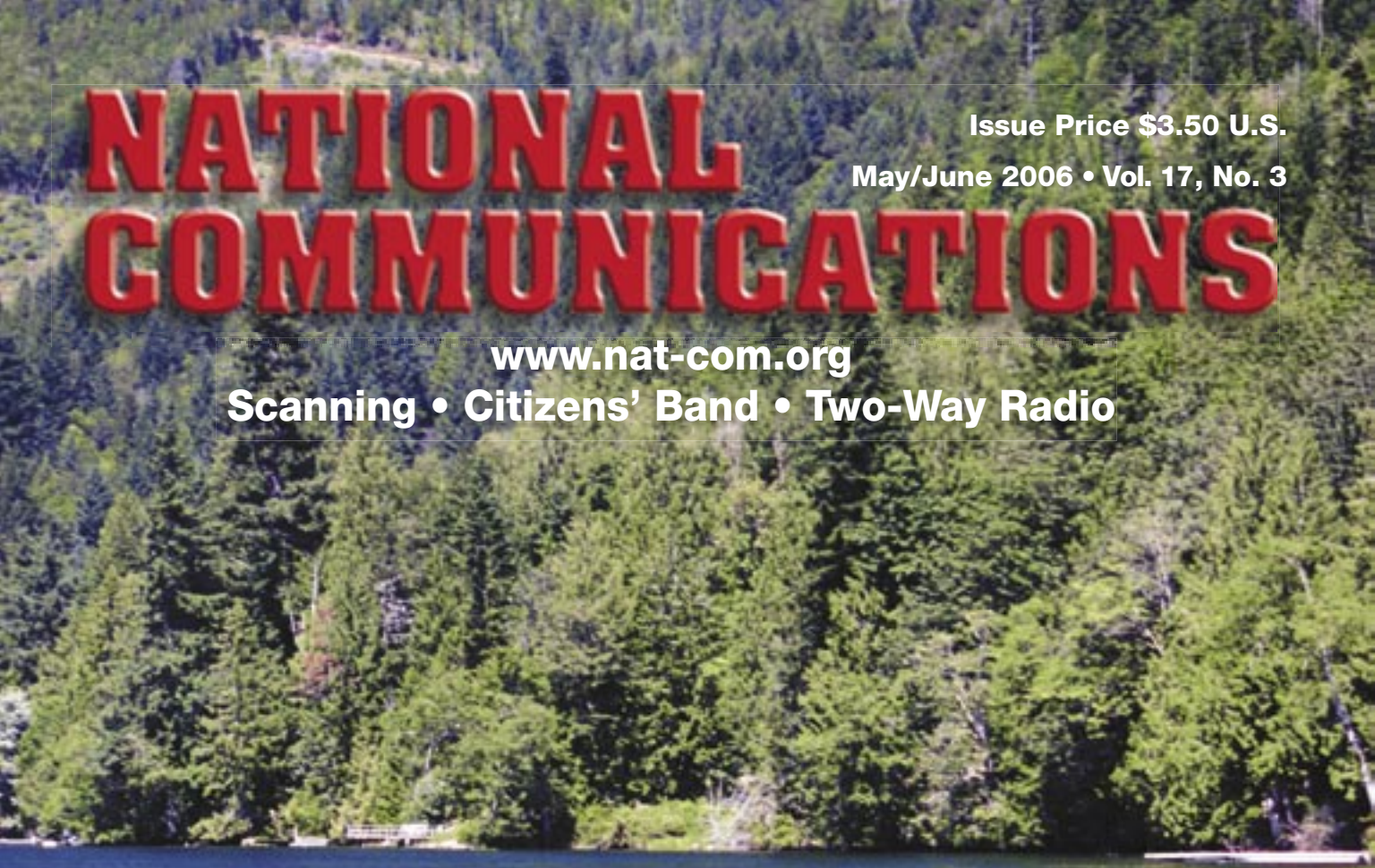
NATIONAL COMMUNICATIONS

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Summer Scanning in the National Parks

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Staff

Editor - Norm Schrein
Writers - Paul Opitz, Jon Van Allen Eddie Muro, Chuck Gysi, Mark Meece, John Phillips, Rich Arland, Jim Sutton, Tom Swisher & Gordon West
Production: Peggy Lockhart & Debbie Warren
Electronic Magazine Organizer - David Schrein

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President - Norm Schrein
Vice President - Peggy Lockhart

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COVER STORY

Summer Scanning in the National Parks Part 1

By Jon Van Allen KF7YN

Photo by Michelle Robertson

It is that time of year again when millions of Americans hit the highways and byways for summer vacation. Many of us hit the beaches, head for the mountiains, forests, deserts and National Parks. I am one of those who loves to camp and fish in the vast expanses of our great country. I can't get enough of the outdoor life! Of course my scanner goes with me to keep up on events going on around me. There is no better way to add to the enjoyment and safety of summer activities than taking your scanner along. There are so many reasons for needing to hear what's going on including severe weather, fire, and other related broadcasts that you will find in virtually all National Forests, State and National Parks, Recreation Areas and National Monuments.

Due to space limitations it is not possible to cover frequencies for all of the above so we will concentrate on the National Parks. This issue will list Parks in the Eastern US. The next issue will cover the Western US. Because of the way the listings are divided into regions, Texas and Oklahoma are included with eastern states even though they are west of the Mississippi River. I will list the larger recreation areas and a few highly visited National Monuments in addition to National Parks.

Many of these frequencies are accurate but keep in mind federal frequencies are in a constant state of change. Also, with the current mandate to move federal agencies to new narrowband frequencies, there may be some listings which may no longer be valid.

I would appreciate any updates and corrections from readers who visit our national parks. It is my understanding that lack of funds is a major issue in implementing this mandate, so many National Parks continue with their current radio systems. Don't forget to use your search feature, all National Parks operate between 163 and 174 MHz and many have remote links in the 406-420 MHz band.

I have not broken down each park with specific users, channels, PL tones, etc. This is a quick reference for you to take along when you visit a National Park or Recreation Area. If you need more specific info, please email me or do an online search for your area. Please refer to my article on US Scanner Laws last year if you have questions about legally taking your scanner along, there are several eastern states with restrictions.

Notice 166.325 is a very common frequency used Nationwide. Also be sure to check 530 kHz and 1610 kHz for Travelers Information Service (TIS) stations. These low power stations have good information about local road and weather conditions, points of interest and other information pertinent to your visit. I highly recommend you to monitor NOAA Weather channels for last minute weather information before heading out on your daily excursions. I also recommend taking a pair of FRS or GMRS radios along to keep in touch. Let's get down to business, here is a good source of info to get you started!

CT, ME, MA, NH, NY, RI, VT

Acadia National Park 164.175, 164.425, 164.725, 165.0875

Cape Cod National Seashore 171.750, 164.425

Delaware National Wild & Scenic River (NY) 164.575, 166.775, 166.950

Ellis Island National Monument 166.325, 414.825

Gateway National Recreational Area

166.325 Police F-1

167.075 Police F-2

166.775 Fire

168.550 Maintenance

168.875, 417.250, 417.825

Statue of Liberty National Monument 166.325

DE, MD, NJ, PA

Assateague Island National Seashore 170.050, 169.400

Catoctin Mountain Park 171.725

Delaware National Wild & Scenic River (NJ, PA) 164.575, 166.775, 166.950

Delaware Water Gap National Recreation Area 166.950, 166.900

Gateway National Recreation Area (see above)

Harpers Ferry National Historic Park 168.425, 166.950

Independence National Historic Park 164.725, 171,650, 171.675

Upper Delaware Scenic River 164.575

IL, IN, KY, MI, OH, WI

Apostle Island National Lakeshore 164.800

Cumberland Gap National Historic Park 166.7875, 166.300

Cuyahoga Valley National Recreation Area 166.375

Indiana Dunes National Lakeshore 166.325

Isle Royale National Park 169.675

Mammoth Cave National Park 169.550

Pictured Rocks National Lakeshore 166.300

St Croix National Scenic River 164.750

Sleeping Bear Dunes National Lakeshore 166.375

FL, GA, NC, PR, SC, VA, WV

Assateague Island National Seashore 170.050

Big Cypress National Preserve 172.425

Biscayne National Park 172,675

Blue Ridge National Parkway

166.300

167.175 Rangers Ch 1 & 2.

166.350, 166.375, 166.600, 166.975, 171.675 Link, 411.850

Bluestone WV National Scenic River 166.950

Canaveral National Seashore 163.150, 164.625, 164.750

Cape Hatteras NC National Seashore 164.200, 164.725, 169.150, 415.025

Cape Lookout NC National Seashore 169.650

Chattahoochee River National Recreation Area 166.300

Chesapeake & Ohio Canal National Historic Park 166.950, 169.775, 172.750

Colonial National Historic Park 168.425, 167.150

Cumberland Island National Seashore 172.525, 411.825

Dry Tortuga National Park 171.2625, 168.550

Everglades National Park 172.525, 171.775 Fire Net, 172.775

Great Smokey Mountains National Park

167.150 F-1 & 2

169.900 Fire Net,

169.1875 Fire Tac

169.550, 415.125

Gulf Islands National Seashore 172.525

Harpers Ferry National Historic Park 168.425

Mount Rogers VA National Recreation Area 171.525, 171.575, 169.900 Fire Net, 169.1875 Fire Tac

New River Gorge WV National River 166.950, 169.775, 170.100

Shenandoah National Park 166.900, 164,575, 167.150



AL, AR, LA, MS, OK, TN, TX

Amistad National Recreation Area 166.325

Big Bend National Park 166.375

Big South Fork National River 163.075, 166.300

Buffalo National River 164.750

Chickawaw National Recreation Area 168.425

Great Smokey Mountains National Park (see above)

Guadalupe National Park 164.425

Gulf Islands National Seashore 172.525

Hot Springs National Park 166.325

Lake Meredith National Recreation Area 166.900

Natchez Trace National Parkway 171.675 Rangers, 171.775, 411.850

Obed Wild National Scenic River 163.075

Padre Island National Seashore 166.900

Rio Grande National Scenic River 163.125

Thanks for all of your email, I enjoy hearing from Nat Comm readers. Feel free to drop me a line if you have questions, comments, or just want to say hi. My email address is jonvanallen@msn.com

Until next time, happy scanning!

HOW MANY SCANNERS IS TOO MANY?

by Chuck Gysi, N2DUP

A trip down memory lane helps look at having an abundance of receivers



The Uniden Bearcat BC560XLT scanner offers a basic 16 programmable channels on VHF and UHF. There is no search function on this radio, though. However, it works as a great nightstand scanner if you have one in your collection. Photo by Lisa Stephens

If you are anything like me, you have more than one scanner. In fact, you might own a collection of scanners. Scanners are interesting devices and every scanner made is different in what it can do.

I remember my first scanners well. When I was in high school, I purchased a four-channel SBE crystal-controlled VHF high/VHF low handheld scanner that I carried around to class all day to keep tabs when the fire siren blew. I was a member of a very large rescue squad and sometimes would respond to calls from class (the teachers just loved me running out the door). I even carried around a very large Plectron alerting receiver so I could be alerted for ambulance calls when no one else was available during the day.

One of my first receivers also was a mobile CB-sized VHF low band receiver made by Lafayette that not only tuned 30-50 MHz with a dial, but also had two crystal slots. I would take that receiver into my job as a dishwasher and keep an ear on calls being handled by my rescue squad.

Along the line, I decided it was time to try one of the new programmable scanners. I had invested in many crystals, from area fire, ambulance and police frequencies to mobile telephone channels in the 152-MHz band. I had a lot of fun interchanging crystals to suit my listening wishes, but I still wanted to hear more.

My first programmable scanner was an Electra Bearcat 101. This was an interesting radio because each of the 16 channels in VHF low, VHF high and UHF was programmed by flipping switches up and down across the front of the radio. You had to work with a list in the owners manual that told whether each of the 16 switches were up or down for each frequency you wanted to program into its memory. For some reason, this radio just didn't work for me. I wound up receiving a replacement radio and it also had problems so I eventually received a refund for the radio! Imagine a manufacturer doing that today.

With my Electra (the maker of Bearcat scanners before Uniden) check in hand, I went out and purchased a new Regency Touch ACT-16K programmable scanner. This was a neat radio because it didn't use switches to program frequencies. The 16 channels were programmed by direct keyboard entry and red LED readouts displayed the frequency programmed into the channel.

This scanner lasted me a long time and with its fabulous search function, I discovered hundreds if not thousands of interesting frequencies, especially in the federal government bands from 162- 174 and 406-420 MHz, and business frequencies on VHF and UHF. The 16 channels never proved enough space for all my finds.

At about the same time, I remember installing in my vehicle a 20- channel Regency crystal scanner. I had all those crystals from my former crystal receivers, so it allowed me to use them and have a decent receiver in my car. I was working in the newsroom of a daily newspaper in high school then and installed one of these radios in the newsroom, too. I believe I found the radios on closeout somewhere. I didn't have a programmable scanner in the car, but with 20 channels, I covered most of the three counties I was interested in hearing.

From that point forward, I have gone through dozens of scanners and receivers. I quickly snapped up one of the RadioShack Realistic PRO-2004 scanners when they came out in the 1980s. This radio could be modified in a number of ways. The 300 chan-

Continued on page 8

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- 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.

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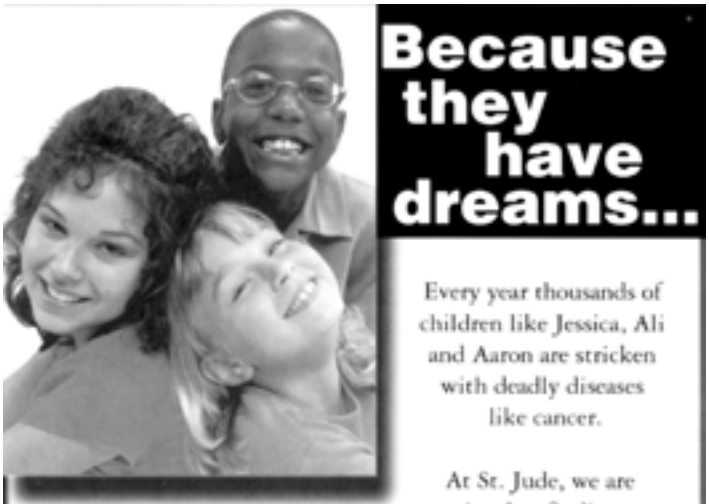
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HOW MANY SCANNERS?

nels could be easily expanded to 400 channels. The blocked cellular bands from 870-890 MHz could be easily reopened with 30- kHz search range (cellular frequencies were 30 kHz apart). Some folks added S meters to their 2004s and some even used an add-on product to expand the radio to 6,400 channels! The PRO-2004 was made by GRE, which has produced several wonderful and hot receivers for RadioShack over the years.

Many of us who owned PRO-2004 scanners still own them today. While there were some production problems with soldering that rendered some PRO-2004s useless after several years (and out of warranty), many still are scanning on a daily basis in many scanner enthusiasts' homes and offices. I really liked this scanner and purchased one for the newsroom of the New Jersey daily newspaper I was working for at the time. When I moved to the newsroom of a daily newspaper in Iowa, I also saw to it that the PRO-2004's predecessor, the PRO-2005, was purchased for my desk. The 2005 and the PRO-2006 were models issued by RadioShack when the PRO-2004 went out of production. Both offered 400 channels like the modifiable 300-channel PRO-2004.

Recently, the topic of PRO-2004s came up on an internet listserv and it dawned on me that many of these great scanners still exist and are in operation day after day, decades after the radio was popular. In fact, I created a discussion list on YahooGroups at http://groups.yahoo.com/group/PRO-2004/ and surprisingly, dozens upon dozens of PRO-2004 owners and lovers surfaced to talk about this great receiver. It received incredibly well and just ran like a workhorse. There were more than 170 members on this YahooGroup at last check. If you still have your PRO-2004, come on board and talk about a great scanner!

Other scanners that I had in the 1980s were two Uniden Bearcat 600XLT scanners (a Scanner World version of the Bearcat 590XLT). This radio was one of the first to offer CTCSS decoding and programmability. No longer would I have to determine whether or not I was hearing

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Continued...

Hopewell Township, N.J., police on 155.520 or Plainfield, N.J., police. By programming the frequency in twice with the two separate CTCSS tones, I knew who I was receiving instantaneously without having to guess which user was coming across. It also allowed me to block out stations I didn't want to hear and focus only on specific stations by using the CTCSS codes. I purchased a professional piece of communications equipment about that time that could decode CTCSS tones on the fly by hooking it up to the discriminator output of a radio. I modified one of my BC600XLT radios and my Icom R7000 receiver to output the discriminator to the test equipment so I could decode the CTCSS tones and then I could program these tones per channel in the BC600XLT. While I got rid of the BC600s some time ago, I still have the test equipment hooked up to my R7000 to this day.

I honestly probably don't remember all the scanners I have owned. A miniature Icom R-1 handheld receiver sits relatively unused these days. I also fondly remember a Regency M100 scanner (it had a sloped front to it) that I owned. I think it was the second programmable scanner I owned after the Regency Touch-16K. There were some modifications that you could make to the M100 scanner, too, including one that opened up the 406-420 MHz federal government band.

The point of the matter is that I have quite a few of these scanners from the past remaining in my collection. Some are used on a daily basis, others are used occasionally and others just sit there, waiting for admiring looks. Sometimes it's fun to fire up some of these older scanners, smell the baking dust inside their boxes and watching the LEDs flash across as channels are scanned. But is there a point where you have too many scanners?

As I write this article, the community in which I am living is in the middle of a process of converting public safety communications from VHF high band to a new statewide 800-MHz trunked digital system. While they continue to simulcast the new digital system to VHF frequencies, the conventional scanners I have scattered throughout my home are becoming quickly obsolete. The 16-channel basic programmable scanner on my nightstand will find new value somewhere else in my hobby while the Regency MX- 7000 vintage scanner on the table next to the couch in my family room also will find new use, too. The crystal scanners and Plectron receivers I have in my shack to keep an ear on specific frequencies of importance probably won't get used as much with the digital conversion.

So what does a scanner junkie do with too many scanners? While my conventional scanners are becoming obsolete in the community in which I live, I am turning to my digital radios - my Uniden Bearcat 250D, my RadioShack PRO-96 and PRO-2096 - to handle the lion's share of my scanning now. But the whole picture will change again by the time you read this. I am moving to a new community and while there might be some digital communications on the horizon, the conventional scanners will return to routine use once again.



This pile of old Regency crystal scanners and two Plectron receivers are stacked in a corner of the author's home station to keep an ear on specific frequencies of interest. Photo by Lisa Stephens/scanning1.com

I'll scatter a few throughout the house so I am never far from a scanner. My PRO-96 will accompany me to work as in the past and the PRO-2096 will go looking for new and exciting frequencies. The PRO-2004 will scan things I need to monitor and the crystal scanners will be recrystalled to keep an ear on primary dispatch channels of interest.

Write in

What are you using your old scanners for? Do you have too many radios? Do you find it hard to part with great scanners? Has having too many scanners helped you not miss a call?

Let us know what you're hearing on your scanner. What would you like to monitor? Send your e-mails to natcom@scanning1.com and make sure you put "Nat-Com" in the subject line so your e-mail doesn't accidentally get spiked to the spam bin.

Scanning New York Harbor

By Ed Muro, K2EPM

We all know that the weather is a crucial factor in the safe movement of vessels, be it maritime or aviation. In this two part series we will discover the intricacies involved in moving maritime traffic in and out of New York Harbor. In this issue, we will concentrate our efforts on research that explains how vessel operators get accurate weather information. In the next issue, we will focus our concerns on the radio communications employed by the Coast Guard and Harbor Pilots in order to keep the system moving.

The New York Harbor Observing and Prediction System (NYHOPS, viewable at (http://www.stevens.edu/maritimeforecast) was designed and installed by the Center for Maritime Systems to provide operations-critical information to the Port of New York and New Jersey.

The system was developed with support from the Office of Naval Research and the State of New Jersey Department of Transportation, and through continuing partnerships with NOAA, the US Coast Guard, the Port Authority of New York and New Jersey, the States of New York and New Jersey, and several maritime industry participants. NYHOPS combines maritime environment and vessel observing and forecasting systems to provide:

- Real-time information regarding present ocean and weather conditions in the Harbor.
- Continuously-updated model forecasts regarding future (out to 48-hours) ocean and weather conditions in the region.
- An experimental RADAR-based system for surface current and wave observations as well as vessel traffic surveillance in the Lower Harbor and its approaches.
- A test bed for investigating model directed autonomous underwater vehicles (AUV) and model controlled sensors.

NOAA currently operates a Physical Oceanography Real-Time System (PORTS) ocean monitoring system in the Harbor.

This system, viewable at http://www.co-ops.nos.noaa.gov/nyports/nyports.html provides ocean data and ocean model forecasts in the approaches to the berthing areas to support commercial vessel traffic.

The NYHOPS system significantly enhances and expands the NOAA PORTS system by the addition of new sensors in the Hudson River and in the lower Harbor and Raritan Bay - areas that are heavily trafficked by ferry vessels, recreational craft, fishing vessels, and sightseeing/cruise ships. This expanded system will support the region's MTS, as well as the port security and first responder communities. During the continuing development of the NYHOPS system, Stevens and NOAA are strongly collaborating in order to maximize benefit to the maritime community.



NYHOPS allows for high-resolution coverage of the region while also permitting the scientific analysis of several phenomena unique to this urban harbor area, including:

- The sheltering effect of Manhattan on wind conditions in the Hudson River, an issue of particular importance to vessel operators during severe weather events.
- The impact of wakes produced by high-speed passenger and cargo ferries and recreational vessels, an issue that has gained in significance with the recent expansion in both ferry service and recreational boating in the Harbor.
- The influence of piers and seawalls on wave and current conditions, an issue of increasing importance with the recent expansion of ferry and recreational vessel docking facilities along both sides of the Hudson River.



• The formation of severe ice conditions along the Hudson River and Lower Harbor shorelines, such as occurred during the Winter of 2003-2004.
• The fate and effects of contaminants in the sediments, and the problems associated with the disposal of dredged material.

The New York Harbor Observing and Prediction System is an open-access network of distributed sensors and linked computer estuarine and coastal ocean forecasting models. The system is designed to allow for the real-time assessment of ocean, weather, and environmental conditions throughout the New York Harbor region, and forecast of conditions in the near and long-term. As such, the system functions as both an operational product and a research tool to foster the economic and environmental health of the region.

NYHOPS includes three main components: observations, numerical modeling, and information distribution. The architecture is designed so that the modeling system interacts with the sensor network by turning on a particular sensor, by changing its sampling rate or by dispatching a service crew to effect repairs when necessary.

Real-time oceanographic information within New York Harbor is obtained using various sensors placed at strategic locations to monitor the current state of the estuarine environment. The challenge of providing this information is particularly difficult in urban environments. The urban environments are typically shallow coastal areas and estuaries, where oceanographic and atmospheric conditions exhibit high spatial and temporal variability due to the influences of freshwater inflows, combined sewer overflows (CSO), tides, micro-climate, and bottom and land topography which is subject to change because of dredging/deepening programs. The design and installation of observing systems in these environments is further complicated by the presence of high turbidity, strong stratification, strong currents, fog, vessel traffic and limited shoreline access. The sensor design and network configuration are patterned after an existing Stevens system on the New Jersey coast (Bruno, et. al. 2001). The network sensors, all of which provide their data in real-time, consist of:

• 6 shore-based salinity, temperature, turbidity, and water level sensors, and 2 water level sensors.
• 2 moored platforms containing near-surface and near-bottom salinity, temperature, turbidity, and water level sensors.
• 2 Acoustic Doppler Current Profilers (ADCPs).
• 1 CODAR High Frequency Surface Wave RADAR system, operated in tandem with 2 Rutgers University CODAR systems to provide broad-area measurement of surface currents and waves Commuter ferry-based conductivity and temperature sensors.

Continued on page 12

Scanning New York Harbor continued

• 6 anemometers providing detailed and continuous observations of local meteorological conditions.

The shore-based and moored data are sampled every 10 min and are transmitted on an hourly basis via a radio link. The ferry data are sampled and transmitted every 30 seconds via a cellular connection. This observation network provides very large spatial coverage of the region of interest at sufficiently high resolution to provide a real-time "mosaic" of the oceanographic and weather conditions.

Supplementing this mosaic are observations from the Stevens Coastal Monitoring Network (Bruno, et al, 2001). The network provides real-time observations and archived records at four locations along the coast of New Jersey of shallow water (5m) wave characteristics, water temperature, water level, and meteorological conditions. Each station is fitted with a digital camera that provides a picture of the beach every 5 minutes. The recorded data is disseminated via the Internet at: http://cmn.dl.stevens-tech.edu/.

The land, moored and ferry-based sensors transmit data via secure wireless networks. Data QA/QC procedures are in place to ensure the reliability of the observations. The data is also transferred to the NOAA National Weather Service's National Data Buoy Center for distribution via the NDBC website, http://www.ndbc.noaa.gov/Maps/Northeast.shtml.

In partnership with Rutgers University's Institute of Marine and Coastal Sciences (IMCS), a HF CODAR current measurement system is under development to provide real-time measurements of the surface currents at the entrance of the Harbor. An example of the data processing protocol from collection to distribution is shown in Figure 3, which illustrates the surface temperature and salinity derived from ferry-based sensors. Interestingly, as a result of this very detailed information, we are able for the first time to learn that the western side of the Hudson River Estuary is significantly warmer and fresher than the eastern side. This occurs in a section that is only 2000 m wide.

The NYHOPS web site mentioned previously has been established to provide for easy distribution of the information. The web site displays are targeted to the MTS community, port security officials, emergency management personnel, teachers, fishermen, sail and power pleasure boaters and swimmers. They include horizontal maps of surface and bottom water temperature, salinity and currents, water levels, waves and winds. Time series of these quantities for selected locations are also presented.

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Where There is a Will, There is a Way!

by Rich Arland, K7SZ

Life is so unfair! I've always aspired to be a running back for the Oakland Raiders (I've followed my Raiders since they were in Oakland the first time!). Unfortunately my gene pool is a little on the shallow side for professional sports. I'm too short, too fat, and too slow and, as of March 6, 2006, I am 60 years old! Life is so unfair (HUGE sigh!)

The same can be said for antennas and the amount of room most of us have to erect a good set of "sky-hooks". It seems that more and more radio hobbyists are moving into condos and other types of planned communities which embrace Draconian covenants against any type of external antenna, be it a TV antenna, CB or ham radio antenna or even a simple end-fed wire antenna for casual SW listening. Yup, life is very unfair at times!

Well, as promised last column, I have some good news to share with those of you who are "antenna challenged". It is possible to get on the air using some prior planning, a large portion of good luck and impeccable timing! Yes, it is possible to erect "stealth antennas" in almost all locations considered impossible by any sane radio hobbyist. The old adage, "Where there is a will there is a way" is so true, especially when it's applied to antennas and the dedicated radio hobbyists.

First things First

The very first thing you need to do if you are facing a situation where antennas are either totally not permitted or are stringently controlled is to accept the situation and set your mind in gear working out possible solutions. Basically mind set has a lot to do with overall size of your antenna farm and how well it performs. Over the years I have gotten on the air with my amateur radio gear and/or SW listening/scanning equipment from a variety of locations, some of which were very proud of the fact that no ham radio operators or SWLs dared put up antennas in/on their property. All it takes is a willingness to think a bit outside the box and to tailor your operating habits to fit the physical situation at hand. Face it, if you are living on the 22nd floor of a high rise apartment building and are able to sneak a wire out the balcony each evening when you want to play radio, you might want to rethink the idea of entering the CQ World Wide DX Contest running a kilowatt to an end-fed vertical wire!

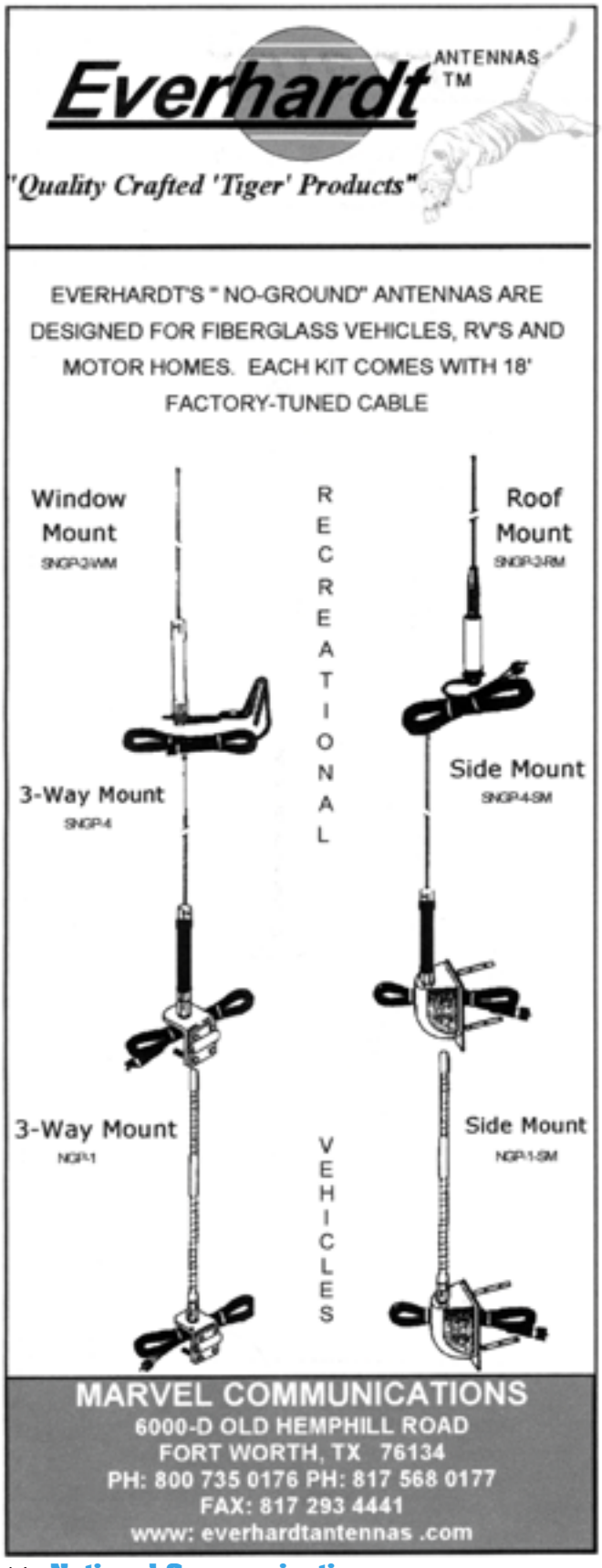
One very big fact of life when living in a goldfish bowl like a high-rise apartment or condo: RF energy can travel through the AC wiring, on TV coaxial cable, etc and basically get into other apartments/condos adjacent to yours. Therefore, if you decide to fire up the old kilowatt linear amp, you might end up making all sorts of acquaintances you had no intentions of making. Besides too much RF energy is not good for you, either, based upon near- field RF heating studies done in the last few years. Condos and apartment buildings area specialized areas that require some finesse. In most cases 100 watts will be way too much RF power output to insure your clandestine radio activities remain clandestine.

Think QRP. Seriously, folks, if you can make contacts with 5 or 10 watts of RF output power; there is really no need to go higher than that. Also keep in mind the FCC regulations that state communications will be accomplished using only the necessary power levels to effect communications. We don't want to violate any FCC rules and regs, now do we?

If you are not worried about radiating a signal and just want to engage in the short wave listening (SWL) side of the radio hobby, then the antenna situation is considerably brighter. Active antennas covering the HF spectrum (actually most active antennas cover 300 kHz to 30 MHz or thereabouts) have been around for many years. It seems that every major manufacturer of radio gear in the last 20 years had offered their version of an active antenna. Some of these contraptions work very well, others don't.

To be considered a true "active" antenna, there must be an active device (transistor, FET, MOSFET, etc) involved in the process of obtaining a signal somewhere in the device. Many times manufacturers will field their version of an active antenna but, in truth, it is only an amplified antenna system. There is really nothing wrong with amplified antennas except for the fact that not only does the active device in the antenna amplify the desired RF signals, it also amplifies all other RF signals present in the pass band of the circuit INCLUDING atmospheric and device noise! The old S-Meter on

Continued on page 14



Where There is a Will, There is a Way!

the radio certainly reads higher but not with the desired signals. The meter is also looking at the noise in the system in addition to the tiny RF signal from the ionosphere. In a nutshell, an amplified antenna injects noise into the system at by the same amount it amplifies the desired signals. You really don't gain anything except a higher S-Meter reading. The "readability" of the desired signal is not enhanced.

A true active antenna has little or no amplification. Instead it offers impedance matching over a wide range of frequencies. This, in effect, has the appearance of amplifying radio signals, but in reality the active device (normally a field effect transistor or FET) performs impedance matching functions to the very short whip or dipole antenna elements. A small point, but a very valid one and one that is all too often overlooked when it comes to an effective marketing campaign. By matching impedances you get more signals into the receiver without the accompanying noise. This means you actually hear a better signal that you would using an amplified antenna.

We talked before about impedance matching when it comes to antennas feedlines and radios used for transmitting. The same goes for receiving. If you make a point of trying to match impedances of your receiving antennas to your radio gear you will have max transfer of signal and your receiver will be very happy, and so will you. Here's the rub: with something like the active antenna, where you have a very short whip element (around 48 inches long) and you want to receive signals in the range of the HF spectrum (3 MHz to 30 MHz) you end up having a tremendous impedance mismatch between the extremely electrically short whip and the receiver. By applying some clever impedance matching through the use of active devices like FETs you can offset this mismatch and make the radio think it is working into a full size HF antenna. More antenna, more signal, less noise. In a nutshell, it is just that simple.

Sony has their AN-1, DaTong and used to have their model AD- 270 which was a true active antenna that worked extremely well, however I am unsure as to whether or not they still manufacture it. MFJ, Yaesu (Vertex Standard) and Icom all field their version of an "active" antenna. Do your homework, and buy accordingly. If possible, locate someone who has an active antenna that you are interested in, quiz him/her about their success using the device and, if possible, actually try it out yourself, before plunking down your hard

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Where There is a Will, There is a Way!

earned cash.

OK, so what are some other options for "cave dwellers"? First of all look into the option of using a wire antenna out a convenient window. If there is a nearby tree or some type of permanent fixture where you can tie off a very small diameter wire, you are in business. Using something like #26- #30 AWG wire, an end-fed antenna strung between your building and a nearby object will be virtually invisible. The only real problem is high winds that may break the wire over time. Couple the wire into an antenna tuner and provide a short counterpoise wire and you are on the air!

Several years ago a number of us QRPers started using something we called "stealth wire" consisting of seven- strand copper weld inside a black PTFE jacket. Total diameter is #26 AWG! This stuff is unbelievably strong and almost totally invisible from a distance of 15-20 feet.

Along this same line there is something called "spider wire" which is even smaller and stronger. The only place I have ever heard of this stuff being used is in the military Special Ops arena. However, I would certainly like to get my hands on some just to check out the prosperities.

IF a wire out a window is not in the cards, then how about placing a short whip (about 5 or 9 feet long) out a window, using a clamp to anchor it to the window ledge or balcony railing? There have been several articles in ham magazines showing enterprising hams that have modified the Hustler mobile whips or the mono-band Hamsticks to fit into a clamp device resembling Vice-Grips. The gripping device is positioned on the balcony railing or the window ledge, with the antenna whip pointing out at about a 45-degree angle. There are one or two wire radial counterpoise elements that are spread around the balcony or just inside the window to offer proper RF matching. Using an automatic antenna tuner like the LDG AT-200 Pro Autotuner or even a manual tuner like those offered by MJF, this whip/counterpoise antenna system could be resonated at the desired operating frequency allowing the operator to get on the air in fine shape. Is this covert antenna system as good as a half wave dipole at 50 feet? Of course not, but it will allow an avid radio hobbyist to get on the air from a less than optimal location.

As you will recall in the last installment, we covered using rain gutters and down spouts as RF radiators. This time we were more conventional in trying to find a way to get an end-fed wire antenna to work in various situations. Of course, there is the old standby, erecting an inside loop and loading it using an antenna tuner and a lot of patience. If you hang the loop wires behind existing curtains using plastic cup hooks with adhesive backing (purchased in department stores), you can run a lot of wire and reduce your tuning problems accordingly while maintaining the decorum of the room (wives like that!). My good friend, Jim Kearman, KR1S, used a modified indoor loop antenna at his apartment for several years with outstanding success. Add to this the fact that Jim was running only 5 watts for the majority of his HF operations and you get a feel for how well this inside antenna really performed.

As with all the other ideas we have discussed so far, the indoor loop will require an antenna-tuning unit (ATU) of some sort. Indoor loops work very well with HF receivers and are readily employed by avid SW DXers living in condo-land. Don't forget the ATU! Receivers like to see the proper impedances, too.

My next door neighbor, Dave Carey, N3PBV, in an attempt to keep peace in the family, ran his antenna dipole wires under the new shingles he put on his roof! After careful planning and modeling the proposed antenna system using W7EL's EZ-NEC antenna modeling software, Dave found the optimal design that allows him to operate on 40, 30, 20 and 15 meters with a totally invisible antenna system. All the antenna element wires are run along the sofits and under the shingles of the house. While he is limited to only 15 to 20 watts of RF due to the close proximity of the antenna elements to the wooden structure of the house (RF can produce some pretty large voltages along the antenna elements which can arc and cause fires) Dave can get on the air in fine style and operate as he likes. Dave is also an electrical engineer with a Masters degree from Wilkes University (he's now working on his PhD) who took the antenna situation at his home as a challenge to his engineering skills: and he won! Now that's what I call thinking outside the box!

That is all for this month. Next installment we'll look at scanning antennas and antennas for the V/UHF ham radio operator that will keep you happy and your neighbors ignorant of your radio operations.

Big Savings on Radio Scanners

Uniden® SCANNERS



Bearcat® 796DGV Trunk Tracker IV with free scanner headset

Manufacturers suggested list price $799.95
CEI Special Price $519.95
1,000 Channels • 10 banks • CTCSS/DCS • S Meter
Size: 6 13/16" Wide x 6 5/16" Deep x 2 3/8" High

Frequency Coverage: 25.000-512.000 MHz., 806.000-956.000 MHz. (excluding the cellular & UHF TV band), 1,240.000-1,300.000 MHz.

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 II/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.

Bearcat® BCT8 Trunk Tracker III

Manufacturer suggested list price $299.95
CEI Special Price $169.95
250 Channels • 5 banks • PC Programmable
Size: 7.06" Wide x 6.10" Deep x 2.44" High

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

Suggested list price $799.95/**CEI price $519.95**
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., 849.0125-868.8750 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 fire fighters, 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.

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.

More Radio Products

Save even more on radio scanners when purchased directly from CEI. Price includes delivery in the continental USA excluding Alaska.

Bearcat 898T 500 channel Trunktracker III base/mobile	$209.95
Bearcat 796DGV 1,000 channel Trunktracker III base/mobile	$519.95
Bearcat BCD396T APCO 25 Digital scanner with Fire Tone-Out	$519.95
Bearcat 246T up to 2,500 ch. Trunktracker III handheld scanner	$214.95
Bearcat 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
Bearcat BCT8 250 channel information mobile scanner	$169.95
Bearcat 350C 50 channel desktop/mobile scanner	$104.95
AOR AR16BQ Wide Band scanner with quick charger	$199.95
AOR AR3000AB Wide Band base/mobile receiver	$1,079.95
AOR AR5000A+3B Wide Band 10 KHz to 3 GHz receiver	$2,599.95
AOR AR8200 Mark III B Wide Band handheld scanner	$594.95
AOR AR8600 Mark II Wide Band receiver	$899.95
AOR AR-ONE Government/Export sales only 10 KHz-3 GHz	$4,489.95
Scancat Gold For Windows Software	$99.95
Scancat Gold for Windows Surveillance Edition	$159.95

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View of downtown Rochester from Cobbs Hill.

by Jim Sutton, N2OPS

Monroe County Emergency Communications Department

Excellence in Public Safety Communications

Relaxed was the first thing that came to mind as I entered the Monroe County Emergency Communications Department in Rochester, New York.

The noise and glare of dispatch centers of yesteryear is gone.

It has been replaced by a modern state of the art communications center. Blaring speakers and large silver boom mics have been replaced with headsets and boom mics.

Headsets give maximum clarity for both telephone operators and dispatchers.

Clipboards and belts to carry cards have been replaced by computers. Dials and buttons have given way to touch screen computer terminals. The noise of yesteryear in dispatch centers is gone and replaced with astounding acoustics.

The years of experience and outstanding teamwork were quickly evident as I toured the facility.

In June of 1994 communications services that were scattered throughout the area were consolidated into the ECD.

The Monroe County Emergency Communications Department services 78 different police, fire and EMS agencies.

In 2005 they answered 1,071,679 calls and made 1,133,014 dispatches.

TELEPHONE OPERATORS

13 911 call takers route the calls to the appropriate police, fire and EMS dispatchers. 11 police dispatchers and 4 fire and EMS dispatchers transmit the calls.

All 911 operators are emergency medical dispatchers, or EMD's. They are trained to give instructions to the caller on CPR, childbirth, controlling bleeding and keeping the victim calm.

The ECD is phase two compliant with the ability to track cellular phone calls from newer phones with GPS capability.

Calls are rated on a priority system of 1-4. Calls of lesser priority









may be dispatched via mobile data terminals or MDT's.

DON'T HANG UP!

"Wait for the operator to answer. Your call is locked into the 911 system the moment the caller dials the last digit." 911 operators can not emphasize this enough.

This is especially true when multiple cell calls are coming in for an incident.

If 911 was dialed by mistake stay on the line to inform the operator.

Be sure the 911 operator has all the needed information before hanging up.

Children need to be educated about playing with 911.

TELEPHONE CONCERN

A major concern of 911 centers is the growing number of alternative telephone systems such as through an internet provider or cable system.

When considering such a system one must determine if the system routes to the appropriate 911 center and can the 911 operator determine vital location data through the phone system.

Another concern is phone systems that cease to operate when electricity fails.

POLICE DISPATCHERS

Eleven Police dispatchers service the following law enforcement agencies in Monroe County.

Brighton Police Department, Brockport Police Department, East Rochester Police Department, Fairport Police Department, Gates Police Department, Greece Police Department Irondequoit Police Department, Monroe County Probation, Monroe County Sheriff, New York State Police, Ogden Police Department, and Rochester Police Department.

The Rochester Police Department accounts for many of the calls dispatched by the ECD.

Continued on page 20



Monroe County Emergency Communications Department

FIRE DISPATCHERS

Fire dispatch back up tone generator.

Rochester Fire House locations.
(3) Engine 3 1051 Emerson Street
(5) Engine 5 450 Lyell Ave (585)
(6) Engine 7 873 Genesee Street
(9) Engine 10 1477 Dewey Avenue
(10) Engine 12 160 Wisconsin Avenue
(11) Engine 13 640 South Plymouth Avenue
(12) Engine 16 704 Hudson Avenue
(13) Engine 17 / Rescue 11 185 North Chestnut Street
(13) Protectives 415 Andrews Street
(14) Quint / Midi 1 4090 Lake Avenue
(9) Quint / Midi 2 1477 Dewey Avenue
(7) Quint / Midi 3 1261 South Avenue
(15) Quint / Midi 4 977 University Avenue
(16) Quint / Midi 5 57 Gardiner Avenue
(2) Quint / Midi 6 1207 North Clinton Avenue
(8) Quint / Midi 7 740 North Goodman Avenue
(4) Quint / Midi 8 272 Allen Street
(1) Quint / Midi 9 315 Monroe Avenue
ECD Fire Dispatchers.

EMS DISPATCHERS

EMS dispatchers directly dispatch volunteer departments in the county. Calls to the city of Rochester are routed to Rural Metro Ambulance.

MANAGEMENT

ECD Supervisor Stephen Cusenz demonstrated the CAD system.



ECD management keeps tabs on the weather through weather radar.

ACCREDITATION

The Monroe County Emergency Communications has accreditation from the following:

- Public Safety Communications Accreditation.
- National Academies of Emergency Dispatch.

THE BABY BASKET PROGRAM

The Baby Basket Program fills baskets with items for the new arrival.

Even a 911 telephone operator knits a blanket for the Baby Basket Program.

DO THE RIGHT THING

Another program is Do the Right Thing Award recipients.

TRAINING

ECD training class on stress management. The Training area or Secondary Operations may find up to ten additional call taking positions, or 10 added police/fire dispatch positions in use for the continuing pursuit of excellence. The heart of the communications system.

BEHIND THE SYSTEM

The heart of the 911 center is the Northrop Grumman Computer Aided Dispatch System, or CAD.

PLANNING FOR DISASTERS

The ECD has in depth plans in place for virtually any scenario that may arise. Emergency power and alternate dispatching arrangements are just a few of the plans in place.









ON THE AIR

EMS and fire communications take place on simplex VHF high band frequencies.

All county fire calls are dispatched on one frequency with units going to various fireground channels once they are dispatched. EMS calls come through both the fire dispatcher and on the EMS frequency. Police communications are on UHF repeaters.

Law enforcement units have a variety of TAC and other frequencies for secondary use or special details. Dispatchers have the ability to patch virtually any two or more channels together for interoperability.

THE FUTURE

Bids will soon be sought for upgraded radio systems.

Fire and EMS will move to narrow band VHF high band and police will go to APCO 25 compliant digital UHF frequencies.

Fire and EMS paging will continue to move to digital pagers.

A LOOK BACK

My first listening in 1965 was Monroe County Sheriff, KEA898, on 159.210. The tour of the ECD brought back many memories.

The push for interoperability makes me smile because Monroe County was way ahead of it's time with the ability to patch virtually any communications through the Cobb's Hill Radio Center.

The Monroe County Sheriff's dispatch center at Cobb's Hill Radio Center in 1974 (to the right).

The tower at Cobb's Hill Radio Center had fewer antennas in 1974.

Before CAD. License checks and other communications took place on teletype machines. They could be distinctly heard in the background when the dispatcher was talking.

LINKS

Monroe County ECD http://www.911rochester.com/

Calea Accreditation http://www.calea.org/

National Academies of Emergency Dispatch http://www.emergency-dispatch.org/

Rochester Police Department http://www.rochesternypolice.com/Public-Safety/Police/

Monroe County Sheriff's Office http://monroecountysheriff.info/

Do the Right Thing Awards http://www.dynrec.com/dtrt/home.html

Until next time, may your signals be strong, your static be few.

Continued on page 22







Monroe County Emergency Communications Department

MONROE COUNTY FREQUENCIES

POLICE

Rochester Police

1	460.025	203.5	East Dispatch
2	460.125	203.5	West Dispatch
3	460.450	203.5	
4.	460.500	203.5	
5	460.200	203.5	

Monroe County Sheriff

1	460.475	203.5	Dispatch
2	460.400	293.5	

Towns North

460.075 203.5

County East

460.225 203.5

Gates/Greece (patched)

460.425 203.5

460.350 203.5

TAC 1	460.325	203.5	Countywide
TAC 2	460.250	203.5	West Side
TAC 3	460.375	203.5	East Side

FIRE

1	154.130	179.9	City Dispatch
2.	154.250	179.9	Fireground
3	154.385	179.9	East Fireground
4	154.175	179.9	West Fireground
5	154.310	D506	County Dispatch
	154.310	179.9	County Units/Bases
6	154.340	179.9	Fire Police
	154.415	179.9	Henrietta Fire Dispatch
	153.995	179.9	Brighton Fireground
	153.950	179.9	Perinton Fireground
	155.715	94.8	Airport CFR

EMS

155.295	D265	County Dispatch
186.2		County Units/Bases

COMMERCIAL AMBULANCE

47.58	82.5	Rural Metro Ambulance
155.265	114.8	Rural Metro Scene
155.205	186.2	Monroe Ambulance

MUTUAL AID

Ops 1	154.1075	D031
Ops 2	155.2575	D074
Ops 3	156.2325	D047
Ops 4	155.0025	D065
Ops 5	155.3175	D223
Shared	155.3925	D245

INTERAGENCY

45.88	CSQ	Fire Dispatch Network
39.46	CSQ	Police/Sheriff Dispatch Network
155.370	CSQ	Law Enforcement Interagency

STATE POLICE TROOP E/ZONE 1

154.905	127.3	Base to Car
154.770	127.3	Car to Base
154.665	110.9	Car to Car
154.695	CSQ	State Frequency
453.525	123.0	Thruway Troop T

Thanks to Dave Stark NF2G for the Ops Frequencies.

Go to www.nf2g.com for an exhaustive list of frequencies, PL's, unit numbering, codes and other information for scanner frequencies in Monroe County and all of New York State.



BACKPACK SHELTER AND SCENE COMMUNICATIONS

by: Gordon West, WB6NOA

Emergency radio responders were quick to find out the importance of a self-contained mini radio command post. Whether the comms that you provide were for FRS and GMRS operations, or you were a licensed ham radio operator on VHF and UHF, the need during the hurricanes was there for a radio operator who could pass traffic and continuously stay on the air.

But guess what--you were to operate from an evacuation shelter with absolutely no commercial power. Or maybe they wanted you to set up at a card table next to the battalion chief's tailgate command post, again, without AC. And many of you who supplied emergency comms during the hurricanes provided photos showing your set-up under a last-standing palm tree, with absolutely no capabilities of any kind of power to keep you going.

Here is what the American Radio Relay League recommend as a personal checklist for emergency radio responders:

FORMS OF IDENTIFICATION:

- Emergency radio organization identification card
- FCC radio license
- State drivers license

RADIO GEAR:

- VHF/UHF transceiver
- Microphone and headphones
- POWER SUPPLY WITH EXTRA BATTERIES!
- Antennas with mounts
- Spare fuses
- Patch cords and adaptors
- Extension coax



Backpack/Roller bag with hefty padded insides and rubber wheels. The discone antenna screws on to mount attached to the pull handle.

The list goes on to illustrate the required long-riding materials, short- and long-term personal gear, toolbox, and long-term added communications and lighting. (Taken from Chapter 8-9, ARRL Operating Manual)

While the big plastic container box with inside foam is a great way to PROTECT your equipment, it might not be the best set-up for actually working your radio gear. A heat sink buried in the foam allows little head dissipation. Same thing with converted ammo boxes and home-brew deluxe teak boxes-- they look great when set up, but are sometimes tough to carry over long distances to get to your assigned position.

Enters the SELF-CONTAINED BACKPACK radio command post that I dreamed up after many assignments with our local American Red Cross Chapter at various school gymnasium shelters. Everything in one, neat pack, which I could either roll to my operating position or strap onto my back and be a walking- talking radio command post.

We start out with an airline-style HEAVY-DUTY roller bag with backpack straps. Camping stores which carry heavy-duty backpacks with rollers and extension pull-handles are my favorite place to look.

Look for substantial rubber-type wheels. Stay away from cheap little plastic rollers. The roller blade market has produced some great heavy-duty, shock-absorbing wheels found on better rolling bags.

Look for a heavy canvas-type, waterproof outside covering with yellow preferred for its great visibility. Double check that the inside of the roller pack is plastic-lined for further waterproofness.

Also look for padded shoulder straps, and a padded clip-down "rear protector" to keep the frame from digging into your butt when hiking to the scene of your radio set-up. Also look for a stout telescoping pull-handle assembly, strong enough to handle a small antenna system that will be added later.

Look for side pockets, and again, choose ONLY a rolling-type backpack that is built substantially tough to take the radio gear and batteries on the inside.

Continued on page 24

BACKPACK SHELTER AND SCENE COMMUNICATIONS continued

A smart battery system is the low-cost, automobile jump-start battery with voltage metering. Some are 12-amp-hour batteries on the inside, yet the slightly bigger and heavier jump-start battery systems are 12 volts at 17 amp hours. This could keep you on the air for several days between charging. Those big commercial OUTLET chains sometimes have specials on these jump-start batteries, getting 17 amp hours in a smart jump battery system with metering for less than $50!

I usually re-terminate the red and black clip leads to multiple pairs of Anderson Power Pole connectors. Since you are working with stranded jumper cable-sized wire that is a lot larger than what the individual contact connectors may attach to, you need to do a little re-wiring to get everything connected up in parallel. Remember, when looking at a properly installed Anderson Power Pole red and black connectors, from the rear, red (rear looking) is on your right, blade down. When looking at a properly installed pair of Anderson Power Pole connectors from the nose, red with blade down will be on the left.

Make absolutely sure the contacts are well seated in the plastic body--you should not be able to pull them out with a big tug. When you properly seat the connectors, you will hear a tiny "click" of each contact.

The Anderson Power Pole connection will insure you are in step with the rest of the emergency radio responders. With Anderson Power Pole connectors, any other radio responder can come up to your battery system and either charge it, or pull power from it by simply plugging in THEIR properly made Anderson Power Pole plugs.

Double check all your battery cable connections and make sure nothing can short out. The big jumper cables are not fused. And if you promise not to start the fire chief's vehicle with your own battery, go ahead and fuse the red lead with a 30-amp fuse with additional extra fuses taped to the fuse holder.

Your backpack system should support a mobile-type VHF/UHF radio. You would NEVER drill into the battery pack to affix a bracket, so I find it convenient to affix the radio chassis to the battery flat side using common double-sided foam tape. If you get the tape on right, the only way you are going to separate the radio chassis from your new battery is with a steak knife cutting through the foam!

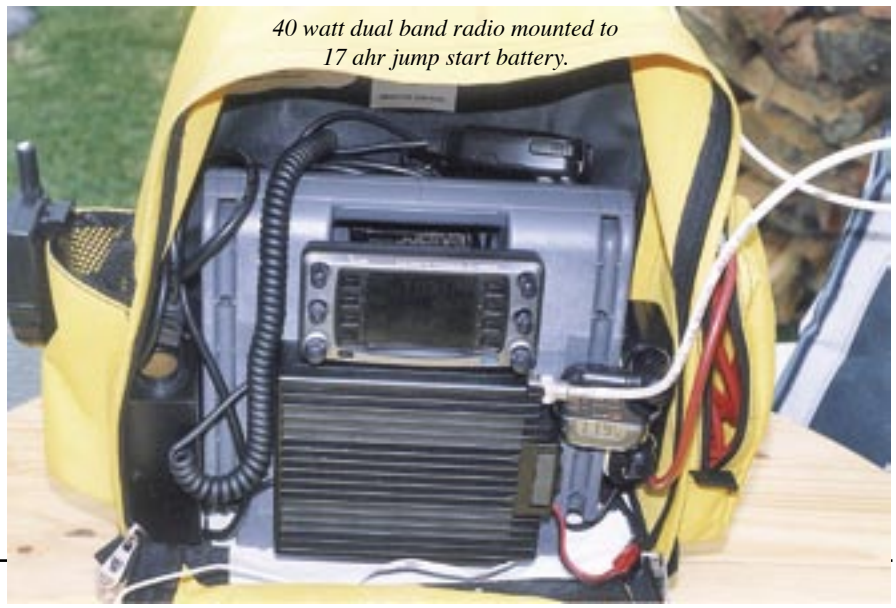
A radio with a remote head allows you to angle the head towards you, allowing you to see the display in all but direct sunlight. If it is an LCD display, all the better. I use the ICOM 2800 with the color thin-film-transistor display, and except for direct sunlight, it is VERY visible.

If you run a remote head, carefully coil up the extra control cable, and KEEP IT AWAY FROM THE ANTENNA. Hide it behind the battery and let the battery act as shielding.

Position the radio so you can get at the external speaker jack. This would allow you to go from speaker to headphones quickly at a shelter operation.

For the antenna, why not mount it to the telescoping pull- handle of the backpack? This way you can get it way up in the air, away from your face. The metal bar of the handle will act as an adequate ground plane for 2 meters and higher. Most any type of mobile single-band or dual-band antenna that matches the frequencies you are operating on will work swell.

I recently switched to the new Diamond Discone D220, covering 144 MHz through 1200 MHz. It is an outstanding performer, and creates its own ground plane, independent of the metal handle it is mounted on. I feed it with a short length of RG8X coax. All of the radial elements have a soft rubber tip, preventing eye damage. I also put a soft rubber tip on the tip of the radiating element just for added safety.



40 watt dual band radio mounted to 17 ahr jump start battery.

BACKPACK SHELTER AND SCENE COMMUNICATIONS continued



The yellow jump start battery pictured here will run a hand held for several days. It is too small to adequately power a 25 watt mobile.

The Diamond Discone has that military authoritative look; and when you hit the scene with your backpack and that antenna in place, it absolutely signals you are radio ready!

My system also includes a small 5-amp switcher battery charger. If I have 110 VAC, it allows me to plug into house power and have an accessory outlet receptacle that a double- male, cigarette-lighter, extension cable may easily plug in to recharge my battery. Or, if I'm in a vehicle, I can recharge my portable battery off of that vehicle's cigarette lighter receptacle.

And for absolute remote charging, I have a small ´-amp, flexible solar panel that gives me more current than I am pulling out of the mobile radio on squelched receive.

When I unzip the backpack radio system, the front cover flops open and provides a nice writing table for my hard-backed log book. Typical set-up time is less than 45 seconds!

Other radio amenities would include an extra length of coax cable. This could allow me to remote-mount the Discone outside the building. It could also allow me to jump in anyone's vehicle and use my included mag mount and short dual- band whip.

There are side pockets for your scanner, your handheld radio, and I even bring along a Maha any-type-battery charger with red and black clip leads that lets me charge anything from a weird cell phone battery to a common Motorola HT battery. The Maha charger recognizes the target voltage through a sampling technique, and immediately starts pumping juice into whatever battery someone brings up to me for a fast recharge.

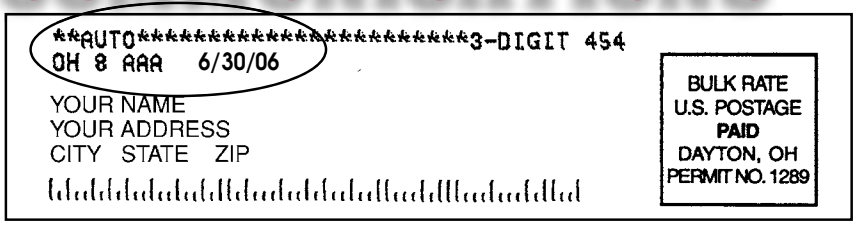
And all this with a big, bright, yellow bag that I can either push, pull, or wear on my shoulders! It gets a lot of attention, and plenty of real use when we respond to an event that needs a rapidly deployed radio system. ●

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SCANNER PROGRAMMING



Getting The Most From New Uniden Scanners

by: Paul Opitz

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

Planning Our System

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

For conventional systems, use the Mr. Scanner FCC and Mr. Scanner Public Safety databases that come with your subscription.

To keep our example simple, let's program a system with channels full of stuff we're familiar with. We'll make a system called "Common Channels" assign it to QK 0 and set up 4 channel groups: FRS as GQK 1, GMRS as GQK 1, MURS as GQK2 and CB as GQK3. See the 'Planning' sidebar for all the information we have collected to accomplish our task. To keep things a little easier I've only listed the first 5 channels for each group.

Editors Note:

As you may recall from the last issue Jim Sutton had 'programming issues' with the SC230 Scanner. I also made mention in my closing comments about my resistance to learning anything radically new all at once. The following article by Paul Opitz, the Product Manager for Scanners, GMRS and CBs and other emerging products at Uniden America Corporation will try to help us through the new programming of these radios. He is, after all, the architect of the Dynamic Memory system now being used in Uniden's latest generation of Trunking Scanners. If the following does not make your understanding on how to program these scanners crystal clear, remember that for only an additional $80.00 Uniden will program the scanner for you. I found it much easier to use the Scancat Lite Plus software which made the programming process much easier.

Putting It All Together

I'm going to assume that you have the Owner's Manual for your scanner. So, refer to the manual for such things as how to set alpha tags, and the specific menu sequence to change settings (each scanner is slightly different). I'm also assuming that you delete all other information from the scanner before you start. You can make a backup, first, if you have a computer programming software such as Scancat Lite Plus.

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

SCANNER PROGRAMMING

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

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

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

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

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

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

Scanning The Results

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

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

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

Programming For Trunked Systems

Now, we'll take it a step further and look at what you need to do to set up a Trunked Radio system in the BC246T, BR330T, BCD996T and BCT15. Note that these last two models are still in development, so there could be some differences when they finally get in our hands, but the basic idea will remain the same.

As with a conventional scanner, a trunked scanner contains system information (things like the system name, system hold time, and, very important, the system frequencies). The system also has channel groups that hold the information about channels you want to listen to.

Unlike conventional scanners, where a channel contains frequency information, a trunked system's channels contain information about the Talk Groups on the system you want to listen to. If you don't know how a trunked radio works, take a moment to read the sidebar "A quick Trunking tutorial".

Planning our Approach

Again, even more important than with conventional systems, planning is critical when setting up a trunked system. The internet provides resources for finding information about trunked systems. Again, with your subscription you have access to trunked frequencies and talkgroups at www.bearcat1.com/fleet.htm . I will be using frequencies and talk group information for Arlington, Texas (my home) to program my scanner.

Here's what you need to find out about your target area:

System Type: The Main types of Trunking systems are Motorola,

Continued on page 28

SCANNER PROGRAMMING

EDACS, and LTR. There are subtypes; for example, Motorola 800 MHz, 900 MHz, VHF, UHF, and P25 are all possible system types. You can find the system type by looking at the top part of the web page on each system. The Arlington system is identified as a Motorola Type II and, since all the frequencies are in the 800 MHz band, we can tell that this is an 800 MHz Type II system.

System Frequencies: These are clearly listed. Motorola systems do not require that the frequencies be programmed in any specific order. Other systems, you will need the frequencies and their LCN (logical channel numbers); these are indicated on the website by a small number after the frequency. You can see an example of this on the Irving, Texas system.

Talk Group IDs (TGIDs): Identify which groups you want to listen to. It isn't necessary to program in every ID (unless you're interest includes listening to the water department and dog catcher). Each system uses a different format for TGIDs. For Motorola systems, you need the decimal format for whatever 'flavor' of Motorola you're monitoring.

That's it for collecting information, now let's organize our scanning needs. Say I want to be able to independently turn on/off scanning for FD/EMS and for each PD district, I would then create six channel groups as follows:

FD/EMS Group Quick Key: 1 Channel Tag 53520 FD Dispatch 53552 EMS 1

PD North Group Quick Key: 2 Channel Tag 53968 North PD Dispatch 54128 North PD T/A

PD West Group Quick Key: 3 Channel Tag 54000 West PD Dispatch 54160 West PD T/A

PD East Group Quick Key: 4 Channel Tag 54032 East PD Dispatch 54192 East PD T/A

PD South Group Quick Key: 5 Channel Tag 54064 South PD Dispatch 54224 South PD T/A

Putting It All Together

Okay, we've collected, planned, and organized, so now it's time to turn on the scanner and load up the system. Again, some details could vary by model, so make liberal use of the owner's manual to find out how to enter alpha tags, the specific menu sequence, and so on.

Power the scanner and press MENU. The very first option, "Program Systems", is on the one we want, so give the scroll control a tap or press E. The scanner now displays the name of a system programmed into your scanner. Scroll back to 'New System' and press scroll or E to select it.

The scanner asks what type of system you want to program. From our planning above, we know that this is a Motorola 800 Standard system, so select that option and tap the scroll control.

Now you need to program in the system-level settings. These settings are the system name ("Arlington TRS"), System Options (such as the Quick Key, Hold Time, etc. that we learned about last time), and most importantly for a trunked system, the System Frequencies. Scroll to "Set Frequencies" and follow the prompts to enter all the frequencies for the system. Note that for Motorola systems you only have to enter the control channels, but if you opt to enter only these you need to turn on the "control Channel Only" system option.

Now, use the same method we used for conventional systems to create channel groups and enter channel information for this system (select "Edit Group", create a new group, and create channels in that group).

While tedious (entering alpha tags does take some time), since we prepared by learning about our target system and organizing our data before we started programming, this was pretty simple. It also shows off some of the big advantages of Dynamic Memory.

With a banked scanner, even though a bank might have 100 channels for frequencies, since you could only enter one type of system per bank any unused channels were pretty much wasted. Also, since a banked scanner only has 10 banks, at most you can program and scan 10 systems at a time. With dynamic programming, though, the scanner's memory is completely freed up until you use a channel. A system could have a single channel (which would use up one memory) or 1,000 channels (using 1,000 memories), leaving the rest of the memory completely available for additional systems, up to the scanner's memory limit. It's a much more efficient use of memory.

●

Your next issue of *National Communications* will be mailed out on or around June 15, 2006.

Take National Communications With You On The Road



Now you can have the opportunity to take National Communications with you while you are on the road, either for work or pleasure and get something in return.

Over the course of the year we will be awaiting submissions from our readers who have their picture taken with a copy of National Communications magazine along with a background of "where in the world" they were. Whoever gets a photo to us of themselves and the magazine in a location farthest away from our offices (in Kettering, Ohio) as determined by GPS will have an opportunity to win a digital hand-held scanner. What kind -- well we don't know yet as we will not be awarding the scanner to anyone until May of 2007 so it will be whatever is the hottest radio then. You'll have plenty of time to travel and submit your photos. All photo submissions will be printed, so don't be shy and give it a try.

Mail your photo of yourself and National Communications in a far flung area of the world to us at: National Communications P.O. Box 291918 Kettering, OH 45429

Be sure to visit Nat-Com at the 2007 CES Show in Las Vegas... January 8-11 at Booth L11

(North Hall Lobby)

International CES 40th Anniversary 1967-2007

PRODUCED BY CEA

The Winter SWL Fest

By Mark Meece, N8ICW

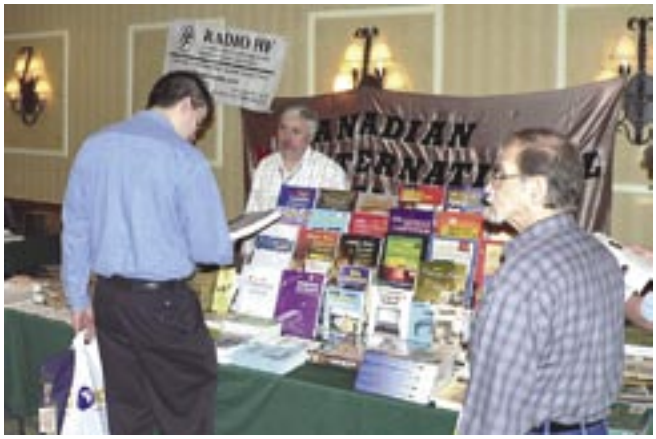
When one hears the word "Fest" used within the confines of our hobby images of row upon row of tables and booths of various electronic goodies and radio gear are the first to pop into our minds. Hamfests have long been a staple of the hobby. A chance to get together all day with friends and perhaps find a bargain or two and that special radio you have been thinking about for awhile. Another fest that has also been a long time staple of the hobby is the annual Winter SWL Fest held each March in a small town just north of Philadelphia in Kulpsville, Pennsylvania. Conveniently located at Exit 31 off of I-476 the Northeast Extension of the Pennsylvania Turnpike. 2006 marked the 19th year of the Winter SWL Fest. It is a gathering of shortwave listeners, scanner enthusiasts, and mediumwave DXers, all types and flavors of radio monitoring are represented at the Winter SWL Fest. Attendees include radio enthusiasts from all parts of the world and most years see representatives from various global shortwave stations in attendance as well.

The very first Winter SWL Fest was held in 1988 at the Fiesta Motor Inn in Willow Grove, Pennsylvania about 15 miles from the current location. An idea grown from a discussion between Dr. Harold Cones (Dr. DX) and Bob Brown the summer before at the Toronto ANARC Convention. They were soon joined by Kris Field and thus the "Gang of Three" were off and running. That first gathering saw around 40 shortwave listeners getting together and talking radio all weekend in between lots of food and spirits. Many a tale have been told about the adventures of that first fest of which I will not spoil for you here. Those need to be heard in person from those who were there to experience it. The very next year it was moved to it's current location at The Inn at Towamencin (Best Western), where forums and a Hospitality Room was added. From that first gathering it has grown into the special weekend it is now a mere 19 years later, attendance tends to hover between 150 to 200, varying from year to year.

Over the years as the fest has grown, it has developed its own idiosyncrasies. In 1992, thanks to Dr. DX, the Scanner Scum were born. That year also saw the Winter SWL Fest's first scanner forum, and each year since the Scanner Scum put on a very informative and well attended show. The fest has also spawned the Voice of Pancho Villa, George Zeller's Cheesehead, Father John's DXers' Prayers, and others that one can only experience for themselves. The fest continues its mission "To provide



Tom Swisher and Ed Muro helm the National Communications/Mr. Scanner Display.



Sheldon Harvey works the Radio HF Table.



Chris Lobdell hosts the Clandestine DXing/Pirate Radio Forum.

The Winter SWL Fest



Dr. DX, Tom Swisher and John Figliozzi head the Writers Forum

a place to relax and just talk radio"in a family friendly atmosphere.

Typically, and especially in recent years fest goers begin to arrive on Thursdays to allow themselves some extra time to take in some of the local culture. There are many good restaurants and eateries to be found in and near to Kulpsville. Yuengling which happens to be the spirit favored by most fest goers boasts America's Oldest Brewery in Pottsville which is a hour and fifteen minute drive from Kulpsville. Also just 15 miles away is Willow Grove Naval Air Station where one can enjoy a great Philly steak hoagie and watch naval A-10s, and PA Air National Guard C-130s take off and land.

For scanning in and around Kulpsville, and digital scanner is needed. Montgomery County, Pennsylvania is using a new digital Motorola system as two separate sites, East and West. There is still a lot of use of VHF in this part of the county and Montgomery County simulcasts some of their communications to the older VHF frequencies. Bucks County to the north is easily heard on their 500 MHz trunked system. Table 1 features the Montgomery County system:

TABLE 1

SYSTEM: Montgomery County, PA
TYPE: Motorola Type II Smartzone
SYSID: A812

FREQUENCIES:
Site 102: 854.96250 855.23750 855.93750 856.73750
EAST 859.06250 866.26250 866.63750 866.88750* 867.26250* 867.37500 868.76250
Site 103: 851.36250 866.03750 866.32500 866.55000
WEST 866.77500 867.13750 867.65000* 868.45000*

TG MODE USE GROUP

1616 North Central(Region 1) West Police Dispatch
1648 Southeast(Region 4) East Police Dispatch
1680 Southwest(Region 2) West Police Dispatch
1712 Northwest(Region 3) West Police Dispatch
1744 Data / Lookups Countywide Police
1808 Region 1 Secondary West Police Dispatch
1840 Region 2 Secondary West Police Dispatch
1872 Region 3 Secondary West Police Dispatch
1904 Region 4 Secondary East Police Dispatch
1936 Region 5 Secondary East Police Dispatch
1968 P-Tac 1 Countywide Police
2000 P-Tac 2 Countywide Police
2032 P-Tac 3 Countywide Police
2064 P-Tac 4 Countywide Police
2096 P-Tac 5 Countywide Police
2128 Countywide Police Countywide Police
2224 County Sheriff Countywide Police
2256 Abington PD East Local PD
2288 Cheltenham PD East Local PD
2320 Upper Dublin PD East Local PD
2352 Exelon Powerplant Intercom West Local Police
2384 EMA Coordination East Police Dispatch
2416 Horsham Dispatch East Local PD
2448 East Norriton PD East Local PD
2544 Flash Message Announcement Countywide Police
2576 Upper Moreland PD East Local PD
2608 Montgomery Township PD West Local Police
2640 Norristown PD East Local PD
2736 Lower Providence PD East Local PD
2768 Springfield PD East Local PD
2800 West Noriton PD East Local PD
2864 Whitpain PD East Local PD
2896 Local Detectives Countywide Police
2928 County Jail West Service
2992 Event 5 Countywide Police
3024 Event 6 Countywide Police
3056 Event 7 Countywide Police
3088 Event 8 Countywide Police
3120 Event 9 Countywide Police
3152 Event 10 Countywide Police
3216 EMS ops East East Fire / EMS
3248 EMS Hailing East East Fire / EMS
3280 EMS Dispatch Countywide Fire/EMS/HOS
3312 EMS Hailing West West Fire / EMS
3344 ER 1 Countywide Fire/EMS/HOS
3376 ER 2 Countywide Fire/EMS/HOS
3440 E-Tac 1 (Major Incidents) Countywide Fire/EMS/HOS
3456 E-Tac 2 (Major Incidents) Countywide Fire/EMS/HOS
3472 E-Tac 2 (Major Incidents) Countywide Fire/EMS/HOS
3536 EMS Ops West West Fire / EMS
3568 Public Safety Coordination Countywide Police
3600 Public Safety Management Countywide Service
3632 County Courthouse Security Countywide Service
3664 EMA Coordination Countywide Service
3664 Emergency Management Coord West Police Dispatch
3696 County Communication Countywide Service
3728 North Wales Water Authority West Service
3760 County Parks Countywide Service
3792 County Public Works Countywide Service
3824 Countywide Emergency Countywide Police
3856 Event 1 Countywide Police
3888 Event 2 Countywide Police
3920 Event 3 Countywide Police
3952 Event 4 Countywide Police
3984 Montgomery County Geriatric & Rehabilitation Center Countywide Fire/EMS/HOS
4016 Northeast(Region 5) East Police Dispatch
4048 FD / EMS Emergency Button Countywide Fire /EMS/HOS
16208 Dispatch Secure Countywide Police
16624 E Detectives 1 Countywide Police
16688 E Detectives 2 Countywide Police
16912 E Plymouth PD Dispatch East Local PD
16944 E Pottstown PD Dispatch West Local Police
17104 E Upper Merion PD Dispatch East Local PD
17200 D Whitemarsh PD Dispatch East Local PD
21072 D Hospital Admin Countywide Fire/EMS/HOS
22416 D Fire Dispatch West West Fire / EMS
22448 D Fire Dispatch East East Fire / EMS
22480 D Fire Hailing West West Fire / EMS
22512 D Fire Ops 1 Countywide Fire/EMS/HOS
22544 D Fire Ops 2 Countywide Fire / EMS
22576 D Fire Ops 3 Countywide Fire / EMS
22608 D Fire Ops 4 Countywide Fire / EMS
22640 D Fire Ops 5 Countywide Fire / EMS
22672 D Fire Ops 6 Countywide Fire / EMS
22704 D Fire Police East (APCO25) East Fire / EMS
22736 D Fire Police West West Fire / EMS
25648 D EMA Coordination Countywide Police
26096 E Technical Services Countywide Service

* - denotes control channel
E - denotes encrypted
D - denotes digital mode

Continued on page 32

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The Winter SWL Fest continued



The Scanner Scum table at the Saturday Night Banquet

Officially the Winter SWL Fest gets started early Friday morning with the opening of the registration table, this is usually followed by welcoming remarks from one of the two Festmeisters Richard Cuff or John Figliozzi. NASWA (North American Shortwave Association) took over stewardship from the "Gang of Three" and Richard and John are now in their sixth year as caretakers of the fest. They along with dozens of volunteers turn a logistical paper jam into a great weekend of radio fellowship. The forum schedule kicks off at 9:00 AM on Friday and runs off and on through 4:00 PM on Saturday. Forums vary from year to year and no two are ever alike. They are informal, but very informative and fun. The presenters have been doing them for years and are quite comfortable in their presentations. You might find it to be more relaxed than the forums you may see at other hamfests or those held at the Dayton Hamvention. Always bring a notebook or recorder because a lot of good information is given.

Also opening on Friday morning is the Stockholm Room which contains displays for various vendors, radio clubs, and equipment demonstrations. Vendors for 2006 included National Communications/Mr. Scanner, and Radio H.F. with proprietor Sheldon Harvey of the Canadian International DX Club (CIDX). Radio clubs included NASWA, and CIDX. Kim Elliott of the Voice of America had a live demonstration set up of Digital Radio Mondiale which is the new digital broadcasting scheme for shortwave broadcasters. Tracy Wood conducted a Satellite TV/Demonstration showing worldwide radio/TV Free-To-Air (FTA) with a three-foot Ku-band satellite system.

There are also several tables of free goodies from shortwave broadcasters, hobby vendors and other radio paraphernalia. Get there early to get a hand on the good stuff!

A swap meet is held on Friday evening and gives everyone a chance to swap or sell that extra receiver just sitting around. With this crowd

The Winter SWL Fest continued





Above: Harold (Dr. DX) Cones, John Figliozzi and Richard Cuff hand out the raffled goodies.

Left: John Stevenson of VOA is the after dinner speaker

you can be assured that any classic receiver will be going to a good home. You just may find that piece of antique radio equipment or that newer radio you have been wanting to add to the collection. It is also another opportunity to swap old DX stories with like minded people.

The Hospitality Room continues to be a focal point for relaxed conversations, radio stories and great radio fellowship. Open during the evenings it offers a favorite snack and of course your favorite tuning oil. The room is closed and locked during forum sessions and is overseen by Mr. Mike Wolfson who also enjoys a good DX story. The Silent Auction usually begins on Saturday around 10:00 AM and ends promptly at 4:15 PM. Two rooms of tables with goodies such as radios, equipment, books, shortwave memorabilia and other items of interest are available for bidding on. Between 4 and 4:15 is when the action is! Bidders hover near their prizes to insure they have a last second chance at winning it. At a minimum the first $100 plus 10% of all other auction revenue are donated to a world relief fund. The auction has always went well beyond that.

Now this brings us to the apex of the Winter SWL Fest, the Saturday Night Banquet. For some the banquet may be the best part of the fest. A hotel catered dinner of either a decent beef or chicken meal, followed by coffee and desert. Master of Ceremonies is none other than Harold (Dr. DX) Cones. Each year brings an after dinner speaker and for 2006 the featured speaker was John Stevenson, Chief, Worldwide English, Voice of America. Mr. Stevenson brought us the unfortunate news that the current administration is considering abolishing most VOA English Services. It was a very interesting and informative talk. Mr. Stevenson said, this is the time to write your congressional representative and them know that now is a very bad time to do away with VOA shortwave English broadcasts. After a short break, the part that everyone builds up to and waits for is here, "The Grand Raffle". Tables and tables of prizes donated from many of the hobby manufacturers and vendors are raffled off. The top prizes this year was an Icom R75 receiver, Grundig Satellit 800, Sony SW7600GR and a Ten-Tec 320D. Dr. DX puts his special spin on the raffle and that provides the best entertainment of the fest.

Afterward, at midnight if one were to know these things an appearance by Pancho Villa himself can be heard throughout the confines of the hotel. That brings an end to official festivities. Sunday morning is known as the "Day of Leaving." Among most fest goers it is time to get a bite of breakfast in the hotel restaurant, then hit the lobby for good-byes until next year. Then its time to hit the road for the trip home.

The 20th Anniversary of the Winter SWL Fest is already slated for the weekend of March 9 - 10, 2007. Two web sites offer all the information you will need to keep an eye on the coming event:

http://www.swlfest.com http://www.scannerscum.com

It's a great weekend of radio fellowship and we hope to see you there next year. Mark your calendars as you are all invited to attend.

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

A NEW LOOK AT THE ICOM IC-R8500

STILL THE ULTIMATE SCANNER?

By Jon Van Allen, KF7YN



There is one radio we all droul over, that once-in-a-lifetime radio that has been on our wish list for years that we never could (or would) justify forking over a king's ransom for. With a street price of around $1500, the Icom IC-R8500 was certainly one of those radios and it had been on many a radio enthusiast's wish list ever since it came out 8 years ago. If you're like me, you have the usual good vs. evil struggle between want and practical needs. You know, the little devil on one shoulder telling you to go ahead and buy it while the little angel on the other shoulder telling you not to because your kids need money in their college fund. Being the avowed radio junkie that I am, evil won and this superb radio is a valuable part of my monitoring post.

Even though the R8500 has been out of production for well over a year, they are not hard to find on the used market and I feel it is still a viable addition to any serious radio enthusiast's lineup. It's like buying a highly desirable classic car, 1960's muscle cars are always in high demand. You get the picture. While this article is not intended to be a review as such, the idea here is to present a fresh look at a very capable radio for those who are considering a high end addition to their monitoring lineup.

Introduced in 1997, the R8500 is properly called a communications receiver rather than a scanner because it also covers MF/HF frequencies. This is one of the few "do everything" radios that truly does everything well! It is as capable on shortwave as it is on VHF/UHF. Although the R8500 lacks built-in DSP, I use my GAP Hear-It DSP Speaker (reviewed recently in these pages) with my R8500 and it works great.

Reception is a whopping 100 kHz to 2000 MHz, minus cellular frequencies in the US version. The R8500 does not cut off at 867 or 868 MHz like some receivers such as the R20, it will tune all the way up to and including 868.9875 MHz public safety frequency. This is very important if you monitor frequencies between 867-869 MHz.

A NEW LOOK AT THE ICOM IC-R8500 continued

Even after all these years, this is still the radio that most others are compared to. Only the IC-R9000 and AOR AR5000 variants equal the R8500 in performance. Both are far more expensive than the R8500. It is not fair to compare this radio to other HF-only receivers since the 8500 also covers VHF/UHF frequencies which is the main focus here.

This thing is built like a battle tank with a rugged cast aluminum chassis, high quality circuit boards and excellent shielding throughout. The major reason I wanted this radio is because it has an outstanding receiver 'front end' that is dang near intermod proof. I love to explore all frequency ranges, but living in a fairly large metro area presents major intermod and image challenges for lesser scanners, especially in the Salt Lake City area which is affectionately known as "Intermod Hell". AM broadcast stations cause strong images on shortwave and NOAA Weather and paging transmitters clobber VHF & UHF. The R8500 is one of very few radios that can handle those challenges.

Memory capacity is 1,000 channels divided into 20 banks of 40 channels each. There is an additional 100 channel bank for the auto-store feature and another 100 channel bank for locking out search frequencies. These banks are allocated in a dynamic size arrangement which means you can change the number of memories in a bank to accomodate more or less in another bank. We discussed this great feature in my "Scanner Features Part 2" article in the summer of 2004.

Computer control and programming is supported via a standard 25 pin serial port. Icom offers optional RS-8500 software which has a virtual control panel of the R8500 with very good graphics. This sofware also includes a spectrum scope that supports point and click monitoring of any active signal on the screen. This is very convenient when I'm looking for new frequencies.

There is also a free, open source program available called Tk8500, written by Bob Parnass. You can download Tk8500 for free at Bob's website http://parnass.com. I prefer Bob's software because it enables me to scan any combination of memory banks. The Icom software (and radio without software) only allow scanning of one bank at a time.

Let's take it for a spin! I connected the R8500 to my roof-mounted Scantenna and tuned through the VHF public safety band from 151 to 160 MHz. From the first time I used this radio, I knew it was in an entirely different league than my regular scanners. Sensitivity is noticably better than any of my scanners, I am hearing weak signals never heard before on the same antenna. No more intermod and images from the nearby NOAA weather transmitter on 162.550 MHz! I can listen to the railroads on 161 MHz without getting clobbered by pager and weather intermod for the first time in years. The military aircraft band 225-400 MHz was alive with comms my other scanners just don't hear. Ditto for 460 and 800 MHz. I was also able to monitor a low-power 900 MHz system for the first time. That is why I wanted the R8500 and the justification for spending so much.

I like the analog S-meter. Call me old school, I love the tried-and-true d'Arsenval meter movements. I've never seen a digital S-meter that adequately reproduces the movement of a good old fashioned analog meter. But that's just me.

800 MHz. Even though the R8500 is not a trunktracker, it can be used as a "discriminator tap" radio with the famous Trunker program. I tried my R8500 as a Trunker tap radio. It was able to hear the data channels in many 400 and 800 MHz Motorola trunked systems perfectly. In fact, it could hear and decode the data channel on a trunked system 50 miles north of me that my other scanners could not copy at all! While I certainly don't want to use a $1500 radio parked on one data frequency all the time, I do like the ability to use it now and then to snoop around for new activity or to check an existing frequency.

900 MHz performance is also excellent. There are a few 900 MHz trunked systems in my area and our local rapid transit light-rail uses 900 MHz conventional frequencies.

1296 MHz. There is no activity on this ham band in our area.

HF performance. I connected my brand spanking new LF Engineering Gainprobe H900 active antenna to the R8500. I switched between a 50' longwire and the H900. Performance was about equal on both antennas. I could hear the usual SW broadcast stations and SSB ham and utility comms without the usual BCB (AM broadcast band) interference I usually experience on lesser receivers. I didn't spend a lot of time on HF, my main focus here is on VHF/UHF scanner bands.

Rear panel connections: Discriminator tap: This is useful for decoding

Continued on page 36

A NEW LOOK AT THE ICOM IC-R8500 continued

programs such as Trunker and DTMF decoders. No need to modify the R8500 with a tap, it's already provided.

10.7 MHz IF output: This provides an output for accessories such as AOR's external APCO 25 digital decoder, or a spectrum analyzer.

Scanning speed is a respectable 40 channels per second, better than many dedicated scanners and on par with my Pro-2042!

Alpha numeric tags can be programmed in any memory position. Unfortunately, only six digits are available for alpha tags vs 12-16 digits in most scanners.

Dimensions: 11.3w x 4.4h x12.2d (287 x 112 x 310 mm), weight is 15.4 lbs (7.0 kg). This hefty radio will take up some space on your radio desk but is not as big as the monster Grundig Satellit 800, for example. Even though this radio is big and heavy, I like to think of it as the ultimate "road trip" scanner. On a recent road trip, I was very pleased with it's performance using a Niljon Super-M magnet mount scanner antenna. I can hear far more on this radio than with any other scanner, so if there is enough room it goes on the road with me. Okay, the R8500 is overkill for a mobile scanner but is so worth it!

Options can still be found on newsgroups and eBay which include several filters for HF (CW, RTTY and SSB) carrying handle, Icom software, RS232 level converter.

Icom announced in early 2005 that the R8500 is now out of production so if you want one you will have to find one on the used radio market from your favorite radio dealer, eBay, etc. Going price is $1000 to $1200. If you can afford to part with a kilobuck, get yourself an R8500 and experience top notch performance.

As always, we welcome your email, what you are hearing on your scanner and what topics you would like to see covered in these pages. I can be reached via email: jonvanallen@msn.com

Until next time, happy scanning!

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Closing Comments

Last month I complained about the fact that I did not like to learn radically new things. Instead I prefer to learn things gradually. This was brought about with my experience in trying to understand Uniden's BCD396T scanner. While the radio is really nice once it has been programmed, getting it programmed was not nice.

The radio has all sorts of features, many of which I would never use, but the size of the unit and how it works made me want to learn how it worked. The problem was that the radio incorporates a whole new way of doing things when it comes to being programmed. There are no banks, for example and the whole menu, and number of choices is a bit overwhelming.

Thankfully the Scancat Lite Plus software brought the radio back to the level of others I have programmed. The reason why I picked the Scancat software was that basically I only needed to learn the software once and then I could program just about any scanner out there -- either RadioShack or Bearcat.

There are a few quirks with Scancat's interaction with the radio, which I am sure will be worked out by the software developers, but even with those quirks, using the software made the radio much easier to handle.

So, now I can program the radio and as I need different options I can learn how to do them. With the Scancat and checking for specific things in the owner's manual once or twice, I was finished programming the unit.

Do I think that the radio is easy to program. The answer is no. However, it is not as impossible as it was the last time I looked at it. Still for the beginner it is not a friendly piece



By: Norm Schrein, KA8 PGJ

of equipment unless someone has already programmed it.

Unfortunately scanners have become more difficult to program as systems change. All scanners will program by hand, but why someone would ever want to do that is beyond me. I stopped programming scanners by hand a few years ago.

Uniden's radios do come pre-programmed with all sorts of frequencies, but the majority of them would be of no use on a localized basis. RadioShack, on the other hand, because of their seven thousand stores nationwide, has developed a way of programming localized systems into their scanners. Both are an approach to the same problem. That problem is that scanners are not as simple as they used to be.

So, if you are like me and only want to learn things gradually, I would suggest that if you do not have a computer -- get one. Now, of course you will have to learn about that first. Once you feel comfortable with the computer, get a copy of the Scancat Lite Plus software. Then you will be able to handle just about any scanner that is thrown your way. Finally, forget about trying to program a scanner by hand. ●

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LAST PAGE OUT



Harrison Township (OH)
Shiloh Fire Station circa 1968.

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