

ScannerDigest Newsletter

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We apologize for the delay in placing Bill's material within the newsletter. Here is Part 2 of his article. Enjoy!

Cruise Ship and Maritime Monitoring By Bill Dunn N1KUG

PART II

But enough of the Legal reference materials, what should I program my scanner with beside the VHF Marine [American and *International*] channels. My basic UHF Marine set-up revolves around these sixteen [16] frequencies and the additional 12.5 KHz Splinters between these 25 KHz channels.

457.5000	467.5000	467.7500
457.5250	467.5250	467.7750
457.5500	467.5500	467.8000
457.5750	467.5750	467.8250
457.6000	467.6000	
457.6250	467.6250	

Now you don't need to be on-board the Cruise Ship to listen. Many of the Cruise ports that I have visited have a parking area either in the port or very near-by.

Much of my monitoring in Boston is from right along the dock as the ships arrive and depart, which is actually one of the best times to find/determine the "Bridge Operations"

channels, due to the volume of radio traffic occurring. And if you are there in the hour[s] prior you might even get Security talking to the Captain or Shore Excursion desk reporting the #'s of Crew Off-Boat as well as the number Passengers [for a Port-Call] who have not returned. As it gets closer to Departure time this can be called the 'run of shame' as passengers run for their departing ship. When trying to confirm ship frequencies, it is important to take notes over multiple days, and keep a running log. Why? Frequencies are used by more than one ship in port and may only be determined by PL or DPL Tone or by monitoring Port-Movement. It can take days, weeks or months [multiple port visits] to validate a certain ship, especially in a busy port. Some frequencies rarely get used and it might be a one-shot deal to capture it. In addition to Cruise Lines, these frequencies are also used by local business's as well as other Maritime Vessels [Cargo, Bulk Carriers, Fuel, LNG and Ferries]. Note – it took me 3 years to find the Talk-around channels for Norwegian Cruise Lines, as I had locked out some frequencies due to them being used at the near-by major international airport. NCL was using them, also in CSQ [No PL] mode.

After docking, there is the [anyone up for Federal Monitoring?] coordination with U.S. Customs and Immigration [if coming from a foreign port or a final destination point] along with setting up the gang-way for all those passengers to spend money in port. Much of the Shore Excursion coordination in the Island [Caribbean and Mexico] countries has been monitored on VHF Marine Band [Your Mileage May Vary – YMMV], as well as the on-board ship channels.

Many of the ships now provide for the Crew and rent to the passengers On-Board Telephones [DECT etc] which are now including a texting option [for on-board use only]. Disney is now offering these as part of the room package [replacing the Youth activities pagers] with 2 per room. The portable phones can send and receive phone calls and text messages from other Wave phones when used on board the ship or on Castaway Cay. The phones do not work off the ship, and it doesn't sound like they can work with other carriers - you can use the device to call other Wave Phones on Disney's network, but not to call home. Royal Caribbean is experimenting with iPads [tm] in each stateroom.

Cellular [on-board] and Wi-Fi are now more common [always check with your Carrier for the International Roaming Rates]. Don't be surprised when you get home for a large roaming bill [\$\$]

For those traveling on-board, I suggest a portable scanner [with Close-Call] and some headphones/earbuds. There are some Cruise lines that actually list under the prohibited items, Amateur Radios. [Royal Caribbean – my

Favorite – is one of them. Also, leave the scanner on-board vs. taking it with you when you leave the ship. Every country varies as to the Rules and Laws for Scanning and it may be ILLEGAL for you to listen to anything in certain countries, and why spend the extra time going thru security and having to explain the brick of AA batteries in your backpack. Do Not pack your scanner[s] with your checked bags. Carry them in your laptop or travel bags as you board. Being on-board is one of the better places to validate channels/tones without having to take multiple logs, as you are at sea, alone and not near many other ships.

You never know what you will hear/find. I awoke one morning on a Cruise to hear a USCG Rescue Helicopter attempting to land on the bow for a patient transfer.

We have also listened to MTN [MTN Satellite] technicians working on-board to restore the internet and TV Feeds. The best one is knowing why we have not left port [Medical calls, or Tardy Passengers] on time.

Just like any other form of Scanning, it's all about sharing the information so others know what is out there. We all bring something unique to the hobby. Whether it be posting on your local scanner [Yahogroups, QSL.net] list-servers, some of the National [Radio Reference] or Regional [ScanNewEngland.net] Bulletin Boards, Blogs or just sharing via email You never know where a ship will be transmitting. Here are some sent to me other the years:

- 121.5000 AM – Celebrity Constellation conversing with an Air Craft
- 151.6250 FM – Silver Seas “Silver Cloud”
- 155.6000 FM – Stena Lines “Stena Saga”
- 155.9100 FM – BC Ferries
- 158.0500 FM – DFDS Seaways
- 161.3500 FM – Various ships of the P&O and Princess Cruise Lines
- 161.4500 FM – Various ships of the P&O and Princess Cruise Lines
- 161.9750 FM – Silver Seas “Silver Whisper” – Repeater on AIS 1
- 162.3450 FM – Marine Atlantic “MV Joseph and Clara Smallwood” – Repeater
- 440.7000 FM – Radisson Seven Seas “Seven Seas Navigator”
- 440.7750 FM - Radisson Seven Seas “Seven Seas Navigator”
- 450.1000 FM – Crystal Cruises – “Crystal Symphony”
- 450.6750 FM - Radisson Seven Seas “Seven Seas Navigator” – Repeater from 440.6750 FM input [Yes – Amateur input to New Media output]
- 458.0500 FM – Most of the Holland America Fleet as a Repeater for Engineering
- 460.7000 FM – Norwegian Cruise Line “Norwegian Majesty”

- 460.7250 FM – Norwegian Cruise Line “Norwegian Majesty” and RCCL “Jewel of the Seas”
- 470.2500 FM – Carnival “Carnival Sensation”
- 478.5250 FM – Carnival “Carnival Conquest”

Now the shameless plug for my little web site.
<http://scanmaritime.com>

We always appreciate new information as well as updates to ensure the data is still accurate. Frequencies / Tones / Usage, and if found channel number info is needed for new ships as well as reconfirmations on prior reports is always needed.

I began this little hobby venture, while tracking interference to a friends GMRS Repeater. Tracked it right back to the Cruise port and the culprit was one of the Holland America ships on the GMRS input, which was their input frequency as well.

If you are going on a cruise, check in with me, based on your Itinerary we might be able to help you out with a list of other cruise ships you will encounter in each port. Sadly we must report there are a few Cruise Ships that are now running MotoTRBO. At this time TRBO is not decodable with our current stand-alone scanners. But can-be with software on your PC or Laptop [Search on RadioReference for the topic of DSD]

Some Misc Links related to the topic
<http://www.cruisetimetables.com> Cruise Schedules
<http://www.cruiseal.com> Cruise Schedules [\$\$]
<http://www.marinetraffic.com/ais> AIS signal tracking with Maps

<http://shiptrackingais.blogspot.com/>
<http://board.cruisecritics.com>

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The below VHF Table from the USCG is one of the better tables for both the USA and International Channels
<http://www.navcen.uscg.gov/?pageName=apps18>

We're looking for photos!

We're looking for photos to be submitted for the Scanner Digest Newsletter. Contact us for details.

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Many fire and incident notification groups exist today, there are choices of paid, or free and how much you want to receive. There are other online sources you can monitor such as twitter and the news media, but you have to use multiple sources.

USEMERGALERTS is a Free not for profit group, which allows you to pick which areas you want to receive and what incident types you wish to receive. UEA is owned by Thomas Perez-Hernandez & Jimm Mosso, both of whom are not new comers to the incident dispatch community.

UEA Dispatchers follow incidents via scanner, online scanners, twitter and media outlets to get the information you desire. UEA pages upward of 3000 calls per month across the United States. UEA is a newer company which is approaching its 2nd year of service and is constantly upgrading to provide the best service to their subscribers. The recent merging of Incident Alerts 1 (IA1) will bring over 4000 more subscribers. UEA is backed by a team of administrators with many years of paging experience between them, along with actual Police, Fire,

EMS and dispatch experience and work history. Incident pages will contain an address or location, city, state, details, and a source if someone else provided the incident.

UEA welcomes anyone to subscribe to receive alerts, and is also always looking for dispatchers in all areas. UEA has a 24/7 hotline where incidents can be called in to as well as an email address to send tips to. UEA's dispatchers are all volunteer and work as a team for a common goal of sharing information with subscribers. UEA's uses various sources to maintain a relationship with its dispatchers including a Zello voice chat room, available via desktop program or mobile application as well as a text chat service through Group Me.

Everyone is encouraged to visit the UEA website <http://www.usemergalerts.net> and subscribe or sign up to dispatch. Any questions may be emailed to support@usemergalerts.net



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USAF-NYANG 106th RQW

Since 2004, the USAF-NYANG 106th RQW (Rescue Wing) based at Francis S. Gabreski Airport has been invited to the Long Island, NY Jones Beach State Park Air Show, demonstrating to the public what they do on a regular basis- performing Search and Rescue (SAR) missions and saving lives. The 106th RQW is best known for its "Perfect Storm" fame but there is a lot more to the one thousand men and women comprising the nation's oldest Air National Guard unit beside a best-selling book made into a box-office success movie, along with an exciting air show performance.

It was supposed to be a routine Atlantic Ocean crossing for the freighter Grand Hauler*, returning from Europe to NYC with its load of cargo, when suddenly there was a large explosion in the engine room. The cataclysm culminated in fire and serious injury to several ships' crew. With the vessel now dead in the water and six hundred miles from shore, the ship's captain put out an immediate call, via maritime emergency radio frequencies, for help to any nearby ships. In the normally busy shipping lanes, none were close enough to offer assistance. The captain's next call went out by HF and satellite radios to the United States Coast Guard (USCG). Unfortunately, the ship was beyond the two hundred mile limit for the Coast Guard's assets to respond. The USGC immediately placed a call to the Air Force Rescue Coordination Center (AFRCC) at Tyndall AFB, FL. The AFRCC quickly determined the closest unit to respond was the 106th RQW. When the 106th RQW gets a call, they know it's the real thing. There is no record of the Wing ever being sent to a false alarm.

Except for the 176th RQW (USAF-AKANG) and the USCG, the nation's Rescue Wings do not stand alert or fly routine coastal patrols. Fortunately for the Grand Hauler, the 106th personnel were on station for a training weekend. The crews quickly mustered for a brief to determine the extent of the situation and what assets would be required. Available to the Wing are five HC-130N/Ps and six HH-60Gs Pave-Hawk helicopters. The HC-130P/N is the only dedicated fixed-wing combat SAR platform in the Air Force inventory with its primary role committed to extended-range Search and Rescue, and an aerial refueling platform for helicopters. The Wing is not expected to transition to the C-130J for at least five years. The 106th RQW is divided into three squadrons; the 101st RQS flying HH-60Gs (JOLLEY), the 102nd RQS piloting the HC-130N/P (KING) and the 103rd RQS Pararescuemen Jumpers (PJs).



Photo courtesy of Howard German

About half the pilots have held other Air Force jobs prior to transitioning to the 106th, some have prior SAR experience. During the briefing it was learned that some of the freighter's crew may have gone overboard. It was decided that some of the PJs should be loaded onto the HC-130s with the remaining to the HH-60s. The aircraft were readied, loaded with the necessary personnel and equipment, and departed to the scene. While conducting SAR missions, the HC-130s and the HH-60s will drop their non-mission regulation call signs (KING and JOLLEY) in favor of a mandate-directed call, "AIR FORCE RESCUE".

The HC-130s were first to arrive, flying low over the distressed vessel. Spotting souls in the sea, the PJs clad in wet suits and swim fins were deployed to the water. The PJs are a highly motivated all-male multi-talented force and are the only DoD specialists specifically trained and equipped to conduct rescue and recovery operations. All are excellent swimmers and have been crossed trained as combat officers. Before transitioning to a Rescue Squadron, Pararescuemen have completed eighteen months of physical and specialized training along with EMT-Paramedic instruction. Only ten percent of the applicants make it through to graduation, earning the distinctive Pararescuemen maroon beret. After a PJ is accepted to a squadron, there is an additional two year training period with continued recertification throughout their careers.



Once the HH-60s arrived on scene, more PJs were hoisted onto the burning ship after which the HH-60s retrieved the PJs in the water along with their rescued survivors.



With the PJs aboard the freighter, the HC-130s and HH-60s established contact with the pararescuemen via their PRC-148 inter-team radios. A team of three PJ specialists is trained in emergency trauma medicine and are able to provide any required medical treatment. With the situation mitigated and with the surviving crew members on board, the PJs were hoisted from the ship by the HH-60s and began to make their way back home. Enroute, the helos took on much needed gas from the HC-130s two under-wing fuel pods.



Following the aerial refueling, the unit was alerted to another emergency. The HC-130s and HH-60s are equipped with one HF, two VHF and two UHF radios. The Wing's aircraft constantly monitor the National SAR calling frequencies. From recent storms there had been extensive flooding in upstate New York, trapping inhabitants of several communities. About one-fourth of the squadrons' received calls are for over-land rescues.



During Hurricane Katrina the Wing was deployed and responded to one-hundred-and-fifty such calls. Once again the HC-130s, with capabilities of performing extended visual and electronic searches over land or water, orbited overhead while communicating with local emergency personnel on the ground. Concurrently, the HH-60s deployed their PJs via ropes and baskets, pulling stranded citizens from roofs and tree tops.

Upon completion of their land rescue, the aircraft and personnel returned to base to resume their, five-days-a-month, training. Personnel report to the Wing about sixty to seventy days a year, overseas deployments normally last ninety days. The 106th RQW have participated in six-hundred-and-eleven "up-the-hoist" rescues between 1975 and 2010; most of those overseas.



Photo courtesy of Howard German

The 129th RQW located at Moffett, CA responds to a similar number of annual calls. The New York Air National Guard Wing is one of six Rescue Wings located on both coasts of the USA, with the 176th RQW (USAF AK-ANG) being the busiest. Secondary Rescue Wing missions include performing tactical airdrops of Para-Rescue Specialist Teams and, dropping small bundles and Zodiac watercraft.

The 102nd RQS is the nation's oldest Air National Guard unit, dating to 1908 when their original mission incorporated flying balloons as an Aerial Observation Unit until WWII. During WWII the 102nd served as a Reconnaissance Squadron and a Light Bombardment Unit. Following WWII the 102nd RQS was assigned to the 106th which had been designated as a Fighter Wing, Airlift Wing, Air Refueling Group, and Fighter Interceptor Group. In 1975 the 106th became the Aerospace Rescue and Recovery Group (responsible for NASA Space Shuttle missions) and finally in 1989 to its current designation as the 106th Rescue Wing.

After a busy day, the Wing members departed for home passing by a memorial located at the entrance to the operations building. The memorial commemorates the 106th RQW lives lost; seven in 1978 and one in 1991 during the "Perfect Storm". In 1994 the 106th RQS rescued the sole survivor of the Salvador Allende, conducted 750 miles out over the Atlantic Ocean. As a result, the Wing was awarded the American Helicopter Society's Captain William H. Kossler USCG Award, presented annually, recognizing the greatest aerial achievement in practical application or operation of a rotary wing aircraft. True to their motto "That Others May Live", in October 2012, the 102nd used watercraft to assist New York victims of Hurricane Sandy; something that will not go unnoticed by a grateful audience at the next Jones Beach Air Show.

* Fictitious name and event used for dramatization purposes.

Air Force Pararescuemen Training:

The first step toward earning the coveted PJ maroon beret is the physically demanding Lackland AFB indoctrination course, during which the majority of trainees either fails or gets washed back. The next steps are the U.S. Army Combat Dive School, U.S. Navy Underwater Egress Training, U.S. Air Force Basic Survival School, U.S. Army Airborne School, Free Fall Parachutist School and Wind Tunnel Training. The final phase, the longest and most challenging, is conducted at Kirkland AFB; includes EMT Paramedic Training and the Pararescue Recovery Specialist Course. From start to finish, the overall applicant washout rate is ninety percent!

The PJs training syllabus:

<http://kirtland.baseguide.net/units2.html#afpcos>

Pararescuemen Factsheet:

<http://www.af.mil/information/factsheets/factsheet.asp?id=177>

PRC-148 Inter-Team Radio spec sheet:

<http://www.thalescomminc.com/datasheets/Thales%20JEM.pdf>

FREQUENCIES

106th Rescue Wing (ANG) Francis S. Gabreski Airport, NY

138.450(am) Aerial Refueling
251.900 ANG SAR Training
287.500 RESCUE OPS
282.800 National SAR (calling & working)

347th Rescue Group (23rd Wing) Moody AFB, GA

228.225 Command Post
381.050 ANGEL OPS

920th Rescue Wing (AFRES) Patrick Air Force Base, FL

138.475(am) RESCUE OPS
255.500 RESCUE OPS

129th Rescue Wing (ANG) Moffett Federal Airfield, CA

390.900 RESCUE OPS (5711 USB)

939th Rescue Wing (AFRES) Portland International

Airport, OR
281.200 Command Post

176th Wing (ANG) Joint Base Elmendorf-Richardson Pacific Air Forces

123.100 11th AF Rescue Coordination Center
282.800 11th AF Rescue Coordination Center (5710 USB)
381.000 11th AF Command Center

Nationwide Search and Rescue (SAR)

40.500 Army/USN
122.900 Secondary and Training (aviation)
123.100 Primary (aviation)
138.450(am) Military
138.750(am) Military
236.000 ANG Training
251.900 ANG Training
259.000 ANG Training

282.800 National (calling & working)

Unconfirmed

252.800 (106th RQW)

259.700 (Nationwide)

Dan Myers K3NXX

The following article was originally written for the web site of The Harrisburg Chapter of The National Railway Historical Society and was intended for railroad enthusiasts who are not necessarily tech-savvy. The article is © 2013 and is reprinted here with permission. To learn more about the restoration and preservation efforts of the Harrisburg NRHS, visit their web site at: <http://www.harristower.org/>

Rebanding:

Do I Need a New Railroad Scanner?

by Dan Rapak - WA3ATV

The buzz in the communications industry these days is “rebanding.” The communications industry touches our lives more and more every day. Everything from cell phones to wireless Internet to digital television to two-way radio revolves around radio communications of some form or another. This includes railroad communications and eventually, the scanners that many of us use to monitor railroad voice communications may have to change.

What is “Rebanding” and Why are We Doing This?

There are tons of new electronic gadgets available for people today. Use of the things above plus 3G and 4G smart phones, iPads, Kindles and other toys continues to grow. Each of these devices use radio signals to get their data or to allow you to talk to Grandma. The problem is, there is only so much radio spectrum to go around. As a matter of physics, there are a limited number of frequencies (or channels) available for everyone to use and we’re beginning to run out. To address this, the Federal Communications Commission (the FCC) has taken steps to squeeze more channels out of the available radio spectrum.

In the “old days” state-of-the-art radio equipment wasn’t as precise or as stable as things are today. A railroad radio that was supposed to operate on 160.980 MHz would drift around a little. It might really operate on 160.978 or 160.982. To make matters worse, radios would drift as the temperature changed or as the voltage in the locomotive varied or as the battery in the hand-carried radio drained down. Radio wasn’t an exact science. That’s just the way things were in the days of vacuum tubes and even into the days of transistors. To allow for this, the FCC spaced radio channels a good distance apart to keep people from interfering with one another. If your radio drifted a little, no problem. You didn’t drift into the next guy’s channel.

Another factor was filtering and how sharply a radio could tune to a given channel. If I want to communicate on

160.980 and someone else wanted to communicate on 160.985 it wouldn't work. The radios of the day couldn't tell the difference. Our conversations would overlap and interfere with each other. Think of it like office cubicles. If people in adjacent cubicles are carrying on conversations, you hear each other. The only way to avoid the problem is to keep the cubicles farther apart. In radio, this means spacing channels farther apart and that meant eating up more of the available radio spectrum.

Today things are different. Modern digital circuitry and manufacturing techniques make radios much more stable. That radio on 160.980 isn't going to drift as much. It's going to stay pretty darned close to 160.980. Plus, the filtering is much better. Instead of office cubicles we now have separate offices with real walls. You heard the guy in the next cubicle, but you don't hear the guy in an adjacent office. Your conversations no longer overlap and interfere. As a result, the FCC has decided to redistribute or "reband" the channels within the radio spectrum. Radio channels are moving closer together and the channels themselves are being made narrower. This will allow us to squeeze more channels into less space and add much needed capacity. This is being done across the board. Every radio service from police, fire and EMS to taxicabs and radio dispatched pizza delivery trucks are being affected.

In the case of railroad communications, the number of channels available for the railroads to use will double. Basically there will be a new channel squeezed in between each of the existing channels and all of the channels – including the existing channels – will be half the width or less. See Table 1 below.

What does this mean for existing scanners?

Initially, we won't notice much difference. Even after the rebanding is completed, if the railroads aren't having any interference problems now there's no real reason to change to the new (additional) channels. You might see some changes in larger cities that are served by several railroads where interference is an issue, but road channels will likely change very little.

What you will notice is that the volume level of your scanner will go down and the background noise will increase as railroads convert from the old, wide channels to the new, narrower ones. Like most two-way radio systems, railroads use frequency modulation or FM. With FM, the frequency of the carrier wave changes in accordance with the audio. The louder the audio, the further the carrier changes its frequency. In rebanding, the channel widths are being cut in half. That means that the carrier can't swing its frequency as far. Your old scanner is still looking for the carrier to swing the width of the old, wide channel. Instead, the carrier will only be swinging half that much. Since your scanner only sees half the swing, it will only produce half the volume. The bottom line: you have to crank up the volume a bit more than you currently do.

Another thing you may notice is more background noise when you turn that volume up. Again, your scanner is looking at the old, wide channel while the railroad is only using half of it. The unused part is filled with static. That static will mix with the voice and add some "hiss" to the communications.

While your current scanner will continue to tune the existing channels just fine (albeit at a reduced volume level) it may or may not be able to tune the newer, "sandwiched in between" channels. This depends entirely on the particular make and model of scanner you own. If your radio tunes only in steps of 5 kHz or greater you won't be able to tune the new channels directly. If it can tune in smaller steps you'll probably be okay. Table 2 at the end of this article lists all the AAR Channels after rebanding. Try to tune the new channels (AAR 107 and up) on your scanner. Again, there probably won't be a ton of activity on the new "in-between channels" for some time so this isn't really a show stopper.

What about new scanners?

Newer model scanners are already designed with these changes in mind. The exact nomenclature used to refer to channel width varies from one manufacturer to another. I have a Uniden / Bearcat that has a mode called "WFM" or Wide FM for your local FM radio stations, "FM" for the current day channels and "NFM" or narrow FM for the new, rebanded channels. The literature for the new radio should specifically state that it accommodates the new, narrow, rebanded channels.

What about digital?

You may have heard that the new rebanding means railroads will convert to digital. Digital is not compatible with currently available scanners. Conversion to digital is now an option for the railroads to use, but it is NOT yet a requirement. It probably WILL be a requirement within the next ten years, but it is not a requirement just yet. With all of the existing infrastructure that's out there plus the fact that locomotives must operate in interchange service between various railroads it is reasonable to expect the railroads to remain analog for several more years. However, looking toward the future, the railroads are beginning to experiment with digital radios. The American Association of Railroads (the AAR) is recommending that all new radios purchased be capable of digital operation. That way, when the FCC mandates a conversion to digital, the changeover will simply involve the flip of a switch. The fly in the digital ointment as far as scanner users are concerned involves the type of digital radios the railroads are experimenting with.

Just as analog radio has AM and FM (and a few lesser known modulation methods) digital radio also has several modulations methods available, each with its own advantages and disadvantages. This is why a Verizon digital cell phone isn't compatible with Sprint's cell phone network. Without a dual mode phone, you can't roam with

a Verizon phone on Sprint and vice versa. Think of one as AM and the other as FM. They can't talk to one another even if they're on the same channel.

To date, most digital two-way radio systems – those used by first responders, etc. – use a digital system called APCO P25. So far, this is the only digital system built into the modern scanners available today. However, P25 isn't the only digital system out there. Another system that is beginning to hit its stride is called NXDN and this is the system chosen by the AAR as the digital standard for railroad radios. As of this writing there are no scanners that are capable of receiving NXDN radio signals. So, we'll just have to wait and see what scanner manufacturers come up with.

What about scrambling?

Scrambling (or encryption) involves altering the signal so that it can't be received by the general public. Some law enforcement agencies encrypt their communications to prevent the bad guys from listening in. Of course this prevents you and me from listening in as well. While it's possible to crack the code of some scrambling methods, in the United States it is illegal to do so. So even if you have a hack that will let you listen in on scrambled police calls, you could go to jail if you're caught.

That said, it's important to understand that digital radio DOES NOT necessarily mean encrypted radio! Digital is just another method of impressing sound on a radio wave. Just as we've had AM and FM as analog modulation for years, now we have various forms of digital modulation. And just as some analog radio transmissions are encrypted and some are "in the clear" we also have digital radio transmissions that are encrypted and some that are in the clear.

While there have been rumors that railroads would encrypt their signals when they convert to digital, I've read nothing on the AAR website or elsewhere that indicates this is true. Unless you are really paranoid about homeland security issues, there would be little reason for railroads to encrypt. In any event, this is something railroad enthusiasts have no control over so there's no point in worrying about it. If the railroads decide to encrypt their signals, no scanner sold in the US will be able to receive the communications.

When is this all going to happen?

It pretty much already has happened. The AAR set a date of July 1, 2010 as the date by which all locomotives should be voluntarily converted to narrow band transmissions. A complete list of changeover dates were posted on the AAR web site. Most of the major railroads have completed their changeovers. At some of the smaller regional railroads and short lines, this may still be a work in progress. There also seem to be a number of talking defect detectors here and there that have not yet been switched over and thus sound much louder than the rest of the communications.

Summary:

The bottom line of rebanding is this:

- ▶ New channels have been added, but will probably not see wide spread use in the immediate future.
- ▶ Your present scanner will continue to receive the current channels, though you will have to turn up the volume control a bit more than usual and you may notice a bit more background hiss.
- ▶ Your current scanner may or may not be able to tune the new channels that have been added. It depends entirely on the particular model of scanner you own.
- ▶ If your scanner can't tune the new channels, don't sweat it. Initially, activity on the new channels should be minimal.

If the railroads convert to digital:

1. We will all have to buy new scanners as there are no scanners manufactured today that can receive the NXDN digital format that the railroads are looking at.
2. We will have to wait to make that purchase until someone manufactures a scanner that can receive the NXDN format since none exist today (January 2013.)

The bottom line:

Hang onto your current scanner for the time being. It should continue to serve you in monitoring railroad communications for some time to come. If you're thinking of buying a new scanner, you might want to hold off until scanners with NXDN capability are available.

Table 1 - Comparison of Old Channels to New, Narrow Channels

Original Channels	AAR 52 160.890		AAR 53 160.905		AAR 54 160.920		AAR 55 160.935	
Narrow Channels	AAR 052 160.8900		AAR 053 160.9050		AAR 054 160.9200		AAR 055 160.9350	
Additional New Channels	AAR 052 160.8900	AAR 152 160.8975	AAR 053 160.9050	AAR 153 160.9125	AAR 054 160.9200	AAR 154 160.9275	AAR 055 160.9350	

[Click here for the table showing the new AAR Channel Assignments after Re-Banding](#)

About the author:

Dan Rapak is a railroad enthusiast, scanner hobbyist and an Advanced Class ham radio operator. He is a retired television broadcast engineer and has written a memoir about his 37 years of behind-the-scenes experiences in broadcasting including twenty years as a Field Engineer with ABC Sports and ABC News.



The memoir is entitled
“Brought to You By . . .”
and is available through local book stores
and from on-line retailers such as
AuthorHouse, Barnes & Noble and
Amazon.com

This website shows all the active and soon-to-be active military airspace all over the U.S. When there is a colored box over northwest Iowa, you can be pretty sure the Iowa F-16s will be flying that day. In addition to showing the military operating area airspace that will be active on the map, the three air refueling routes that run over or near Iowa are also shown when they'll be active. I've included some air refueling frequencies in my list.

At my listening post, I can hear the F-16s as they come out of Des Moines and head northwest on 307.1500, Des Moines departure control, then talking to Minneapolis center on 288.3000 prior to entering the airspace.

On to the frequencies I have found active from my listening post in central Iowa. Unless noted, all frequencies use AM mode.

Frequency	User
227.2750	AWACS air-to-air tactical
228.9000	Huntress, Blue 09
231.5500	Army National Guard ops
233.7000	Offutt AFB command post
233.4000	IA ANG air-to-air
234.6000	Blue 10
235.9750	Kansas City center low over northern MO
238.2000	WI ANG F-16s air-to-air
238.3000	IA ANG air-to-air
238.9000	AR-105 primary (very busy)
239.8000	AF weather
240.3500	AR-318 primary
243.0000	Emergency "guard"
250.8500	IA ANG air-to-air
251.0500	Des Moines International Airport ATIS
252.0000	Blue 11
252.1000	Minneapolis ARS command post
252.9000	IA ANG command post
257.8000	Des Moines International tower
257.8750	Minneapolis center Des Moines high
260.2000	AR secondary
260.9000	Blue 13
261.5000	Chicago center Ottumwa low
265.4000	Blue 14
269.3000	Kansas City center Kirksville MO high, hands off to 284.625
271.0000	Huntress, Blue 15
273.4500	Kansas City center Richland MO ultra high
277.7000	Scott AFB command post
279.6000	Kansas City center
281.4000	Chicago Center Dubuque low
282.6000	Blue 17
283.9000	AR-309 primary
284.6250	Minneapolis center
288.3000	Minneapolis center Ft. Dodge low
288.4000	Blue 19
290.4000	Minneapolis center Omaha
290.7000	Kansas City center Kirksville MO ultra-high
295.8000	Blue 20, AR
297.3000	AR-406 air refueling primary

IOWA

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Iowa UHF Aviation Monitoring

On January 3rd of this year, President Obama signed into law defense legislation that authorizes the elimination of the F-16s stationed at Des Moines International Airport, according to a recent article in The Des Moines Register. Hopefully, this issue reaches you before the F-16s stop flying out of Des Moines so you can enjoy listening to them.

A website I use frequently to determine if the Iowa Air National Guard will be flying is:

<http://sua.faa.gov>

298.6000 IA ANG air-to-air
 298.9000 Chicago center Des Plaines low
 300.1250 NORAD/Huntress, Blue 40, AWACS tactical
 301.6500 Airborne Command Post WBFM
 303.1500 IA ANG air-to-air, USAF command post
 303.2750 USAF Have Quick
 306.9500 Minneapolis center-SW Iowa low
 307.1500 DSM approach
 307.9000 Minneapolis center-western WI high
 311.3000 IA ANG air-to-air
 319.2000 Chicago Center S of Iowa City
 319.7000 AR-16, air refueling secondary
 320.6000 Blue 24
 320.9000 AR-105 secondary, Blue 55
 321.3000 Blue 60
 323.0250 Minneapolis Center Mason City
 327.1500 Unided center
 328.0000 Possible Huntress
 328.4000 Chicago Center
 335.6250 Kansas City center Hallsville MO ultra high
 335.9500 Possible Huntress
 337.2000 Airborne Command Post WBFM
 338.8000 Blue 03
 343.5000 AR-16, air refueling primary
 348.6000 KDSM ground control
 350.3000 KDSM approach/departure
 354.1000 Chicago center Ottumwa
 360.7000 DSM approach
 362.3000 Blue 21
 363.1000 Minneapolis center Sioux City
 364.2000 Blue 07, AICC
 364.8000 Blue 31
 366.3000 AR-116 primary
 370.9500 Chicago center over SE Iowa, low
 887.0000 Blue 33
 396.2000 AR-406 air refueling secondary

If you enjoy listening to milair and you know more active frequencies, please share them with me by sending me an e-mail to the address shown at the top of this column.

And that's it for this issue. Until next time, happy listening!

AMATEUR RADIO

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Amateur Radio: Software Defined Radio

By Robert Gulley AK3Q

I am admittedly a late-comer to software defined radio, at least in terms of its modern definition. As some would rightly note, almost all modern radios are software defined to one degree or another: the question is more about how much is done through a computer and how much is still done turning knobs and twisting dials.

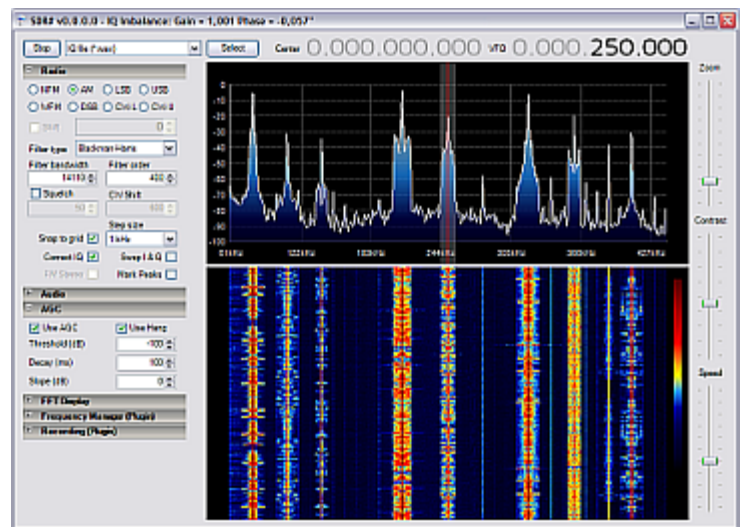
I will admit to liking the feel of a "real" radio. I like the feel of the tuning knobs, the volume/squelch pots, and pushing buttons to make my radios work. I have resisted moving

any of my actual radio listening to the computer until just recently, when I read (yet another) article about using a USB "dongle" designed for European Digital TV reception for amateur and VHF/UHF work. I decided to take the plunge. For twenty bucks, I figured how could I go wrong? Best \$20 I have spent in a long time!

SDR

For those who might not know about SDR, or *software-defined radio*, the main idea is that everything needed to receive (and transmit for those units so equipped) is contained on a computer card. By using a computer's built-in sound support (or an optional sound card unit), signals are received, decoded, and sent through a software interface for control. One of the biggest advantages to such a system is that the computer can sample the signals received over a wider bandwidth than a typical radio, so that rather than seeing one signal on your screen, you may see many.

A typical example is using one of these dongles to receive FM broadcast signals. Depending on your unit, you may see as much as 2MHz width of signal at one time displayed in a waterfall on the computer screen (see photo below). The noise level is obvious, and the signals rising significantly above the noise level is likely a broadcast station. When you click on the signal the receiver is tuned to that frequency, and you hear it through your computer audio. The bandwidth can be recorded depending on your setup, and you can go back and listen to the various channels to hear what they were broadcasting. Cool. Way cool!



Of course, what I am interested in is more than just hearing FM signals. I want to listen to 2m/440 repeaters, marine, police, GMRS, civilian and military aircraft, and ACARS/ADS-B signals (and more!). With these little units and the appropriate software, you can do just that.

Of course, you will need an antenna, and the ones included with packages such as [this one](#) and [this one](#) include small magnetic mount antennas which will receive

some signals. Likely, however, you will want something more. (Note carefully the type of antenna input your unit has—some take MCX while others take PAL inputs since these are designed for European markets.) Buy an “F” converter (or several types as needed) to allow regular cable coax to be attached, or adapters with BNC connectors or PL-259s. I have received amateur, FM, police and ACARS with the mini mag-mount antenna, but signals will be better with an outdoor antenna.

A great description of setting up one of these dongles for ADS-B work can be found [here](#), and software recommendations and setup for standard VHF/UHF work can be found [here](#). The best type of SDR model to get has both the RTL2838U chip and either the E4000 or the R820T tuner chip. Both of these will receive 1090 MHz and tune ADS-B signals with VirtualRadar or PlanePlotter. Units with the FC0013 tuner chip will *not* decode the plane info, for those so interested.

Some Uses for an SDR Receiver

Monitoring a wide range of signals is one of the best uses for this type of radio. One of the common SDR software packages which will work with these dongles is called [SDR#](#) (often pronounced SDR-Sharp). There are other outlets for the software, but this Yahoo group will likely have the most up-to-date information and releases.

In addition to having a graphic display of the bandwidth, several nice features are built in which will make it useful to scanning enthusiasts like myself. First, there is the ability to store and recall frequencies. Find something interesting? Store it and return often. Related to this is the second useful plug-in available, and that is the Easy Scanner plug-in which allows a list of frequencies to be scanned, as well as some really interesting features.

Using this plug-in you can set a trigger switch so that audio has to be above a certain level to trigger the scanner to stop on a frequency. You can also set a timer to return to scanning regardless of activity on a channel. And, you can record audio based on the trigger audio level, so the recording is in effect VOX enabled. Oh, and did I mention the software is **free**?!

For scanning nuts like me, I like the ability to see what is happening on multiple channels at once, and the ability to record these audio clips is a real plus.

This software is also Unitrunker capable, meaning you can lock onto a control channel and follow the trunking, but I have not done that yet. I am having too much fun pursuing some of the other capabilities right now! However, I can see a nice use for this in not tying up an expensive scanner to analyze a control channel and track unit information.

I should also mention you can have multiple dongles running on your system as long as they are identified uniquely for the software using the particular dongle. In

other words, one instance of SDR# cannot control two dongles. But this ability to run multiple dongles is a much cheaper alternative than having 3 or 4 scanners going!

Of course, all of the typical VHF/UHF bands may be covered, such as marine, military and civilian aircraft, local businesses, etc.. Pretty much anything you can pick up with a regular scanner can be received with one of these units.

Aircraft

I have already mentioned RTL1090 (a driver) which allows you to monitor ADS-B traffic, which can either be listed using the driver software itself, or integrated into [VirtualRadar](#) or [PlanePlotter](#), which can display the aircraft on Google® maps (see sample below).



From the FAA's website:

Automatic Dependent Surveillance-Broadcast (ADS-B) is FAA's satellite-based successor to radar. ADS-B makes use of GPS technology to determine and share precise aircraft location information, and streams additional flight information to the cockpits of properly equipped aircraft.

While not all aircraft have this capability, many do, and watching the aircraft can be quite interesting.

Future Development

As these units become more and more popular, more and more software/uses will be found for them. Almost daily I find new things people are doing with them, and software is getting easier to use while at the same time adding more features. There is no question that sometimes the software installation can be tricky, but it is easy enough to back out and start over.

Perhaps the best part of all of this is the excitement it is generating among radio hobbyists, as Yahoo groups and forums grow and folks share their experiences. Chances are, if you have a problem with something, someone else has already found a fix. If not, some great minds will be there to help you!

That's it for this round, but I hope you will give this new technology a spin. Even for an old stick-in-the-mud like me, it is a real blast!

73,
Robert AK3Q

WASHINGTON DC REGIONAL *David Schoenberger*
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Monitoring the Inauguration

I had the opportunity to monitor the 57th Presidential Inauguration on January 21. Of course, because of the size of the event, there was a staggering amount of radio traffic. I will list the major systems monitored, and provide some commentary on each.

In terms of number of talk groups active, the Joint National Capital Region (JNCR) 380 MHz trunked system may have been the busiest. This system carried radio traffic for military personnel providing security and logistical support. The JNCR has numerous sites throughout the region; I confined my monitoring to the two Pentagon sites, the Joint Base Anacostia-Bolling site, and the Fort Belvoir site. Because most of the traffic was not sensitive, almost all of the talkgroups were in the clear. Talk groups are too numerous to list here; see my website for information.

I searched the VHF and UHF federal bands. The Capitol Police and Park Police channels remain analog and unencrypted. The Secret Service and FBI channels are digital and encrypted for the most part. National Park Service channels are digital, but in the clear. In my limited searching of these bands, I didn't find too many frequencies that are not active for everyday use in Washington, but I didn't spend as much time searching these bands as monitoring the trunked systems.

Washington, DC actually runs three systems now, as the city transitions from Project 16 to Project 25. The Metropolitan Police (MPD) uses a 460 MHz Project 16 system, but the vast majority of their talk groups are encrypted. DC Fire (DCFD) uses an 850 MHz Project 16 system. Eventually, MPD and DCFD will share a Project 25 Phase II 700/800 MHz system. This system is already on the air, and used by MPD (talk-groups simulcast from the Project 16 system).

I also monitored the Metro (mass transit) system throughout the day. Because many people attending the Inauguration arrived by Metro, this system provided a good behind-the-scenes look at what was going on underground.

The Virginia STARS system (Arlington site) was in my scanning rotation. This is the statewide VHF Project 25 system. State Police handled traffic control, and a National Guard talkgroup was active.

As I said previously, the amount of information I collected is too much to list here. Please see my website (<https://dl.dropbox.com/u/19779545/scanning/dc/washingt.on.htm>) for all the details. And if one needs specifics on the various trunked systems, RadioReference (<http://www.radioreference.com>) is a great source.

That's all for this time. In the next column, I'll discuss monitoring MOTOTRBO (a relatively new digital format).

ILLINOIS *Mike Dickerson*
ScannerDigest@gmail.com

Illinois seems to be ever changing. The more rural counties, which you always thought would be the last to jump from analog and to the digital systems, are making the jumps. I have trouble keeping up with many other interests and lack of time to actually research. I am relying on other resources which do confirm many transitions over the past few months.

Richland County in Illinois has made the switch changing their system to Digital P25 system. The system at this time runs P25 a majority of the time. There are times when they use analog. It is not known if this is caused by issues with reception or just the units getting on the wrong channel. This system is currently only being used by the Richland County Sheriff's Department. The licenses have been applied for to replace the current Olney Police channels with a VHF channel which is also licensed for P25.

Illinois State Police units have been heard calling Richland County on the VHF channel in analog, so it appears the system is mixed mode, analog/digital. Previously Fairfield Police Department had gone with a digital system. That system is still in operation as of latest reports.

Starcom 21 the statewide Motorola owned radio system is still being used by Effingham City Police, and Vandalia Police Department. Effingham County has been attempting to build a bridge with a radio vendor. The problem is that Effingham City PD went to Starcom 21, which is a P25 digital system, whereas Effingham County, is still operating on a UHF Trunked system, which Effingham City also previously had used. The lack of interoperability has led to complaints and finally they involved the radio vendor to try and come up with a bridge between the two radio networks. The release should be made sometime this year.

The State of Illinois has made some interesting changes in the radio systems they are using now. The state has renewed their lowband (HF) Department of Transportation channels in the downstate areas. Recently located in the past few months were the following 4 channels in use in District 7 which the HQ is located in Effingham area 47.380, 47.300, 47.180, and 47.060. These are all listed

licensed for base frequencies on the tower in Clay City. Some areas in Central and Northern Illinois have started switching to using or having Starcom radios for communication with ISP, at least for the lead district workers.

Another interesting renewal recently is the Illinois Department of Natural Resources, which uses Starcom 21, and has their own talk-groups. They also have the ability to communicate on the Illinois State Police talk-groups. The agency has recently renewed their VHF repeater operations in South Eastern Illinois including Clay, Marion, and Richland county areas that I found in a quick search. The two frequencies are 159.375 and 151.445. So you can expect to need a digital scanner and still program analog in for them.

Another new addition to the Illinois State Police is the daily testing of ISPERN towers. There are ISPERN towers located across each ISP District in order to provide remote transmit/receive for the district radio dispatchers to communicate with local cars during a pursuit or other incident where direct communication is needed with the district headquarters.

The ISP Districts of 13, 22, 19, and 12 were all consolidated into D13's headquarters located in DuQuoin last year. This has hindered VHF communications which previously were used to communicate in the district from the local police agencies direct to the district radio dispatch, on channels such as 155.370 the old Point to Point, which was a simplex radio channel used by many agencies.

The system also consisted of older HF channels including a low band point to point. When the state made the move to Starcom they started getting rid of the HF equipment they had, and have begun letting the low band ISP frequencies expire or returning them. The ISPERN tests are on 155.475 and are being done on the midnight shift so far it seems. They will call for any unit in the county of the tower, to see if they can receive them, they will try for several units to see how the units copy depending on location. Then will then move on to another tower in the district doing the same. This sounds as though it will be the normal operation, and ISPERN is also patched to Starcom 21 as well for units using only Starcom.

ISPERN use is restricted to use by ISP District Offices, and any law enforcement officer in the state. Local and County Sheriff's departments are not licensed for base radio transmitters by the state license, although some might have their own licenses.

EASTERN PENNSYLVANIA

Steve Bower, Jr.
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Welcome to this edition of Scanner Digest, E-mail me with suggestions or what you would like to see in the next column.

The Business industry is starting to advance in its own way along with Public Safety services. Companies are coming up with new ways to communicate better to the public and internal. LTR or Logic Trunk Radio System is replacing single repeater systems, which is more cost effect and able to utilize more users with less interruption.

LTR is distinguished from some other common trunked radio systems in that it does not have a dedicated control channel. Each repeater has its own controller and all of these controllers are coordinated together. Even though each controller monitors its own channel, one of the channel controllers is assigned to be a master and all the other controllers report to it.

Typically on LTR systems, each of these controllers periodically sends out a data burst (approximately every 10 seconds on LTR Standard systems) so that the subscriber units know that the system is there. The idle data burst can be turned off if desired by the system operator. Some systems will broadcast idle data bursts only on channels used as home channels and not on those used for "overflow" conversations. To a listener, the idle data burst will sound like a short blip of static like someone keyed up and unkeyed a radio within about 1/2 second. This data burst is not sent at the same time by all the channels but happen randomly throughout all the system channels.

Sands Casino Beth Works in Bethlehem, Pa is using internal LTR system have not figured out all Frequencies but the trunk system works without LCN 01 02.
LCN 03 463.2125 LCN 04 463.3500 LCN 05 463.4875
LCN 06 463.5125 LCN 07 463.5375

TGID # GROUP

0-03-050	Security Alpha
0-03-051	Security Bravo
0-03-060	Security Surveillance
0-04-002	Facilities
0-05-130	Slot attendants Alpha
0-05-131	Slot Attendants Bravo
0-06-122	Bars
0-06-123	Valet Parking
0-06-124	Warehouse
0-06-190	Housekeeping

The system is low power and works around the city limits pretty well, the other LTR systems in the area. The other system that keeps showing around is a Motorola Smart Radio Network which is totally digital and far understands no scanners can monitor the system yet and being used

by few facilities around the valley. Next issue will list a few other LTR systems.

Most County departments have switched over to narrow band and some radios have been popping up for sale, be careful what you buy and make sure its narrow band compliant.

Facebook & Twitter have been sweeping the nation with alert pages, and other emergency information please check out: Fire/Ems Alerts of Northampton County, Fire/EMS Alerts of Lehigh County for updated information.

Until next time and as always Be Safe & Take Care
Steve

IG WNBJ223 POCONO RACEWAY

451.475	FB2	20p	6e	Units: 1	11K2F3E
452.325	FB2	20p	6e	Units: 1	11K2F3E
452.475	FB2	20p	6e	Units: 1	11K2F3E
463.375	FB2	20p	6e	Units: 1	11K2F3E
463.650	FB2	20p	6e	Units: 1	11K2F3E
463.900	FB2	20p	6e	Units: 1	11K2F3E
464.425	FB2	20p	6e	Units: 1	11K2F3E
464.725	FB2	20p	6e	Units: 1	11K2F3E
451.475	MO	4p		Units: 800	11K2F3E
451.675	MO	4p		Units: 800	11K2F3E
452.075	MO	4p		Units: 800	11K2F3E
452.325	MO	4p		Units: 800	11K2F3E
452.475	MO	4p		Units: 800	11K2F3E
456.475	MO	4p		Units: 800	11K2F3E
456.675	MO	4p		Units: 800	11K2F3E
457.000	MO	4p		Units: 800	11K2F3E
457.325	MO	4p		Units: 800	11K2F3E
457.475	MO	4p		Units: 800	11K2F3E
463.375	MO	4p		Units: 800	11K2F3E
463.650	MO	4p		Units: 800	11K2F3E
463.900	MO	4p		Units: 800	11K2F3E
464.425	MO	4p		Units: 800	11K2F3E
464.725	MO	4p		Units: 800	11K2F3E
468.375	MO	4p		Units: 800	11K2F3E
468.650	MO	4p		Units: 800	11K2F3E
468.900	MO	4p		Units: 800	11K2F3E
469.425	MO	4p		Units: 800	11K2F3E
469.725	MO	4p		Units: 800	11K2F3E

CONNECTICUT

Keith Victor
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Attached is the new Massachusetts Medical radio channel plan with all the new CTCSS changes. Also listed are the area inter-op channels all of which are UHF and are narrow band. Keith

[Click Here](#)
[For the New Statewide Medical Radio Channel Plan](#)

WESTERN PENNSYLVANIA

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Beaver County was founded in 1800, and created from parts of Allegheny County and Washington County, and now has a total area of 444 square miles Beaver County has a population of 170,539 in the 2010 census. There are 56 municipalities in Beaver County, and Beaver Boro is the county seat.

Consolidated dispatch services started in 1971 with two dispatchers who handled dispatch for 80% of the calls for responses. The original dispatch center, located in Beaver, handled calls for all municipalities and services that did not have their own dispatch desks. There were only 7 agencies that had their own dispatch desk. Beaver County was not using 911 at that time, and was waiting for the Pennsylvania legislature to sign a law requiring 911 to be implemented. In 1990 the General Assembly passed a law mandating 911 for the state. Beaver County commissioners announced on December 27, 2007 that Ambridge was chosen as the location for the new 911 center. Ground was broken on December 12, 2008, and the center opened in January 2010. The center now answers all calls, and dispatching for Beaver County. There are 36 police departments, 65 fire departments, and 9 EMS agencies in the county.

Fire services started out on VHF Low band and are now on VHF High band. EMS and police have used VHF high band for years. Police had been using VHF high band simplex frequencies. Late last year it was announced that Beaver County was going to upgrade their communications system. Work started on the new system at the beginning of this year and is still underway. Currently the simplex police channels have been converted to repeater type systems with multiple synchronized transmitter sites. While they were working on a channel they would move the agencies to 155.7225 PL 103.5 repeater. This was an old fire response repeater, that had used a DPL. The repeater now has a much stronger signal to my location in southern Allegheny County. I would still keep an eye on this frequency as work is still in progress. There has also been some activity on 154.340 PL 186.2. There has been a lot of feedback on this frequency, and there has not been any activity that would give any indication of its possible use. I have heard reports that plans include fire and EMS dispatch to be transmitted from all 5 tower sites as well. Fire and EMS are to be moving to new response frequencies, and will no longer respond on dispatch channel when all is done. I suspect that these fire and EMS response channels will be repeaters as well.

Beaver County zone 3 police is now on 154.740 PL 88.5 repeater. Police departments dispatched on this frequency includes Ambridge, Baden, Beaver, Bell Acres, Bridgewater, Brighton, Conway, Economy, Freedom,

Harmony, Leet, New Sewickley, Rochester Boro, and Rochester Twp.

Beaver County zone 4 police is now on 155.010 PL 151.4 repeater. Police departments dispatched on this frequency includes Beaver Falls, Chippewa, Darlington, Franklin, Koppel, Marion, New Brighton, North Sewickley, Patterson, Penn State University, South Beaver, and White

Beaver County zone 5 police is now on 155.565 PL 167.9 repeater. Police agencies dispatched on this frequency include : Aliquippa, Beaver County Sheriff, Center, Hopewell, Independence, Industry, Midland, Monaca, Ohioville, Raccoon, Shippingport, and South Heights. This was the last police frequency to be upgraded.

Beaver County 911 goes by "856" on the police, "570" on EMS, and "608" on fire dispatch frequencies.

There is always change in Allegheny County. The latest move from ring down dispatch to Allegheny County 911 is Munhall Prehospital Services. They are being dispatched on Allegheny County east zone EMS 471.3125 PL 146.2. They are EMS station 630, and their tones are 617.4 / 1357.6.

As I sit here and write this I am watching the Penguins game. The Penguins play their home games at Consol Energy Center. Consol Energy Center uses a Motorola MotoTrbo UHF trunked system, This is a trunked system that cannot be monitored by any scanner. Frequencies in use on this system include : 461.3875, 461.6875, and 463.4375. You will hear data bursts from these frequencies similar to the way LTR systems transmit a data burst at regular intervals. MotoTrbo uses a TDMA, Time Division Multiple Access, format. Meaning that each frequency can be used by two users at a time, since there are two time slots per frequency. Each time slot transmits for a specified period of time. Roughly one time slot transmits on the first half of the second, and the other time slot transmits on the second half of the second. In real practice the actual transmit cycle is a little less than one half a second. This requires all units be synchronized exactly, so they are listening or transmitting, at the correct time slot.

So, with three frequencies, it is possible to have six separate conversations going on. The format also uses a proprietary digital format, and cannot be decoded. The emission designator is 7K60FXE.

There is however still something to be heard at games. Consol parking operations are on 151.805 PL156.7 simplex. 467.7125 PL 67.0 simplex has been used for Guest Services. Some frequencies I have heard there, and have been unable to identify : 463.1375 DPL 244 simplex, 463.5875 DPL 244 simplex, and 467.7625 DPL 023.

Fayette County has reported that they sustained damage to one of their transmitters on 33.700. Fayette County has been dispatching fire departments on both 33.700 and 155.190 with plans of phasing out 33.700. The damage done has hastened this process. They are not going to make repairs to the damaged 33.700 site, and have set April as the cut off date that dispatching on 33.700 will end. I am still able to hear 33.700 here at my house. It is not as strong as it once was, but is still there. 155.190 will soon be the only dispatch frequency for fire departments,

Feel free to email any comments, suggestions or corrections to me at k3fs@verizonnet. I maintain a site with more information at <http://www.pghscanner.com>

I try to post updates and changes to the PGHScanner.com Blog, PGHScanner.com Forums, and the PGHScanner Yahoo group.

SOUTHERN JERSEY

Column Editor Wanted

Following information provided by Glenn Mitchell

802.11875 MO 30p 50e Units: 4626	11K3F3E
802.11875 MO 30p 50e Units: 4626	8K10F1E 8K10F1W
802.89375 MO 30p 50e Units: 4626	11K3F3E
802.89375 MO 30p 50e Units: 4626	8K10F1E 8K10F1W
803.46875 MO 30p 50e Units: 4626	11K3F3E
803.46875 MO 30p 50e Units: 4626	8K10F1E 8K10F1W
803.94375 MO 30p 50e Units: 4626	11K3F3E
803.94375 MO 30p 50e Units: 4626	8K10F1E 8K10F1W
804.19375 MO 30p 50e Units: 4626	11K3F3E
804.19375 MO 30p 50e Units: 4626	8K10F1E 8K10F1W

SY WQOX962

CAMDEN, COUNTY OF

7 - CONNOLLY PARK, CONNOLLY PARK, CENTENNIAL BLVD,

VOORHEES (CAMDEN) NJ

769.81875 FB2 100p 200e Units: 1	8K10F1E 9K80D7W
770.26875 FB2 100p 200e Units: 1	8K10F1E 9K80D7W
770.86875 FB2 100p 200e Units: 1	8K10F1E 9K80D7W
771.21875 FB2 100p 200e Units: 1	8K10F1E 9K80D7W
772.11875 FB2 100p 200e Units: 1	8K10F1E 9K80D7W
772.89375 FB2 100p 200e Units: 1	8K10F1E 9K80D7W
773.46875 FB2 100p 200e Units: 1	8K10F1E 9K80D7W
773.94375 FB2 100p 200e Units: 1	8K10F1E 9K80D7W
774.19375 FB2 100p 200e Units: 1	8K10F1E 9K80D7W

1 - LINDENWOLD, 2311 EGG HARBOR ROAD, LINDENWOLD

(CAMDEN) NJ

769.80625 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
770.25625 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
770.85625 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
771.20625 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
772.10625 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
772.88125 FB2 100p 200e Units: 1	8K10F1W 8K10F1E
773.45625 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
773.93125 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
774.18125 FB2 100p 200e Units: 1	8K10F1E 8K10F1W

2 - IRISH HILL, 730 IRISH HILL ROAD, RUNNEMEDE (CAMDEN) NJ

769.80625 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
770.25625 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
770.85625 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
771.20625 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
772.10625 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
772.88125 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
773.45625 FB2 100p 200e Units: 1	8K10F1E 8K10F1W
773.93125 FB2 100p 200e Units: 1	8K10F1E 8K10F1W

774.18125 FB2 100p 200e Units: 1 8K10F1E 8K10F1W

4 - COUNTY COLLEGE, CAMDEN COUNTY COLLEGE CAMPUS, PETER CHEESEMAN ROAD, GLOUCESTER TWP (CAMDEN) NJ

769.80625 FB2 100p 150e Units: 1 8K10F1E 8K10F1W
770.25625 FB2 100p 150e Units: 1 8K10F1E 8K10F1W
770.85625 FB2 100p 150e Units: 1 8K10F1E 8K10F1W
771.20625 FB2 100p 150e Units: 1 8K10F1E 8K10F1W
772.10625 FB2 100p 150e Units: 1 8K10F1E 8K10F1W
772.88125 FB2 100p 150e Units: 1 8K10F1E 8K10F1W
773.45625 FB2 100p 150e Units: 1 8K10F1E 8K10F1W
773.93125 FB2 100p 150e Units: 1 8K10F1E 8K10F1W
774.18125 FB2 100p 150e Units: 1 8K10F1E 8K10F1W

6 - Mobile, (CAMDEN) NJ Countywide

799.80625 MO 30p 50e Units: 4626 11K3F3E
799.80625 MO 30p 50e Units: 4626 8K10F1E 8K10F1W
800.25625 MO 30p 50e Units: 4626 11K3F3E
800.25625 MO 30p 50e Units: 4626 8K10F1E 8K10F1W
800.85625 MO 30p 50e Units: 4626 11K3F3E
800.85625 MO 30p 50e Units: 4626 8K10F1E 8K10F1W
801.20625 MO 30p 50e Units: 4626 11K3F3E
801.20625 MO 30p 50e Units: 4626 8K10F1E 8K10F1W
802.10625 MO 30p 50e Units: 4626 11K3F3E
802.10625 MO 30p 50e Units: 4626 8K10F1E 8K10F1W
802.88125 MO 30p 50e Units: 4626 11K3F3E
802.88125 MO 30p 50e Units: 4626 8K10F1E 8K10F1W
803.45625 MO 30p 50e Units: 4626 11K3F3E
803.45625 MO 30p 50e Units: 4626 8K10F1E 8K10F1W
803.93125 MO 30p 50e Units: 4626 11K3F3E
803.93125 MO 30p 50e Units: 4626 8K10F1E 8K10F1W
804.18125 MO 30p 50e Units: 4626 11K3F3E
804.18125 MO 30p 50e Units: 4626 8K10F1E 8K10F1W

GE WQQI938

CAMDEN, COUNTY OF

1 - PATCO TUNNEL PORTAL ALONG I-676, CAMDEN (CAMDEN) NJ
857.4875 FB2 10p 1e Units: 1 11K2F3E 8K10F1E
812.4875 MO 2p 2e Units: 250 11K2F3E 8K10F1E

PW WNJD914

CAPE MAY, COUNTY OF

1 - CAPE MAY CO AIRPORT BLDG 102 AIRPORT SECURITY, ERMA (CAPE MAY) NJ

153.9950 FB 30p 20e Units: 1 20K0F3E 11K2F3E
153.9950 MO 35p 22e Units: 5 20K0F3E 11K2F3E

PW WNLR454

CAPE MAY, COUNTY OF

1 - 1800 W RT 9 600 S AVALON RD, MIDDLE TOWNSHIP (CAPE MAY) NJ

460.2250 FB2 100p 126e Units: 1 20K0F3E 11K2F3E

2 - 8 BOYD ST, CAPE MAY COURTHOUSE (CAPE MAY) NJ

465.225 FX1 10p 20e Units: 1 20K0F3E 11K2F3E
460.225 FB 40p 100e Units: 1 20K0F3E 11K2F3E

4 - (CAPE MAY) NJ Countywide

460.2250 MO 50p 40e Units: 50 20K0F3E 11K2F3E
465.2250 MO 50p 40e Units: 50 20K0F3E 11K2F3E

PW WNQF854

County of Cape May

155.8500 FX1 15p 10e Units: 8 20K0F3E 11K2F3E
155.1900 FB2 60p 180e Units: 1 20K0F3E 11K2F3E
155.8500 MO 60p 120e Units: 200 20K0F3E 11K2F3E

PW WNXQ587

CAPE MAY, COUNTY OF

151.010 FB2 50p 50e Units: 1 20K0F3E 11K2F3E
159.045 MO 50p 50e Units: 57 20K0F3E 11K2F3E

PW WPCI999

CAPE MAY, COUNTY OF

155.280 FB 100p 150e Units: 1 Pagers: 10 20K0F3E 11K2F3E
155.295 FB 100p 150e Units: 1 Pagers: 10 20K0F3E 11K2F3E
155.340 FB 100p 150e Units: 1 Pagers: 10 20K0F3E 11K2F3E
155.280 MO 60p Units: 60 20K0F3E 11K2F3E
155.295 MO 60p Units: 60 20K0F3E 11K2F3E
155.340 MO 60p Units: 60 20K0F3E 11K2F3E

PW WPDY652

CAPE MAY, COUNTY OF

453.775 FB2 90p 150e Units: 1 20K0F3E 20K0F1D 11K2F3E
453.925 FB2 90p 150e Units: 1 20K0F3E 20K0F1D 11K2F3E
458.775 MO 30p 30e Units: 230 20K0F3E 20K0F1D 11K2F3E
458.925 MO 30p 30e Units: 230 20K0F1D 20K0F3E 11K2F3E

PW WRB369

CAPE MAY, COUNTY OF

155.745 MO 75p 15e Units: 18 20K0F3E 11K2F3E
155.745 FB 75p 15e Units: 1 20K0F3E 11K2F3E

PW WYC503

CAPE MAY, COUNTY OF

154.085 MO 20p 20e Units: 12 20K0F3E 11K2F3E
154.085 FB 20p 20e Units: 1 20K0F3E 11K2F3E

PHILADELPHIA METRO

Column Editor Wanted

Following information provided by Glenn Mitchell

PW KNCW631

NEWTOWN, TOWNSHIP OF

155.9400 FB 30p 30e Units: 1 11K0F3E
153.9650 MO 30p 30e Units: 40 11K2F3E
155.9400 MO 100p 100e Units: 35 11K0F3E
153.9650 MO 30p 30e Units: 40 11K2F3E
153.9650 FX1 5p 5e Units: 1 11K2F3E
156.1425 FB2 100p 112e Units: 1 11K2F3E

MASSACHUSETTES

*Peter Szerlag
zerg90@gmail.com*

Greetings - welcome to the Massachusetts Column for Issue 63 of Scanner Digest for Jan Feb March 2013.

MetroFire Boston has been having some radio problems of late. The White channel (483.2875R) has been misbehaving. Dispatchers have been told to use the Red channel (483.3125R) to talk to each other. Apparently Randolph, Winchester, Woburn, and Saugus dispatchers don't have radios on Metro Red, so they have to be contacted by telephone if needed for mutual aid.

Boston had a 2nd alarm at a high rise apartment building during the Blizzard of 2013 in February. Portable radios operating in the basement garage were nearly totally unreadable on the Channel 2 (483.1875R) repeater system. There was no mention of using simplex comms. Near the end of the fire there was an apparent attempt to use suitcase style portable radios ("Post" radios from H1 and the Tac Comm Unit) to bridge the communications gaps.

January 30 2013 - Massachusetts State Police inaugurated their digital TRS in the mountainous areas near the New York State border.

<http://www.wggb.com/2013/01/29/ma-state-police-say-new-radios-will-save-lives/>

IIRC construction started on this statewide system in 1989. Mass State Police already have plans to add 6 more western sites by the end of 2013.

During the Blizzard of 2013, there were news media reports that the radio communications system for the MBTA suffered a total failure. Possibly the fault was fixed by installing a emergency generator at the Quincy tower site. Maybe their TRS has its master site at Quincy.

472.5375 - PL 146.2 - heard full strength on Jan 15 2013 – being tested by unknown party - this is the old MIT PD freq - licensed to City of Cambridge IIRC

453.2000 - DPL 565 - heard 3 bars out of 5 bars on Jan 19 2013 – this might be a spare Boston Police channel

453.3000 R - DPL 546 - heard 4 bars out of 5 bars on Jan 18 2013 – a couple of units near Boston City Hospital were testing the channel - this freq was previously used by the BHA guards

460.4250 - probably a repeater - encrypted - 5 bars out of 5 bars to me - heard Feb 11 2013 - might be the radio techs for Boston Police – NAC 546

A recently released study claims that 60% could be saved if all 911 centers in Massachusetts were merged into 16 countywide 911 centers. Massachusetts reportedly has more 911 centers per capita than any other state in the USA.

For the Blizzard of 2013, the National Weather Service forecast that the winds would gust to 55 MPH in Boston. The winds actually gusted to 76 MPH.

I hope you find this information useful. Peter Sz

NEW HAMPSHIRE

John Bolduc
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ScannerDigest@gmail.com

Rockingham County Dispatch has rearranged frequency usage so it is fitting that we update the Police Frequencies used in the County.

For towns listed with a zone EAST or WEST, these are somewhat interchangeable, especially overnight and during roll-calls and emergency incidents on one channel when the frequency is cleared.

TOWN	FREQ	PL/DIG	NAC	ID	ZONE
Atkinson	154.7550	P25	117		
Atkinson	154.8150	P25	117	40	WEST
Atkinson	154.9000	P25	117	40	EAST
Auburn	152.4050	136.5			
Auburn	154.8150	P25	117	60	WEST

TOWN	FREQ	PL/DIG	NAC	ID	ZONE
Auburn	155.7900	136.5			
Brentwood	154.8150	P25	117	80	WEST
Candia	154.6250	79.7		100	
Candia	154.8150	P25	117	100	WEST
Chester	154.8150	P25	117	120	WEST
Danville	154.9500	P25	117	140	EAST
Deerfield	154.7100	P25	117		
Deerfield	154.8150	P25	117	160	WEST
Deerfield	154.9500	P25	117	160	EAST
Derry	151.0100	P25	827	500	
Derry	155.6625	P25	827		
East Kingston	154.8150	P25	117		WEST
East Kingston	154.9500	P25	117	180	EAST
Epping	154.8150	P25	117	220	WEST
Epping	154.9500	P25	117	220	EAST
Exeter	154.9500	P25	117		EAST
Exeter	155.5350	146.2			
Exeter	155.5350	P25	117		
Fremont	154.8150	P25	117	240	WEST
Fremont	155.9250	136.5			
Greenland	154.9500	P25	117	260	EAST
Hampstead	154.8150	P25	117	280	WEST
Hampstead	154.9500	P25	117	280	EAST
Hampton	154.9500	P25	117	300	EAST
Hampton	155.0250	P25	830	300	
Hampton Falls	154.9500	P25	117	320	EAST
Kingston	154.8150	P25	117	360	WEST
Kingston	154.8150	P25	117	360	WEST
Kingston	154.9500	P25	117	360	EAST
Londonderry	152.3750	P25	411	MHT	
Londonderry	154.8150	P25	117	380	WEST
Londonderry	155.8650	P25	293	380	
New Castle	154.9500	P25	117	400	EAST
Newfields	154.9500	P25	117	420	EAST
Newington	154.9500	P25	117	440	EAST
Newmarket	154.9500	P25	117	460	EAST
Newmarket	155.3700	P25	117	460	
Newton	154.9500	P25	117	480	EAST
North Hampton	154.9500	P25	117	520	EAST
Northwood	154.8150	P25	117	540	WEST
Northwood	154.9500	P25	117	540	EAST
Nottingham	155.8150	P25	117	580	WEST
Plaistow	154.7750	P25	117		
Plaistow	154.8150	P25	117		WEST
Plaistow	159.0450	P25	293		
Portsmouth	153.9050	P25	ABE		
Portsmouth	154.7400	P25	88A		
Portsmouth	154.9500	P25	117	600	EAST
Raymond	154.8150	P25	117	620	WEST
Raymond	154.6400	P25	860		
Rock. Cnty.	154.8150	P25	117		WEST
Rock. Cnty.	154.9500	P25	117		EAST
Sheriff Units	154.8150	P25	117	900	WEST
Windham	155.6100	P25	617		

MAINE

Loren Fields
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No column this issue.

SOUTHEASTERN NEW YORK

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No column this issue.

Printed versions of the Scanner Digest Newsletter are available.

\$1.00 each shipped via USPS.
Checkout the website for specific issues.
Get them now. Potential collector's item.

ScannerDigest@gmail.com

CHM Inaugural Scanner Guide



He's baaaaack and so is the CHM Inaugural Scanner Guide. The CHM Inaugural Scanner Guide is now online!

We have a wide selection of frequencies from federal, military, D.C. government, news media, and links which are related to the 2013 Inauguration.

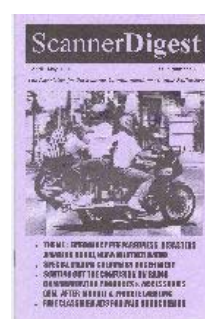
You will find the 12-page newsletter in PDF format at:

<http://henney.com/chm/0113/chm0113.pdf>

Special thanks to David Schoenberger and Mike Agner for sharing so much with the rest of us, from verified frequencies for 100's of D.C. venues to the many links and articles Mike has written to keep us so well connected.

Kudos also to Ron Perron and a couple anonymous contributors who provided details on the federal and military sections.

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ScannerDigest Newsletter

Welcome to the Scanner Digest Newsletter! We're currently publishing quarterly e-magazine containing information for the scanner hobbyist. If it can be monitored on a scanner, we'll attempt to cover it from 30 to 1300 MHz and beyond!

Our purpose is to produce a newsletter to facilitate the exchange of information pertaining to the various services covered by a typical scanner radio. Dedicated regional column editors make up the heart of this publication.

The Scanner Digest Newsletter is not responsible for the accuracy or consequences incurred regarding the use of information listed in this publication. Since the purpose of this newsletter is to provide a platform for the submission and exchange of radio communication information, it thus becomes impossible to deem all contents as accurate. The very nature of radio licensing and usage makes it difficult to verify the accuracy of the information contained within. Generally information listed within the pages of the newsletter are derived from multiply sources including current FCC files, hobbyists and those directly involved with various public safety agencies.

Scanner Digest's policy has been not to limit or edit the individual columns submitted, unless we deem the information sensitive in nature which may jeopardize the safety of the parties involved.

Only in this case will we edit out this type of input.

(Example: We will not publish the frequencies used by a law enforcement surveillance team.)

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**Email inquiries to: ScannerDigest@gmail.com
Visit our website: www.ScannerDigest.com**

Table 2 - AAR Channel Assignments After Re-Banding

Note that the original, old channels numbers are retained but with the addition of a leading zero to indicate they are narrow band. Old AAR 45 becomes new AAR_045.

Original AAR Channel Assignments				Additional AAR Channel Assignments			
Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel
159.8100	AAR 002	160.8600	AAR 050			160.8675	AAR 150
159.9300	AAR 003	160.8750	AAR 051			160.8825	AAR 151
160.0500	AAR 004	160.8900	AAR 052			160.8975	AAR 152
160.1850	AAR 005	160.9050	AAR 053			160.9125	AAR 153
160.2000	AAR 006	160.9200	AAR 054			160.9275	AAR 154
160.2150	AAR 007	160.9350	AAR 055	160.2225	AAR 107	160.9425	AAR 155
160.2300	AAR 008	160.9500	AAR 056	160.2375	AAR 108	160.9575	AAR 156
160.2450	AAR 009	160.9650	AAR 057	160.2525	AAR 109	160.9725	AAR 157
160.2600	AAR 010	160.9800	AAR 058	160.2675	AAR 110	160.9875	AAR 158
160.2750	AAR 011	160.9950	AAR 059	160.2825	AAR 111	161.0025	AAR 159
160.2900	AAR 012	161.0100	AAR 060	160.2975	AAR 112	161.0175	AAR 160
160.3050	AAR 013	161.0250	AAR 061	160.3125	AAR 113	161.0325	AAR 161
160.3200	AAR 014	161.0400	AAR 062	160.3275	AAR 114	161.0475	AAR 162
160.3350	AAR 015	161.0550	AAR 063	160.3425	AAR 115	161.0625	AAR 163
160.3500	AAR 016	161.0700	AAR 064	160.3575	AAR 116	161.0775	AAR 164
160.3650	AAR 017	161.0850	AAR 065	160.3725	AAR 117	161.0925	AAR 165
160.3800	AAR 018	161.1000	AAR 066	160.3875	AAR 118	161.1075	AAR 166
160.3950	AAR 019	161.1150	AAR 067	160.4025	AAR 119	161.1225	AAR 167
160.4100	AAR 020	161.1300	AAR 068	160.4175	AAR 120	161.1375	AAR 168
160.4250	AAR 021	161.1450	AAR 069	160.4325	AAR 121	161.1525	AAR 169
160.4400	AAR 022	161.1600	AAR 070	160.4475	AAR 122	161.1675	AAR 170
160.4550	AAR 023	161.1750	AAR 071	160.4625	AAR 123	161.1825	AAR 171
160.4700	AAR 024	161.1900	AAR 072	160.4775	AAR 124	161.1975	AAR 172
160.4850	AAR 025	161.2050	AAR 073	160.4925	AAR 125	161.2125	AAR 173
160.5000	AAR 026	161.2200	AAR 074	160.5075	AAR 126	161.2275	AAR 174
160.5150	AAR 027	161.2350	AAR 075	160.5225	AAR 127	161.2425	AAR 175
160.5300	AAR 028	161.2500	AAR 076	160.5375	AAR 128	161.2575	AAR 176
160.5450	AAR 029	161.2650	AAR 077	160.5525	AAR 129	161.2725	AAR 177
160.5600	AAR 030	161.2800	AAR 078	160.5675	AAR 130	161.2875	AAR 178
160.5750	AAR 031	161.2950	AAR 079	160.5825	AAR 131	161.3025	AAR 179
160.5900	AAR 032	161.3100	AAR 080	160.5975	AAR 132	161.3175	AAR 180
160.6050	AAR 033	161.3250	AAR 081	160.6125	AAR 133	161.3325	AAR 181
160.6200	AAR 034	161.3400	AAR 082	160.6275	AAR 134	161.3475	AAR 182
160.6350	AAR 035	161.3550	AAR 083	160.6425	AAR 135	161.3625	AAR 183
160.6500	AAR 036	161.3700	AAR 084	160.6575	AAR 136	161.3775	AAR 184
160.6650	AAR 037	161.3850	AAR 085	160.6725	AAR 137	161.3925	AAR 185
160.6800	AAR 038	161.4000	AAR 086	160.6875	AAR 138	161.4075	AAR 186
160.6950	AAR 039	161.4150	AAR 087	160.7025	AAR 139	161.4225	AAR 187
160.7100	AAR 040	161.4300	AAR 088	160.7175	AAR 140	161.4375	AAR 188
160.7250	AAR 041	161.4450	AAR 089	160.7325	AAR 141	161.4525	AAR 189
160.7400	AAR 042	161.4600	AAR 090	160.7475	AAR 142	161.4675	AAR 190
160.7550	AAR 043	161.4750	AAR 091	160.7625	AAR 143	161.4825	AAR 191
160.7700	AAR 044	161.4900	AAR 092	160.7775	AAR 144	161.4975	AAR 192
160.7850	AAR 045	161.5050	AAR 093	160.7925	AAR 145	161.5125	AAR 193
160.8000	AAR 046	161.5200	AAR 094	160.8075	AAR 146	161.5275	AAR 194
160.8150	AAR 047	161.5350	AAR 095	160.8225	AAR 147	161.5425	AAR 195
160.8300	AAR 048	161.5500	AAR 096	160.8375	AAR 148	161.5575	AAR 196
160.8450	AAR 049	161.5650	AAR 097	160.8525	AAR 149	161.5725	AAR 197

Commonwealth of Massachusetts EMS Channel Plan

Utilizing Banks with 16 Channels Each

Reg 5 Bar Barnstable

Chan.	Space + 8 Characters	14-Character Mobile Display	Channel Name	Receive Frequency	Receive PL/DPL	Transmit Frequency	Transmit PL/DPL	Special Info
1	BAR M 1N	BARNST MED 1N	Barnstable CMED MED 1N	463.0000	2A/114.8	468.0000	2A/114.8	
2	BAR M 2N	BARNST MED 2N	Barnstable CMED MED 2N	463.0250	2A/114.8	468.0250	2A/114.8	
3	BAR M 3N	BARNST MED 3N	Barnstable CMED MED 3N	463.0500	2A/114.8	468.0500	2A/114.8	
4	BAR M 4N	BARNST MED 4N	Barnstable CMED MED 4N	463.0750	2A/114.8	468.0750	2A/114.8	* See Note 1 & 2
5	BAR M 5N	BARNST MED 5N	Barnstable CMED MED 5N	463.1000	2A/114.8	468.1000	2A/114.8	
6	BAR M 6N	BARNST MED 6N	Barnstable CMED MED 6N	463.1250	2A/114.8	468.1250	2A/114.8	
7	BAR M 7N	BARNST MED 7N	Barnstable CMED MED 7N	463.1500	2A/114.8	468.1500	2A/114.8	
8	BAR M 8N	BARNST MED 8N	Barnstable CMED MED 8N	463.1750	2A/114.8	468.1750	2A/114.8	
9	BAR M 12	BARNST MED 12	Barnstable CMED MED 12	463.0125	2A/114.8	468.0125	2A/114.8	
10	BAR M 22	BARNST MED 22	Barnstable CMED MED 22	463.0375	2A/114.8	468.0375	2A/114.8	
11	BAR M 32	BARNST MED 32	Barnstable CMED MED 32	463.0625	2A/114.8	468.0625	2A/114.8	
12	BAR M 42	BARNST MED 42	Barnstable CMED MED 42	463.0875	2A/114.8	468.0875	2A/114.8	
13	BAR M 52	BARNST MED 52	Barnstable CMED MED 52	463.1125	2A/114.8	468.1125	2A/114.8	
14	BAR M 62	BARNST MED 62	Barnstable CMED MED 62	463.1375	2A/114.8	468.1375	2A/114.8	
15	BAR M 72	BARNST MED 72	Barnstable CMED MED 72	463.1625	2A/114.8	468.1625	2A/114.8	
16	BAR M 82	BARNST MED 82	Barnstable CMED MED 82	463.1875	2A/114.8	468.1875	2A/114.8	

Reg 4 Bos Boston

Chan.	Space + 8 Characters	14-Character Mobile Display	Channel Name	Receive Frequency	Receive PL/DPL	Transmit Frequency	Transmit PL/DPL	Special Info
1	BOS M 1N	BOSTON MED 1N	Metro Boston CMED MED 1N	463.0000	4Z/136.5	468.0000	4Z/136.5	
2	BOS M 2N	BOSTON MED 2N	Metro Boston CMED MED 2N	463.0250	4Z/136.5	468.0250	4Z/136.5	
3	BOS M 3N	BOSTON MED 3N	Metro Boston CMED MED 3N	463.0500	4Z/136.5	468.0500	4Z/136.5	
4	BOS M 4N	BOSTON MED 4N	Metro Boston CMED MED 4N	463.0750	4Z/136.5	468.0750	4Z/136.5	* See Note 1 & 2
5	BOS M 5N	BOSTON MED 5N	Metro Boston CMED MED 5N	463.1000	4Z/136.5	468.1000	4Z/136.5	
6	BOS M 6N	BOSTON MED 6N	Metro Boston CMED MED 6N	463.1250	4Z/136.5	468.1250	4Z/136.5	
7	BOS M 7N	BOSTON MED 7N	Metro Boston CMED MED 7N	463.1500	4Z/136.5	468.1500	4Z/136.5	
8	BOS M 8N	BOSTON MED 8N	Metro Boston CMED MED 8N	463.1750	4Z/136.5	468.1750	4Z/136.5	
9	BOS M 12	BOSTON MED 12	Metro Boston CMED MED 12	463.0125	4Z/136.5	468.0125	4Z/136.5	
10	BOS M 22	BOSTON MED 22	Metro Boston CMED MED 22	463.0375	4Z/136.5	468.0375	4Z/136.5	
11	BOS M 32	BOSTON MED 32	Metro Boston CMED MED 32	463.0625	4Z/136.5	468.0625	4Z/136.5	
12	BOS M 42	BOSTON MED 42	Metro Boston CMED MED 42	463.0875	4Z/136.5	468.0875	4Z/136.5	
13	BOS M 52	BOSTON MED 52	Metro Boston CMED MED 52	463.1125	4Z/136.5	468.1125	4Z/136.5	
14	BOS M 62	BOSTON MED 62	Metro Boston CMED MED 62	463.1375	4Z/136.5	468.1375	4Z/136.5	
15	BOS M 72	BOSTON MED 72	Metro Boston CMED MED 72	463.1625	4Z/136.5	468.1625	4Z/136.5	
16	BOS M 82	BOSTON MED 82	Metro Boston CMED MED 82	463.1875	4Z/136.5	468.1875	4Z/136.5	

Reg 5 Bri Bristol

Chan.	Space + 8 Characters	14-Character Mobile Display	Channel Name	Receive Frequency	Receive PL/DPL	Transmit Frequency	Transmit PL/DPL	Special Info
1	BRI M 1N	BRISTOL MED 1N	Bristol CMED MED 1N	463.0000	3A/127.3	468.0000	3A/127.3	
2	BRI M 2N	BRISTOL MED 2N	Bristol CMED MED 2N	463.0250	3A/127.3	468.0250	3A/127.3	
3	BRI M 3N	BRISTOL MED 3N	Bristol CMED MED 3N	463.0500	3A/127.3	468.0500	3A/127.3	
4	BRI M 4N	BRISTOL MED 4N	Bristol CMED MED 4N	463.0750	3A/127.3	468.0750	3A/127.3	* See Note 1 & 2
5	BRI M 5N	BRISTOL MED 5N	Bristol CMED MED 5N	463.1000	3A/127.3	468.1000	3A/127.3	
6	BRI M 6N	BRISTOL MED 6N	Bristol CMED MED 6N	463.1250	3A/127.3	468.1250	3A/127.3	
7	BRI M 7N	BRISTOL MED 7N	Bristol CMED MED 7N	463.1500	3A/127.3	468.1500	3A/127.3	
8	BRI M 8N	BRISTOL MED 8N	Bristol CMED MED 8N	463.1750	3A/127.3	468.1750	3A/127.3	
9	BRI M 12	BRISTOL MED 12	Bristol CMED MED 12	463.0125	3A/127.3	468.0125	3A/127.3	
10	BRI M 22	BRISTOL MED 22	Bristol CMED MED 22	463.0375	3A/127.3	468.0375	3A/127.3	
11	BRI M 32	BRISTOL MED 32	Bristol CMED MED 32	463.0625	3A/127.3	468.0625	3A/127.3	
12	BRI M 42	BRISTOL MED 42	Bristol CMED MED 42	463.0875	3A/127.3	468.0875	3A/127.3	
13	BRI M 52	BRISTOL MED 52	Bristol CMED MED 52	463.1125	3A/127.3	468.1125	3A/127.3	
14	BRI M 62	BRISTOL MED 62	Bristol CMED MED 62	463.1375	3A/127.3	468.1375	3A/127.3	
15	BRI M 72	BRISTOL MED 72	Bristol CMED MED 72	463.1625	3A/127.3	468.1625	3A/127.3	
16	BRI M 82	BRISTOL MED 82	Bristol CMED MED 82	463.1875	3A/127.3	468.1875	3A/127.3	

Reg 3 N E

Northeast

Chan.	Space + 8 Characters	14-Character Mobile Display	Channel Name	Receive Frequency	Receive PL/DPL	Transmit Frequency	Transmit PL/DPL	Special Info
1	N E M 1N	N EAST M1N	Northeast CMED MED 1N	463.0000	3Z/123.0	468.0000	3Z/123.0	
2	N E M 2N	N EAST M2N	Northeast CMED MED 2N	463.0250	3Z/123.0	468.0250	3Z/123.0	
3	N E M 3N	N EAST M3N	Northeast CMED MED 3N	463.0500	3Z/123.0	468.0500	3Z/123.0	
4	N E M 4N	N EAST M4N	Northeast CMED MED 4N	463.0750	3Z/123.0	468.0750	3Z/123.0	* See Note 1 & 2
5	N E M 5N	N EAST M5N	Northeast CMED MED 5N	463.1000	3Z/123.0	468.1000	3Z/123.0	
6	N E M 6N	N EAST M6N	Northeast CMED MED 6N	463.1250	3Z/123.0	468.1250	3Z/123.0	
7	N E M 7N	N EAST M7N	Northeast CMED MED 7N	463.1500	3Z/123.0	468.1500	3Z/123.0	
8	N E M 8N	N EAST M8N	Northeast CMED MED 8N	463.1750	3Z/123.0	468.1750	3Z/123.0	
9	N E M 12	N EAST M12	Northeast CMED MED 12	463.0125	3Z/123.0	468.0125	3Z/123.0	
10	N E M 22	N EAST M22	Northeast CMED MED 22	463.0375	3Z/123.0	468.0375	3Z/123.0	
11	N E M 32	N EAST M32	Northeast CMED MED 32	463.0625	3Z/123.0	468.0625	3Z/123.0	
12	N E M 42	N EAST M42	Northeast CMED MED 42	463.0875	3Z/123.0	468.0875	3Z/123.0	* See Note 5
13	N E M 52	N EAST M52	Northeast CMED MED 52	463.1125	3Z/123.0	468.1125	3Z/123.0	
14	N E M 62	N EAST M62	Northeast CMED MED 62	463.1375	3Z/123.0	468.1375	3Z/123.0	
15	N E M 72	N EAST M72	Northeast CMED MED 72	463.1625	3Z/123.0	468.1625	3Z/123.0	
16	N E M 82	N EAST M82	Northeast CMED MED 82	463.1875	3Z/123.0	468.1875	3Z/123.0	

Reg 5 Ply

Plymouth

Chan.	Space + 8 Characters	14-Character Mobile Display	Channel Name	Receive Frequency	Receive PL/DPL	Transmit Frequency	Transmit PL/DPL	Special Info
1	PLY M 1N	PLYMTH MED 1N	Plymouth CMED MED 1N	463.0000	1A/103.5	468.0000	1A/103.5	
2	PLY M 2N	PLYMTH MED 2N	Plymouth CMED MED 2N	463.0250	1A/103.5	468.0250	1A/103.5	
3	PLY M 3N	PLYMTH MED 3N	Plymouth CMED MED 3N	463.0500	1A/103.5	468.0500	1A/103.5	
4	PLY M 4N	PLYMTH MED 4N	Plymouth CMED MED 4N	463.0750	1A/103.5	468.0750	1A/103.5	* See Note 1 & 2
5	PLY M 5N	PLYMTH MED 5N	Plymouth CMED MED 5N	463.1000	1A/103.5	468.1000	1A/103.5	
6	PLY M 6N	PLYMTH MED 6N	Plymouth CMED MED 6N	463.1250	1A/103.5	468.1250	1A/103.5	
7	PLY M 7N	PLYMTH MED 7N	Plymouth CMED MED 7N	463.1500	1A/103.5	468.1500	1A/103.5	
8	PLY M 8N	PLYMTH MED 8N	Plymouth CMED MED 8N	463.1750	1A/103.5	468.1750	1A/103.5	
9	PLY M 12	PLYMTH MED 12	Plymouth CMED MED 12	463.0125	1A/103.5	468.0125	1A/103.5	
10	PLY M 22	PLYMTH MED 22	Plymouth CMED MED 22	463.0375	1A/103.5	468.0375	1A/103.5	
11	PLY M 32	PLYMTH MED 32	Plymouth CMED MED 32	463.0625	1A/103.5	468.0625	1A/103.5	
12	PLY M 42	PLYMTH MED 42	Plymouth CMED MED 42	463.0875	1A/103.5	468.0875	1A/103.5	
13	PLY M 52	PLYMTH MED 52	Plymouth CMED MED 52	463.1125	1A/103.5	468.1125	1A/103.5	
14	PLY M 62	PLYMTH MED 62	Plymouth CMED MED 62	463.1375	1A/103.5	468.1375	1A/103.5	
15	PLY M 72	PLYMTH MED 72	Plymouth CMED MED 72	463.1625	1A/103.5	468.1625	1A/103.5	
16	PLY M 82	PLYMTH MED 82	Plymouth CMED MED 82	463.1875	1A/103.5	468.1875	1A/103.5	

Reg 1 Sprfld

Springfield

Chan.	Space + 8 Characters	14-Character Mobile Display	Channel Name	Receive Frequency	Receive PL/DPL	Transmit Frequency	Transmit PL/DPL	Special Info
1	SPR M 1N	SPRFLD MED1N	Springfield CMED MED 1N	463.0000	1Z/100.0	468.000	1Z/100.0	
2	SPR M 2N	SPRFLD MED2N	Springfield CMED MED 2N	463.0250	1Z/100.0	468.025	1Z/100.0	
3	SPR M 3N	SPRFLD MED3N	Springfield CMED MED 3N	463.0500	1Z/100.0	468.050	1Z/100.0	
4	SPR M 4N	SPRFLD MED4N	Springfield CMED MED 4N	463.0750	1Z/100.0	468.075	1Z/100.0	* See Note 1 & 2
5	SPR M 5N	SPRFLD MED5N	Springfield CMED MED 5N	463.1000	1Z/100.0	468.100	1Z/100.0	
6	SPR M 6N	SPRFLD MED6N	Springfield CMED MED 6N	463.1250	1Z/100.0	468.125	1Z/100.0	
7	SPR M 7N	SPRFLD MED7N	Springfield CMED MED 7N	463.1500	1Z/100.0	468.150	1Z/100.0	
8	SPR M 8N	SPRFLD MED8N	Springfield CMED MED 8N	463.1750	1Z/100.0	468.175	1Z/100.0	
9	SPR M 12	SPRFLD MED12	Springfield CMED MED 12	463.0125	1Z/100.0	468.0125	1Z/100.0	
10	SPR M 22	SPRFLD MED22	Springfield CMED MED 22	463.0375	1Z/100.0	468.0375	1Z/100.0	
11	SPR M 32	SPRFLD MED32	Springfield CMED MED 32	463.0625	1Z/100.0	468.0625	1Z/100.0	
12	SPR M 42	SPRFLD MED42	Springfield CMED MED 42	463.0875	1Z/100.0	468.0875	1Z/100.0	
13	SPR M 52	SPRFLD MED52	Springfield CMED MED 52	463.1125	1Z/100.0	468.1125	1Z/100.0	
14	SPR M 62	SPRFLD MED62	Springfield CMED MED 62	463.1375	1Z/100.0	468.1375	1Z/100.0	
15	SPR M 72	SPRFLD MED72	Springfield CMED MED 72	463.1625	1Z/100.0	468.1625	1Z/100.0	
16	SPR M 82	SPRFLD MED82	Springfield CMED MED 82	463.1875	1Z/100.0	468.1875	1Z/100.0	

Nat National

Chan.	Space + 8 Characters	14-Character Mobile Display	Channel Name	Receive Frequency	Receive PL/DPL	Transmit Frequency	Transmit PL/DPL	Special Info
1	UCALL 40	UCALL 40	UHF National Interop Channel 40	453.2125	5A/156.7	458.2125	5A/156.7	* See Note 7
2	UCALL40D	UCALL 40-D	UHF Nat. Interop Channel 40 Direct	453.2125	5A/156.7	453.2125	5A/156.7	* See Note 7
3	UTAC 41	UTAC 41	UHF National Interop Tactical 41	453.4625	5A/156.7	458.4625	5A/156.7	* See Note 7
4	UTAC 41D	UTAC 41-D	UHF Nat. Interop Tactical 41 Direct	453.4625	5A/156.7	453.4625	5A/156.7	* See Note 7
5	UTAC 42	UTAC 42	UHF National Interop Tactical 42	453.7125	5A/156.7	458.7125	5A/156.7	* See Note 7
6	UTAC 42D	UTAC 42-D	UHF Nat. Interop Tactical 42 Direct	453.7125	5A/156.7	453.7125	5A/156.7	* See Note 7
7	UTAC 43	UTAC 43	UHF National Interop Tactical 43	453.8625	5A/156.7	458.8625	5A/156.7	* See Note 7
8	UTAC 43D	UTAC 43-D	UHF Nat. Interop Tactical 43 Direct	453.8625	5A/156.7	453.8625	5A/156.7	* See Note 7
9	SOP M9	SOP M9	Special Operation MED 9	462.9500	YB	467.9500	YB	* See Note 7
10	SOP M10	SOP M10	Special Operation MED 10	462.9750	YB	467.9750	YB	* See Note 7
11	SOP M92	SOP M92	Special Operation MED 92-Direct	462.9625	YB	462.9625	YB	* See Note 7
12	SOP M102	SOP M102	Special Operation MED 102	462.9875	YB	467.9875	YB	* See Note 7
13								
14								
15								
16								

- Note 1: MED 4 shall be used for statewide common hailing channel
- Note 2: 15 second T.O.T shall be programmed into all mobiles and portables on MED 4
- Note 3: Shall be utilized for statewide ambulance interoperability and interagency communication.
- Note:4 May be utilized for dispatch by special request
- Note 5: Each Region may put their home CMED as the first bank followed by the others in alphabetical order
- Note 6: Units hailing Region III CMED on the Northshore may use MED 42
- Note 7: If the radio's receiver cannot support Receive 'PL' Disable it should be programmed for CSQ (Carrier Squelch) operation.