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Curitiba, Brazil bicycle police officer

see Closing Comments

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FEATURE STORY

Radar Detectors vs Police Radar The Facts & Myths



By Jon Van Allen KF7YN

Ask twenty different people what the best radar detector (RD) is and you may get twenty different answers. There are so many opinions, variables and myths that selecting the best protection for your situation may seem confusing. I have used radar and laser detectors for years and along the way I've learned what works and what doesn't. I have read countless articles, reviews and blogs, watched dozens of videos and talked to many people in my quest to become educated on the subject.

The most common question is probably "are radar detectors legal?" RDs are legal in every state except Virginia, and Washington DC and most commercial trucks nationwide. RDs are also illegal in Canada except for British Columbia, Alberta and Saskatchewan. A recent effort to overturn Virginia's draconian RD law failed.

There is a common myth that radar detectors are nothing more than "ticket notifiers" that only alert you after you have already been targeted and clocked. While this may be more true for Laser, this is simply not true for Radar. RDs have come a long way lately. Digital Signal Processing (DSP) techniques and advances in microwave circuitry have made radar detection routine from ranges far beyond what was previously possible. A good RD a "must have" for the serious driver or anyone who wants a little added protection.

There are several modes of traffic radar; Constant-on (C/O) Instant-on (I/O), Pop mode, photo radar, roadside speed signs and radar trailers, roving photo radar vehicles, etc. Pop, I/O and low power photo radar are the hardest to detect and react to but the fact is there are useful countermeasures to these devices which we will discuss. Keeping points off your license and avoiding excessive fines are reason enough for many to start using an RD. We all know some localities have created cash cows by issuing as many speed and red light violations as possible. Tennessee was recently caught shortening the yellow caution light time by a fraction of a second to increase red light photo ticket revenues. Thousands of $ in fines were ordered to be refunded, letters of rescinded citations sent to insurance companies and drivers license points removed. This is just another reason you should be protected and that starts with knowledge!

Never assume any device will protect you from excessive speed or blatantly unsafe or aggressive driving, nor should it. Drive safely! Exceeding the posted speed limit (PSL) does not automatically indicate unsafe driving, especially when traffic is light and road conditions allow. Always use common sense when exceeding the PSL. Having an RD can be a reminder to check your speed from time to time. Murphy's



Law says a cop will catch you when you simply pass a slower car and exceed the PSL for just a few seconds. We've all done it but getting some warning in advance is required. Like a lot of folks, I like knowing when I'm being targeted and what is targeting me.

Obviously, some detectors are better than others, There are many makes and models, ranging from $50 to $1500 and even higher. It goes without saying you get what you pay for but you don't have to shell out a fortune to get yourself some decent protection. My best advice on selecting a detector is to log onto www.youtube.com and do a search for various makes and models and





compare. For example, if you want to know how the Escort Redline does against a Beltronics STi-R or a Valentine One, there are hundreds of videos showing real world performance under varying conditions.

Some "experts" will tell you to avoid anything under $150 but I have found some $100-150 models do work well enough if you routinely drive 5-10 MPH over the PSL. Most cops will not issue a citation for 5 MPH over but there are no guarantees. Smart drivers will invest in some protection. Being aware of the LEO (Law Enforcement Officer) out trolling for an easy target can save you a lot of grief, and money.

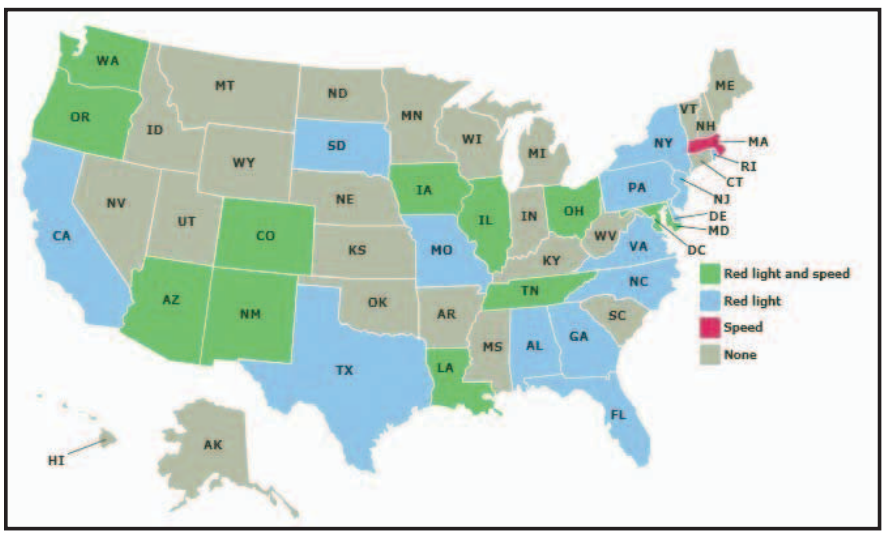
Let's review the various radar bands in use in North America. X-band is the oldest band and has been around for many years. Only parts of Ohio and New Jersey still use X on a large scale. Some counties and cities in other states are still using X, mostly those with limited budgets.

The other bands are K-band and Ka-band. Ka is the latest and greatest but K-band is still widely used. It is common to see a combination of K and Ka in use by state, county, city and local communities. More and more are switching to Ka. Having said that, unless X-band is still used in your area, you should disable X in your detector to avoid false alerts. Ku band is a European band and although some US detector models include it, you won't ever see it used in North America.

The latest mode in wide use is LIDAR (Light Detection And Range) this is commonly known as Laser. Laser detection is legal in all states except Virginia and Wash D.C. It is interesting to note laser devices are not regulated by the FCC but rather by the FDA. As such, laser jammers are not illegal in all states, but RADAR jammers are illegal everywhere. Don't let anyone tell you otherwise. Laser jammers are illegal in California, Colorado, Illinois, Minnesota, Oklahoma, South Carolina, Tennessee, Utah and Virginia. In two more locations - Nebraska and Washington, D.C.- experts say the legality of laser jammers is subject to debate.

There are several different laser jammers on the market but they are expensive ranging from $475 to $1600. According to Guys of Lidar, the best of the best is Laser Interceptor, followed by Blinder M47 which has four transceivers made for SUVs and pickup trucks. The M27 has two transceivers and is made for cars, Escort ZR4 plugs directly into some Escort RDs. There are others but I have no personal experience with laser jammers because they are illegal in my state. I do run Laser Veil, a legal passive system which has been proven to reduce the range which the laser can measure the speed of a car. I'll include the link to Veil at the end of the article so you can investigate this for yourself.

Stealth: Since Virginia, Wash D.C. and much of Canada ban RDs, you may wonder how they catch people who do use them. They use a Radar Detector Detector (RDD)



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FEATURE STORY

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continued



which detects the circuitry in most radar detectors that emit a unique RF (radio frequency) signal. This "leaky RF" method of detection can be defeated by using stealth techniques. Recently, Escort and Bel introduced windshield mount and remote mount detectors that cannot be detected by any RDD, old or new. These RDs have shielded circuitry that does not allow any RF to escape.

To avoid being seen, some motorists use a remote mounted RD, the sensors are located in the grill or in an air opening or even on a luggage rack and a small display is mounted where the driver can see the display and access controls. This is visual stealth but some remote detectors can be detected by a RDD.

Virginia, D.C. and Canada use these RDDs to sniff out cars running detectors. If you have a GX-65 or Sti or Sti-R, Escort Redline, 9500ix or 9500ci, you have no worries, these cannot be detected by any RDD. There is a youtube.com video made by one of the Guys of Lidar (www.guysoflidar.com) in a car with several RDs nosed up to a Virginia State Trooper's car that had the latest model Spectre RDD mounted on the windshield. The undetectable RDs were not detected at all but the detectable units set the RDD off with a loud alert. Proof positive these units work as advertised!

There are ingenious ways to hide or disguise your detector including remote mount RDs, sun visor pouches and clips, direct-wire coRDs that go from the detector directly to the fuse box and can be tucked behind the trim so that thereís no cord dangling in your windshield. Some RDs have a remote display option so you can disable the flashing alert and see it in a smaller display mounted down away from prying eyes. Valentine One has this option as do any of the RDs with a 'smart cord' option.


RD850

Unfortunately, some LEOs use trickery and deception to catch speeders. Here is a scenario that actually happened: Imagine you are coming up on a speed sign that displays your speed as you approach. Nearly all these signs use K-band, your RD lights up with a K alert. A little further down on the opposite side is a cop running an unmarked Ka-band photo radar vehicle, in this case a white Jeep. As you pass the speed sign, your RD suddenly alerts Ka but you don't see where it's coming from. A second or two later you notice the sneaky LEO in the Jeep as the camera flashes. Once you become wise to this type of speed trap, you will learn how to avoid being a victim. Take all alerts seriously unless you know it to be a false which are common near banks and shopping centers.

Another thing to understand is how Instant-on radar can work to your favor if you pay attention. I/O is not always on, the LEO turns it on at his or her discretion to measure your speed. I/O can be detected well over a mile but you need to understand the difference between a real I/O and a false. I/O will quickly alert then may disappear so learn to recognize this and verify as you drive by the cop running it. If there is traffic in front of you and you get an alert, slow down immediately because you will be next before you know it.

One mode that resembles I/O is Pop mode. Pop is a very brief radar transmission on the order of 67 milliseconds making it difficult to detect but high end RDs can detect it. Pop mode radar manufacturers specifically state that Pop mode by itself should not be used as the sole method to issue a citation. This is because it was designed to get a quick reading to gauge traffic speed then switch to I/O or C/O to clock vehicles. Although Pop is not supposed to be used to issue citations, some officers have been known to do so.

Now having said all that, Pop is in rapid decline in favor of I/O and LIDAR. If you are getting a lot of false alerts, turn off Pop in your menu.

Continued on page 8

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R75



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PCR2500
R2500



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FEATURE STORY

Radar Detectors vs Police Radar The Facts & Myths



continued

RD design engineers had to design very fast reacting components to detect Pop and as a result, they tend to falsely alert to quick blips in the pass band of the receiver.

More on how modern police radar works: Gone are the days that a radar unit can track only one vehicle at a time. Modern police radar can track up to 4 vehicles simultaneously. I have seen several demonstrations how a LEO can track the speed of 3 vehicles plus the speed of the cruiser itself. Units with front and rear antennae can monitor traffic moving in opposite directions, down to a particular lane. It used to be you could duck in behind a semi and maybe avoid being targeted because the radar locked onto the largest vehicle (strongest signal). This is no longer true so it pays to be aware of advances in radar technology.

Placement of the RD can affect performance. The widely accepted rule of thumb is to place the RD high for best radar detection and low for best laser detection. I use my Redline up high on my visor most of the time but when I'm in an area known for laser speed traps, I'll put it on the dash with a clear view of the road. The reason for this is fairly simple: A police laser gun emits a small beam of light that is only 6-8 feet in diameter at a distance of 1,500 feet. Since they target your license plate or a headlight, a RD placed too high up will not detect the laser or will detect it poorly. Some police laser guns have a taller beam than others. Stalker laser guns have a tall beam so they are easier to detect. I did have a long laser alert with my Redline in my 2009 Silverado 4X4. The cop was over 1500 feet away and using Stalker laser when my RD alerted. Not bad at all!

The toughest detection is around curves, over hills, horizontal and vertical off-axis (off to the left or right or above you on an overpass). We've all seen cops running radar speed traps in hard to detect places. It can be tough for an RD to pick up radar, sometimes not until you can actually see the LEO's car. Hills, curves, trees, signs and other vehicles can reduce the radar signal considerably. I watched a fascinating video of a Trooper hiding between two groves of trees in the median strip of a TN Interstate Highway. The Trooper's car was also perpendicular to traffic, making detection much harder. One popular RD did not alert to the radar until the LEO was in in view. Only a top of the line Escort alerted far enough ahead of time that a ticket could have been avoided. It was the superior off-axis performance of the Escort that really comes into play on this type of tricky detection scenario. The Valentine One also has excellent off-axis performance.

In my personal experience, my Escort Redline detected an I/O signal over a mile away but all I could see were trees and hills. The signal dropped and then a few moments later appeared much stronger as an unmarked Mustang crested the next hill and targeted me. Cops are getting tricky with the unmarked car and I/O radar but I was prepared!

Avoid installing your RD where everyone can see it especially if you are worried about theft. Always remove it if your car will be sitting in the sun. RDs can become damaged or temporarily inoperative from excessive heat (and cold). I have found that driving with a RD that is visible to other drivers attracts unwanted attention because they have a tendency to run behind me knowing I will be the bait for the trap. I prefer to not attract that kind of attention!

Red light cameras are devices which are designed to take a snapshot of a vehicle that illegally goes through an intersection after the light has turned red. Speed cameras are devices which take a snapshot of a vehicle that exceeds the posted speed limit. Some states do not allow these devices, see the map for details. There are effective countermeasures for red light cameras and speed cameras. We can effectively defeat their purpose as it pertains to points on our driver's license and efforts to take our money.

RD manufacturers have recently incorporated GPS into their detectors and have a nationwide GPS database of known speed and red light camera locations. Cobra, Escort, Beltronics (Bel) and Cheetah all have good GPS detectors. The Cheetah is not a radar detector as such, but rather a GPS database unit. Another nice feature of GPS is that you can lockout false alerts and



your RD will never false again at that location. Notice the 'no false alerts' sticker on the Escort 9500ix.

Some areas have Safety Warning Information broadcasts (also called Safety Alert System) in place to warn traffic of accidents, hazaRDs, construction, etc. The messages are transmitted on K-band to RDs capable of displaying text. These messages are compatible with NHSTA guidelines and usually the same messages that are transmitted to highway signs. Many RDs have the ability to display the text of these messages and can be very helpful if you encounter an unexpected delay. If this feature interests you, be sure it is enabled in your menu.

I will briefly review five different detectors here, none are too complicated for the average Joe. They are anywhere from 5 years old to current models. These are typical RDs with prices from $100 to $500. I will also make recommendations for other units I know to be good performers.

Real world testing. I recently took a road trip through Utah, Arizona, Nevada and California with each of these RDs. I will start with the oldest detector in my arsenal, my K40 RD850. K40 as a company has received some negative press from self-appointed "experts" in a popular radar detector forum. But those who have tested the RD850 against the competition agree it's radar performance is right up there with the big dogs in tough tests like hills and curves where off-axis detection is tricky enough to 'separate the men from the boys'. It is also very resistant to false alerts. I was told Bel actually makes the RD850 for K40.

I love my RD850, it is small, capable and reliable. My only complaints are no traditional menu, inadequate laser warning and X-band cannot be disabled. But because it is so resistant to false alerts in filter mode, this is not a major issue. The RD850 is overpriced at $299 in my opinion but those of us who know what we have agree it is a very capable RD. I have many saves with my old RD850! K40 also makes a remote mount model.

Next up are two Whistler models, the XTR-695 (original version) and the Pro-78SE. These are both in the $150 to $200 range along with the XTR-690 and are widely considered top detectors for the money. Competition to these models are the Escort 8500, Bel-955 and Cobra 9955. The 690, 695 and Pro-78 are based on the same basic design but differ mainly in their displays. All three models were updated with "SE" designator. The 695 has a backlit LCD display whereas the Pro-78 has a blue LED display and the 690 has a red LED display.

Whistler RDs have special features known as RSID and LSID. RSID is Radar Signature ID, LSID is Laser Signature ID. In both cases the Whistler displays the actual radar or Laser frequency. Each make and model of LIDAR gun modulates a laser beam at different frequencies. Whistler displays them to help you identify real laser from false sources. The same goes for radar, X, K and Ka bands operate on specific frequencies within their respective bands. LEOs in my area use 34.7 and 35.5 GHz Ka for example. I've found anything else to be false alerts.

Where the Whistlers really shine is Instant-on radar. Many have dubbed the Pro-78, 690 and 695 the King of I/O. You have to spend 3 times the money to get better I/O performance. These models also consistently receive top marks for their ability to pick up K and Ka signals well beyond the range needed to slow to a safe speed. I have received quite a few 1 to 2 mile Ka alerts on the highway. Be sure to check out the Pro-78 videos on youtube.com. These Whistlers are the best under $200 RDs along with the Beltronics 955. I found my Pro-78SE at Amazon.com for $150 plus shipping.

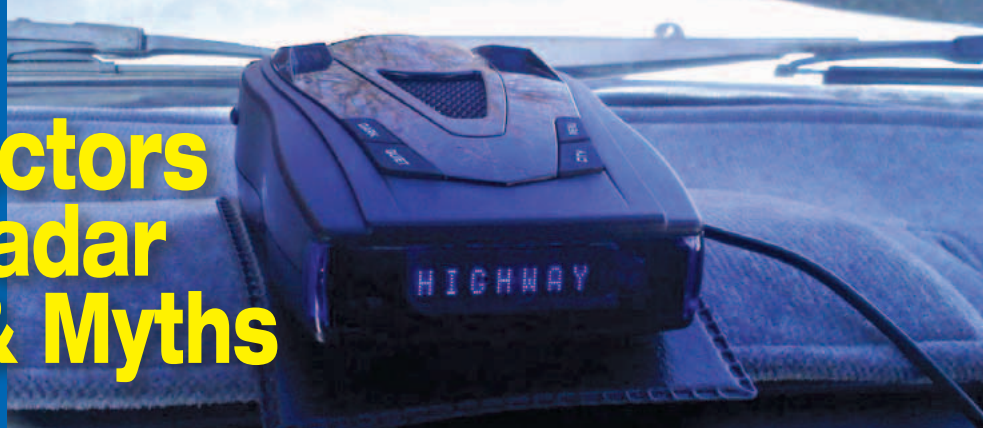
The XTR-695's performance is similar to the Pro-78SE. I find the LCD display washes out too easily in bright sunlight but is perfect at night. The newer 695SE has the ability to change display colors to match the color of your vehicle's instrument panel lights. This is beneficial if you drive at night and don't want to advertise that you are packing.

Next in my arsenal is the Cobra XRS-9740. This is a $120 RD. One cannot reasonably expect a RD in this price range to compete with a $400 or $500 RD. I read somewhere the 9740/9745 are the same basic receiver as the XRS 9950, 9955 and 9960G GPS which cost 2-3 times as

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much. In my tests, the 9740 did a decent job with K and Ka. It did not perform as well as my Redline but it costs $400 less! All things must be kept in perspective! On one occasion, the Cobra alerted me to a K-band police radar trap before my other RDs! The Cobra 9740 has pleasant female voice announcements and a bright text display. I am impressed by the low number of false alerts from my 9740 after I disabled X-Band and Pop mode in the menu. If you have a budget of around $100, I recommend the 9740. This model is also sold by our very own Hobby Radio Stop so be sure to log on and have a look..

The last detector in the lineup is my Escort Redline which carries a hefty price tag of $500. This RD is based on the superb 9500 series with the addition of super long-range detection and 100% immunity to RDDs. Many users have reported phenomenal detection range with their Redlines. I can confirm this, I have detected Ka at 2 miles in town in my hometown and over 3 miles on the freeway on more than one occasion. Of course range depends on many factors. The wide-open spaces of the western US will generally give you more range than in the Eastern and Southern US where there are more vehicles, heavy foliage which attenuates radar signals and higher humidity which also reduces detection range. Even still, I have seen videos proving detection of 2 miles or more in the Eastern US and over 3 miles in the Western US. I have several saves with my Redline. A pleasant female voice announces and the display is a red LED dot-matrix capable of text and basic graphics. The menu is easy to navigate. The Redline also has the capability of alerting more than one source of radar. It comes with an attractive hard case, something most other RDs charge extra for. If you can afford a Redline, you won't be disappointed.

Recommended GPS units: Escort 9500ix, Bel GX-65, Cobra 9960G. These work extremely well as RDs as well as red light and speed camera detectors.

GPS only units: Cheetah C50, Cheetah C100, Whistler RLC-100. There is a new GPS player on the scene, Coyote. I have no information about them yet.

Other recommendations: For years, the Valentine One (V-1) was widely regarded as King of the radar detector hill. Introduced in 1992, the V-1 has gone through many upgrades and updates but still looks the same as the original. Once you buy a V-1, you can have it updated to the latest version. This is what keeps V-1 fans coming back over and over. Most V-1 owners believe they are the best out there. It is hard to argue with success. Real world tests show a few other high-end detectors have caught up to and even surpassed the V-1 in some areas. The V-1 is not immune to RDD, for example. Either way, the V-1 is always a serious consideration because it has front and rear antennae and front/rear arrows showing which direction the radar threat is coming from. V-1 also has a "bogey counter" which displays how many radar threats are present. NThe V-1 is $399.99 + shipping direct from Valentine and is by far the best RD under $400. You should know the factory will not honor warranty if you buy your V-1 from an unauthorized seller such as eBay. The lowest price for a new V-1 is always direct from Valentine.

Total stealth RDs that cannot be detected by any RDD: Bel Sti, Sti-R, Bel GX-65, Escort 9500ix, 9500ci and Redline.

Near stealth (detectable only within about 75 feet) Whistler Pro-78SE, XTR-695SE, XTR-690SE.

Best over $500: Bel Sti-R, Escort 9500ci.

Best under $500: Escort Redline, Escort 9500ix, Bel Sti.

Best under $400: Valentine One

Best under $300: Bel 995, Escort 8500-X50.

Best under $200: Bel 955, Whistler Pro-78SE, XTR-695, XTR-690

Best under $100: The only detector in this price range I can recommend is the Whistler Pro-68. Expect basic performance.

There is also a RD made for motorcycles, the Adaptiv TPS, but you can use most car RDs on a motorcycle.

Not recommended: Any cordless RD. These are designed to operate from batteries and their performance is limited. Best to stick with a corded model.



If I had unlimited funds for a remote mount RD, I would spring for the Bel STi-R which is very close to the performance of the Escort Redline and the Valentine One. You Tube videos of the STi-R show it alerting equal to or sometimes before the Redline and V-1, depending on terrain and other factors. Price is around $800.

The Escort 9500ci is a remote mount RD that includes the Shifter ZR4 laser jammer. This will set you back around $1500. If you want a more reasonably priced remote RD, the Qi45 is priced at $499 and is very easy to install thanks to RJ45 connectors and CAT-5 cabling. Performance is equal to the 8500-X50.

One company, Cheetah, has two reasonably priced GPS red light and speed camera detector models, the C50 and C100. Cheetah also makes a rear view mirror with the camera detector built in along with a GPS display and even another model with a remote display for your radar detector. Cool huh? Also very expensive! Certainly well above my budget. The sky is the limit when it comes to high end anything, radar and laser detectors included.

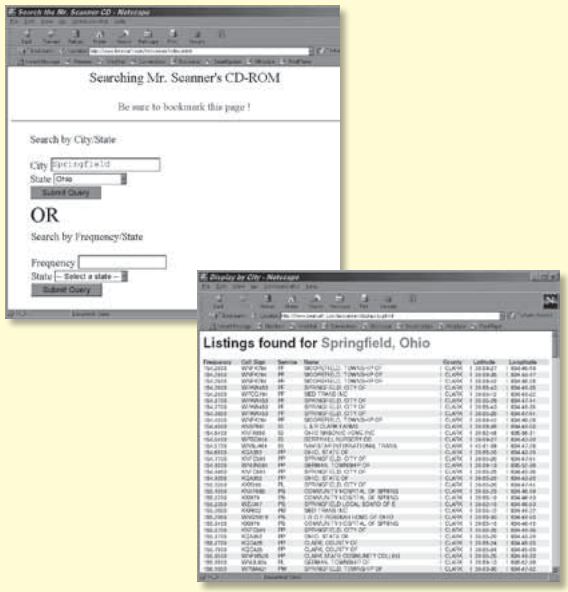
There is a new online resource called Trapster. This is a GPS database that you can download to Garmin, TomTom or Magellan GPS. People report on www.trapser.com the locations of speed traps. Your GPS warns as you approach these locations. You don't need an RD to use this but, many people use Trapster as a supplement tool in their daily driving.

Other online resources: Search Google and Wiki for information on red light cameras, speed cameras, etc in your particular area. I found some interesting info at www.theNewspaper.com under camera enforcement.

Check out the following websites for more info:
www.radarbusters.com
http://www.radardetector.net/forums/
http://www.radarroy.com/
http://www.guysoflidar.com/
http://www.laserveil.com

I welcome your questions and comments. My email address is kf7yn@yahoo.com. Please put Nat-Com in the subject line so you don't end up in the spam bin. Until next time, happy radar detecting!

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- Log on to www.bearcat1.com/free.htm
- Scroll down to the picture of either the Mr.Scanner Public Safety or Mr. Scanner CD Roms
- Click on the "Search the CD Rom" link next to the photo
- On the next screen (first time) pick register for CD, (subsequent times) pick search
- When the form comes up fill it out with the exception of the credit card information. Be sure to include an e-mail address so we can send your user name and password back to you
- Pick Option #4 and insert your member number (which can be found on your mailing label) e.g. OH 8 AAA

Generally within the next 24 hours your user name and password will be e-mailed back to you and you will be ready to search for frequencies.

HIGH-TECH SCANNING?

Let software make it easy to program your radio

By Chuck Gysi, N2DUP

As I look back at how scanning has evolved over the years, I am amazed at where we are today. I got my start back with tunable VHF receivers, used plenty of crystal scanners and then moved into programmable receivers. Today's programmable scanners do just about everything but feed the cat.

My first receivers were VHF only, one an old Hallicrafters for VHF high band, and another VHF low band Lafayette radio. The Hallicrafters pretty much remained on the local fire channel in our house to hear where the local calls were. It was a tube receiver the drifted in frequency, so you waited for off-frequency fire calls to come in so you could return it every so often. A coat hanger cut for 154 MHz on the back of the radio made a perfect antenna!

The Lafayette low band receiver I owned back in the early 1970s came with the best of both worlds. It offered not only a tunable receiver for 30-50 MHz, but also allowed installation of two crystals, I believe, so you could lock on a channel. The tunable dial allowed new stations to be found on the VHF low band, while the crystals allowed me to keep it tuned in to the local police department on 39 MHz or the rescue squad I was a member of on 45 MHz.

After those tunable receivers, I went through a number of crystal scanners. These scanners required that you install a crystal for each of the four, eight, 10 or 20 channels that the scanner was capable of scanning. The first crystal scanners were either VHF low or high band or perhaps both bands. Others that came along offered the UHF band, too. The problem with having crystal scanners is that you had the propensity to buy a bunch of crystals, too, to mix up your listening. I had the "unfortunate" ability to visit a scanner dealer who stocked all kinds of crystals, including those used by the old mobile telephones on the 152 MHz band. I quickly amassed a box of crystals that I would switch in and out of scanners often.



This is the VHF low band version of a tunable Hallicrafters receiver. It tuned 30-50 MHz with the dial. The VHF high band version tuned 152-173 MHz. It's a tube receiver and drifted in frequency.

The first programmable scanners came out in the early to mid-1970s. Some of the first ones were the Electra Bearcat 101, the Tennelec MCP-1 and the Regency ACT

Continued on page 14



The Electra Bearcat 101 (yes, Electra made Bearcat scanners before Uniden bought the line) was one of the first programmable scanners. The flip switches under the lights for each channel allowed you to push them up and down in different configurations to program each frequency according to a manual that came with the scanner.

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Bearcat® 796DGV Trunk Tracker IV with free scanner headset

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1,000 Channels • 10 banks • CTCSS/DCS • S Meter

Size: 6 15/16" Wide x 6 9/16" Deep x 2 3/8" High

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When you buy your Bearcat 796DGV Trunktracker package deal from Communications Electronics, you get more. The GV means "Great Value." With your BC796DGV scanner purchase, you also get a **free deluxe scanner headphone** designed for home or race track use. Headset features independent volume controls and 3.5 mm gold right angle plug. The 1,000 channel Bearcat 796DGV is packed with features to track Motorola Type I/II/IIi Hybrid, EDACS, LTR Analog Trunk Systems and Motorola APCO 25 Phase I digital scanner including 9,600 Baud C4FM and CQPSK. Also features control channel only mode to allow you to automatically trunk many systems by simply programming the control channel, S.A.M.E. weather alert, full-frequency display and backlit controls, built-in CTCSS/DCS to assign analog and digital subaudible tone codes to a specific frequency in memory, PC Control and programming with RS232C 9 pin port (cable not supplied), Beep Alert, Record function, VFO control, menu-driven design, total channel control and much more. Our CEI package deal includes telescopic antenna, AC adapter, cigarette lighter cord, DC cord, mobile mounting bracket with screws, owner's manual, trunking frequency guide and one-year limited Uniden factory warranty. For maximum scanning enjoyment, order magnetic mount antenna part number ANTMMBNC for $29.95. For complete details, download the owners manual from the **www.usascan.com** web site. For fastest delivery, order on-line at www.usascan.com.

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Frequency Coverage: 25.0000-54.0000 MHz., 108.0000-174..0000 MHz., 400.0000-512.000. MHz., 806.0000-823.9950 MHz., 849.0125-868.9950 MHz., 894.0125-956.0000 MHz.

The Bearcat BCT8 scanner, licensed by NASCAR, is a superb preprogrammed 800 MHz trunked highway patrol system scanner. Featuring TrunkTracker III, PC Programming, 250 Channels with unique BearTracker warning system to alert you to activity on highway patrol link frequencies. Preprogrammed service searches makes finding interesting active frequencies even easier and include preprogrammed police, fire and emergency medical, news agency, weather, CB band, air band, railroad, marine band and department of transportation service searches. The BCT8 also has preprogrammed highway patrol alert frequencies by state to help you quickly find frequencies likely to be active when you are driving. The BCT8 includes AC adapter, DC power cable, cigarette lighter adapter plug, telescopic antenna, window mount antenna, owner's manual, one year limited Uniden warranty, frequency guide and free mobile mounting bracket. For maximum scanning enjoyment, also order the following optional accessories: External speaker **ESP20** with mounting bracket & 10 feet of cable with plug attached $19.95. Magnetic Mount mobile antenna **ANTMMBNC** for $29.95.



Bearcat® BCD396T Trunk Tracker IV

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APCO 25 9,600 baud compact digital ready handheld TrunkTracker IV scanner featuring Fire Tone Out Paging, Close Call and Dynamically Allocated Channel Memory (up to 6,000 channels), SAME Weather Alert, CTCSS/DCS, Alpha Tagging. Size: 2.40" Wide x 1.22" Deep x 5.35" High

Frequency Coverage:

25.0000-512.0000 MHz., 764.0000-775.9875 MHz., 794.0000-823.9875 MHz., 849.0125-868.8765 MHz., 894.0125-956.000 MHz., 1240.0000 MHz.-1300.0000 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 Decoder**. 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 BCD396D 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.

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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 Sportcat 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 200 channel handheld scanner	$109.95
Bearcat 72XLT 100 channel handheld scanner	$99.95
Bearcat BR330T up to 2,500 ch. Trunktracker III with Tone out	$274.95
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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 IIIB Wide Band handheld scanner	$594.95
AOR AR8600 Mark II Wide Band receiver	$899.95
AOR AR-ONE Goverment/Export sales only 10 KHz-3 GHz.	$4,489.95
Scancat Gold For Windows Software	$99.95
Scancat Gold for Windows Surveillance Edition	$159.95

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:

25.0000-54.0000 MHz., 108.0000-174.0000 MHz., 216.0000-224.9800 MHz., 400.0000-512.0000 MHz., 806.0000-823.9875 MHz., 849.0125-868.9875 MHz., 894.0125-956.000 MHz., 1240.0000 MHz.-1300.0000 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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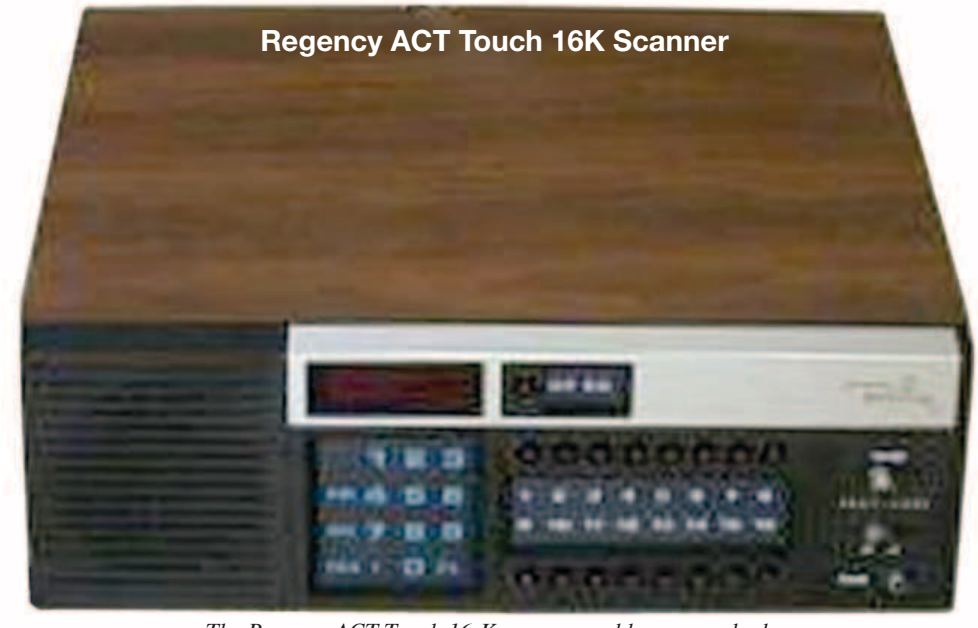
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HIGH-TECH SCANNING?

continued



The Regency ACT Touch 16-K programmable scanner had actual LCD readout of frequencies you could program into its 16 channels with the front keypad. It advanced programmable scanners from the flip switches such as the Bearcat 101 and the Tennelec brand.

Touch 16-K. The Bearcat 101 and the Tennelec scanners involved flipping switches on the front of the scanner to program frequencies for each channel. It took a little while to program, but it worked. I went through about two or three of the BC101 scanners before I gave up and got a refund. They just didn't seem to work for me. I then moved onto a Regency Touch 16K scanner and this was a great scanner! You could program frequencies for each of the 16 channels by direct frequency entry. An LCD display showed the frequency you were programming into the channel. It took less than a few seconds to program each channel.

For the longest time after that, scanners didn't change much. You programmed in channels from the front keyboard and scanned. Some of the Regency scanners could be modified to allow programming the 406-420 MHz federal band, essentially converting the scanner to a Canadian version. (Public safety uses that segment in Canada.) The RadioShack Realistic Pro-2004 could be modified to increase its capacity from 300 to 400 channels. The Uniden Bearcat 200XLT and 205XLT (the same scanner as the 200XLT, but sold exclusively by Scanner World) handheld radios could be modified to tune in cellular channels in the 869-894 MHz band. The cellular modification capability on many models was disallowed later by a federal law that required manufacturers to make radios incapable of being modified.

Later models added trunking capability, but they were a pain to program! For some early trunking systems, you needed to know a lot about the system in order to program it. I bought my first trunking scanner in the mid-1990s to monitor the trunked system used by public safety in a city I moved to. Today, we now have digital trunked radio systems and today's scanners can handle the task, such as the Uniden Bearcat 996XT and the GRE PSR-500.

As radio systems become more complex, it has become, in my opinion, necessary to use a computer to program your radio. Sure, if you have only a handful of VHF channels in your community used for public safety and you only need a 16-channel radio to hear the activity and you aren't interested in finding other new channels, you can get by without using a computer to program your receiver. You probably can program a 16-channel programmable scanner by hand in 15 minutes or less if you have a list of the frequencies you need in front of you and you are familiar with hand programming of channels.

However, if you are serious about your scanning, you NEED to use a computer these days to program a scanner. My GRE scanners are filled to the max in memory – and also have additional programs in the virtual envelopes for travel purposes. When I arrive at a usual travel destination, I need to push about a half-dozen buttons and

Let software make it easy to program your radio

I'm scanning for my new locale. I just love the flexibility of today's scanners.

One of the primary reasons I use a computer to program my GRE scanners is because it's a lot of data! I could not even begin to think about programming this beast by hand. Each channel not only has the frequency, but also the alpha readout for the channel. You might program in an additional sound or flashing LED for specific channels. You can give certain channels an audio boost, too. Some channels I program in multiple times in different banks so I don't miss important calls locally. If it's going to be scanning thousands of channels, I don't want to wait until it can sweep back to my local fire channel if there's a fire in town. That's why I program it in every few banks, to help that I don't miss a local fire call.

Most scanner hobbyists like to program in CTCSS or DCS channel information, too, because it silences the receiver from co-channel users. These "fingerprints" on signals are subaudible or digital and allow many users to use the same channel, but not hear each other. It's important for business users who share channels in greater volume than public safety users.

When it comes to trunking on these newer scanners, there is much data to be entered. Some systems require specific parameters, especially if they are older Motorola systems or EDACS or LTR systems. If the trunked system you want to monitor is on UHF, especially federal or military systems, there are additional parameters you need to program in order for the scanner to properly trunk scan the system. Add in if you are monitoring a digital P25 trunked system, and there's another component to programming the system.

Lastly, if you really want to get alpha readout on trunked system talkgroups so you know the users, you need to program in that information. One advantage the later GRE scanners offer is the ability to program in alpha information for specific radio users on trunked systems. For instance, I have identified the radio user IDs for dispatch consoles and when those radios are on the air, even though it is within a talkgroup, it tells me that the dispatcher is on the air and a flashing LED confirms it. Cool stuff, huh?

There are a variety of software packages out there for today's newer scanners. I have tried many of them, but typically stick with one most of the time, and the software package varies from radio to radio for me, depending on which one works easiest. Most offer a 30-day trial, so you can get an idea of which one works for you. User groups on the Internet can help you on your way to finding the right package for your scanner. But in the end, you definitely need software for maximum enjoyment of today's scanners. You'll get more information programmed into your radio faster than ever before.

Write in

What is your favorite software for programming your scanner? Do you update your scanner programs often with software? You can write to me at nat-com@scanning1.com (be sure to put "Nat-Com" in the subject line or your e-mail may wind up in my spam bin). This e-mail address is only for the author of this column.

Be sure to check for the latest frequencies on the Nat-Com web page www.nat-com.org

"Regulatory Roundup"

By Alan Dixon, N3HOE / WPUC72Ø / KST8678

The last two months have been particularly slow for the Federal Communications Commission. To be sure, part of the reason was a brutal winter that hit the District of Columbia. Government offices were shut down for days at a time due to massive snowfall accumulations. Given the bad weather in the nation's capital along with a slow economy, I barely had enough material of interest to Nat-Com readers. Still, there's a lot of excitement in what we do have!

Fresh Action in an Ongoing Matter

Back in our January-February issue this year, we reported on the matter of Amateur Radio operators employed in emergency or vital services who want to operate while on paid duty status. And we mentioned that Nat-Com's own Gordon West, WB6NOA has filed a Petition for Rule Making with the FCC in order to facilitate just that. Now, even as West's motion awaits Commission action, still another related request has been submitted to the FCC for consideration.

This past March the FCC announced that the American Hospital Association (AHA) had filed their own motion in the form of a letter seeking a blanket waiver of the affected rules section (FCC §97.113(a)(3)). The AHA's request (WP Docket 10-54) is to permit ham radio operators who are hospital employees to transmit communications on behalf of the hospital as part of emergency preparedness drills.

To refresh our collective memory, let's quickly review the situation: The problem lies with the aforementioned FCC rule prohibiting ham communications on behalf of a licensee's employer. It's part of that same rule that forbids most amateur comm's where money is involved, as well. This raises a few important questions for those licensed hams who want or need to operate while at their workplaces or while on-duty. When an actual emergency is occurring, there's really not too much of a problem with this whole situation due to rules exceptions for actual emergencies (§97.401, et al.). However, it is the need for on-air drills and preparation for these emergencies that bring this rule into question.

The AHA's interest in all of this, according to the FCC, is that hospitals seeking accreditation from the Joint Commission on Accreditation must prepare an emergency operations plan outlining how the hospital in question will be able to communicate during emergencies. Additionally, this plan must set forth the establishment of back-up communications links which, among other means of communications, may include Amateur Radio Service stations. Such links are to be for communicating essential information in case primary comm's systems fail.

According to the AHA, hospitals seeking accreditation are required to test their emergency operations plans twice annually. The AHA claims that waiver relief ought to be available to such non-government-sponsored exercises because it is in the public interest that hospital communications operate during emergencies. Also, the AHA notes that requiring separate waivers (presumably for separate hospitals and tests) would be burden-

some on both hospitals and on the FCC; thus the request for a "blanket" waiver.

Interestingly, the AHA asks for this waiver only until such time as the FCC issues a Final Order in response to an unspecified "forthcoming" Notice of Proposed Rule Making which would seek comment on possible changes to §97.113(a)(3). It therefore remains unclear whether this is in reference to a future action resulting from Mr. West's recent petition, or whether the AHA has their own Petition for Rule Making in the works. Or perhaps an additional party is known by some to be working to do the same.

In any case, the entire matter—any petitions as well as this waiver request—is still up in the air. Watch for any future decisions reached or orders to be issued by the FCC.

Tenuous Erosion of the 440 MHz Ham Band??

The FCC is still at it. Chipping away at shared spectrum allocations within the Amateur Radio Service seems to be as inevitable and internally-unnoticed as Congressional expenditures tacked onto occasional "stimulus" bills. Bad habits refuse to be broken. The Commission seems to have its favorite ham bands for squeezing in new occupants. One of these is 420-450 MHz, and no wonder: This band is huge, spanning a massive 30 MHz of spectrum. It seems to be no matter to some that it is well-known to be one of the more popular Amateur Radio bands. After all, hams have long had secondary status on the band, with government radar having top priority. Non-government radar along with low-power consumer-grade Part 15 devices enjoy tertiary status—that is, status secondary in relation to ham radio—in the band. And let's not forget that in the early 1990's the FCC reallocated portions of the lower ten megahertz of the band for Part 90 public safety radio systems in a handful of cities in the Great Lakes region north of Line "A", geographically adjacent Amateur Radio operations south of Line "A" notwithstanding.

Late this past February the FCC issued an Order (DA 10-291) authorizing the latest erosion of Amateur privileges in the 440 MHz band. In WP Docket 08-63, the Commission granted a longstanding waiver request on the part of ReconRobotics, Inc. to permit operation of its Recon Scout® products. These devices are remote-controlled maneuverable surveillance robots for use, according to the FCC, in locations too hazardous for human entry.

The Recon Scout comes in a variety of configurations for differing applications. Their Throwbot™ model is a dumbbell-shaped handheld device some seven-plus inches long weighing about a pound-and-a-quarter. This device can be thrown, tossed, or possibly launched (by whatever means) into a potentially dangerous location, and immediately sends back video and certain environmental data to a remote handheld control unit. The unit is motorized and the operator can drive and steer it from the control unit. While the "Scout" apparently cannot climb stairs, it can be landed in an upper floor of a building and subsequently driven down stairs, exploring one floor at a time.

These units each have a titanium body shaft with cast urethane end caps that function as wheels. There are also two short wire antennas protruding toward both ends, and a small nondescript piece of hardware hanging off the center shaft that is said to be the stabilizing "tail". The entire assembly is mostly dark in color, and at first glance has the appearance of some sort of homemade pipe bomb!

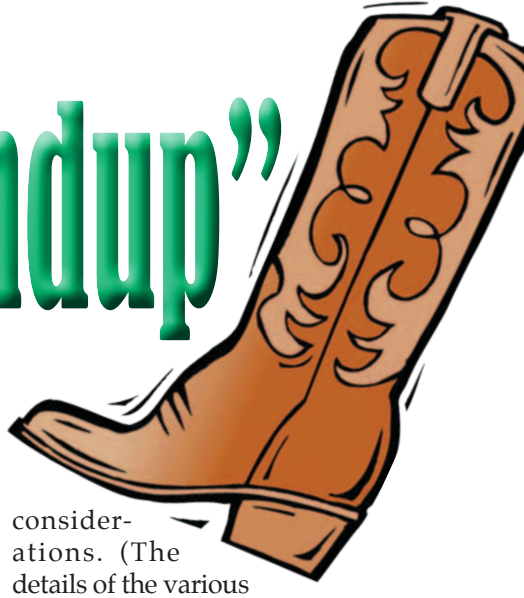
Frankly, the design of these miniature robotic devices is sheer genius. The University of Minnesota's Distributed Robotics Laboratory developed the robotics technology involved. Not surprisingly, much of the development was funded by the Defense Advanced Research Projects Agency (DARPA), the same folks who bring us so many of our military technological advancements. Keeping things small and simple are clearly concepts that work well here.

Recon Scouts are available in three different transmit frequency channels: 436-442 MHz, 442-448 MHz, and 430-436 MHz (with this third channel listed being the original military frequency, according to the FCC). This is so that up to three different Scouts can be operated simultaneously at the same incident location. (The FCC notes that the as-yet-unspecified receive/control frequencies are outside of these frequency ranges.)

So herein lies the potential for problems. The three video/data channels

Continued on page 18

"Regulatory Roundup"



are squarely in the 440 MHz Amateur Radio Service band. Yet in granting the waiver request at issue here, the FCC in its Order appeared none too concerned about the possibility of interference.

In the Amateur Radio Service band plan, voice repeaters operate in the 442-450 MHz segment. The 432-433 MHz segment is used for long-range weak-signal communications. And satellite comm's occur in the 435-438 MHz subband, with an Amateur TV repeater input following at 438-444 MHz.

Although the robotic devices in question operate at a mere one watt peak power (at 0.25 watt average power), some ham operators commenting to the FCC on the matter noted that this is more than enough power to key up a repeater. The FCC's solution to this is to permit Recon Scout operation on the 442-448 MHz channel only when the preferred channel, 436-442 MHz is already in use. As far as protecting weak-signal op's is concerned, the FCC will allow the Recon Scouts that operate on 430-436 MHz to be used only when both of the other two authorized channels are already in use. The point here is that the Commission expects simultaneous use of Scouts on multiple channels to be "rare".

But the preferred or primary channel, 436-442 MHz still has the potential to interfere with satellite communications. In this instance, the FCC points out that the robotics manufacturer asserts that Amateur Service satellite links should not experience interference because their earth station antennas are "angled too high" to detect such a low-power device so near ground level. However, the American Radio Relay League (ARRL) countered by pointing out that since Amateur Satellite Service orbits are not geosynchronous, amateur earth station antennas are often angled low toward the horizon to receive the low-level signals.

Nonetheless, the FCC concluded that, "The Recon Scout will be used infrequently and will be limited in number, significantly reducing the possibility of interference. In addition, it is unlikely that Recon Scout would have a significant effect on the ability of even an amateur earth station operating near the horizon to receive a low-level satellite signal, given the variety of natural and man-made interference sources such as terrain, trees, buildings, and other obstacles and ground level interferers having a greater effect on reception. We conclude, therefore, that…the device is unlikely to cause interference to amateur satellite communications in the 435-438 MHz segment."

Ultimately, the FCC approved the waiver, subject to several conditions. One of these is "requiring deployment first in the 436-442 MHz segment, then in the 442-448 MHz segment, and in the 430-436 MHz segment only if the other two channels already are in use." This establishes 436-442 MHz as the preferred/primary channel, mentioned above.

To protect government radiolocation (radar) installations, certain cautions and restrictions are issued for use of the Recon Scout near eight specified federal sites (including the two PAVE PAWS AN/FPS-115 radar installations at Beale Air Force Base and at Cape Cod). There are also specific product warning label requirements in reference to interference considerations. (The details of the various restrictions and precautions are too lengthy to include here.)

Eligibility for licensing and operation of the Recon Scout will be limited to police and firefighter eligible entities and "security personnel in critical infrastructure industries" as eligible under FCC rules sections 90.20(a)(1) and 90.7, respectively. Eligible entities will require separate FCC licensing with no unlicensed operation permitted. Licensees are required to maintain a log of Scout use, including such details as date, time, location, frequency, reason, etc.

It should be noted that this granted waiver applies only to the specified products of ReconRobotics, Inc. Any other manufacturer of such products to operate in the Amateur Service 440 MHz band would need to initiate it own waiver or rule making process.

But just who is the winner in this case? The FCC asserts—not surprisingly—that generally, public safety and law enforcement entities have supported the waiver request and amateur radio operators opposed it. Of course, the law enforcement community wants the use of this excellent device. And naturally the Amateur Radio community fears interference to their legitimate, authorized operations. Nor do hams wish to interfere with users of the Scout.

But the ultimate condition in granting this waiver is based on the

premise that use of the Recon Scout does not cause interference to others and that such use is not protected from any interference received. Furthermore, interference to licensed Amateur Radio Service operations (along with government radar) is prohibited as well. In a sobering though circumlocutory clause, the FCC strongly insinuated that even during an actual emergency public safety entities would have to "discontinue use of the device in the middle of an operation" if interference to Amateur operations is identified (see ¶14, DA 10-291)! The Commission goes on to assert, "We caution prospective users that operation of the Recon Scout in an unauthorized manner will subject licensees to Commission enforcement action and license revocation. Widespread improper use could lead us to stop granting or renewing Recon Scout authorizations."

How much sense does this FCC action make? Time will tell. But for now, you can judge for yourself. On the one hand, we have an RF device for critical life-safety applications that must cease operation if it happens to interfere with even routine communications. On the other hand, radio Amateurs—who may be grumbling (quite rightly) about yet another incursion into a heavily populated ham band—have little to fear, since their own operations are officially protected and are often operating at much higher power levels (which would "walk all over" the interfering signal).

Nevertheless, it seems unlikely that the two camps on either side of the issue would have objected if the FCC had instead authorized the Recon Scout for operation in a different frequency band. Given last year's transition to digital broadcast television, there is plenty of bandwidth available in the 56 to 87 MHz range nationwide. Even spectrum sharing in the 900 MHz Amateur Radio band may well have been better than further parsing the beleaguered 440 MHz ham band.

The next step is for the Recon Scout to be submitted for FCC certification (type acceptance). Then it's on to market. How well will this band sharing work? How well will the FCC enforce compliance? Here again, "Time will tell." ●

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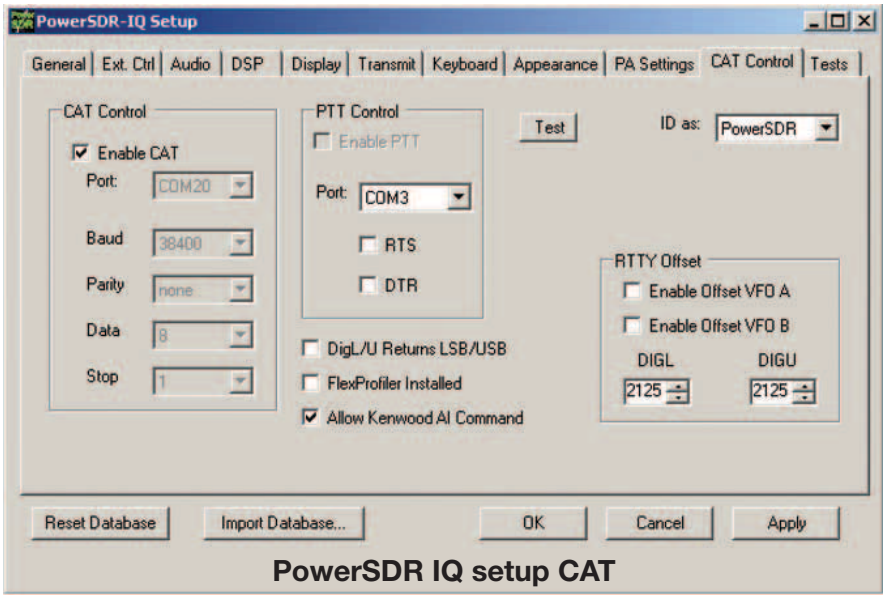
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Playing Radio with Your Computer, an Internet Experience

By Ed Muro, K2EPMA



PowerSDR IQ setup CAT

In a perfect world I think as dedicated radio hobbyists we would all like to have dedicated shacks in our homes with the best antenna systems that money can buy located on the highest possible location on our property. Unfortunately life doesn't always work out that way. Maybe you live in an apartment or condominium, maybe you have moved in to a deed restricted or "private" community that doesn't allow for the installation of antenna structures on your property, maybe you are living in a dorm at school, maybe your job has you traveling and shacking up in a hotel frequently, or maybe you just don't have the financial, physical, or time resources to install outdoor antennas at your home.... don't fear, there are more than 1 way to skin a cat. One option consists of a variety of stealth or indoor antennas and that is a subject for another article. Another way involves harnessing the power of the Internet integrated with software which will allow you to operate radios at remote locations; basically you use your computer to operate somebody else's radio and antenna.

I can remember as far back as a decade ago accessing a remote radio that someone had put online and being able to control it but at the time I may have been still running with "dial up" and after an evening I became bored with it. Of course I have at one point or another monitored streaming scanners over the years and I have even dabbled with ham radio's IRLP and to a more extensive degree Echolink. Yet, a recent seminar given by Tim Lemmon-WK4U at the Shortwave Listener's Fest this past March wet my appetite for even more experimentation not only in the world of Internet radio monitoring but also remote tuning.

The first application we are going to take a look at brings us to the website of Global Tuners which can be found at: www.globaltuners.com. In it's most basic form Global Tuners is a website that provides the tools for one to remotely access a radio receiver. However, various individuals provide the radios. If we were to use a transportation metaphor, one could say that Global Tuners is the highway while others provide the bus. By their own account, Global Tuners provides everything needed to make radio receivers available to others over the Internet. Global Tuners provides the website and all software, the 'site operators' provide the actual receivers and share them with the world.

The first thing you are going to want to do when you go to the Global Tuner's website is to register. Registration is simple, quick and free! The number of radios on the system is always in a state of flux but currently there are 52, 47 of which are free to use. Once you have gone through the registration process you would log in to the website and be ready to tune a receiver. Receivers are linked to the system from all over the world. You can search for receivers in a list form organized by location or you can view a global map which will pin point locations of receivers.

When you click on a specific receiver the site will take you to a

Continued on page 22

Hobby Radio Stop

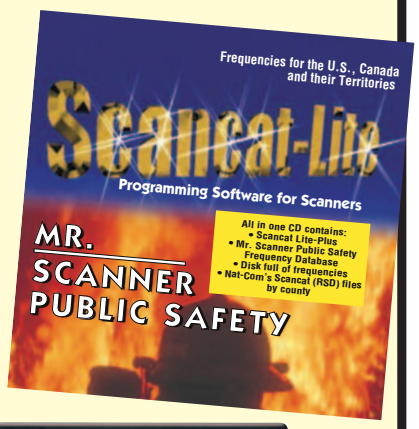


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Playing Radio with Your Computer, an Internet Experience continued

specific page for that receiver where you will find little blurbs about the receiver. For instance, I just clicked on Vero Beach, Florida. The website gave me a little blurb about the receiver (Table 1), a little blurb about Vero Beach (Table 2), and an area to actually go tune the receiver.

Table 1:

- **Vero Beach, FL, United States of America**
- **Status: Online**
- **Operator: RickW**
- **Time Zone: UTC -5 h**
- **Receiver: Icom PCR-1000**

Table 2:

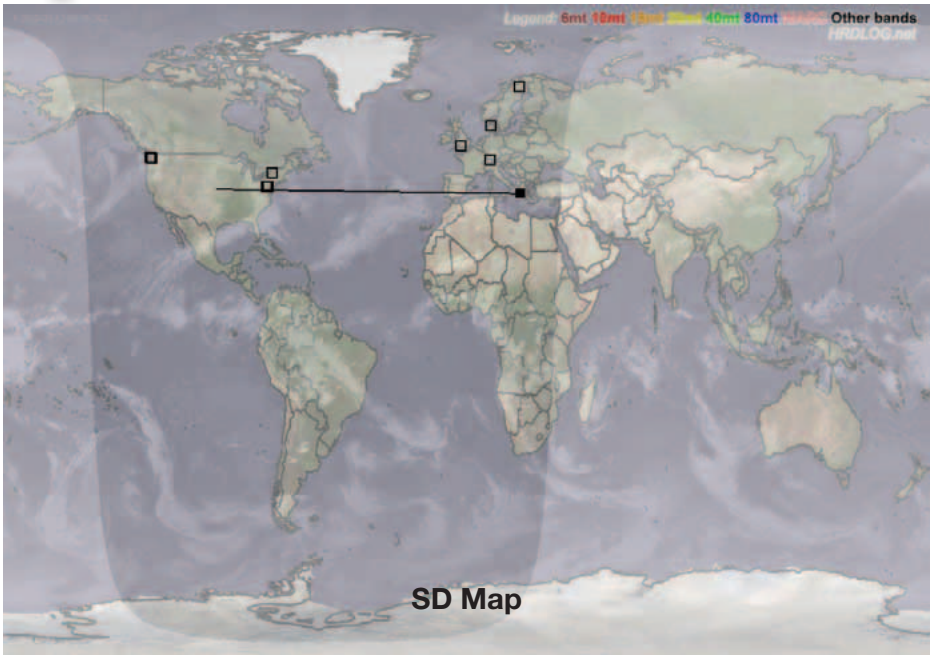
- **Location: Vero Beach, FL, United States of America**
- **Receiver: Icom PCR-1000**
- **Antenna: Stepp IR Vertical or Discone**
- **Time zone: UTC -5 h**

So, now we want to actually "TUNE" the receiver... it is fairly simple but there are three ways to "view" the receiver.

- **Classic**
- **Modern**
- **JavaScript**

It's the same radio, just three separate ways to look at the virtual control panel, the last which requires you to download Java on to your computer.

So, once you click one of the "TUNE" links the site will take you to a tuner page and you will see



some sort of virtual radio face plate along with several boxes on top of the receiver and several underneath it. On top are two chat rooms, one for people specifically tuned in to that particular receiver and the other is a global chat. If no one else is "tuned" to that particular radio the local chat should be empty and you should see a box on the radio face plate that says: "Feel Free to Tune"... click that and the radio is "yours." If other people are tuned to that link it is common etiquette just to monitor. You can click a link that asks: "May I Tune?" But, as I said... it's common etiquette to sit on the side and just listen.

What can you tune? Well, that depends upon the specific radio that you are linked to. Most of the radios are wide coverage, the Vero Beach radio is a Icom PCR-1000.... thus you can tune to a multitude of radio services. It's a good idea to have some idea of what you want to listen to prior to tuning, be it the Marine Band, Aviation Band, HF Utilities, HF Broadcasters, HF Ham Radio, AM/FM Broadcasters, or VHF/UHF public safety. Personally, as I get deeper in to this I plan on using Global Tuners to monitor International Broadcasters, HF Ham Radio and HF as well as VHF Aviation communications. For my tests however, I have been playing with monitoring North American AM/FM broadcasters. In fact, at my place of employment I found a way to "beat the system." My employer's IT people have blocked our access to both of the domestic satellite radio websites and many of the local radio/TV streaming websites....yet Global Tuners was not blocked....thus I went to several FM stations, one near Montreal and one in Florida and the music flowed!

Playing Radio with Your Computer, an Internet Experience

continued

In his seminar Tim Lemmon pointed out one situation where Global Tuners could be a very useful tool to the ham radio community. Suppose you do have a ham radio station and your are planning on working 20 or 40 meters to Europe but your not so sure if atmospheric conditions are favorable. You could set your ham radio up to your desired working frequency and then tune a radio in Europe up to your frequency....then start calling CQ on the frequency and use the remote radio to see if your signal is hitting the targeted area. Now that's pretty cool stuff!

One other feature worth mentioning is the "beam heading," depending upon the radio and the antenna system connected to it, the antenna may be rotatable. On the radio I was tuning in Canada I was able to rotate the beam and thus reduce interference and pick up signal strength on the FM station I was listening to which was located in Burlington, VT.

Global Tuners is one site I intend on using for many uses as long as it is available.

The next site I want to share with you is SDR-radio.com.

SDR-RADIO.com is a Windows console for SDR receivers and transceivers. Designed specifically for the Amateur Radio and short-wave listener community, the console will provide a powerful interface for the rapidly growing SDR enthusiasts.

Wikipedia defines Software Defined Radio as: a radio communication system where components that have typically been implemented in hardware (e.g. mixers, filters, amplifiers, modulators/demodulator's, detectors, etc.) are instead implemented using software on a personal computer or embedded computing devices. While the concept of SDR is not new, the rapidly evolving capabilities of digital electronics are making practical many processes that were once only theoretically possible.

A basic SDR system may consist of a personal computer equipped with a sound card, or other analog-to-digital converter, preceded by some form of RF front end. Significant amounts of signal processing are handed over to the general-purpose processor, rather than being done in special-purpose hardware. Such a design produces a radio that can receive and transmit widely different radio protocols (sometimes referred to as a waveforms) based solely on the software used.

SDR-radio.com brings to you the power of an SDR radio system, including the software component, without actually having the hardware. As is the case with Global Tuners, you link to someone else's radio. The SDR-RADIO.com console supports an advanced client-server configuration, just click on the map for the current on-air status of SDR receivers around the world.

As with most of these websites you will need to register, SDR-radio.com also contains a confirmation process. With SDR-radio.com you can approach your monitoring in

Continued on page 24

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Playing Radio with Your Computer, an Internet Experience continued

two ways: you can either used the web based client to interface to the server or you can download their software application right to your computer.

The minimum computer requirements are:

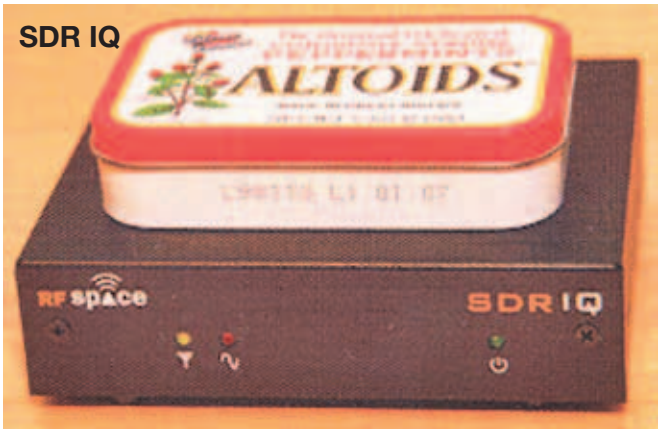
- **Intel ATOM N270 (as used in many new netbooks such as the ASUS or ACER Aspire),**
- **Windows 2000, XP, VISTA, 7 (or higher), not Windows 98 / SE / CE,**
- **1024 x 576 display.**

Once you are running and have clicked on a specific radio to monitor a virtual console for the radio will appear. You can use direct frequency input or you can use the very slick looking built in waterfall spectrum analyzer...when there is activity on a particular frequency you will be able to view it on the spectrum analyzer and click on the "activity" which will result in the radio tuning to that frequency.

Like Global Tuners, SDR-radio.com is a viable alternative to having your own radio while still being able to monitor the things you would want to listen too. Yet, as powerful of a tool as it is, you are limited to the strengths and weaknesses of the radio you are linked to. Thus, it may have wet my appetite to explore even further with SDR radios. One such avenue to consider would be the SDR-IQ™ Software Defined Radio, Spectrum Analyzer and Panoramic Adapter which retails on the street for around $499 and is available at multiple radio dealers or the RF Space Company.

The SDR-IQ™ is a 14-bit software defined radio receiver. It offers a broad range of spectrum analyzer and demodulation capabilities. The hardware samples the whole 0.0001-30 MHz band using a high performance, 14 bit analog to digital converter (ADC) running at 66.6 MHz. The digital data from the ADC is processed into I and Q format using a direct digital converter (DDC). The I and Q data is then sent to the PC for processing using a USB 2.0 interface. All of the demodulation and spectral functions are done on the PC side.

One last website to check out for the time being is www.w4mq.com. The W4MQ Internet Remote Base is a beta test WebSDR receiver is located in Reston, Virginia [FM18hw] on the East Coast of the USA approximately



SDR IQ

20 miles west of Washington, DC. It is operated by Stan, W4MQ. The hardware consists of a P4 PC @2.8GHz with Ubuntu 9.04 Linux, Asus D1 sound cards operating at 192KSamples/sec, 160m, 40, and 20m meter Softrock down converters. Pete W6PJ has assisted in assembling and configuring the hardware. The software was developed by PA3FWM, who has graciously provided the pre-release version found on the website. The software will again allow you to tune to a multitude of frequencies and modes however you are limited to Stan's radio. Stan has however made available a couple of versions of the remoting software for free via his website which will allow you to add your radio to the system.

- **ANY RADIO WITH A SERIAL CONTROL INTERFACE**
- **KENWOOD REMOTED FRONT PANELS**
- **KEY-BASED CW AND SWITCH PTT SUPPORTED**
- **PASSWORDS ONLY, NO FREQ CHECKING, ETC**
- **STATION DETAILS VISIBLE TO USERS**
- **EASY MENU-BASED CONFIGURATION**
- **COMMON HOST AND CLIENT SOFTWARE**

So there you have three websites that will give you the tools you need to continue to monitor or work the airwaves when you might normally have to concede to turning on the television. Please give them a try and enjoy yourselves. If you find a site or software suite that we did not have an opportunity to cover please let us know.

RADIO: THE HEART OF AMERICA

By Dorothy Rieke



Radio during the 30s and 40s represented the ultimate in communication beckoning audiences with promises of riveting entertainment and information. Dramas, light comedies, variety shows, live music, and other programs intrigued and delighted bringing an added dimension to the lives of those who lived in a world experiencing economic depression and World War II. Radio not only informed but offered an escape into other worlds.

Many individuals contributed to the development of radio, but Guglielmo Marconi of Italy sent out the first radio communication signals as early as 1895. Today, thousands of stations are broadcasting. People are waking up to clock radios, listening to car radios as they drive to work, hearing radio music as they relax as well as when they work. Radio has become a 'constant companion' retaining its popularity down through the years.

Years ago, for the price of a small table radio, every family member benefited through increased knowledge, awareness, and entertainment. Farmers arranged their work according to radio weather reports and planted seeds recommend by radio experts. Women listened to homemaker programs for the latest in improved food preparation and assistance in housekeeping. Young women frequently tuned in soap operas and dreamed of meeting soap opera idols. Children, so impressionable, listened avidly to the adventures of Superman, Jack Armstrong, and the Lone Ranger. Undoubtedly, their lives were influenced by these heroes portrayed traits such as honesty, loyalty, and courage.

An older generation sat quietly listening to Franklin D. Roosevelt's Fireside with hopes that the economy would improve and the war would end. They were terrified after hearing reports of Hitler's 'Goose stepping soldiers' and his plans for a new Germany.

Some radio stations, seeking a close relationship with their audiences, invited them to come to studio auditoriums where they watched radio entertainers while on the air. Live entertainment made radio more personal. These performers became real to listeners invading their everyday lives bringing in a bit of mystery and glamour.

Yes, the radio of years ago greatly influenced the daily lives of its listeners. It not only entertained but enabled people to learn about current events, opinions of others, and new and improved ways of living. Another benefit was that family members spent time together listening to the radio strengthening family ties.

In some households, family members spent many evenings gathered around radios listening to favorite programs, because radios provided all kinds of programs. Occasionally, arguments evolved about program selection. Will we listen to Bob Hope, or the Lux Radio theater or 'I Love a Mystery?'

All programs were quality programs with PG 13 ratings. Poor taste or bad language did not pose a problem with broadcasting of early years. In addition, listening to radio often allowed multi-tasking. For example, Mother often mended socks while listening.

Radio has changed for the better with more stations, a greater variety of programs, better news coverage, and stronger signals. In addition, radios are styled to meet every person's needs.

There are pocket -size miniature radios and larger boom boxes. There are radios with CD players and radios with tape decks.

Like those audiences of years ago, today's listeners require a bit of diversion from the worries and cares of the world. Radio with its vast repertoire meets all requirements for entertainment as well as a news source for local and world affairs. Talk programs often include involvement in 'call in' choices. Every kind of music, rock, classical, country, western or old-time favorites, are played to appeal to all tastes. Many sports events are described on radio.

Indeed, today's radio continues to meet the needs of discriminating audiences as one of the best sources of information and entertainment.

Load Add-On DSP Speakers

Remember these letters: bhi and NCT

By Gordon West, WB6NOA

Get set for some great amplified DSP audio output. Manufacturer NCT and bhi have introduced 10 watt built-in amplifiers to their popular land mobile–type plug–in external speakers. Just add 12 volts.

NCT, the Connecticut group behind ClearSpeech adaptive speech filter technology, has gone from 2 watts output to 10 watts!

"Here at West Mountain Radio our ClearSpeech DSP amplified noise reduction speaker has been such a hit, we have just introduced a more powerful model, PWR SPKR with 10 watts audio out in the same case as our current ClearSpeaker DSP," comments Ned Bassick, KA1CVV.

"Of course, PWRspkr will have the same high degree of filtering as our current ClearSpeech speaker, minimizing transmit RF from getting into the audio amp," adds Bassick.

"The PWRspkr was developed, not at first for amateur radio, but for a public safety client. We thought the speaker design would be of interest to amateur radio and offered as is, with no DSP. It was later decided that the amplifier would be incorporated with the DSP," comments John Kalotai, N1OLO, of West Mountain Radio.

The West Mountain Radio's current 2 watt DSP Speaker offers selectable 4-level noise reduction, plus a rear jack for an external regular speaker connection as well.

The ClearSpeech adaptive speech filter is a patented algorithm designed to filter noise from signals containing both speech and noise. ASF is effective against a wide variety of stationary noises whose amplitude and pitch change slowly, compared to the spectral variations





Load Add-On DSP Speakers

characteristic of human speech. As the background noise changes, the filter continues to track it and drop it out, leaving only voice characteristics.

West Mountain Radio sells direct and through catalog advertising in many dealer publications. www.westmountainradio.com

The competition is bhi, who sell their products through GAP Antenna Products, in Florida, direct, and through W4RT, and through dealer distribution. (www.GAPAntenna.com)

The GAP line of DSP products from bhi is called HearIt, and includes a smaller 2.5 watt amplified DSP noise canceling speaker, a DSP in-line module, low level and amplified audio DSP PCB modules, and some variations of in-line modules with terrific DSP capabilities. bhi makes all of the GAP DSP products, and to see the full bhi DSP lineup, go to www.bhi-Ltd.com

Let's not leave out DSP noise reduction systems from TimeWave, MFJ, SGC, and the excellent Heil Quiet Phone Pro headphone boom mic products, with ambient noise DSP capabilities.

Although at first glance the GAP bhi amplified speaker and the West Mountain NCT amplified speakers may look somewhat similar, each manufacturer views DSP selection differently.

At West Mountain Radio, they offer both a non-DSP 10 watt amplified speaker and they are just coming out with their new 10 watt amplified speaker with the same type of NCT technology on the inside as the current 2 watt amplified DSP speaker. Likely, the new 10 watt DSP speaker will be 4 position adjustable on a front knob. The West Mountain Radio DSP products in their amplified speaker will consist of a 6 foot, 12 volt DC power cable with Powerpole® connectors and 6 foot audio cable with a 1/8 inch plug. A front panel on and off switch, along with an LED power indicator, gets the system going. A







Continued on page 28

Load Add-On DSP Speakers

continued

color LED also indicates input levels and overdrive.

At bhi, their new 10 watt amplified DSP speaker offers MULTIPLE levels of noise canceling filter selections, via a small push button:

Filter Level	Tone Reduction (dB)	White Noise Reduced (dB)
OFF	NONE	NONE
1	4	9
2	5	11
3	6	13
4	8	15
5	16	17
6	21	20
7	25	24

The DSP speaker status indicator will initially show red to indicate that noise canceling is off. But you still get amplified volume.

"When the function button is pressed momentarily, the unit will step to the next level of noise canceling, and the status LED will show orange. There are 7 filter level steps, and you get a double tone when the maximum level of noise canceling is reached. A further press at this stage will send the unit back to noise-canceling off," comments bhi's Graham Somerville, Sales and Marketing Director.

"Once a suitable filter level has been selected, and to make it simple for the user, (especially when mobile in a vehicle), this level can be stored," comments Graham.



"This feature allows you to easily select the filter level that suits your current set up and operating conditions, enabling you to quickly toggle between selected levels of your choice," adds Graham.

The 10 watt bhi noise canceling speaker is based on almost a decade of user comments indicating a need to adjust to a specific level – not just 3 or 4 levels. W4RT Electronics sells and installs the bhi DSP circuit boards; low level audio NEDP1061-KBD, amplified NEDSP1062-KBD, ANEM "Noise Away" in-line module, and new DESK TOP "Noise Away" base station DSP speaker, products developed to complement some of the ingenious accessories they have developed for various radio product lines. www.W4RT.com

When working the recent Quartzfest ham gathering with both speaker systems, we let the "locals" try each and give us their impressions. Everyone agreed that both manufacturers have done a marvelous job of both amplification as well as DSP noise elimination.

Since these were RVers, some preferred a selector knob, rather than a pushbutton, for changing DSP levels. Then there were those hams who love to push buttons and quickly figured out the ease of storing a selection of favorite levels with the bhi product.

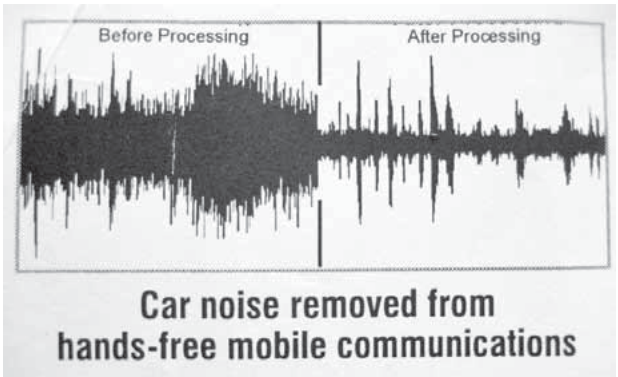
The West Mountain Radio DSP system terminates for DC to the popular PowerPole connector, using red and black wires. On the bhi speaker, the red and black wires were terminated with a miniature plug, not for power, but for audio input.

On the bhi DSP spkr, the black and white wires on their fused DC power lead were unterminated, and are designed for 12 volt DC power input, with a white stripe indicating 12 volt DC positive.

On hookup, the bhi 10 watt amplified speaker was an outstanding performer. Many of the hams would have preferred a level adjustment knob over the pushbutton, especially when they wanted to go back one level, without having to cycle

Load Add-On DSP Speakers

continued



through increasing DSP levels.

Graham says that the idea is that you cycle through the 7 levels until you find the level that suits your set up. You then hold the button down until it beeps. Further presses of the button then allow you to switch between your selected DSP filter level (green LED) and filter off (red LED).

And then there were those who loved the West Mountain Radio product, but wanted more than the four levels of DSP front knob selection.

For amplified audio power output, both belted out more than enough amplified volume than you would care to hear in the cab of your vehicle. Even in the Dune Buggy, both were very loud.

On turn on and turn off, the bhi growled and grumbled and Graham says he has a fix for that. On the West Mountain Radio it went on and off, with just a slight thunk.

Both speakers were a big improvement over the original DSP AmComm design, which was overly sensitive to transmitted RF getting into the audio output amplifier. This was a problem that the full fidelity Heil speaker had during its heydays. Great for bass, but, in a mobile, your transmitter would bleed through loud and not so clear.

Both Graham at bhi, including the team at Gap, and W4RT, are top notch to work with if you have questions on how to customize the bhi DSP circuitry for a





specific application. In fact, that is one of the strong points of bhi DSP circuitry – they encourage you to adapt it for different applications at your ham shack.

Over at West Mountain Radio, these are all avid weak signal and DX radio operators, who also are eager to work with hams looking for that ultimate audio edge.

Pricing of these 10 watt DSP amplified speakers will come in below $250. (bhi DSPKR is currently $229) bhi was first with the 10 watt amplified DSP speaker with West Mountain Radio first with their 2 watt unit and the straightforward 4 level position switch. When West Mountain Radio came out with their 10 watt PWRspkr, they saw it would be a ham hit with 4 levels of DSP, too!

Check out each website and look at all the possibilities of adding lots of audio output with state of the art DSP technology on the inside. Both external DSP speakers do a fabulous job, and are absolutely top notch!

CB AND ME

My Personal CB Radio History

By Jim Sutton, N2OPS

19A7767

"19A7767 mobile to base" was the way my father began every radio conversation to my mom at home. The year was 1960 and the radio was a Gonset. I especially liked night time watching the tubes glow as the radio slowly warmed up. It was even more interesting watching the green transmit light come every time my father transmitted. We were communicating on the Citizens Band or CB for short.

The 108 inch quarter wave antenna on the center of the trunk of our car always made a clanging sound when we went through low underpasses. One memorable occasion was hearing a group of kids yelling "the cops are coming" after seeing the antenna on our car. The communications were for the most part professional with few CB'ers on the air.

The Gonset transceiver was a single channel unit. Out of 23 available channels the licensee was limited to conversing with those who chose the same channel. To go to another channel required the purchase of a pair of crystals, one for receive and one for transmit.

My father had a callsign directory that listed all CB operators. Identifying who we heard was a simple as turning the pages. Many times my father would strike up a friendship with his fellow CB'ers visiting each other to check out their radios. I got to play with kids during these visits I would otherwise have never met.

Our base radio was a homemade transceiver in a grey metal case with plenty of holes drilled to allow the tubes to cool. This was the only time I would ever see a homemade CB transceiver.



CB Gonset

23 channel CB channels and frequencies

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	26.965 MHz	11	27.085 MHz	21	27.215 MHz
2	26.975 MHz	12	27.105 MHz	22	27.225 MHz
3	26.985 MHz	13	27.115 MHz	23	27.255 MHz
4	27.005 MHz	14	27.125 MHz		
5	27.015 MHz	15	27.135 MHz		
6	27.025 MHz	16	27.155 MHz		
7	27.035 MHz	17	27.165 MHz		
8	27.055 MHz	18	27.175 MHz		
9	27.065 MHz	19	27.185 MHz		
10	27.075 MHz	20	27.205 MHz		

KIC2172

When we moved to New York my father received KIC2172 for his new callsign. The district numbers from the 60's were changed to more standard callsigns. We began visiting the Lafayette store to check out the latest in transceivers. Soon both home and car were equipped with a Lafayette Comstat 23 transceiver. While still a tube unit we now had the luxury of selecting from 23 different channels. Channel 9 was the calling channel where CB'ers made contacts with other CB'ers.

CB AND ME HISTORY continued



CB Comstat 23

The Lafayette Comstat 23 had a unique feature dropping from the full power of 5 watts to 100 milliwatts or 0.1 watts. This lower power allowed communication without using call-signs. It was fun to see how far we could call with this flea power level.

The class D CB service was in the 27 MHz, 11 meter band which was once allotted for amateur radio. Today the 10 meter band in the 28-29 MHz range allows hams to take advantage of the same signal propagation that CB'ers enjoy.

SKIP

Class D CB is prone to "skip" which takes 5 watt CB signals well beyond the limit of 150 miles set by the FCC. To prevent any possible legal consequences my father would say he was from Pennsylvania rather than New York, and of course no call sign was used. We had a good laugh when two hunters squealed with delight when they thought the signal from their handheld CB was making it all the way into Pennsylvania.

He made skip contacts to states from the closest skip range of 600 miles to all across the US. During the daylight hours of the winter months we regularly made contacts to the west coast.

While fun for those wanting to talk distance, or DX, skip made local communications a bit of a challenge. There were days when CB'ers could talk a thousand miles away, but not 5 miles locally.

Class A CB was in the 460 MHz band but generated little interest due to the high cost of UHF radio equipment. Today the class A CB frequencies are GMRS or General Mobile Radio Service. In between the GMRS frequencies are the FRS or Family Radio Service channels.

With the lower cost of equipment and the advantage of great handheld communication on the 460 MHz frequencies this service has gained a popularity that could never have been dreamed of when Class A CB was first introduced.

Class D CB was an attractive alternative to the higher cost Class A equipment for both individuals and businesses. I recall hearing every kind of business you could imagine on the CB airwaves, including paging on channel 23. Callsigns for individuals and businesses were listed together in the callbooks.

KCW2437

Then in my high school years in the late 60's I made note of another callsign KCW2437 which was my school bus radio system on channel 9. I was able to hear my bus come on the air each morning and know exactly when he would arrive in front of my home. The school bus radios were single channel Johnson transceivers on channel 9.

Continued on page 33

40 channel CB channels and frequencies

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	26.965 MHz	11	27.085 MHz	21	27.215 MHz	31	27.315 MHz
2	26.975 MHz	12	27.105 MHz	22	27.225 MHz	32	27.325 MHz
3	26.985 MHz	13	27.115 MHz	23	27.255 MHz	33	27.335 MHz
4	27.005 MHz	14	27.125 MHz	24	27.235 MHz	34	27.345 MHz
5	27.015 MHz	15	27.135 MHz	25	27.245 MHz	35	27.355 MHz
6	27.025 MHz	16	27.155 MHz	26	27.265 MHz	36	27.365 MHz
7	27.035 MHz	17	27.165 MHz	27	27.275 MHz	37	27.375 MHz
8	27.055 MHz	18	27.175 MHz	28	27.285 MHz	38	27.385 MHz
9	27.065 MHz	19	27.185 MHz	29	27.295 MHz	39	27.395 MHz
10	27.075 MHz	20	27.205 MHz	30	27.305 MHz	40	27.405 MHz

INDUSTRY NEWS

GRE America to Distribute the Alinco Brand in North America

GRE, Inc and Alinco, Inc. announced an agreement under which GRE America, Inc will distribute, offer customer support, and provide warranty and non-warranty repair for radios and amplification equipment under the Alinco brand for all of North America. Both the Amateur Radio and Radio Scanning communities will benefit from the alliance of these great companies.

Under the agreement, GRE, Inc. will be the exclusive distributor of Alinco products in Canada, USA, the Caribbean and Mexico and will handle all warranty service and parts orders. GRE will also provide out-of warranty service as will other currently authorized Alinco service centers.

Wayne Wilson, WR5S, Executive VP at GRE said, "Alinco is an important and popular brand in the Amateur Radio community. Alinco has regularly been an innovator and Alinco products offer great value for the features. On the GRE side, GRE remains the preferred OEM/ODM for the largest retailer of scanners and remains the #1 manufacturer of scanners for over 40 years. GRE digital trunking scanners are recognized as best performing and easiest to program and to operate. No one knows scanning receivers better than GRE."

Wayne continued, "GRE has designed and manufactured technical products for decades. To do that successfully, we had to provide excellent customer service – GRE has a lot to bring to the GRE/Alinco alliance. With Alinco's great products, this marriage of product and service will be quickly recognized by the Amateur Radio community. Of course, GRE will continue to develop and manufacture the world's most popular scanning receiver products as well. Since these products share much of the same distribution chain, we see huge benefits to dealers and customers, too."

Established in 1961, GRE Inc. designs, manufactures and markets the GRECOM line of analog and digital scanning receivers. Additionally, GRE is the world's #1 largest private label Original Equipment / Original Design Manufacturer of scanning receivers. GRE also produces industrial and consumer communication and electronic products for many of the world'ss leading electronic companies and governments.

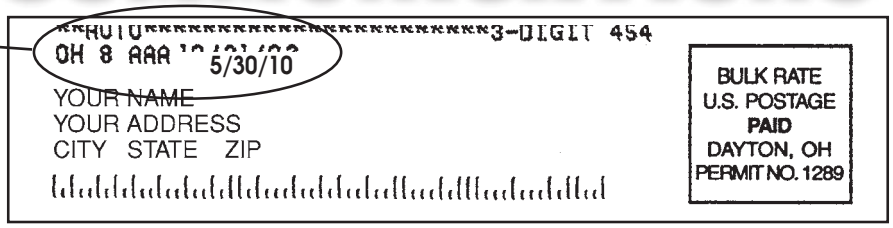
Established in 1970, Alinco, Inc. manufactures radio and amplification equipment, and in the Japanese market, metal products, construction equipment, and exercise equipment. Alinco introduced their communication products into the US Market over 20 years ago. ●

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CB AND ME HISTORY continued

Interestingly they chose the most congested of the 23 channels available. Shortly after the buses began communicating on CB channel 9 the FCC made channel 9 an emergency only channel. Shortly afterwards I showed my school people that they were now operating illegally. Shortly afterwards the radios had new crystals for channel 6.

KBBE3916

My next round of CB radio involvement was a mobile unit in the van I drove for youth ministry. This was at the time of the 55 mile per hour speed limit when truckers stayed in touch on channel 19 to share "smoke reports."

By this time nearly all CB's were 40 channels and solid state with transistors replacing tubes. The size of a transceiver was a fraction what I saw as a child. My first CB in the van was a 6 channel unit with 6 pairs of crystals in the new 40 channel range.

The 108 whip antennas had given way to shorter base and center loaded mobile antennas with the difference in length compensated in a coil of wire. While hitting far less obstacles the shorter antennas compromised the range of CB transmissions.

At this time there were few callsigns used and much of the basic communications had given way to "handles" and some very interesting slang terms. The FCC had eliminated the requirement of licenses which had little impact as it was pretty much "anything goes" on the airwaves. My handle was "The Purple People Carrier" because of the purple color of my van the cargo of youth. Channel 19 was the channel to communicate on while on the road. My CB became a great source of knowing what was going on while traveling and even helped me avoid being caught in traffic backups a few times.

Later I acquired a Radio Shack CB that allowed me to monitor both channel 9 and another channel of my choice which of course was channel 19.

My father continued to talk to other CB'ers with his choice of 40 channels. He especially enjoyed communicating in the SSB or side band mode which took his transmissions further than the AM mode of most CB transmissions.

RADIO COUNTER

For 14 years I worked at a radio counter in a local hardware store selling CB radios, scanners and business radios. During that time I sold thousands of CB's and matched many mobile antennas for optimum performance.

The K40 was the most popular and the most effective mobile antenna. For base stations the Antron 99 was the antenna of choice for most operators. Being near an interstate highway ensured a constant stream of CB customers.

Customers included school buses, village highway crews and farmers. My customers came from every walk of life. They ranged from the diehard listeners who were tuned in no matter where they were or how much skip was booming in to the interstate traveler that only listened while driving on the family vacation.

REACT

When a REACT team formed in my area I became involved with monitoring channel 9 and relaying emergency communications for travelers. With few cellular phones and coverage only in metro areas REACT teams performed a vital service.

Many times over the years of driving the youth van REACT members relayed calls for me to local authorities.

TODAY

Today my youth ministry communications are on UHF repeaters WNUH604 as well as on GMRS repeaters WQGA492. A ham transceiver allows communication with other hams on 2 meter and 70 cm repeaters. Yet with all of those communications options I still have a CB in my youth van on channel 19.

My handle is "The Tentmaker" based on Acts 10:1-3 where Paul was a tentmaker to support his outreach. This reflects my radio sales to support my outreach.

Sadly the Lafayette stores are long gone. Today CB'ers get their equipment from truckstops and from dealers on the internet.

Although the heyday of the 70's is over CB radio still provides communications for truckers, businesses and individuals.

National Communications magazine provides reviews of equipment, operating tips and many opportunities to purchase equipment through the dealers that bring you this periodical. Spend some time on their websites, read the stories by the writers who know and share their knowledge with you the readers.

To learn more about today's CB radio rules and regulations log on to the FCC CB page

http://wireless.fcc.gov/services/index.htm?job=service_home&id=cb

Special thanks to James Milsap W9CTO for providing the photo of the Gonset CB. Visit his website for more photos of vintage CB radios http://w9cto.warot.com/cb_radios/cb.html.

May your CB radio history be as enjoyable as mine has been. Until next time may your signals be strong, your static be few.

SCOTT AIR FORCE BASE

By Mark Meece



While the incredible fighter aircraft gain all the glory, Air Mobility is the very backbone of the United States Air Force. The ability to rapidly deploy personnel and equipment at a moment's notice is critical as much in a time of war as in a time of peace. This has never been more true than in the first few months of 2010. Two devastating earthquakes, first in Haiti and then weeks later in Chile show the importance of getting supplies and help to where it is needed as fast as possible.

Leading the way in Air Mobility is Scott Air Force Base. Scott Air Force Base is the home of Five separate headquarters within the Air Force. The base is located in Illinois about 20 miles east of St. Louis, Missouri near Belleville. Many call Scott Air Force Base home, in particular the United States Transportation Command and the Air Mobility Command (AMC) whose primary mission is to manage our nation's domestic aero medical evacuation system. The Air Mobility Command also commands and manages all operational support aircraft within the United States. The base also provides initial qualifications for the C-9 pilot training program. Additionally the base is home to the 375th Airlift Wing of the Air Force Reserves, the 932nd Airlift Wing and the 126TH Air Refueling Wing of the Illinois Air National Guard.

It was in April of 1917 during World War I that the area of southwestern Illinois was chosen to be a training base and flying field for its Midwestern location.

The base is named in honor of Corporal Frank S. Scott. Corporal Scott was the first enlisted man to be killed in an aviation crash that occurred in 1912. It wasn't until five years later on September 2, 1917 that the first aircraft took off from Scott Field; it was a Standard Trainer Biplane. The next year in 1918, two Jenny aircraft were modified at the base into two air ambulances to carry wounded servicemen. This was the humble beginnings of aero medical evacuation which remains Scott's primary mission today.

Today Scott Air Force Base is a part of the St. Louis-Mid-America Airport which opened in 1998 and is considered one complex. Scott Air Force Base occupies 3230 acres with two runways, 14L/32R and 14R/32L. The 126th Air Refueling Wing of the Illinois Air National Guard moved from Chicago's O'Hare Airport to Scott in 1999. The wing's squadron which is the 108th Air Refueling Squadron flies eleven KC-135Es. They are the primary scheduling unit to operate in Aerial Refueling track AR-318 which runs from western Illinois across northern Missouri to northeastern Kansas.

While the 126th Aerial Refueling Wing's primary mission is aerial

TABLE 1

UNITS/SQUADRONS	AIRCRAFT	CALLSIGN
375th AW		
11th AS	C-9A	
458th AS	C-12, C-21A	JOSA, SAME
375th AES	C-9A	
932nd AW		
73rd AS	C-9A	AVALON
932nd AES		
126th ARW		
108th ARS	KC-135E	CODER, HAPPY

SCOTT AIR FORCE BASE

continued

TABLE 2

SCOTT AFB/MIDAMERICA (KBLV)
AERONAUTICAL FREQUENCIES

118.650	Scott Tower East
119.200	Scott Ground West
119.875	Scott Ground East
121.750	Clearance Delivery
122.950	MidAmerica Unicom
125.200	St. Louis Approach/ Departure
128.250	Scott Tower West
128.700	ATIS
130.650	375th AW Command Post
138.550	126th ARW Command Post
139.850	Pilot to Dispatcher
225.400	Clearance Delivery
236.600	Scott Tower Common
239.800	Metro (WX)
240.350	AR-318 Primary
251.075	Scott Tower East
251.925	JOSA Air Tactical
253.500	Scott Tower West
256.700	ATIS
260.600	AR-318 Secondary
263.035	Scott Ground East
271.300	Scott Tower
275.800	Scott Ground West
277.700	126th ARW Command Post 281.500 St. Louis Approach/Departure
336.000	Aeromed Operations
343.700	AR-318 Entry
353.500	AR-318 Exit
372.200	Pilot to Dispatcher
383.200	375th AW Command Post

SUPPORT OPERATIONS

45.600	Army Operations
49.950	Army Reserve Operations
148.075	Command Post
148.525/150.350	Command Net
150.300/148.400	Security F1
149.535	Security F2
149.475	Flight Line Security
173.4375/165.0125	Command Net
173.5625	Fire/Crash F1
173.5875	375th Med Group (Abbott EMS)
413.1250	Command Net

refueling, the 375th Airlift Wing is charged with four primary missions. First and foremost it provides aero-medical evacuation within the United States, while also providing operational airlift support for government officials and security needs for nations. Finally, they provide support for the other hosts units at Scott creating command and control for the entire United States' military transportation system. In TABLE 1 we list the units assigned to Scott Air Force Base. You will find in TABLE 2 a list of aeronautical and support frequencies in use at Scott. Scott also uses a Motorola Type II SmartZone VHF trunked radio system. The system uses digital voice, so a digital scanner is needed in order to monitor. We list the details of the trunk system in TABLE 3.

You may hear a lot of flights to and from Scott Air Force base using the designation JOSA, which stands for Joint Operational Support Airlift. These flights are primarily for airlifting Air Force Executives and other governmental personnel. These flights mostly involve either the C-12 Huron or the C-21 aircraft which is the military designation of the Learjet 35.

The dual-use facility of Scott and Mid America Airport was ranked 314 in the United States with 27,002 passenger transfers in 2008. Former congestion at Lambert-St. Louis has not been a problem since American Airlines reduced hub operations

Continued on page 36

TABLE 3

SYSTEM:	Scott Air Force Base
(SAFB) TYPE:	Motorola Type II SmartZone (VHF)
VOICE:	APCO-25 Common Air Interface
SYSID:	B209

CUSTOM FREQUENCY TABLE:

BASE:	138.1375
SPACING:	12.5 kHz
OFFSET:	551

FREQUENCIES:

138.1375*	138.2125	138.2625*	138.3125*
138.3375*	138.3625	138.3875	138.4125

TALKGROUP	USE
48	Emergency Operations Center (EOC)
96	Interagency Emergency Interops
112	126th ARW Aircraft Maintenance
192	EET Net
544	Transient Alert
560	Ramp Net
816	Civil Engineering -- Electrical
864	Fire/Crash
880	Fire/Crash TAC 2
896	Base Security
944	Elite Guard
1072	375th Communications Group Maintenance
1120	Aircraft Maintenance
1152	Logistics Control
1168	375th Transportation Operations
1312	Communications Group
1328	126th ARW Aircraft Maintenance
1360	126th ARW Aircraft Maintenance
1792	Telemetry



SCOTT AIR FORCE BASE

continued





and a new billion-dollar runway opened. Civil operations at the facility are administered by St. Clair County, Illinois, local government which also pays the maintenance costs for the east runway. The eastern runway is utilized by over half of all air operations. Other attractions are nearby, including the Jefferson National Expansion Memorial which feature the U.S. National Historical Landmark, the famous St. Louis Gateway Arch. So grab your scanner and plan a trip this summer to the heartland of America, where there is lots to see and hear. ●

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Letters

Dear Norm: In the January/February 2010 issue, you have a nice article on SETI, prefaced by a disclaimer for those who are "Creationists".

I feel like throwing something into the mix, as it were, that there are some who believe that the "Wheel" that Ezekiel saw "Way in the middle of the air", and the creature seen from said wheel, were, respectively, what we'd nowadays call a UFO, and a "Spaceman" in a space suit, carrying it's environment with it, inside the suit, much as a deep sea "Hard Hat" diver carries their atmosphere into the hostile environment of being underwater. (I wish I could find my old copy of "In Search Of Ancient Astronauts" for better references, here)

As for manufacturers not supplying operator's manuals? I always envision the poor soul who needs the instructions to set up the computer, but cannot read the manual, as he needs the instructions to load the CD into the computer in the first place. It would be likened to a favorite mantra of mine, "Don't go into the water until you learn how to swim".

Also, I seem not to be able to get printed catalogs for sales items anymore either. They want me to download them, too. That does me no good, as I cannot use my work computer to view them, as I'd be working, and I want to read when I am in transit (public transportation, NOT when I'm driving) to and from work.

Richard C Berger, Registered Monitor/SWL Station, KNY2SC

Richard: Thanks for your input. As far as Ezekiel and the "Wheel", I guess anything is possible. He might have also had something bad to eat for dinner the night before.

I am not sure that our outcry for a printed owner's manual will do any good with the manufacturers. Only time will tell. But as long as they assume think that everyone has a computer, we will have manuals that may only be good when used as a frisbe.

Dear Mr. Scanner: I read my first issue of National Communications magazine and was very impressed. At this point, I have one question. It is on the PTCVHF network. It is the PAStar net Open Sky System. I never heard of it. Is it a digital system or what kind of system is it? Can it be received on a regular scanner or not. Also the PSP in Pennsylvania has a PL tone of 186.2. Can this also be received by a regular scanner or not?

Thank you., Melvin Kline, Shoemakersville, PA

Melvin: The PAStar net is indeed a digital trunked system which can not be received on any type of scanner either regular or digital. As far as the PSP using a PL tone of 186.2, if they are still using conventional frequencies, then the fact that they also have a PL tone will not affect your scanner. The only thing that it will do is for those who have scanners that can decode PL tones. They can then also program in the tone along with the frequency to eliminate other entities using that frequency and limiting what they hear to only those who have the 186.2 tone. ●

CLOSING COMMENTS

I just finished another trip out of the country and of course I had a scanner packed with me.



By: Norm Schrein, KA8PGJ

I also had the opportunity to make another video on what you can and can not do with a scanner when you are on such a trip. Not all countries permit the use of a scanner, so it is best to research the laws for where you are going. I can tell you, however, that everywhere I have been outside the U.S., it is a rather simple matter to bring the scanner with you but you certainly do not want to "flash" the radio. Custom's procedures in Europe, South America and Australia are a pretty simple matter. Simply put your scanner on your carry on bag and go through the "nothing to declare" lane. I have found no custom's official who has ever had an interest in my carry on bags. However, remember, that it is still possible that you can lose a scanner if the possession of such equipment is forbidden in the country you are visiting.

I found the safest way to bring a scanner with you is to take a cruise. You can hear a lot from your ship in the harbor and never have to take it away from the ship in the various ports of call. In that way, I could listen to the activity from the relative safety of my state room. Not all cruises are terribly expensive either. Just like anything else, you need to shop around. Start off small, and if you like the experience, then you can work your way up to bigger, and more expensive, cruises.

As far as your scanner goes, do some homework ahead of time to see if you are permitted to have a scanner in the country where you must physically walk through customs. If the scanner is good there you should be good in other ports of call where the scanner might be forbidden. That was how I was able to scan frequencies in Saint Petersburg, Russia. I never took the scanner off the ship and I never physically had to walk through their customs with the radio. I boarded my cruise ship in Amsterdam and at that port there was no problem with customs. Once on aboard ship I was ready to listen to my scanner in the other countries where the ship visited, including Russia.

There is one thing to remember, however. Unless you speak the languages in these countries you are not going to understand much if anything of what you hear. The bands to listen to where you might hear English are the Marine band and especially the aircraft band.

Depending on the country, feel free to take photos of the various public safety vehicles, offices, or officials. The trip I just finished was through Brazil, Urugray and Argentina. Here I found the local police and emergency personnel to be most friendly. If you want to take their picture, be sure to ask first. Even if you don't speak the language, simply have your camera in hand, walk up to them and ask, "Photo?" They will usually nod either a yes or no. Take your cue from that.

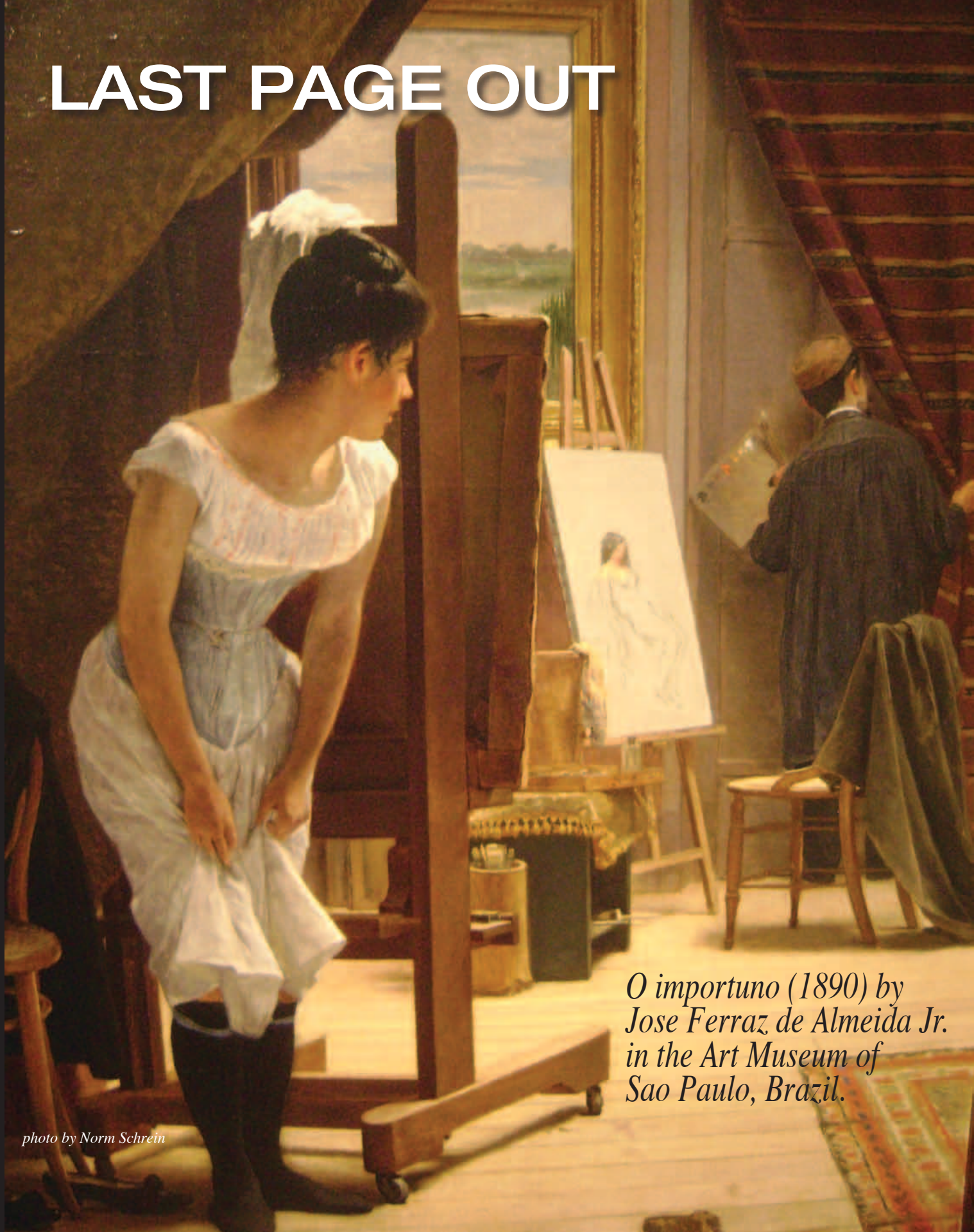
Also as a matter of interest, if you do decide to take a cruise, most ships these days do offer internet and your cell phone should work on the ship as well as in most countries you visit. However, remember, the price of these services are a lot higher than you would pay at home. It would be a good idea to check with your cellular carrier and with the ship on the cost of these services.

So, if you ever get the chance to take a cruise do so and take your scanner along. Although you will meet some totally obnoxious people, the majority of the ship's guests are quite pleasant. The staff, of course, is pleasant as well. The entertainment is usually quite good as well as the food. Don't spend all your time with your scanner either. Take the time to go ashore and have a look around. Take a minute to pull up a deck chair and watch the ocean go by. ●



Norm strikes up a pose with two Montevideo, Uruguay police officers. This unit is especially designed for tourist protection.

LAST PAGE OUT



O importuno (1890) by Jose Ferraz de Almeida Jr. in the Art Museum of Sao Paulo, Brazil.

photo by Norm Schrein

FULL COVERAGE



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