?" Harold!) This filter is designed to block signals in the



If you don't have a built-in one, there are lots of these little add-on attenuators available through many electronics retailers. You may have to get a bit creative with connectors though, as many, like this one, are built with F connectors for the cable TV industry.

88- to 108-MHz frequency range and can do a great job of eliminating interference if you're troubled by broadcasters. There are also band reject filters for the AM aircraft band, which can be useful if you have trouble with airplane comms getting into your scanner in places where they shouldn't.

A variation of the band reject filter is the *band pass filter*, which does exactly the opposite. Instead of *blocking* a particular range of frequencies, a band pass filter *allows* only those frequencies to pass through and blocks everything else. This makes a great front end to a receiver that only has one band of frequencies to worry about, but they tend not to be built into scanners because the radio's frequency range of coverage is too broad. The ideal situation would be to have a band pass filter that could be switched in and out for each range of frequencies that you listen to. However, you *can* add band pass filters to the antenna line if for some reason you are only interested in signals in a particular band. For practical reasons, band pass filters aren't too common among scanner enthusiasts.

Another type of filter is one that has only one "end" called a *high pass* or *low pass filter*. These filters have a cutoff point that dictates where the filter is used, and depending on the type



Tuning an antenna by varying its length is nothing new, but it can help improve signals, or attenuate out-of-band signals that are causing a problem. This one is actually a transmit antenna for the ham 2-meter and 70-centimeter bands, but those frequencies are close enough to the VHF High and UHF Low bands to be quite useful.



In severe cases, you may need something like this: It's a tunable notch filter designed to eliminate a narrow band of frequencies that's causing interference without greatly attenuating the rest of the bands. Note the F connectors again, so it's intended for cable use, but it will work just fine with adapters.

of filter, anything above or below the cutoff point is passed or rejected. A good example of this type of filter is one that hams have used for years and have correctly called a low pass filter. This filter usually has a cutoff point at about 30 MHz or so, and anything above that frequency is blocked, thereby allowing only the low-frequency signals to pass.

These are used on transmitters to help prevent harmonic frequencies and other transmitter anomalies from escaping through the antenna and causing interference to nearby TVs and radios. There are, however, pass filters with other cutoff points for different applications. Your scanner might benefit from a high pass filter that blocks signals below 30 MHz if you're having trouble with nearby ham or CB transmitters, but otherwise these filters are not used much for scanners.

Another example that shows the problem more correctly might be in order. A high pass filter with a cutoff of about 152 MHz or so could be useful in eliminating VHF pager signals from showing up in the higher VHF portions of the band. However, a band reject filter for the pager ranges might accomplish the same thing, and still leave the VHF low band available for you to receive. The high pass filter we just described would eliminate everything below 152 MHz.

The Most Desirable

Finally, we come to the filter that's probably the most desirable for scanner listeners, the *notch*. A notch filter is designed to eliminate a very narrow range of frequencies (usually only a few kHz wide, as opposed to a band reject filter, which can cover many MHz). If you have interference getting into your receiver, it's likely that it's from one source, and probably nearby. A notch filter allows you to deeply restrict the signal from that source from passing through to the receiver. Without the signal hitting the receiver, there's not likely to be any interference.

Notch filters come in all shapes and sizes. Some are tunable across a wide range of frequencies to help you eliminate any type of interference that you might come across, while others are built to notch only a very narrow range of frequencies. These special frequency notch filters tend to be most effective and have very deep notches, which means that they will eliminate very strong signals on their assigned frequency, but allow signals to pass through almost unharmed just a few kHz away. They are tunable, but only for a very narrow range on either side of their designed center frequency.

Finally, a band pass filter combined with a preamp can, in fact, do wonders. If you have an amplifier after the filter, so that only signals from the particular frequency range of interest are being amplified, performance can be enhanced significantly, but at the expense of everything else.

Attenuators

An *attenuator* is the opposite of a preamp; that is, it reduces the signal on some radios, or in very strong signal areas, you might find your reception "clearer" by using an attenuator. Or you might find the interference goes away if you switch in an attenuator. It is unfortunate, but most scanner listeners in metropolitan areas are much more likely to benefit from an attenuator than from the other devices we've discussed. The reason for this has to do with the design of the typical scanner receiver and the amount of strong RF present in a town of almost any size.

Some newer radios will let you switch an attenuator on and off by channel. That's a nice feature if you're in a metro area, or if you only experience problems on one band. This is usually controlled from the front panel (particularly if it's something you can turn on and off by channel). Other radios just have an on/off switch so the attenuator affects all signals (these are usually located near the antenna jack on the rear of the radio). There are also add-on attenuators available that go in-line with the coax just before the radio. They work on all signals, too.

How do you know if you need an attenuator? Well, that's a tough call. A lot of radios built in the last several years have

Frequency Of The Month

Each month we ask our readers to let us know what they're hearing on our "Frequency Of The Month." Give it a listen and report your findings to me here at "ScanTech." We'll pick a name at random from the entries we receive and give the lucky winner a free one-year gift subscription, or extension, to *Pop'Comm*.

Our frequency this month will be **155.745**. Have a listen and see what you hear. Let me know, even if you don't hear anything and we'll include your name in the next drawing!

Speaking of drawings, Gregory S. Hatzis wrote a nice note about 153.860. Gregory writes "I...had to chuckle when I read your Frequency Of The Month where you said 'unless you recognize it right away...' I did indeed recognize it right away."

Gregory says,

153.860 is used, with a CTCSS tone of 77.0, by the Orange County (New York) Department of Emergency Services as a repeater output frequency (158.865 being the input) under callsign WAU-718; in fact, that is the "name" of the channel, and the dispatcher on it is called "718" for short. The County maintains five towers for "WAU-718" (Arden, Graham, Mount Beacon, Mount Peter, and West Point) in and around Orange to cover the county's 835 square miles.

The channel is used for countywide emergency medical service operations (alerting/paging, unit-to-unit, and H.E.A.R. traffic takes place on other frequencies) for 15 of the county's 25 EMS agencies (seven of the others have their own dispatch and operations arrangements made with their local police departments and the three remaining self-dispatch). Access to the repeaters is also allowed to various first responder agencies, such as fire and police departments, so that they can directly relay situation reports to incoming BLS and/or ALS units.

Congrats Gregory! Keep those entries coming!

one there already, so the easiest thing to do is try it and see if any interference you're experiencing goes away. With most of the switchable attenuators at about 10 dB or so, it shouldn't kill the signal you want to hear, but might help the interference.

Another thing to check for (especially if you have a radio that just has an on/off switch for the attenuator) is whether the background "hiss" gets any better or worse with the attenuator turned on. If it tends to clear up with the attenuator turned on, it probably means you're experiencing some form of desensitization, and you might very well find that your receiver runs better with that attenuator on all the time. But there's something psychological about intentionally putting something on your radio to *reduce* the signal that gets to the receiver!

Think Before You Act

The bottom line with all of these devices is that they can help your scanner listening, or can just about destroy it. Keep in mind that the radios we use for scanners are *not* built to commercial or military specs, and they aren't going to handle lots of strong signals without breaking down. This isn't a physical breakdown, but rather an electronic failure that results in you listening to interference and other annoying features that will detract from what you're trying to accomplish.

You can improve your monitoring situation a lot with just antennas, which is really the place where you should probably start *before* doing much with any of these devices. I often recommend trying a back-of-the-set or indoor antenna for a few days to see if the interference gets better or worse. It might help you pinpoint what type of problem your radio is having.

Filters, particularly notch and band reject filters, can help eliminate interference from an otherwise great performing antenna system. If you're not sure what you need, see if you can find someone to take a look at your system and give you advice. Of course, free advice is often worth exactly what you pay for it, but sometimes two heads are indeed better than one. You can always remove any of these devices from your system if they don't improve the situation.

Oops

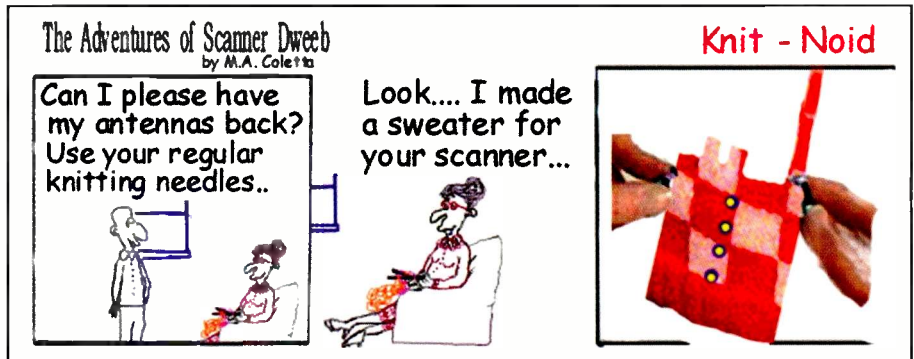
Recently, a chart was presented and listed as MURS frequencies. Several

observant readers quickly pointed out that I was out to lunch. The MURS frequencies are 151.820 MHz, 151.880 MHz, 151.940 MHz, 154.570 MHz, and 154.600 MHz. The chart listed many other frequencies that were in fact part of the business band frequencies, but not MURS. My apologies for the mix-up.

Keep 'em Coming

Your questions and comments are always welcome here at "ScanTech." If

you have questions relating to scanning don't hesitate to send them in. Of course, we're always looking for photos of your shack, too. You can write in care of the magazine, or send it to me directly at Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126 or via e-mail at radioken@earthlink.net. Remember to put the frequency you're entering for "Frequency Of The Month" mail in the subject of the e-mail or on the outside of the envelope so those responses get handled correctly. Until next time, good listening. ■



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There's No Stopping Smart Shopping!

Old-timers will certainly agree with my laments over the ever-shrinking number of ham radio/communications stores these days. Even "Radio Row" in New York City has all but disappeared, terrorist attacks notwithstanding. The Mom and Pop stores are almost certainly a thing of the past, having long since dried up or suffered through the consolidation efforts of the six remaining ham stores (okay, that estimate is a bit on the low side, but not *that* low). By comparison, Tokyo hams have it made, with dozens of shops to choose from. That is, however, another story...another depressing story!

If you're extremely lucky, you have easy access—through a local large ham shop—to all the new gear with all the new bells and whistles. You can banter endlessly with staffers, raking in equipment tips, inside information, and radio goodwill. Dealers know that local buyers often become repeat customers. And repeat customers aren't always concerned with finding the lowest prices. In a tight market, intangibles count.

If you're out in the boonies, however, a round trip to the nearest radio store may take a day or more. No matter how good the service, "buying local" isn't always an option. The Local Guys may not offer the lowest prices, either. And let's face it: in these financially trying times, price can be important.

Some terrific stalwarts that I've come across, however, are Burghardt Amateur Center in Watertown, South Dakota (they've

been around since the age of Marconi and they're still going strong); Lentini Communications in Newington, Connecticut (where else?); and Radio City, on the northern edge of Minnesota's Twin Cities (they do telescopes, too). If you can't work out a good deal between these three outlets, find another hobby! How's that for a shameless plug?

Whatever your reasons, whatever your situation, buying your next rig over the telephone or via the Internet from a faraway dealer may be your best (or only) option. Yet, pouring over a stack of magazine ads, or squinting at an endless "stack" of web-pages, dialing a series of 800 numbers, and paying by credit card isn't everyone's cup of tea (unless you're under age 30, when it *is* your cup of tea!).

To make the process a little easier on everyone—buyers and sellers alike—this month's column is chock full of tips for smart radio shoppers.

Research

Before purchasing that rig over the telephone, you have some homework ahead of you. Even if the nearest radio store is miles away, you can still try to check out the gear you're interested in at hamfests, swap meets, brochures, and your friends' shacks. Check out product reviews and related columns in amateur radio



From the "here's an interesting piece of gear" department, this month we present you with the XT-4 CW Memory Keyer from Unified Microsystems. It's battery-powered, eminently portable, and works equally well in your shack or in the field. As long as you can handle eight words per minute (you can, right?), the XT-4 offers a lot of bang for the buck, including four programmable memories, reversible keyer paddle switching, and long battery life (it maxes out at about 45 wpm, which is already in the CW keyboard zone). Check out the XT-4 and UM's other ham goodies at www.unifiedmicro.com.

magazines. Search the Internet for information and "hands-on" user comments about the rig(s) you're considering. Every little bit helps.

After you've narrowed down your equipment choices, it's time to research potential dealers. Price, policies, and procedures may make a difference in your situation. Some dealers take trade-ins, some offer generous return policies, and some accept certain credit cards that others don't.

After you've assembled a list of dealers from magazine ads, the Internet, or whatever other sources you have available (see my shameless plug, above), call each one and *briefly* ask about prices, trade-ins, service, shipping, etc., everything that's important to you. And keep notes or you'll get things mixed up.

Making price inquiries on the dealer's 800 number is perfectly okay (always try to be brief), but asking technical questions isn't. Use the regular number for non-sales-related inquiries. If the sales person seems rushed, rude, bored, or otherwise unfriendly, consider moving on (if you've made him or her that way then *you* should move on!).

Trading in your old gear may be challenging. Some dealers welcome most reasonable trades, while others are interested only in late model radios (or don't accept trades at all). If you can fund your purchase in its entirety, consider selling your rig yourself. You'll probably get more money for it.

Shipping charges should be fairly similar among dealers. Some dealers, however, "leverage" their low equipment prices with higher-than-necessary shipping charges. If someone's charging an arm and a leg for transport, be extra careful!

Be Smart About It

When you've talked to a sufficient number of dealers and put together a clear picture of the prices and services available, be sure to consider the following before finalizing the deal:

- *Clarify the details.* Before signing on the dotted line, make sure you and the sales rep agree upon the make, model, price, included parts and accessories, sales tax, shipping fee, warranties, and return policies. Have the sales rep repeat everything back to you or have a copy of the deal faxed or e-mailed to you before making your purchase. Doing so will minimize your risks and maximize your

chances of getting exactly what you want at the agreed-upon price.

- *Cables and accessories.* Make sure you understand exactly which cables, brackets, adapters, and accessories are included before finalizing the deal.

- *Return policies.* In the computer industry, the 30-day return policies we used to enjoy have now diminished to 15 or even seven days, and amateur radio products have mostly followed suit. Make sure you're happy with whatever policy your dealer has in place. (Don't take that shiny new radio on a DXpedition to Who Knows Where, only to return it three weeks later. Save that tactic for the department stores.)

- *Restocking fees.* If you decide to take advantage of your dealer's return policy by returning your newly purchased rig within the specified period, you'll likely be charged a restocking fee since the equipment can't be resold as new. Restocking fees can range from 0 percent to 20 percent of the purchase price. Although there is no standard for restocking fees, be sure you're happy with yours before you buy.

- *Tech support.* Be sure you know exactly who will perform warranty service and repairs should your new rig need service. Will the dealer's in-house techs perform the service or will the unit have to be sent back to the factory? If your rig is dead on arrival, will you receive a new radio, or will you have to wait weeks while "major surgery" takes place?

- *Credit cards only.* If at all possible, purchase big-ticket items such as computers and transceivers with a credit card. Don't use checks and don't use cash. Credit cards are your only real protection against fraud or wayward vendors. Most credit card issuers allow users 60 days to challenge a "deal gone bad."

- *30 days or bust.* Anything purchased over the telephone or through the mail must be shipped to you within 30 days of the date originally agreed upon. If the vendor can't deliver, whatever the reason, you must be notified. Even if you agree to the delay, you reserve the right to cancel your order at any time, even after consenting to the delayed delivery schedule.

- *Happy trails.* Be prepared for trouble by keeping an accurate paper trail of all correspondence, receipts, warranties, invoices, etc. As soon as trouble rears its ugly head, put everything in writing, including statements made during phone conversations, and send a copy to the vendor. When talking to sales reps and tech-

nicians, be sure to write down names, times, and a summary of the conversation.

Finally...

In addition to doing a little homework to prepare yourself before you buy, don't forget to ask your fellow ham club members and other contacts about their own mail-order/Internet purchasing experiences. Once you've found the best deal (and dealer) for your needs you can make your purchase with confidence.

Want to see something covered in your "Ham Discoveries" column? As always, send your QSL cards, questions, and letters to me at "Ham Discoveries," *Popular Communications*, 25 Newbridge Rd., Hicksville, NY 11801. ■

Oops!

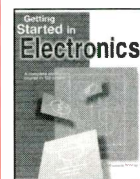
In the August column about ham radio digital modes, I messed up and called RTTY "an FSK (frequency-shift) keying mode that uses a five-tone digital code." Perry Crabill, W3HQX, of Winchester, Virginia, promptly reminded me via e-mail that RTTY, of course, uses two tones to transmit a five-element digital code. Thanks, Perry.

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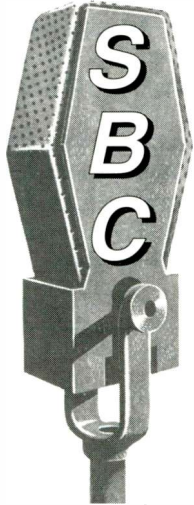
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Drive-In Movie Stations: Big Screens With Little Broadcasters



“You might think I am plain crazy,” the *Pop’Comm* reader’s e-mail predicted, “but I’m actually just nuts about anything that has to do with AM or FM broadcasting, and have a pretty kooky suggestion for a column topic.”

Admittedly, his proposal that “unlicensed drive-in theater stations” would prove to be an incredibly interesting “Shannon” subject threw me for a loop. I’d never heard of such a thing and initially figured that few other broadcast history buffs had either. Of course, that assumption was summarily challenged by my Dad, who claimed to know quite a bit about “the secret world of outdoor theatrical non-connected surreptitious audio transmission”—or some such hyperbolic description of wirelessly wafting a film soundtrack to drive-in movie patrons via the broadcast bands.

What In The World Made You Think Of That?

Our suggestive subscriber envisioned me wondering why he possessed an interest in drive-in broadcast outlets, so cut right to the chase within his e-mail’s first paragraph. He provided a bit of family background about his folks being hard-working, teetotaling, serious people who didn’t look too favorably on movie going—especially those “mindless monster, horror, and teen rebellion pictures,” the typical fare of the local drive-in situated in a rutty field about three-quarters of a mile away from their modest home.

Though parts of the saga seem a bit personal to disclose to the *Pop’Comm* readership, he believed it necessary to note that his older sister had frequented the drive-in against their parents’ pleas, ran with a fast crowd, and ended up a pregnant 16-year-old dropout who broke the family’s heart. Their mother and father blamed the drive-in establishment for serving as a catalyst to the trouble. Consequently, they begged him to “promise *NEVER* to set eyes on its sinful screen!” Being a good son, he kept that pledge through the summer of his junior year in high school, when the theater suddenly went out of business.

“I Swore I’d See No Evil, But...”

Noticing that quote in his e-mail provided a direct cue that the tale would soon take a twist involving the aural medium. Here it is in his own words:

One Friday, the kids in homeroom were all talking about going to see *Popcorn*, which turned out to be some grade B—bomb of a movie featuring rock stars such Mick Jagger, the Bee-Gees, and Jimi Hendrix. I guess it was peer pressure that made me boast I’d be in the audience.

CCA FM-10DS DIRECT FM STEREO EXCITER



FEATURES

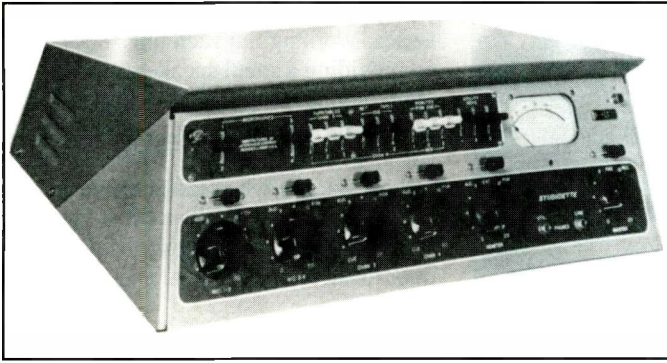
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- Frequency Correction System has capture ratio of 500 Kc and always acts to correct frequency. Does not require Off Frequency Disable System.
- Designed and Manufactured by CCA — No requirement for outside support for troubleshooting.

When the CCA model FM-10DS 10-watt FM exciter was released in the mid 1960s, it had a pretty versatile operating frequency range of between 50 and 150 megacycles—well below, in, and above the FM broadcast band. That’s why it was no sweat for the youthful engineer in our drive-in story to bump it up to 108.1 megs.

too. “Sure,” some of them taunted, “Like your religious parents will let you catch that psychedelic flick.”

Later that night, just past sunset, I hopped out of my window and started off for the woods adjacent to the drive-in, but changed my mind after thinking how disappointed my folks would be if they knew my plan. Depressed, back in my room, I flipped on my Arvin AM/FM radio and waited for it to warm up. The tubes would shine a faint red glow through the holes in the rear cover, and make an eerie pattern on the wall. Right in the middle of a Top-40 tune, the distant station I was listening to (probably WCFL in Chicago) faded out and stayed weak for long enough to get frustrating and prompt some serious dial twisting.

Incidentally, I’d won the radio from a raffle conducted by our local volunteer fire department. Presumably donated to the department’s prize chairman by a Main Street hardware store that obviously hadn’t had any luck over the years selling it, the dusty green plastic new/old-stock Arvin was probably one of the only AM/FM sets in our rural area back in 1970. Until that night, I’d never even switched it to the FM side for more than a couple of seconds, because the few stations that could be heard there either ran an AM simulcast, or they transmitted



Gates advertised this unit as a "four channel all-purpose console." Typically, the Gates Studioette was the province of small radio stations and recording studios, but a few ended up in audio visual venues such as TV and drive-in control rooms, as was the case in our story's setup.

the musical bane of every red-blooded American teenage male ever cornered in a supermarket, dentist's waiting room, or department store with one's mom: *Beautiful Music*.

Sure enough, as I sulked on my bed and clumsily turned that Arvin's tuning knob, the only frequency modulation station that came in okay was bubbling over with some mushy instrumental, gushing lots of vibrato violins. The too-sweet sound made me quickly grab for the power switch—as if going for a six shooter—and turn the goop off. As fate would dictate, however, it was the tuner I spun, slamming the mechanism up against the 108-and-change megacycle dead-end of the FM band.

Here, to my utter amazement, danced the spunky audio plugging our notorious drive-in's snack bar chow. And then, over the next 85 minutes, and clear as a bell, I heard the soundtrack of *Popcorn*, the very (incredibly lousy) movie that the kids in school had been discussing!

"FM and Lots of AM, Because Nobody Listens to FM in Cars."

According to our contributing columnist, Monday at school, he quietly sought out one of the nerds who hung out in the science class lab. This self-proclaimed oddball was reported to occasionally work at the drive-in's projection room, and our guy thought the kid might be able to explain the serendipitous soundtrack broadcast. That meeting prompted a visit to the drive-in's "master control room." There, the following Saturday—safely a few hours before its forbidden movies rolled—the outdoor theater's radio secrets were revealed.

The nerd proudly exclaimed that he'd designed a dual-band broadcast system allowing for the complete removal of the drive-in's many speakers. "Saves the theater owner thousands of dollars in stolen or busted equipment," he noted. "Guess what I use as antennas for these babies?" the fellow quizzed while pointing to an old wooden bookcase stacked with three, 5-watt LPB-brand carrier current AM transmitters. Another LPB xmitter—this one with an exposed chassis—rested in a jumble of wires in the corner. Each of the four was on a different frequency, something like, 540, 640, 1600, and 1610 kHz, respectively.

When our correspondent responded, "Uh, well, the wires that used to be hooked to the speakers would probably work good," his host smiled that the answer was mostly correct, except for the fact that one of the AM unit's output was fed into a long-wire running up the length of the 50-foot flagpole near the concession stand.

"Gives us good coverage on most all of the property. It's sure better than the 'induction'-type of carrier current we get from the old speaker wire thing. Plus, the flagpole 1610-kc transmitter deal fills in any nulls way, way, way in back where the last arriving cars get directed when we're crowded. Matter of fact, you can hear it in the school parking lot, and that's like almost two miles from here! It'd be nice to be able to use FM only, but nobody listens to FM in cars. Maybe someday, though," the kid speculated.

Next, he walked over to a CCA-brand FM 10-watt exciter/transmitter mounted about chest high in a makeshift rack composed mostly of scrap 2 x 4 lumber. "The boss sprung nearly two grand on this electronic beauty. In metal shop, I fashioned a frequency-matched Yagi antenna out of some heavy copper tubing and stainless steel. That's it way up on the top of the movie screen framing. With about 2.5-dB gain and just a bit of coax line loss taken into consideration," he mused, "we put out around 21, maybe 22, watts on 108.1 megs, more than enough to reach the boss's house about six miles distant, as the crow flies—so even if he's not here, he can keep tabs on whether the projectionists got things started on time. It's been on the air since last season. In fact, the boss ordered that we keep the CCA unit on day and night. He had me leave a mic open and the CCA transmitting all winter, so he could check for possible intruders trying to rob the stuff we store here in the off season. You're the first regular person to ever notice our FM signal. That proves nobody around this county is into FM."

Incidentally, FCC rules allow for unlicensed FM transmitters of less than 50 mW, sufficient to cover a circle of 200 to 300 feet. Three or four decades ago, however, the Commission didn't often bother rural FM pirates that generated no public complaints.

The remainder of the tour focused on a circa-1960 GATES *Studioette* five-channel control board that mixed the projector's audio from the following items wired into the mixer: a scuffed-up Lafayette microphone that looked like a refugee from some ancient public address system, one of those little kid's phonographs with a hinged lid, and a late 1950s Webcor reel-to-reel tape recorder. Several scholastic science fair trophies were proudly displayed on the only piece of furniture in the place that appeared to have been recently dusted. A big neon-lighted clock featuring a thick red sweep second hand accented the entire miniature radio station operation. Stick-on mailbox letters/numbers covered the timepiece's original advertising logo with the statement, *KDIR 108 FM Drive-In Radio*. An invitation to say something into the mic was happily accepted by our contributor. "Uh, hello. It's, uh, 10 minutes before the hour of five o'clock on a Saturday here at drive-in radio, uh, K-D-I-R at 108 on your dial...uh, FM dial."

Eavesdrop On An Authentic 40th Birthday Broadcast

If you've got access to the Internet, you can travel back to 2:00 on the afternoon of May 18, 1962. That's when a WGN Chicago engineer pushed the "play" button on an AMPEX reel-to-reel machine that rolled the tape containing the legendary Windy City station's 40th anniversary special. It's several hours of worthwhile listening for any true radio history buff. Tune in via http://wngold.com/features/40th_anniversary.htm.



Look closely and you can see dozens of speaker stands in this drive-in movie lot. While many drive-ins have long since removed such poles, some leave them (and related speakers) for tradition's sake. Even if not still present, though, the poles were once hooked to a network of audio wires that were typically left intact to serve as the antenna system for radio transmission of the movie soundtrack. Rectangular window frames on the snack bar/technical building serve as turrets for the film projection output.

"There," the nerd declared matter-of-factly, "Now you can add 'radio announcer' to your resume."

Who Started Drive-In Radio?

Well, not the drive-in that legend says was the *first* outdoor movie theater. For its 1933 debut, that Camden, New Jersey, establishment contracted nearby Radio

Corporation of America to develop a giant multi-speaker system hooked high upon the screen support. Imagine watching a motion picture in the comfort of your Model "A" Ford, 100-plus yards back from those booming RCA Victor Directional Sound loudspeakers!

Because light would reach your eyes faster than the distant—but incredibly loud—soundtrack, synchronization would

present some disconcerting audio-visual issues. Working out such bugs necessitated providing a small speaker (piped to the main sound amplifier by underground wires) and related nesting pole near each parking space on the lot. This mode was in full acceptance when the post-World War II baby boom and resultant drive-in explosion blew sky high—surging from 820 outdoor theaters in 1948 to a peak of 4,063 a decade later.

Though no one is completely certain of drive-in theater radio's absolute origin, more than a few outdoor movie history enthusiasts point north to Wolseley, Saskatchewan Canada, where, in 1954, Stan Zaba founded his Twilight Drive-In and, a year later, built a 5-watt AM operation to get rid of the 225 troublesome speakers. The website *Saskatchewan—Our Future Is Wide Open* says Zaba's establishment was "one of the first to use radio sound. His theatre patrons could tune to 1610 [AM] on their car radio and receive vastly superior sound through their car's radio speakers. In the winter months [Zaba spent time] building his radio transmitters and then selling them to drive-ins from Vancouver to Ontario."

Understandably, the drive-in industry's shift to FM sound transmission didn't pick up any appreciable steam until management was convinced that at least 25 to 50 percent of the patrons had FM car radios. "When teens started equipping their vehicles with those little \$19.95 under-dash FM converters," one theater operator recalls, "we started thinking about installing an FM transmitter. That was in about 1972–73, or sometime around there." That means that our story's drive-in was ahead of its time. In fact, most of the approximately 1,000 such establishments that existed in 1987 were running AM sound.

According to its website, that was the year Kitsap County, Washington's Rodeo Drive-in started experimenting with FM transmission. Three years later, the Rodeo scrapped its wired speakers and "went exclusively FM stereo sound." Emanating from the antenna of their FM rig, the Rodeo Drive-In broadcasts "an entertaining pre-show program, which is controlled by [its] theater automation and operates much like a small radio station. [Patrons are treated to] sound clips from concession film ads of the '50s and '60s, as well as music from that era, and themes from popular films and TV shows. A DJ provides an entertaining, family-oriented mix of music and movie trivia."



Illustrator-rendering of our story's hero meeting with the inventive drive-in radio nerd. "Check out how I rigged up these LPB-brand AM transmitters for super coverage of the entire theater parking area," the junior tech is bragging. (Drawn by E.H. Artis)



Midway Drive-In, State Route 48 in Minetto, New York. From the rear, timbers are used to support the giant screen. Some establishments place their FM transmit antenna atop the screen structure; others might affix an AM longwire to one of the logs. Like most of the very few remaining Mom & Pop local (often AM daytime-only) radio stations, most classic drive-ins are operated as a labor of love by true enthusiasts of the genre. Both are national treasures.

An early concern of drive-in movie patrons asked to use radio sound centered on car battery drain. Delaware's Milford Drive-In has long promoted "FM Radio Sound" on its marquee, and it handles the battery issue on a website's Frequently Asked Questions section:

"Will my car battery go dead if I watch the movie with my radio on?"

"Normally no—we have loaner jumper cables," the management notes, "If there's a problem [with your car not starting] at the end of the show." Like most of the other remaining 550 or so North American drive-ins, the Milford operation quietly mentions that it transmits in AM, too.

Dad Shouts, "Remember The Midway!"

My father's expertise in drive-in radio is largely the result of chance visit to the Midway Drive-In of Minetto, New York. Heading over secondary roads to take my mother to a big summer festival featuring Renaissance-era fare, he spotted the Midway's recently refurbished neon marquee and convinced her to let him "stop for a minute to see if he could get a few historical pictures." Mom shakes her head indicating the excursion exceeded 60 seconds, but smiled that dad ended up netting some useful info for my column.

What's especially interesting about this successful operation, run by a couple who, as teens, used to patronize the drive-in, is that its control room used 1970s-era broadcast studio gear. There, a Gates/Harris five-channel Stereo Statesman mixed an ITC tape cartridge recorder/player, cassette decks, reel-to-reel tape machine, and sent the resulting audio into an exciter from a now-vintage FM broadcast transmitter. Typically, exciters dating from the 1970s offer about 10 to 30 watts, depending upon brand.

My folks took the long way home so that dad could pass the Midway during a movie and try to listen to its audio. As they approached the theater property, father punched in the establishment's FM frequency. At first only a blank hiss was detect-

ed. Then, a few hundred feet before the entrance, the Midway's signal popped to life. It remained clear and strong until the car traveled a quarter-mile down the road past the drive-in's southern boundary, and then simply got fuzzy and quickly faded away—in full FCC compliance. There might have been one or two houses where residents might be able to see the movie from their front yard and catch the soundtrack on a portable radio.

"Neat! It'd be fun to live there!" our *Pop'Comm* topic contributor commented after seeing a rough draft of this column. He laughed that drive-in theaters like the Midway usually think him a bit loony, but he's starting to amass a collection of QSL verification cards and letters from drive-ins transmitting AM, FM, or preferably both. It's surely a unique niche in the radio hobby.

Till Next Time

Join us again next time for another foray into the always fascinating, and sometimes just a little kooky, world of classic radio.

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



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Return To Space Update: And Why It Doesn't Pay To Be Shy!

Last month I promised you some photos of *Discovery* returning from space. Usually on reentry it flies just south of Amarillo, but this time it didn't due to bad weather in Florida. So, as a result, it landed at Edwards, AFB in California instead.

In light of the landing at Edwards, I was looking forward to getting some shots of the orbiter as it flew piggy-back on top of the NASA 747, designated NASA 905. In the past, whenever it landed at Edwards, on return it would fly directly over Amarillo. I have seen it do just that on several occasions in the past, but never with camera in hand.

So on the day of the shuttle's piggy-back ride to the cape, I and some local Amarillo Interceptors waited near the Amarillo VOR (Very High Frequency Omni Directional Range ground-based electronic navigation aid), knowing it would probably over fly it. We had scanners and cameras in hand, hoping we'd get a shot of NASA 905 with *Discovery* on its back.

After several hours of chatting, scanning, watching, and waiting, we finally heard NASA 905 check in with the Albuquerque Center on 134.750 MHz, and they were directed to Amarillo. We readied our photographic gear, knowing that over-flight was only minutes away—but, alas, 30 minutes later we hadn't seen anything bigger than a butterfly pass over.

We were puzzled until we heard NASA 905 again asking where his escort fighter NASA 417 (I think) was. Center replied that it had landed at Cannon AFB (100 miles to the southwest) with a fuel emergency. NASA 905 then requested to orbit at the Texaco VORTAC (30 miles east of Cannon) until their escort could rejoin them. After the escort got back in the air, they flew on to Altus AFB, Oklahoma, to refuel and never flew over Amarillo.

Shucks! Although disappointed, we did have a great lunch at the airport diner, feeding our faces and trading lies. Even though we didn't get to see the shuttle fly over, a good time was had by all. In fact, we had such a good time at lunch we decided to do it again a few days later.

Needless to say we were surprised when (while we were again feeding our faces) a group of NASA pilots walked out of the flight service station sporting snappy-looking blue flight suits, complete with NASA shuttle mission patches. As they walked over to the diner, we couldn't help but notice that they did indeed all have that "Right Stuff" swagger, an almost slow motion strut, just like in the movie.

As they entered, the place grew quiet as if movie stars or a high-ranking political official had just walked in. They sat, ordered food, and chatted, just like us groundlings. My buddies (knowing I'm never one to be shy) double-dog-dared me to go over and talk to them. Even though I didn't want to seem like a NASA groupie or interrupt their lunch, I was *double-dog-dared* so I really had no choice.

As I walked over I noticed they were wearing various NASA patches, including one showing the space shuttle riding on the back of NASA 905. "Cool!" I thought. Just the guys I want-



The Super Guppy is one strange looking aircraft!

ed to talk to. I politely introduced myself and shook hands with them. I told them I was a writer specializing in aviation and wrote for *Popular Communications* magazine and occasionally contributed and shot photos for *Aviation Week* magazine. This seemed to break the ice with them and they asked me to sit with them.

Then I Showed Them My ICOM R3

Over the next few minutes, I chatted with them about the recent shuttle launch and our lack of success in getting shots of the shuttle. They confirmed that they were the flight crew of NASA 905 and had just returned from delivering the shuttle to Kennedy. They seemed surprised that we could monitor their in-flight communications. I showed them my handy-dandy ICOM R-3 and, although these guys work with cutting edge technology every day of their lives, they seemed impressed.

I asked them what they were doing in Amarillo, and they said they had flown in on the *Super Guppy* and were picking up an MV-22 for transport.

"What?" I asked excitedly. "The *Supper Guppy* is here?"

"How could you miss it?" The pilot asked and pointed out the window. I turned and to my great surprise there it was, as big as—no BIGGER than—life...just sitting on the tarmac not 200 yards from where we sat.

Now if you don't know what the *Super Guppy* is, then you should point your browser to <http://jsc-aircraft-ops.jsc.nasa.gov/guppy/>.

Ever since I had heard about the *Super Guppy*, it's been one aircraft I hoped to someday photograph, because it is the biggest, ugliest, yet coolest, transport aircraft flying.

Looking much like a 1950s airliner that had a hose shoved up its backside and pumped way beyond its capacity with air, the *Super Guppy* is one strange-looking airplane that I hadn't been able to capture on film, even though I had monitored it flying into Amarillo on several occasions.

"When are you taking off?" I asked excitedly.

"In about an hour," the pilot replied.

"Great!" I said (maybe a bit too enthused) and added, "I can't wait to get some photos of you taking off."

As a gesture of goodwill, I handed him my business card and asked him to e-mail me and I would send some photos.

"That would be great!" he replied and then he did something that made my friends green with envy. He reached down into the zippered compartment on his leg, opened it up, and pulled out three flight patches. "Sorry, I'm out of *Guppy* patches," he said. "Will these do?"

He handed me the patches, one bearing the classic NASA logo, another a large American flag patch, and the third the same shuttle carrier patch that was on his left shoulder.

Suddenly I felt like the stupid little star-struck kid who had once shaken John Glenn's hand during a welcome home parade I had attended in Columbus, Ohio, just after Glenn's first successful orbital flight. I'm weird, I guess. For some people, movie stars take their breath away. Some idolize sports figures. But I gotta tell you, my heroes have always been pilots. Having this NASA pilot hand me these patches (without my even asking) was as cool as all get-out. My icons have always been those (to quote Tom Wolfe) who "put their hide on the line everyday, going up into the thin air in a hurtling piece of machinery, and pushing that envelope." You can keep your George Clooneys and Michael Jordans. And, although I'm not nor ever will be a pilot, I can't help but envy anyone who can fly.

I thanked the pilots and assured them they'd get some pictures in return. I walked back over (my buddies said I sauntered) to our table and gloated over the patches I had obtained while selfishly not offering them any. *Served them right*, I thought to myself.

"No Guts, no glory, and no patches for you!" I teased them. For some strange reason they snubbed me and stuck me with leaving the tip.

An hour later we sat at the end of runway 22 watching the *Super Guppy* slowly taking off into the air. We snapped a few photos and waved goodbye. We were surprised to get a wing wag in return, and to some of my group, that acknowledgement was better than patches!

Still, those patches will look good in a frame on my office wall!

Your Letters: What You're Hearing, And Your Equipment!

It's always great to get feedback from our readers. Keep those cards, photos, letters, and especially loggings coming in! Use the e-mail address listed above or send them to me via the magazine's address at 25 Newbridge Road, Hicksville, NY 11801. Let's dig right in the mailbag and see what Roland Schwyn of Ohio has to say:

Hi Steve! You asked for reader input regarding shortwave monitoring posts and antenna installations. I use a RadioShack/Realistic DX-440 (Sangean ATS-803A) as my main receiver. It does not have a tape recorder output jack (you have to provide your own AC adaptor). It receives 150-30000 kHz and 87.5-108 MHz FM stereo with headphones or stereo speakers. I get excellent SSB/CW and many other excellent features on this budget radio. The RCA antenna jack works very well.

I have three SW antennas to pick from: the radio's built-in antenna, a RadioShack 60-foot shortwave, and an Alpha Delta DX-SWL Sloper, which requires a 50-ohm quality coax. The Sloper is a hot antenna, giving me excellent reception on even my small portable sized radio.



Roland Schwyn holding his favorite receiver, a Radio Shack DX-440, and standing next to one of his shortwave antennas.

My other two shortwave radios are a RadioShack multi-band and a Sony ICF-SW10 that features FM stereo/SW1-9/MW/LW in a 12-band receiver. This radio rates "three" in *Passport To World Band Radio* and, reception-wise, it is on par with my DX-440.

As a backup antenna I use a Sony AN-1 Active Antenna, which covers the .15- to 30-MHz frequencies and connects to the receiver via an alligator clip or mini-plug.

Years ago (1995-1999) I would have what I call a "Radio 4th of July." For four years I would connect my radios to the antenna system and have a real radio blast!

I enjoy your excellent articles and hope this brief overview of my set-up will be of use to you.

Roland, thanks for your nice letter. Just goes to show that it doesn't matter how fancy or equipment-packed your shack is, what's important is that you are enjoying using it! Sorry we didn't have space to print all of your photos, especially those of your antenna farm. Send us some loggings next time!

Dispatch From Curt

Curt Phillips writes with some interesting questions:

I enjoy your writing in *Popular Communications*, and I've had your military monitoring book since several years before you started with *Pop'Comm* (any plans to update that book?).

Amid your interesting coverage in *Pop'Comm* of "Old School and New School" receivers, I found an even more interesting tidbit. In the April issue, you said, "I treat 8.982 MHz and 11.175 MHz as if they were 'guard' channels..." This was very interesting and informative for me, and I'm sure for others as well.

I'd be interested in how you "deploy" your receivers, both HF and scanners. During a period of "general listening," what frequencies do

you check first, second, etc.? If you hear of some "special action" (like the mobilization of more units to Iraq, the return of units from Iraq, etc.), what is your monitoring strategy?

Obviously, listening to UHF/VHF frequencies depends mainly on the action being geographically close, a discussion of your general monitoring and searching philosophies would be of interest to me, and I'm sure for many of your readers.

We all have our own "ways," some based upon more experience and success than others, but even "old hands" can get good ideas from others. I'd be interested in you pursuing it further in print if you're willing. Just an idea I thought you might like to hear. Keep up the good work.

Curt, thanks for the note. And to answer your first question, no, there are no plans for another book at this time.

What's my monitoring strategy? First of all I keep my radios on 24-7. I also record everything. My two single-channel shortwave radios are set to 11.175 MHz and 8.893 MHz, with my WinRadio scanning (with squelch open) all my favorite HF MILCOM frequencies. My WinRadio will not stop on a busy frequency like the scanners will, but as it scans I can hear the audio briefly (for a second) on each frequency, just long

enough to hear if it is a busy channel. If I do hear something, I'll put it in manual mode and go back to the busy channel and monitor. I do most of my writing late at night and consequently that's when I do most of my HF monitoring. I also keep the volume low or use headphones so as not to disturb the sleeping household.

I have one scanner dedicated to just MILAIR, one to civil air frequencies, with a third and fourth scanning local public safety channels. Using several Capri ScanRecord modules the audio is fed into three cassette recorders that constantly record every transmission. Why? Because I string for several local news media organizations as well as a national news agency, and accuracy in my reporting is very important.

As for searching out and finding new active frequencies in my area, usually once a month I set my scanners on search to scan the bands (especially military) in hopes of finding new active frequencies. I keep a pad of paper and pen on my desk and jot down frequencies that I happen to hear pilots talking about or switching to. I also use my Motorola spectrum analyzer to visually search a 10-MHz slice of any band (from HF to UHF) for previously unknown and active channels. Not much can hide from it.

Meticulous recording and documentation (bordering on obsession) keeps my monitoring skills honed and frequency lists up to date, that and subscribing to as many radio-e-list groups, such as MILCOM and MILAIR, helps a lot.

Next month, lots more loggings are coming your way! And don't forget, I'd like to hear from you; tell us about your monitoring "shack" and send along some photos, too.

Reader Logs

0000: (Frequency MHz): STATION, Anytown, USA, summary of traffic heard in MODE at 0000 Z. (monitor/ sometimes location)

3047.0: TANGO FOXTROT, FOXTROT, HOTEL, DELTA, and OSCAR in Link coordination net at 0109. (MC)

3167.4: B3U, Y1A, and 2BU in Link coordination net in JAX OPAREA at 0839. (MC)

3230.0: UNID with "992349??T?????" repeated about once per minute in CW. The number increased with each xmission (992350, 992351, etc.). Right on top of a broadcast stn. 1952 Z. (CG)

3349.0: NNN0KMJ Net Control taking check-ins in Navy/USMC MARS Net at 0005. (MC)

4041.0: NNN0KNJ (USN/USMC MARS) w/unheard stations at 0204. (MC)

4739.0: RED TALON 71C (P-3C) wkg FIDDLE at 0028. (MC)

5091.0: UNID YL/EE with 5-letter grps in USB at 1905Z. (CG)

5264.0: KSC wkg KING 1 (HC-130) during Space Shuttle launch. TRAVELER reports they are down on SHF at 1407. (MC)

5711.0: LIBERTY STAR passes position of Space Shuttle booster splashdown to BRD at 1448. (MC)

5711.0: KING 16 (HC-130) clg ANGEL OPS at Moody AFB at 0006. (MC)

5732.0: CAMSLANT diverts JULIET 40 to ELT with correlating Mayday at 0058. (MC)

6887.0: UNID YL/GG with 5-fig grps, each twice. USB at 1840 Z. (CG)

6694.0: CANFORCE 4454 wkg HALIFAX MILITARY at Prestwick, Brize Norton, and Newcastle at 0014. (MC)

6715.0: S4JG radio check with HALIFAX MILITARY at 1117. (MC)

6959.0: "Lincolnshire Poacher" numbers station with call up of "23240." YL/EE. Parallel on 9251 and 1545.1906 Z. (CG)

7399.0: SCLC514 (Subordinate Local Communications Center, 514th Jungle Inf Bn, Venezuelan Army): 0051 USB/ALE TO CLC51 (Local Communications Center, 51st Jungle Inf Bde). Also noted on 12191.0. (RP)

7399.0: SCLC512 (Subordinate Local Communications Center, 512th Jungle Inf Bn, Venezuelan Army): 0042 USB/ALE TO CLC51 (Local Communications Center, 51st Jungle Inf Bde). (RP)

7849.0: CLC25M (Local Communications Center-Mobile, 25th Pursuit Bde, Venezuelan Army): 0030 USB/ALE TO CRC2M (Regional Communications Center-Mobile, 2nd Military region). Also noted on 10600.0. (RP)

7849.0: DESTAFAC23 (Detachment 23, Venezuelan National Guard): 0010 USB/ALE TO CGGN (HQs, Venezuelan National Guard). (RP)

7900.0: V52 (Peruvian Navy Missile Frigate "Manuel Villavicencio"): 1032 USB/ALE TO CET (unidentified). (RP)

8056.0: CLS (probably Sabre AAF, Ft Campbell KY): 2021 USB/ALE sounding. (RP)

8060.0: CRC2M (Regional Communications Center-Mobile, 2nd Military Region): 0049 USB/ALE TO CLC24M (Local Communications Center-Mobile, 24th Pursuit Bde). (RP)

8060.0: RESERVA5 (Venezuelan Army 5th Armored Bn- Reserves): 0156 USB/ALE TO CLC24M (Local Communications Center-Mobile, 24th Pursuit Bde). (RP)

8142.0: UNID with 5-fig grps, ended with "28 28 18 18000." CW at 1915Z. (CG)

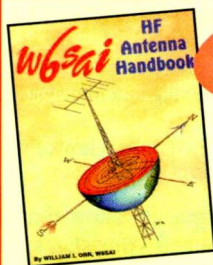
8171.5: T2Z238 (2/238th Avn, IN NG, Shelbyville IN): 2218 USB/ALE sounding. Also sounding on 07650.0. (RP)

8500.0: T63 (Venezuelan LSM "Goijaira" T-63): 0113 USB/ALE TO 61B (Venezuelan LST "Capana" T-61). (RP)

8700.0: SCLC212 (Subordinate Local

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Communications Center, 212th Motorized Inf Bn, Venezuelan Army): 0353 USB/ALE TO PCRC2 (Regional Communications Command Post, 2nd Military Region). (RP)

8971.0: CARDFILE 71C wkg FIDDLE to report they are KB for radar & computer at 2041. (MC)

9130.0: UNID YL/EE in USB repeating "EZI2" at 1930Z. Then at 2000 Z, "EZI," then "message message," then "group 51" then into 5-ltr grps. (CG)

9025.0: CG 1504 (HC-130) ALE initiated call to Miami Ops regarding ELT SAR case at 0200. (MC)

9052.0: DESTAFAC23 (Detachment 23, Venezuelan National Guard): 0054 USB/ALE TO CUFAN3 (unidentified sub-element of Unified Command of National Armed Forces CUFAN). Also noted on 07516.0 & 08181.0. (RP)

9295.0: CPSNY (National Guard, Coopers-town NY): 2215 USB/ALE sounding. (RP)

10242.0: 18C position report to PANTHER at 1819. (MC)

10493.0: WGY908 (FEMA, Denver, CO) wkg unheard station at 1235. (MC)

10600.0: CRC2M (Regional Communications Center-Mobile, 2nd Military Region, Venezuelan Army): 0030 USB/ALE TO CLC24M (Local Communications Center-Mobile, 24th Pursuit Bde). (RP)

10600.0: CRC2M (Regional Communications Center-Mobile, 2nd Military Region, Venezuelan Army): 0021 USB/ALE TO CLC25M (Local Communications Center-Mobile, 25th Pursuit Bde). (RP)

10600.0: RESERVA5 (Venezuelan Army 5th Armored Bn- Reserves): 2354 USB/ALE TO CLC24M (Local Communications Center-Mobile, 24th Pursuit Bde). (RP)

10600.0: CUF (Unified Command of Venezuelan National Armed Forces): 2302 USB/ALE TO CLC32M (Local Communications Center-Mobile, 32nd Inf Bde, Venezuelan Army). (RP)

11010.0: ERMSAL (Brazilian Navy Radio Station, Salvador): 2353 USB/ALE TO FUNIAO (Brazilian Navy Frigate "UNIÃO" F-45). Also noted on 12437.0. (RP)

11232.0: ATLAS 10 check in with TRENTON MILITARY for traffic from RCC at 2009. (MC)

11175.0: REACH 199 (over Turkey) calling MainSail with no joy in USB at 2045Z. (CG)

11175.0: TEAL 04 (WC-130J Hurricane Hunter) p/p via Offutt HF-GCS to Patrick AFB Ops at 2256. (MC)

13101.0: ERMNAT (Brazilian Navy Radio Station, Natal): 2317 USB/ALE TO CVJACE (Brazilian Navy Corvette "Jaceguai" V31)—[AMD]NODAT. (RP)

13101.0: NEBRSL (Brazilian Navy Training Frigate "BRASIL" U-27): 2115 USB/ALE TO ERMBEL (Brazilian Navy Radio Station, Belem). Also noted on 11010.0; 12437.0; 15932.0 & 19709.0. (RP)

13500.0: PR1 (Venezuelan Navy Radio Station #1): 2012 USB/ALE TO DHN (Venezuelan Navy Hydrographic & Navigation Directorate). (RP)

13500.0: BNA)Venezuelan Navy Base "Amario": 1605 USB/ALE TO CGA (HQs, Venezuelan Navy). (RP)

14372.0: UNID with fig grps, ended with "000 000." CW at 1908 Z. (CG)

14582.0: BR1 (Brazilian Army HQs, Brasilia): 2351 USB/ALE TO MS1 (Brazilian Army, Manaus). (RP)

15932.0: NEBRSL (Brazilian Navy training Frigate "Brasil," U-27): 1414 USB/ALE

TO ERMBEL (Brazilian Navy Radio Station, Belem). Also noted on 13101.0 & 19709.0. (RP)

19200.0: 61B (Venezuelan LST "Capana" T-61): 1956 USB/ALE TO CGA (HQs, Venezuelan Navy). (RP)

This month's star contributors are Mark Cleary (MC), Ron Perron (RP), and Chris Gay (CG). Thanks to all. ■

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Norm's New Car, Or "Drop The Gun, Friend!"

Yes, Norm has surfaced once again, like an errant submarine. Last time I saw him he had taken up several of the more esoteric healing arts, but has never let go of his love for ham radio and, to be more specific, *tube-fired and surplus* ham radio.

When I think of how some of the practitioners of the lesser known healing arts of yesterday and today have been known to rely on electrical energy, magnetism, and even RF energy (along with scarier Tesla coils and Van de Graff generators), I have to admit I worry that Norm might someday notice a connection between the two "arts" and try something even riskier (if that's possible) than some of the escapades he's involved me in during the past years of our friendship.

But this time, Norm's emergence has shown the most NORMal (if I can use that word) course of action I've ever seen him involved in, particularly when you consider his history with motor vehicles.

For those of you who might not have read of Norm from the very beginning of his vehicular escapades, there was the "Pulpy Station Wagon," which his dear departed wonder-dog, Chump, slipped into gear and drove across a small country road and into a shallow lake with Norm following close behind, his necktie caught in the hood latch.

There was the "pretty classy little sports car" whose power-steering-idler-pulley had broken, causing Norm to strain to turn the thing for over a year rather than spend the \$60 to replace the pulley (he really developed an impressive set of biceps during that time, though).

Then, of course, there were the buses. Few people have one; Norm had two. I had the pleasure of working on one and getting the engine to run, he had the pleasure of driving the other the full length of Interstate 95. Both are presently dormant; one hibernating, one deceased.

I know there are others: the lovely and spirited Ford Tempo, the rare and rusted P1800, and likely a Henry J that I wasn't aware of. But all that has changed now, because Norm has bought (tympani, please) a new car!

Yes, I've seen it with my own eyes. It is a truly wonderful and NORMal (there I go again) small SUV, with enough room, power, and economy for anyone. He did not buy one of those "radio-unfriendly" models with a plastic roof (and no ground plane for an antenna); however, I am a little worried that his first stop will be at a salvage facility (yes, *Bill means a junkyard—ed.*) to find a heavy-duty alternator—something from a former police cruiser—to power all the radios he plans to install in it.

Come to think of it, that worries me, too, because in addition to there being very little room under the hood for additional hardware, there is very little room under the dash for any additional radios. Once you have two people sitting in the front bucket seats of one of those things, there's virtually no room for anything else under the dash, or down in the vicinity of your knees,

"His drill has a frayed cord with bare copper showing, and his chuck key has been missing since 1953."

legs, or feet. It would seem to me that Norm is going to have to choose between having a radio or a front-seat passenger.

I already know that he's thought of this, and I already know him well enough to know that he's already tried removing the front seat from its mounting rails and tried to slide it onto those same rails FACING BACKWARDS. I know this just as some of you know your own phone number and zip code. And after that fails to work because of the seat position adjustment levers, he'll remove the rails from where they're bolted to the floor and reverse them, so that his trick will actually work.

Only then will he realize that the seat belt is not designed to work in that manner, and, being the safety-oriented (and law-abiding) person that he is, he will then attempt to reverse and re-mount the seatbelt to provide passenger protection and NHTSA compliance. This will likely be the *first* time he drills holes through the lovely velour ceiling panel and pristine, leak-proof (up until now) steel roof.

I say first time, because, of course, where there are radios, there will be antennas. And never just one antenna. Oh noooooo. Never just one. As sure as I type these words, the classic 102-inch CB whip is being mounted on the rear left fender right now, if it hasn't already been. And as surely as I DO own the right center punch drill and drill bits, Norm does NOT! His center punch has *always* been a nail, and more often than not, a bent and rusty one. His drill has a frayed cord with bare copper showing, and his chuck key has been missing since 1953. His bit, if he still has one, is either way too small or way too large, and pretty beat up from being used as a reamer. And dull. Did I mention dull?

Norm and I joked about a person we once read about who used a .45 (that's a gun, not a drill) to make a hole for RG-8 cable through a few 2x4s in his home. Please, don't try it. It's not even funny. It's so dangerous that it scares even ME, and I've been involved with so many of Norm's escapades that I no longer scare easily. Now that this is on my mind, I will pray nightly that Norm does NOT use his cherished Enfield rifle to make the mounting holes for any of his antennas, particularly those near the gas tank.

Now that Norm has spent so much on his first new car, maybe I should be the kind of friend that he has always been to me and send him a drill—with bits, and a center punch, and a good-sized extension cord—before it's too late. I'd better hurry. I can be at an all-night Wally World in 20 minutes, and FedEx can have it there by morning. Maybe there's still time. It's the least I can do. ■

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- Average or peak value readings
- Frequency coverage: 25MHz ~ 3GHz (no gaps)
- Ultra-stable, high-sensitivity triple-conversion receiver
- AM/NFM/WFM/SFM receive modes
- 1000 memory settings (100ch x 10 memory banks)
- Easy menu-driven operation
- PC control through serial port (or optional USB interface)

SR2000

Standard Accessories:
AC adapter, control cables



Authority on Radio Communications

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Specifications are subject to change without notice or obligation. Product intended for use by government or authorized users in the USA, documentation required.

Tune in the world with Icom



IC-R75 *Tune in the world!* • 30 kHz - 60.0 MHz • AM, FM, S-AM, USB, LSB, CW, RTTY • 101 Alphanumeric Memory Channels • Twin Passband Tuning (PBT) • Synchronous AM Detection (S-AM) • DSP with Noise Reduction Auto Notch Filter • Triple Conversion • Up to Two Optional Filters • Front Mounted Speaker • Large Display • Well Spaced Keys and Dials • PC Remote Control with Optional Icom RSR75 Software for Windows® • And Many Other Features



Handheld Receivers

IC-R3 • 500 kHz – 2.45 GHz* • AM, FM, WFM, AM-TV, FM-TV • 450 Alphanumeric Memories • CTCSS with Tone Scan • 4 Level Attenuator • Antenna with BNC Connector • 2" Color TFT Display with Video and Audio Output Jacks • Lithium Ion Power

IC-R5 • 150 kHz – 1.3 GHz* • AM, FM, WFM • 1250 Alphanumeric Memories • CTCSS & DTCSS Decode • Weather Alert • Dynamic Memory Scan • Icom's Hot 100 Preprogrammed TV & Shortwave Channels • Weather Resistant • AA Ni-Cds & Charger

IC-R20 • 150 kHz – 3.3 GHz* • AM, FM, WFM, USB, LSB, CW • 1250 Alphanumeric Memories • CTCSS & DTCSS Decode • Dual Watch • Audio Recorder • Weather Alert • Dynamic Memory Scan • Icom's Hot 100 Preprogrammed TV & Shortwave Channels • Lithium Ion Power

All Icom receivers are PC programmable. See your dealer for details.



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