ScannerDigest Newsletter

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GENERAL EDITOR *Alan Cohen*
ScannerDigest@gmail.com

BREAKING NEWS

WHISTLER INTRODUCES TWO NEW MODELS

After talking with the folks at Whistler, they were excited to let us know that they plan to introduce two new models to replace their popular WS1080/WS1095 models. At this press release, there wasn't any information on pricing or a released date. Listed below are details on the new models. The new 1088 and 1098 will share the same physical size of the 1080 and 1095 however the keyboard increased from 10 keys to 23 keys in order to provide more user customization directly from the scanner

Information from Whistler is as follows:
The 1080 and 1095 models use a simple keypad consisting of 10 keys allowing you to setup the scanner from an onboard updateable database. Creating or editing Trunked systems, Sites, and Talkgroups that are not in the database require the of a pc and the EZ Scan app.

The 1088 and 1098 models have a full alphanumeric keypad consisting of 23 keys allowing you to easily create new and edit existing trunked systems, sites, and talk groups directly from the scanner and without the use of a pc.

Alan Cohen

The Whistler **WS1088** (handheld) and **WS1098** (desktop/Mobile) are multi-system adaptive digital trunking scanners with Motorola P25 Phase I, X2-TDMA and Phase II capabilities.

All USA/Canada services and frequencies are pre-programmed onto the included SD card making it ready to use out of the box - it can even be programmed by entering your ZIP code. These models feature a full keyboard for programming and editing on the go, as well as a PC program (EZ Scan) for easy customization and includes USB cable and PC software. It also has Virtual Scanner mode that can store 200 various scanner configurations. The WS1088 and WS1098 permits recording by scannable object; saves into a Windows compatible audio file. The clock and calendar function adds date/time info to the recordings. The dedicated Skywarn/Weather button allows quick access to frequencies used by storm spotter networks and NOAA weather reports.

Additionally, this model features Whistler's Spectrum Sweeper and a programmable audio and visual alert system.

- **Easy to Use Keyboard –** Backlit alphanumeric keypad in addition to the familiar Scan, Pause, Select and Navigation controls make it easy for you to use your WS1088 or WS1098. A raised homing bar, various button shapes, and keyboard illumination also provide assistance for the visually impaired.
- **Object Oriented Menu Driven User Interface –** Provides common data entry, browsing, and control methods for every scannable object with support for millions of stored objects, limited only by SD Card

capacity. Easily Create New and Edit Existing Trunked Systems, Sites, and Talkgroups.

- **The Complete RadioReference USA and Canada Database On Standard SD Card** - The entire USA and Canada databases from www.radioreference.com are stored on a standard SD Card that is included with the scanner, giving you access to the most comprehensive radio data available without connecting to a computer or the Internet! Free downloads of updated database, CPU, PC App, and DSP firmware.

- **Improved P25 Functionality** - Detects digital voice audio, and decodes radioID/TalkgroupID data embedded in voice packets.

- **Upgradeable CPU Firmware, DSP Firmware and Library** - Keep your radio's CPU and DSP firmware and RadioReference library current with enhancements and updates as they become available with free upgrades!

- **SD Card** - Uses an industry standard SD Card to store the RadioReference data library and all of your programming - capacity for millions of stored objects! Supports cards up to 32 GB

- **Full USB Interface** - Industry standard Composite Device USB interface with USB Mass Storage Device (MSD) and Serial Data (CDC) support. Access the SD Card without removing it from the radio, stream decoded Control Channel data and upgrade your radio's firmware over USB. Mini USB cable included.

- **Powerful PC Application Software Included** - Customize existing programming or add new objects to scan, and keep your firmware and Library data up to date.

- **SKYWARN Storm Spotter Functionality** - Instant access to frequencies used by storm spotter networks. You can monitor storm conditions as they occur, and become aware of dangerous conditions before the media or emergency management officials are able to announce them to the general public.

- **SAME and All Hazards Weather Alerting** - features a Dedicated SAME Weather Alert Receiver mode, alerting you to severe weather and other hazards in the specific area(s) that you select, or, the WS1088 and WS1098 can check your local NOAA weather frequency periodically, even while scanning, and alert you when an All Hazards alert occurs.

- **Multi-System Trunking** - Scans most common analog trunked radio system signaling formats, including P25, Motorola, EDACS and LTR. Both talkgroup and individual call monitoring are supported.

- **Powerful Spectrum Sweeper** - Quickly sweeps the scanners frequency ranges for transmissions from nearby sources. When a nearby transmission is found, the scanner automatically tunes to that frequency and receives the traffic. Lock out found frequencies and continue searching the same band.

- **200 Scanlists** - Provides the unprecedented ability to group your stored objects using up to 200 Scanlists plus a special Skywarn scanlist. Objects can be mapped to as many Scanlists as desired, giving you complete flexibility for grouping objects and selecting groups in any combination for scanning.

- **Scan Sets** - Scan Sets expand the functionality of Scanlists by allowing you to define different combinations of enabled Scanlists as Scan Sets, then you can select one or more Scan Sets for scanning using a simple menu system. With Scanlists and Scan Sets you have unlimited possibilities for grouping, enabling and disabling objects for scanning.

- **Expanded V-Scanner II Storage System** - With the expanded V-Scanner II (VS-II) storage system, you can use the PC Application to save up to 200 V-Scanner configurations on the SD Card, which can be recalled at any time in the field using the radio's keypad.

- **Audio Recording** - Record received audio from selected objects and searches to the SD card. Replay recorded audio using powerful built-in playback system or transfer to PC for playback and archiving. Record up to 100 hours of audio on the 4 GB SD card

- **Built-In Clock/Calendar** - Date and time stamp recorded audio files.

- **Built-in Service Searches** - Predefined service search ranges make it easy to find activity in your area.

- **Whistler's Exclusive Alert LED** - Programmable tri-color LED displays thousands of colors that can be used to indicate different types of activity or activity on special channels. Program color sequences with multiple colors for special alerts, even emulate the red/blue strobe of police vehicles.

- **Audible Alarms** - Programmable audible alarms can be configured to sound when certain objects are active.

- **Programmable Backlight and Alert LED Flash Patterns** - The backlight can be programmed to flash with custom flash patterns when certain objects are active, providing another way alerting the operator when important radio traffic is present.

- **Signal Strength Meter** - Shows relative strength of received signals. Slim, compact case design with textured exterior finish and large speaker - Designed for durability and ease of use.

SOUTHERN NEW JERSEY *Michael P. Mollet, N2SRO*

Here are some newly licensed or renewal frequencies from the southern New Jersey area for public safety agencies.

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KDT572
MOUNT LAUREL, CITY OF
69 ELBO LN
MOUNT LAUREL NJ 856-234-6053

154.0700  FB  110p  11K2F3E
154.1300  FB  110p  11K2F3E
154.1900  FB  110p  11K2F3E
154.2050  FB  110p  11K2F3E
154.2200  FB  110p  11K2F3E
154.2500  FB  110p  11K2F3E
154.2650  FB  110p  11K2F3E
154.3400  FB  110p  11K2F3E
154.4000  FB  110p  11K2F3E

154.1300  MO  110p  11K2F3E
154.1900  MO  110p  11K2F3E
154.2200  MO  110p  11K2F3E
154.4000  MO  110p  11K2F3E
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WQWB347
GLOUCESTER, COUNTY OF
1200 N DELSEA DR
CLAYTON NJ 856-307-7100

771.45625 FB2 60p 8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
771.61875 FB2 60p 8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
771.90625 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
772.20625 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
772.60625 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
772.95625 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
773.65625 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
774.68125 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
771.45625 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
771.61875 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
771.90625 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
772.20625 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
772.60625 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
772.95625 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
773.65625 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
774.68125 FB2 60p  8K10F1D 8K10F1E 9K80D7W (P25
Phase II)
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MILITARY

Daniel Myers K3NXX
823 Horsham Rd.
Horsham, Pa 19044-1209
dan@domyers.com

ROYAL CANADIAN AIR FORCES

CF-18 Demo Team (2015)

It's one of the more anticipated acts of the air show. As the CF-188 leaves the chocks, pulls out of the ramp area and taxis to the runway, heads turn to admire the jets' magnificent paint scheme- a mural adorning both sides of the hornet, the entire top of the fuselage, both wings and tail. The painted image commemorates the United Kingdom's 75th Anniversary of "The Battle of Britain." As the fighter prepares for take-off, in the background, the audience hears those famous words uttered by Winston Churchill; "Never in the field of human conflict was so much owed by so many to so few". The crowd is exuberant as CF-18 Demo Pilot Capt. Denis "Cheech" Beaulieu performs square loops, multiple high-speed passes and tight turns before propelling the jet skyward. With safety the paramount concern, the demo accomplishes its goal of illustrating the aircraft's capability and proficiency as well as the pilot's ability and precision.

The CF-18 Demonstration Team has elected to perform their first five shows for 2015 at venues in the USA. Three more U.S. shows will follow later this year. The team will perform at twenty-two additional sites through-out Canada and approximate the same site schedule as the Canadian Forces Snowbirds in both countries. But the team's work started long before the first show. "Cheech" was one of three applicants that tried out for the one-year demo pilot position. All applying had to have at least 500 flight hours in the hornet, hold the rank of Captain and have been a

Flight Leader. CF-188 hornets are flown from only two bases in Canada; 4 Wing in Cold Lake and 3 Wing Bagotville. Annual demo pilot selection alternates between the two Wings. This year's pilot hails from the 3 Wing's 425 Tactical Fighter Squadron "The Alouettes".

Before any audience in North America ever witnessed the demo, in October of the previous year, a preliminary show site schedule was established and presented to International Council of Air Shows at their annual December convention. In March, forty-five days prior to getting into the jet, demonstration pilot training began with "flying" the demo one or two flight s a day for about two weeks in the flight simulator; followed by two flights a day in the jet for the next two weeks. The demo routine comes from a preapproved manual and rarely changes from year to year. The team's philosophy is "Why reinvent the wheel?" Keeping crowd safety in mind, the demonstration falls within the guidelines of Transport Canada and the FAA. A former CF-18 demo pilot provides support and tutoring during the training process. Capt. Beaulieu was mentored by the 2009 demonstration pilot. Beaulieu's superior officer, Major Eric Martinat, although not an F-18 pilot, serves as the safety observing pilot through-out the entire process and during the show season. At the end of the training process and before the team takes to the road and skies, the demo pilot must perform the routine at Comox, BC and be approved in front of the General's staff. That took place on 28 April 2015.

To an assortment of eclectic music of Beaulieu's own choosing, the routine includes the jet fly as low as 1,500 feet and at least 5,000 for a minimal high show. During his routine "Cheech" will pull about 5.5 to 7G's through the 360 Minimum Radius Turn (MRT), will achieve a high speed pass of .95 mach and perform maneuvers where the pilot may pull 6 to 7G's for five seconds. All of this is done while in radio communication and under the watchful eye of Safety Observing Pilot Maj. Martinat who also serves as announcer for the demo.

The jet is accompanied by a maintenance team consisting of a Crew Chief, Deputy Crew Chief and two technicians; all of who travel to each show site on commercial aircraft along with the safety observer/announcer. Unlike their U.S. counterpart, the CF-188 comes to an air show with only the demo jet- no spare. In the event the primary plane is unable to perform, a back-up will be flown in from the closest squadron.

The CF-18 demo jet (Bu. No. 188761) was chosen because of the low time on its airframe. Some of the planes notable history include: in 1986, in England, when trying to land the jet, the pilot ran into several icy patches, could not bring the plane to a stop and was forced to eject prior to the jet running off the end of the runway. The CF-188 was taken to Germany where it sat for several years before finally being repaired with a nose from a Spanish F-18 and a wing from an Australian F-18- making it a true international plane! The second ejection occurred in Canada in the 1990's when during take-off the pilot had the flight controls set in the wrong position. Realizing that the jet would not make it to take-off and unable to bring the plane to a stop, the pilot ejected. The plane came to a gentle uncontrollable non-volatile rest off the runway. After some minor repairs, two ejection seats were painted on the side of the jet signifying the incidents. The icons were removed when the jet was painted for the "Battle of Britain." It should be noted; in England, a British Eurofighter Typhoon also sports the same 75th Anniversary paint theme. A discussion ensued about having the two jets perform together, but the parties could not come to an agreement as to which side of "the pond" that would take place.

At the end of the 2015 air show season, the jet will be returned to the squadron in its standard grey paint design.

2015 CF-18 Demonstration Hornet on the tarmac at 3 Wing Bagotville, Quebec. Photos by: Leading Seaman Alex Roy

ROYAL CANADIAN AIR FORCE BASES

1 Wing Kingston [CYGK] (Kingston, Ontario)
Tactical Helicopter Squadrons consisting of CH-146 Griffon and CH-147F Chinook helicopters.
400 Tactical Helicopter Squadron
403 Helicopter Operational Training Squadron
408 Tactical Helicopter Squadron
427 Special Operations Aviation Squadron
430 Tactical Helicopter Squadron
438 Tactical Helicopter Squadron
450 Tactical Helicopter Squadron

3 Wing Bagotville [CYBG] (Alouette, Quebec)
Wing Ops 264.60
Multi-Role, Combat Capable CF-188 Hornets

414 Electronic Warfare Squadron
425 Tactical Fighter Squadron *(CF-18 Demo Team 2015)*

439 Combat Support Squadron (CH-146 Griffon)
2 Air Expeditionary Support Squadron
3 Air Maintenance Squadron
12 Radar Squadron
3 Wing Air Reserve Flight

4 Wing Cold Lake [CYOD] (Cold Lake, Alberta)
Wing Ops 340.20
The busiest fighter (CF-188 Hornets) base in Canada is home to fighter pilot training and the annual air combat exercise- Maple Flag.
409 Squadron *(CF-18 Demo Team 2014)*
410 Squadron Tactical Fighter Operational Training Squadron
417 Squadron Combat Support Squadron
4 Wing Air Reserve Flight

5 Wing Goose Bay [CYYR] (Happy Valley-Goose Bay, Labrador)
Military Flight Ops- 129.85/350.50
Ranger Base- 129.30
The base conducts and supports a wide variety of operations including both joint and combined training with the CH-146 Griffon.
444 Combat Support Squadron
5 Wing Air Reserve Flight

8 Wing Trenton [CYTR] (Trenton, Ontario)
Wings Ops- 122.35/268.00
Tiger SAR Ops- 232.10
The hub of air mobility operations in Canada flying the CC-144 Challenger, CH-146 Griffon, CC-130E Hercules, CC-130J Hercules, CC-150 Polaris, CC-177 Globemaster III and King Air B200. The Wing is responsible for Search and Rescue (SAR) operations and home to the famous *Skyhawks* parachute demonstration team.
412 Transport Squadron (at Ottawa)
424 Transport and, Search and Rescue Squadron
426 Transport Training Squadron
429 Transport Squadron
436 Transport Squadron
437 Transport Squadron
8 Wing Air Reserve Flight

9 Wing Gander [CYQX] (Gander, Newfoundland)
Outcast Ops- 128.85/252.80
The wing provides search and rescue services throughout Newfoundland and Labrador- one of the busiest search and rescue regions in Canada- as well as north-eastern Quebec, flying the CH-149 Cormorant.
103 Search and Rescue Squadron
9 Wing Reserve Flight
Air Reserve Flight Detachment Torbay

12 Wing Shearwater/Halifax [CYAW] (Shearwater, Nova Scotia)
Shearwater Mil- 308.80
Shearwater Heliport Ops- 239.30
The wing supports the Navy with up to nine helicopter air detachments and, the CH-124 Sea King and the CH-148 Cyclone helicopters for international and domestic operations.
406 Maritime Operational Training Squadron
423 Maritime Helicopter Squadron
443 Maritime Helicopter Squadron (at Patricia Bay)
12 Wing Air Reserve Flight

14 Wing Greenwood [CYZX] (Greenwood, Nova Scotia)
Greenwood Wing Ops- 308.60
Tusker Ops- 129.775
The largest air base on the East Coast, crews conduct surveillance missions over the Atlantic Ocean while Search and Rescue capabilities are maintained 365 days of the year with CP-140 Aurora, CC-130 Hercules, CC-130J Hercules and CH-149 Cormorant aircraft.
404 Long Range Patrol and Training Squadron
405 Long Range Patrol Squadron
413 Transport and Rescue Squadron
14 Wing Air Reserve Flight

15 Wing Moose Jaw [CYMJ] (Moose Jaw, Saskatchewan)
This southern Saskatchewan city is home of the NATO Flying Training in Canada program (NFTC) and the *Canadian Forces Snowbirds air demonstration team*. The "Home of Military Pilot Training" utilizes the CT-155 Hawk, CT-156 Harvard II, CH-139 Jet Ranger, Grob 120A, King Air C-90B and Bell 412 CF.
2 Canadian Forces Flying Training School
3 Canadian Forces Flying Training School
419 Tactical Fighter Training Squadron

431 Air Demonstration Squadron, Snowbirds
15 Wing Air Reserve Flight

16 Wing Borden [CYBN] (Borden, Ontario) [*Helicopter*]
400 Squadron Zero Ops- FM 40.90
The "Birthplace of the Royal Canadian Air Force (RCAF)" and the largest training Wing in the Canadian Forces offering Air Force technical training and professional development.

17 Wing Winnipeg [CYWG] (Winnipeg, Manitoba)
Military Advisory Ops- 131.40/308.80
The wing is a composite formation conducting and supporting flying operations and, training and command functions, while supporting one-hundred and thirteen units stretching from Thunder Bay, Ontario, to the Saskatchewan/Alberta Border and from the 49th Parallel to the high Arctic with the CC-130 Hercules and CC-138 Twin Otter.
435 Transport and Rescue Squadron
440 Transport Squadron (at Yellowknife)
17 Wing Air Reserve Flight

19 Wing Comox [CYQQ] (Lazo, British Columbia)
407 Squadron Demon Ops- 308.60
442 Squadron Snake Ops- 135.90/363.00
Base Ops- 316.50
Using the CP-140 Aurora, the pilots and crews of 407 Long Range Patrol Squadron spend long hours on surveillance missions over the ocean looking for illegal fishing, migration, drugs and pollution in addition to foreign submarines. They can also perform search and rescue missions using air-droppable survival pods.
With CC-115 Buffalo Aircraft and CH-149 Cormorant Helicopters, 442 Transport and Rescue Squadron carries out search and rescue operations in the busiest region in Canada, stretching from the B.C.-Washington border to the Arctic, and from the Rocky Mountains to 1,200 km out into the Pacific.
407 Long Range Patrol Squadron
442 Transport and Rescue Squadron
19 Wing Air Reserve Flight

22 Wing North Bay [CYYB] (North Bay, Ontario)
The Canadian Air Defense Sector (CADS) is responsible for providing surveillance, identification, control and warning for the aerospace defense of Canada and North America at the Sector Air Operations Centre.
21 Aerospace Control and Warning Squadron
51 Aerospace Control and Warning Operational Training Squadron
Detachment 2, First Air Force (United States Air Force)
22 Wing Air Reserve Flight

AIR SHOW FREQUENCIES:
333.30 CF-18 Demo Pilot to Safety Observer/Announcer
116.00 Snowbirds
117.00 Snowbirds
272.10 Snowbirds

431 Air Demonstration Squadron, Snowbirds

1	275.8	Moose Jaw Ground
2	295.6	Moose Jaw Tower
3	310.8	Moose Jaw Tower
4	227.6	Moose Jaw Terminal
5	234.4	Moose Jaw Clear Delivery
6	318.8	Moose Jaw Approach
7	378.5	Moose Jaw Approach
8	381.3	Moose Jaw Approach
9	289.4	Moose Jaw Approach
10	374.1	Moose Jaw Approach
11	xxx.xx	*SNOWBIRDS*
12	xxx.xx	*SNOWBIRDS*
13	xxx.xx	*SOLOS*
14	*333.3*	*SNOWBIRDS*
15	257.8	Moose Jaw ATIS
16	308.8	Base Ops
17	236.6	Tower Common
18	266.3	Winnipeg Center
19	279.8	Regina Intl Approach
20	344.6	METRO

AMATEUR RADIO

Robert Gulley AK3Q
ak3q@ak3q.com

Amateur Radio: APRS

Robert Gulley AK3Q

If you have not kept up with recent developments in APRS, you might not realize the many ways this tool is being used in amateur radio and scanning, as well as various other areas where Public Service/Emergency Services are in use. In this edition I will look at APRS from the ground up, but with an emphasis on some of the newer tools added in recent years – this isn't just about finding your location on a map anymore! APRS is truly realizing its goal as a complete communication tool in many ways.

Some background
APRS (Automatic Packet Reporting System) is the brainchild of Bob Bruninga (WB4APR), and has been in continual development by Bob and others for over 20 years.

As Bob notes on aprs.org:

> APRS is not a vehicle tracking system. It is a two-way tactical real-time digital communications system between all assets in a network sharing information about everything going on in the local area. On ham radio, this means if something is happening now, or there is information that could be valuable to you, then it should show up on your APRS radio in your mobile . . . . APRS also supports global callsign-to-callsign messaging, bulletins, objects email and Voice because every local area is seen by the Internet System (APRS-IS)! APRS should enable local and global amateur radio operator contact at any time-anywhere and using any device.

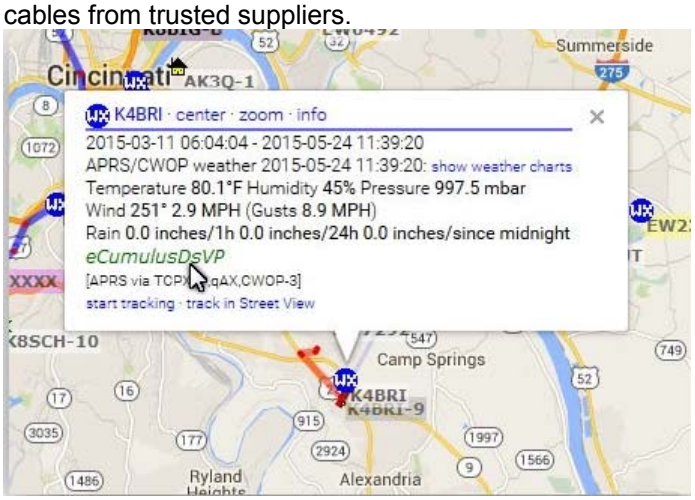
Many folks have the misconception that APRS is basically just a GPS-enabled tracking protocol. APRS is first and foremost a *packet* protocol, with the reporting being any block of information able to be sent in packet form.

Some examples include:
-- local repeater information
-- weather information
-- club information
-- announcements of local events
-- traffic conditions;
-- voice alerts for simplex
-- Internet linking through I-gates

APRS shines when used during emergency training ops or in the field during actual emergencies. While the learning curve for APRS operation is fairly steep, regular practice with casual operation allows for confident use. In emergency situation the ability to map out locations, assets, and logistical information on real-time maps is crucial. This can be done easily with existing software/hardware combinations. Many radios now include both APRS and GPS capabilities, or GPS can be added easily. Especially significant is that any radio with DTMF capability can be used to send messages, no APRS capability needed!

In general I will assume an APRS setup is already done, but a few words are appropriate for typical setups. The most common issue will be cabling between the radio and the computer or between the TNC and the computer. The usual caveats apply as most have probably encountered: the computer must have a serial port connector or a converter between serial and USB. FTDI chips seem to work best, but I have heard Prolific has gotten their drivers to work with Windows 7/8 now. Just buyer beware.

Avoid cheap cables from unknown names—there are a lot of counterfeit chipsets running around which claim compatibility, but which are either not compatible or are only partially compatible. Sadly these warnings have to be mentioned every time we talk about serial conversions because the problems not only persist, but they multiply over the years. Spend a little more and get good quality cables from trusted suppliers.



KISS (Keep it Simple, Stupid) Mode
Another note worthy of mention is setting the TNC into KISS mode. Some TNCs, most modern ones, have this mode as a default option, but some of the older modems either had to have a special ROM (like my MFJ-1270C, or there are DIP switch settings to place it in that mode. Make sure you have a manual handy for the particular TNC in use! Keep in mind that KISS is fundamentally different than standard TNC protocols (AX.25). The KISS TNC eliminates as much as possible from the TNC software, giving the attached host complete control over and access to the contents of the HDLC (**High-Level Data Link Control**) frames transmitted and received over the air. The idea being that the host software should have control over all TNC functions at the lowest possible level for the tightest most standardized control.

The AX.25 protocol is removed entirely from the TNC, as are all command interpreters. The TNC simply converts between synchronous HDLC, with every frame received on the HDLC link being passed intact to the host once it has been translated to an asynchronous format; similarly, asynchronous frames from the host are transmitted on the radio channel once they have been converted to HDLC format.

The disadvantage to KISS mode is that some functionality may be lost with higher-level programs wishing to take control of the TNC. APRS has an extensive set of data objects which cannot always be covered in KISS format,

so, for example, some plotting of data points may be not be passed to the software as the hardware does not know what to do with them.

Overall KISS mode works well for most things, but check for compatibility issues with your particular TNC/radio combination.

Position Reports

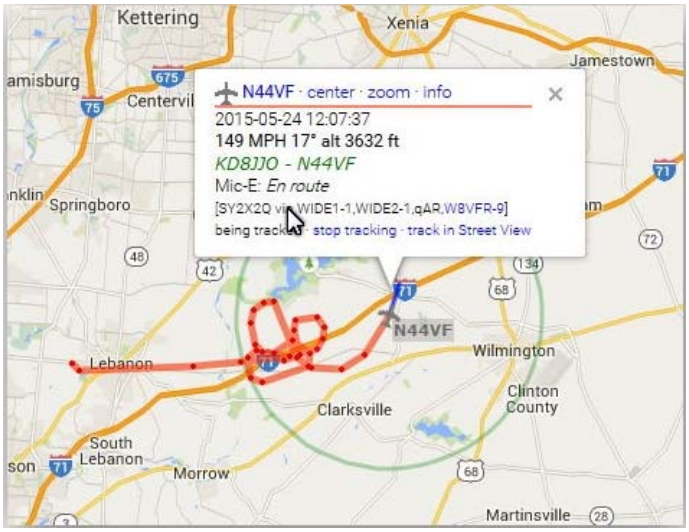
Some of the more popular uses beyond following vehicles travelling down the road involve tracking hot air balloon launches, telemetry data from satellites, repeater locations/freq./tone, IRLP/Echolink nodes/freq./tone, even important landmarks such as hospitals and police stations, or checkpoints along public service events. Waypoints can be set as well as destinations, routes can be mapped and GPS logs can be saved or transmitted to track where you have been. Hikers/campers can find these features particularly useful, and anyone searching for someone can use several available online maps to locate someone who might be lost or in distress. APRS has even been used to track stolen cars since most thieves are not aware of its use.

Because APRS is used primarily in the VHF range, most scanners will easily cover these frequencies, and the data can be output to a computer for tracking software. Of course raw data packets can be sent to terminal programs, but most location services want to link maps into the data.

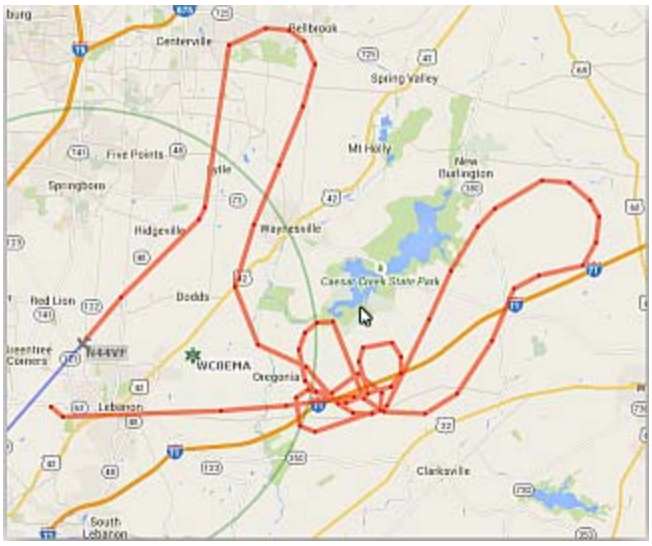
Information

Weather reports are common whether as fixed stations or as mobile stations with a weather unit attached. This can be particularly useful for tracking a storm path or finding out what weather is like down the road while traveling. Depending on the weather station's configuration, there can be a lot of information displayed beyond just the temperature and the wind speed!

Here's a plane track using APRS:



Note the speed (149 MPH) and Alt (3632 ft) and the tracked path. I would assume this is a small plane practicing maneuvers or doing a couple of "touch and go" landings. Here is the plane just a little while later:



In addition to the path being tracked and plotted based on regular pinging of the APRS station, additional information is available to show activity over a recent period of time, along with stations which have heard or forwarded the APRS signal. Of course more information about the aircraft itself can be gained by looking up the plane's call letters, N44VF, on such sites as flightaware.com or planefinder.net.

Radio RADAR

One of the less used but more interesting features of APRS is something which has become known as "ham radar" because it uses packet pings to alert other APRS users to the presence of someone on APRS frequency.

Here's how it works: when someone turns on voice alert (va) on a rig so equipped, a packet is sent out usually every 1-3 minutes as an identifier. The packet is sent out with a CTCSS code of 100 which matches other APRS users who have set this same CTCSS code on their receiver. The only pings (or packets) which are heard on the receiving end are those which have been sent out with the proper CTCSS code. (There is nothing magical about this code – it is just the one which has been agreed upon by popular convention.)

The best part is a person goes not have to have APRS on the receive end to use this feature. By simply monitoring the APRS frequency with the CTCSS code enabled, they can do the same thing: respond with a quick call and QSY to another frequency for voice chat. And since the mode is simplex, and local ranges are only good for a few miles or so, the chats are quick and enjoyable.

Primary VHF Frequencies

- North America: 144.390 MHz (Voice Alert 100.0 Hz CTCSS, mobiles only please!)
- Europe: 144.800 MHz (Voice Alert 136.5 Hz CTCSS)
- Russia: 144.800 MHz
- Australia: 145.175 MHz (Voice Alert 91.5 Hz CTCSS)
- New Zealand: 144.575 MHz
- Argentina: 144.930 MHz
- Uruguay: 144.930 MHz (145.010 MHz also)
- Japan: 144.640 MHz 9600 baud / 144.660MHz 1200 baud
- South Africa: 144.800 MHz

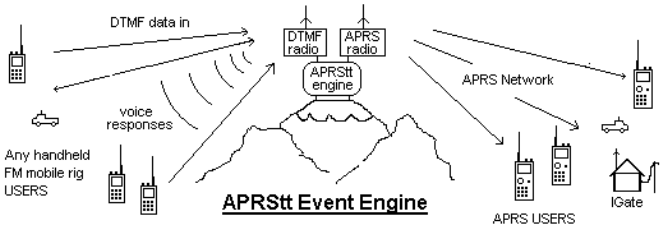
APRStt is an engine at an event that listens for DTMF data entered by anyone using any HT with a keypad and converts it over to the APRS data channel for distribution to all APRS systems and viewers.

This is part of a project initiative called Universal Contact by Callsign, with the goal being that anyone anywhere with any device could enter a callsign and connect with anyone else anywhere else on any device. While this may seem rather far-fetched, it is much closer to reality than one might expect. With Internet, SMS messaging, voice alerts, Email, and numerous other modes already connected to APRS, the infrastructure is already in place for many systems.

Even if some of the operators (or most) at a public service event do not have APRS capability, when they send a DTMF code programmed into one of their DTMF memories, their radio will register in the system with a call sign and a location, making mapping a snap.

AVRS
In Bob Bruninga's words:

> *AVRS is the ham radio Universal Voice Contact System equivalent to the Universal Ham Radio Text Messaging initiative. Both of these initiatives attempt to cross connect all ham radio systems so that only a callsign is needed to establish TEXT or VOICE contact. For Voice, we are trying to cross connect all of the VoIP ham radio link Programs (IRLP, ECHOlink, WIRES, D-STAR, Asterix, etc)! Think of AVRS as Ham Radio's Cellular-by-Callsign system where you use your radio to make a call to a callsign instead of a phone number.*
>
> *APRS is the backbone signaling system locating the end CALLSIGN users and the Links needed to set up the call. This is just like D-star, except it works for any analog system such as EchoLink, IRLP, AllStar or Wires. D-star already has end-to-end callsign connectivity, so does HF ALE. Echolink, and IRLP also have it, but they only respond to DTMF requests. APRS can bring this to the HT and mobile APRS operator in a more user friendly form and make it available on a local analog channel!*



There is a lot of fun to be had with APRS, and one does not need a lot of specialized equipment, particularly on the listening end. The soundcards in our computers do a great job of decoding the packets, and there are a lot of sites devoted to APRS mapping and messaging. Give it a try!!

73, Robert AK3Q

THINK BEFORE YOU ACT IRRATIONALLY

Be sure to check the "NEWS" page of the website for the latest distribution of the newsletter.

"I can't wait for the next issue of the Scanner Digest Newsletter"

MASSACHUSETTS

Peter Szerlag
zerq90@gmail.com

Welcome to the Massachusetts Column

90 degrees in Boston today, and the snow piles from last winter are still melting away. I don't think they will last to next winter, but anything might be possible.

The hot weather brought some skip conditions overnight. I heard West Warwick RI FD do a radio test on 154.43 R at 8 AM today. I only hear them once every 10 years.

Other interesting loggings today included -

453.90 R - Andover school security - I have not heard them on that channel in a couple of years. Their security guard signed on the air at 7AMish on Sunday morning July 12 2015

173.41 had some P25 traffic - not sure who that was

462.60 R had some radio users down by Carver - they seem to have an extensive radio system on GMRS channels

128.75 - jetliners heard - "direct to Buzzard" - "direct to Sandy
Point" - this is Boston Center from a Barnstable site per FAA info

460.80 - Boston Med Flight 7 AM radio check

460.625 R - West Boylston FD going to 2 EMS calls

155.28 - "have you arriving at oh 8 1 8" - that might have been EMS from Vermont

151.295 - Haverhill FD testing on "Fireground" - 820 AM ish – simplex channel - 2 beeps every time before the dispatcher speaks

462.95 and 155.37 were dead, dead, dead.

160.59 - "Boston West (Dispatcher) to Amtrak 289 - they are running very late" - "OK, we will slow down"

464.20 R - searching for lost kids - i think this was the Boston Red Sox at Fenway Park - not security - maybe VIP units

Recent new radio licenses in Massachusetts -

Lawrence PD - 155.37 R - 156.21 input
Wellesley College - 451.3625 R
Natick Public Schools - 461.075 R - 464.0625 R
Boston Medical Center - 463.9625 R

Harvard University - security & maintenance - maybe to replace their 484 MHz channels that Congress will take away from them - 451.075 R - 451.20 R
- 451.625 R

Norfolk DPW - 461.625 R - but Norwood Hospital has that channel also

Department of Youth Services (DYS juvenile detention) in Dorchester - 460.5625 R

Univ of Mass Medical School in Worcester - 451.65 R

Worthington FD - 154.37 R - 159.42 M

North Attleboro - local interops - 453.5625 R - 460.4375 R

Pioneer Valley Transit TRS - 20 freqs at 800 Mhz

Bristol Community College in New Bedford - 452.5875 R

Mass Convention Center in Boston - 3 low power Mototrbo sites for security - 5 freqs at 800 mhz

Westwood Council on Aging - meal delivery - 452.4375 R

Till the next time - Peter Sz

EASTERN PENNSYLVANIA

Steve Bower
Stevescan60@yahoo.com

Well folks it has been some time since sat down and sent anything into the publisher and apologize to my readers for that. Just been very busy personal life and work right now and changes are always going on.

For some reason been the communications liaison for work facilities at which time we are using LTR and conventional type systems which have been dealing with many hiccups along the way, for the most part the system works well. We added few additional talk groups for different locations and the scanning feature limited are availability to communicate well, along with new battery issues. The digital radios started looking better and better, as much as against new upgrades and not being able to monitor people on my own scanner started looking into Nexedge and Motrbo systems. The price is higher than your conventional and LTR systems but the quality is much better. With this being said not blaming the business in my area for switching over but the scanning hobby its self is getting more difficult and pricy depending on what you want to monitor.

Searching the business bands and public safety bands has always been my favorite pass time and still mess around to this day but many those systems have switched over in the Lehigh Valley.

Cedar Fair dba: Dorney Park & Wild Water Kingdom Allentown, Pa the Security and medical services along with administration has switched over digital full time. Departments such as Operations and Maintenance, games, food service are still using VHF repeaters. They can be found listed in Radio Reference under Lehigh County, Pa.

Lehigh Valley Hospital Network has also build out Digital all sites using 461.4250 as the main frequency but for some reason simulcast on the old Medevac frequency of 155.2200 KNJP460 PL179.9 you can tell by the audio as well. Most of the internal staff has Nokia type internal phone system.

Lehigh Valley Mall in Whitehall, Pa is now also full time digital n the 463.3000 and few other frequencies used for housekeeping and maintenance.

There was also talk of all First Student Transportation busses in the valley using 502.2125, 502.4625 and 502.9125 will be digital at some point this year along with many other school districts looking while some such as Northwestern Lehigh in New Tripoli using 155.2800 PL167.9 Base/Mobile and works great.

Still seeing some new FCC Licenses come into play but don't always awesome due to the emissions listing they are digital. If you are not hearing a activity on a common frequency other changes are also being made from DPL/PL changes and systems going repeated that were not before.

Use the internet it can help you search around for new frequencies, http://wireless2.fcc.gov/UlsApp/UlsSearch/searchLicense.jsp is not a difficult site to navigate; sometimes searching fails but depends when you are on, sometimes use the zip code search along with county search.

Monroe County Pa update, PL/DPL change another reason when you don't hear something for awhile maybe it's time to monitor without PL/DPL. 460.1500 Pocono Regional Police are now PL74.4 they switched from DPL343 for unknown reason.

Lehigh County was just issued a new FCC License for EMS A-5 155.8350 according to the database a FB2 means Repeater as of now it's still Base/Mobile system. Once get additional will post update on the change. http://wireless2.fcc.gov/UlsApp/UlsSearch/license.jsp?licKey=3709188

The new water park in the Poconos is Kalahari Resorts in Pocono Summit, Pa now also using digital radio system from what can tell it's all Hytera Portable radios. http://wireless2.fcc.gov/UlsApp/UlsSearch/license.jsp?licKey=3631030

You also have new venues that open using only simplex frequencies as well, so even in these changing times who know what you might find scanning those air waves, keep your batteries charged, the antenna high in the air and note pad and paper close by to copy down those finds. Feel free if you mapped out a new radio system or found changes to old existing one let us know about it.

E-mail us and use the subject "Eastern PA Column" so I don't delete… Until next time as always be safe and keep scanning! 73's Steve

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KDR480
SCHUYLKILL, COUNTY OF
435 North Centre Street
Pottsville PA 570-621-9900

155.745  FB   110p      11K2F3E 8K10F1D 8K10F1E
155.805  FB2  110p      11K2F3E 8K10F1D 8K10F1E
155.955  FB    30p      11K2F3E 8K10F1D 8K10F1E
155.745  FB   110p      11K2F3E 8K10F1D 8K10F1E
155.805  FB2  100p      11K2F3E 8K10F1D 8K10F1E
155.745  FB   110p      11K2F3E 8K10F1D 8K10F1E
155.805  FB2  110p      11K2F3E 8K10F1D 8K10F1E
155.745  FB   110p      11K2F3E 8K10F1D 8K10F1E
155.805  FB2  110p      11K2F3E 8K10F1D 8K10F1E
154.995  MO   110p      11K2F3E 8K10F1D 8K10F1E
155.745  MO   110p      11K2F3E 8K10F1D 8K10F1E
155.955  MO    30p      11K2F3E 8K10F1D 8K10F1E
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WESTERN PENNSYLVANIA

Frank Speicher K3FS
k3fs@verizon.net
http://www.pghscannner.com

Tools of the Trade…Enhance Your Listening Pleasure!

It is now summer and the weather is nice. Time to get out and enjoy the weather and go to places you could not go when it was cold and snowing, you can take the tools you need for your monitoring hobby with you. There are a few apps and programs that you can use on your smart phone to help you keep things organized and to even help with getting new information. For years I have used a **Palm or pocket PC** type device to keep my database of frequencies and spread sheets of information.

Being able to keep my information in a portable device that I could carry with me everywhere has been key, I still write things down on paper, and hope that I can read it or remember exactly what it was I heard when I get a chance to update the database. I have since moved to a smart phone, and no longer use the pocketPC, so I am even more likely to have my database with me. I use HanDBase. HanDBase is available in iPhone, Android, Blackberry, Palm OS as well as for Windows or Mac desktops. The basic app for Android devices cost $14.99.

If you have the need for synching your database with other devices or Window or Mac computers, need import or export abilities, or would like to be able to design a form for your data to be displayed in then the HanDBase Professional edition is for you. The price for that is $24.99. The Enterprise edition adds import/export to ODBC devices as well as synching with ODBC devices for $39.99. Their website is http://www.ddhsoftware.com/ for more information. This program is used by a few other radio hobbyist that I know, and all have been very happy with how it works. It also makes sharing of databases very easy. In my database I have fields for agency, frequency, tone (PL, DPL, NAC, CC, RAN..), use (notes on usage including unit numbers), County, last heard date, Service type (police, fire, EMS, business.....), and a check box to indicate that I have added it to the site. You can add any number of fields for your needs. You have the ability to sort or filter based on any field or combination of fields. So, if you wanted to be able to only look at or filter results that are only fire service then you would need a service type field to use for sorting. If I wanted to filter results to show only south zone agencies then I would need to add a field for zone. I have mine set up to sort by frequency. I can hit the search button at the bottom of the screen, and start entering in the frequency I am interested in. You do not need to enter the whole frequency. As you are entering the frequency, the program will only show those records with the frequency that matches what has been entered so far. This is really helpful when doing frequency searches, or hear activity on a frequency to see if this is new, changed or something you already had. I use that date last heard field to alert me to possible frequency that may no longer be used. If it has been a few years since I have last heard a frequency then, I will try to set up to confirm it again, or delete it from the database. I also keep separate databases for fire station numbers, EMS station numbers, fire and EMS tones, record (yes the vinyl type), and CD collection and more. You can easily adapt a database program to keep, filter, sort, and manage anything you would like.

There are some jobs that a simple database is not enough. There are times when a spread sheet or Excel spreadsheet are needed. I use this format for things like trunked radio systems, and spreadsheets for county systems. For trunked radio systems, I keep track of sites, frequencies in use at sites, talk groups, user ID's, and system information such as site number, and system ID. Keeping all this information together in one sheet makes it easy to update system information, and keep track what has changed. Spreadsheets are also a very handy way of keeping radio programming information. Noting banks, frequency, text tag, notes and more information. Most phones have some type of spread sheet program, and there are others available at the app store.

Your scanner does not have the ability to decode fire tones? No problem. No need for a lap top either. You can use your smart phone to do this. I use **DaTuner Lite**. All that is required is for you to run the app on the phone, and it will use the microphone from the phone to pick up the tones from the scanner speaker. I have found this app to work very well. The only catch is you will need to catch the tone read out while they are going out. I have found that at home listening to the unfiltered sound from an SDR dongle that is is capable of showing the PL tone on the frequency as well. Even with the radios that do fire tone out decoding, they will only show one set of tones. In many areas it is not uncommon to tone out more than one department. As long as your app can hear the tones, you can copy the numbers down, you can have tones for several departments.

There are some areas that use DTMF tones for activating sirens and other uses. There's an app for that. I have DTMF Decoder. A search through the app store and you should be able to find one that works for you as well.

There are also **Morse code decoders** that can be found in the app stores for free as well. Again, have the app running and when you happen upon a frequency that is putting out its ID in CW you can decode the call sign, or at least part of it to help make a positive ID. Do a search on the FCC database on your phone, or when you get home to make the ID.

There are still times where you need to simply write notes, or make a check list. There is an app for that also. I use **Color Note**. Color Note was a free app in the Android app store. What I like about that is the ability to make the notes different colors for different uses, and you can make check lists as well as just a plain note. I use the notes to keep track of what the number tags are for certain systems or departments in my radios. This helps me when I am doing programming for the scanners, and when I want to narrow the scanning down a little. It helps me keep things organized and programmed the same or as close as possible way. The check lists are used to help me keep track of what needs added to the site. Once entered on the site, I tap the entry and then its deleted from the check list. Again, you can probably come up with a few uses of your own for this as well.

Most phones also have a voice recorder already installed. This can be a quick way to record a memo to yourself, or to record some audio for further analysis when you get home.

I have an aging net book. I have found that with the latest release of **DSD Plus**, they are now including FMP, which is a very basic SDR program. I am able to run FMP and use DSD Plus to decode digital signals on my netbook, using a dongle plugged into a USB port. Pretty remarkable feat considering the processor power and memory I have on that device. Again it’s a rather basic portable set up. FMP takes some tinkering with command line parameters to set up. It is possible to make a short cut with those parameters to speed up and simplify the starting of that

program. Another nice thing with FMP is that you can make a scan list. FMP will slowly scan the frequencies entered in the scan list. FMP when used with DSD Plus will scan the list and only stop on frequencies that have voice traffic. If it is a control channel, or a frequency only passing data traffic, it will continue to scan. You will need to set up a scan list to do this. FMP is a very basic no frills, low resources SDR program, which can be used with DSD Plus for digital decoding or to listen to analog transmissions as well. More information can be found on their website at **http://www.dsdplus.com**/. You will need to read the help files on setting up the command line parameters, and to see what functions you can control by keyboard.

Some of the other apps I have included on my Radio App Page include Drop Box, LOTW Look Uo, NKKCluster, Repeater Directory, and QRZ Droid. That's not all that is available, just what I am using at this time. When I have time I look for other apps that I can use. With a few apps and a portable scanner, you have the capabilities of adding to what you have already found, and finding new data as well. There are more tools you can use at home or with a lap top.

West Mifflin fire departments have moved to county dispatch. They are dispatched on East Fire 470.3875 PL 123.0. Their primary operations channel is East Fire Ops 4, 470.4125 PL 103.5. I am still working on getting the tones for each department and will update the site when I get that information. West Mifflin Boro has four fire departments,

Homeville VFC #1	Station 293
Duquesne Annex VFC #2	Station 294
West Mifflin #3 VFC	Station 295
Skyview VFC #4	Station 296

They were one of the few departments not on UHF. They used 154.250 PL 107.2. This was a repeated dispatch and main operations frequency. They also had a simplex fire operations channel, 154.070 PL 107.2. West Mifflin EMS is provided by Baldwin EMS. Baldwin EMS is dispatched by Allegheny County on South EMS 471.3375 PL 151.4. West Mifflin police remain self-dispatched and on VHF high band. They are currently using 155.115 PL 107.2. This is a repeated frequency with 158.955 PL 107.2 used as the input. They also use UHF link on the input on 460.2125 PL 77.0and 460.2375. They are the only police department in the area not on UHF. At this time I cannot think of any other police department that is not on UHF. West Mifflin was planning on making a change to a UHF system. They have UHF frequencies licensed to them, but so far nothing has been heard on the air. West Mifflin is licensed for repeater usage on 453.925, 460.3875, 460.4125, 460.4625, and 460.475. There was a time when all of the agencies in that area used VHF high band for fire and police. Since departments have been changing over to Allegheny County 911 for dispatch, and the county is now completely on UHF, West Mifflin is the only one left on VHF high band. West Mifflin DPW uses 145.360 PL 107.2 simplex.

Summer is also the time for events in the city of Pittsburgh. Recently, they have added talk groups to the Pittsburgh TRS system for special events. The new talk groups are, Special Events 1 54048, Special Events 2 54064, Special Events 3 54080, and Special Events 4 54096. So far these talk groups have been heard being used for the Pittsburgh Marathon, Three Rivers Arts Festival, and the Regatta. Throughout the past couple of years we would hear one or two of these talk groups in use for special events. I volunteered to help at the Pittsburgh Marathon, and was given one of those radios for that event. I have noticed that there are new unit ID's in use for the public works, refuse and animal control departments. It looks like they are still getting new radios for the system, and are looking to use it for more events.

The Pittsburgh Water and Sewer Authority had moved off this system, and went onto a UHF DMR trunked system run by a local communications company. Summer is also the time for concerts. Both Heinz Field, and Stage AE are busy with concerts. Stage AE is also run by Heinz Field, so the Heinz Field talk groups will be active if there is an event going on there. This system was especially busy during the Kenny Chesney and Rolling Stones concerts. It is of course very busy during the football season. Add some snow, and with DPW out clearing streets during a Steelers game the system is running at capacity. Of course summer is the time for fireworks. During this year's Fourth of July celebration I was able to catch the crews from Pyrotecnico, working on the barges using 464.550 PL 167.9 simplex.

Please email me at **k3fs@pghscanner.com** with any comments or suggestions for future topics.

Looking for Public Safety action photos for inclusion in the newsletter

Send your pics to:

ScannerDigest@gmail.com

Have material to submit? Please send it to:

ScannerDigest@gmail.com

CANADA

John Leonardelli - VE3IPS
ve3ips@gmail.com

Buzz Buzz Bzzzzrrrp The Short Guide to Digital Radio

The world of scanning is changing as we move from an analog world to a digital one. Each digital mode has different characteristics in how the analog voice is converted to and decoded from digital. Linking methods vary across each mode and inter-operability is lacking between them. Many local amateur radio club nets that offered interesting listening is now moving to the digital modes. However, many ARES/RACES groups continue to offer analog and digital mode nets to test out the communication readiness. Every scanner hobbyist needs to be prepared to listen in on all modes.
Many of these modes require appropriate radios to monitor them with some SDR methods as well. Please note that appropriate radio licenses are required to transmit legally on amateur radio, business and public band frequencies. In many cases, users will disable transmit allowing the commercial radio to be used primarily as a receiver. Many scanner listeners are also ham radio operators so experimenting in a new digital mode can be an interesting experience. I am not going to go into any technical details as those can be easily gathered on a web search. Let's explore how a savvy radio listener can hear these new digital modes and better understand them.

D-Star
JARL developed the protocol back in 2004 and has a well-established global amateur radio repeater network already in place.

D-Star allows 2 linking methods. The Call Sign routing allows you to communicate with another ham user where you connect to the local repeater and through an internet gateway connect with a defined ham user by their call sign.

The other method is via linking into "reflectors" where users can meet and communicate among each other. Examples of popular reflectors are the REF001C Mega repeater, REF005A for the United Kingdom and Listen to HamNation on Wednesdays nights on REF014C.
Icom is the only manufacture of this equipment. They offer 5 handhelds and mobiles to choose from. The ICR-2500 Scanning receiver does offer an optional Digital Voice card for reception of this mode. The other method is to purchase an Icom radio with D-Star for reception. There are also many boards like the DVDongle that can receive signals on your computer. You do need to be licensed amateur radio operator in order to transmit.

APCO P25
Project 25 has been THE North American standard for LMR Public safety agencies for years. It is part of a trunked radio system and has two modes of operation.

Phase 1 uses a FDMA standard and the newer Phase 2 offers a 2 slot TDMA standard. This is where a lot of change has occurred as the older systems have migrated to Phase 2. Because of this standard change, older scanners are not equipped to receive the new system due to the modulation method. The newer scanners such as the,
Uniden BCD436HP, BCD536HP, HomePatrol2, BCD325 P2, BCD996P2 and Whistler WS1080, WS1095 and PSR-800 (GRE Brand) have the codecs that decode the proper signals.

Along with the migration to Phase 2 many public service agencies have moved to encryption making reception impossible.

There is some amateur radio activity so check the ARRL Repeater on-line app for what's available in your community. The Toronto GTA has access to a couple of Ham Radio VHF and UHF P25 repeaters.

The Toronto Public Safety service and York Region has moved to the new Phased 2 system with encryption.

DMR
Digital Mobile Radio is the fastest growing segment of the digital mode hobby. It is based on Motorola MOTOTRBO technology. It also offers the largest selection of radios to choose from. Linking is done via talk groups and they are managed at the local repeater level. The protocol allows 2 time slots to be available in a single channel. The talk group concept is an interesting one as you program your local DMR repeater as a Zone then add your 16 talk groups. A popular talk group is called North America (Talk Group 3). There are also various technical nets where a lot of information is shared and can make for some interesting listening.

Popular radios are the Motorola 6550 and 7550, Yaesu Vertex EVX-539, Hytera PD-782 and various new Chinese entrants. The most popular is the SC700/750 from Connect Systems.

Toronto has the VA3XPR repeater that is also linked to the VE3OBI, VE3XPR, and the VE3UHM repeater provided extended geographical coverage for the golden horseshoe in the local talk group. This mode has become the fastest growing digital segment in LMR and Ham radio.

Check listing for LMR service providers using this mode for their regional networking services.

dPMR
This is a popular digital mobile radio technology in Europe with many dPMR446 users on the license free radio band. This is very popular in the UK. Several Chinese manufacturers and Motorola make radios. Analogue PMR446 covers band 446.0–446.1 MHz and digital dPMR/DMR cover 446.1–446.2 MHz which is in the North American ham band plan. These radios are illegal for North American use. However, do not be surprised to find activity here as many may have purchased these radios overseas on cruise ships.

Yaesu Fusion
This is also known as C4FM and is another relatively new digital mode from a Japanese manufacturer. It's gaining a lot of popularity as repeater clubs migrate their older equipment to the newest for a promotional cost of $500. You do need to be a licensed ham radio operator as your call sign needs to be entered into the radio. It also supports the ability to send data and Yaesu has added microphones with a built in camera allowing photographs to be sent across the network. What's interesting about this mode is that it also supports analog FM transmissions and like DStar supports GPS functionality. Yaesu now offers 2 handhelds and 2 mobiles to choose from. Yaesu using their WIRES modems to allow connectivity between repeaters. It has not had a lot of success in North America but that may soon change. Currently, the Fusion mode is for local communications. It is understood that Yaesu is looking to increase the level of connected repeaters in the coming years.

Toronto currently has two repeaters using Fusion and its VE3TWR and VE3SKY. There should be 8 more club repeaters coming on-line this summer. Watch activity increase thereafter.

Kenwood NXDN
This is another variation of a commercial digital mode called NEXEDGE. The activity is sparse as there are few amateur radio repeaters but it is growing in the larger cities. The equipment is purchased through a local Kenwood LMR dealer. Icom also supports this standard with their iDAS brand. There are two repeaters in Canada VE7NYE and VE3SKV. Check Radio Reference for NXDN networks with LMR users on it.

TETRA
Terrestrial Trunked Radio is a European trunked radio standard that has been the backbone of European Public Safety. It uses a 4 slot TDMA method as its protocol. It is starting to make headway into North America. The Toronto Transit Commission has chosen TETRA technology for its analog system replacement that will be implemented over the next few years and it's the system that will be used by the Toronto PanGames 2015.

It offers a great talk around method, better spectrum management and improved operations with a direct mode operation (DMO). DMO allows communications without repeaters and you can also use a Trunked Mode Operation (TMO) for use of TETRA repeaters to communicate. This is done seamlessly.

There is discussion among amateur radio users about using TETRA for another digital mode to use as equipment becomes more available.This mode was very popular in use for the Toronto Panam 2015 Games.

Alinco Digital
Not to be left out, Alinco does offer a digital board for selected transceivers but its review has not been favourable and its use has not been widespread. If anyone has any experience please email e and I can include some information in the next column.
It does have its own proprietary standards and info is hard to come by.

How to Receive these Digital Modes?
There are several ways to receive these modes:

1) Amateur radio transceivers. The Icom D-Star, DMR, and Yaesu Fusion are the easiest methods
2) Commercial radio transceivers. Motorola, Tait, Sepura, Kenwood, Vertex and Hytera come quickly to mind as these are typically purchased from ham friendly land mobile radio dealers. You do need to buy programming software and for Motorola it can be $300 for a 3 year term.
3) European FRS radios for dPMR
4) Icom 2500 D-Star and P25 capable receiver
5) Uniden/Bearcat and Whistler/GRE new P25 Phase II scanners
6) AOR Scanners with the add-on ARD300 $900
7) AOR Stand-alone DV1 scanning receiver $1500
8) DSD+ Decoding software running on a PC connected to a discriminator tap on a scanner or SDR Dongle
9) Web based receivers that are streaming local digital audio

The reviews for the new AOR boxes are showing some great promise to make listening to digital communications with a simple to use stand-alone receiver as we get through the initial adoption process and it will get better and at a lower cost if the SDR receiver manufactures build their version of a stand-alone receiver.

The challenge that I have with DSD+ is its lack of portability as many have installed the software on a netbook and use an older scanner that had the discriminator tap mod completed. It does not fit easily on your belt or as an easy mobile in your car but it is doable.

The other challenge with DSD+ is that it can decode all DMR communications on a repeater across its 2 time slots but cannot differentiate among different talk groups. This can make a jumble of conversations confusing when both time slots on the repeater happen. A scanner listener only could have a DMR radio programmed with transmit disabled for the ham radio portion so they can scan and listen to specific talk groups just like a regular SmartNet talk group would work.

There is a lot of activity going on right now with digital modes and the best way to enjoy it is to jump in and start using the new technologies available to us.

SKIP ALERT
I am sure many have noticed that there has been a lot of low band skip coming in so keep that search mode on a second scanner going on in the background to catch any activity. 73s

John 

Multi seat golf cart usually driven by oldest member of auxiliary police on shift at public events

Command post set up at Angus Glen golf course for PanAm games. Also used in homicide cases.

Some photos of Peel Regional Police Motorola installs on their Harley Davidson

MONTGOMERY CO. OHIO

Ken Williams
PO Box 24
Arcanum, OH 45304-0024
kennth.williams72@gmail.com

Welcome to the Montgomery County, Ohio, Report.
I was informed Sunday, August 1st, that Montgomery County has received budget approval from the county commissioners to begin migrating Montgomery County's 800 MHz operations to the State of Ohio MARCS P25 fully compliant statewide trunk radio system. MARCS stands for Multi-Agency Regional Communications System. I do not have any further details at this time so be on the lookout for this.

Speaking of MARCS, Greene County and Warren County have already converted over. I'm told, and have read in the news, Darke County and Miami County are looking toward getting on board the state system. Miami uses an Ericssen TRS and Darke is on VHF.

West Carroĺlton PD/FD has closed its dispatch center and is now being dispatched by Centerville PD. This has resulted in some changes:

WCPD is now identifying as "William" units instead of their old 200 series officer ID's. I suspect this is due to conflict with CPD's two- and three-digit unit numbers. WCPD still uses their talk groups and are called, for example William 12, Wiĺliam 14, William 23, etc.

WCFD also has changed. Before they used Engine 1, Engine 2, Ladder 1, Medic 1, etc. for apparatus and 100 series numbers for officers and firefighters. They were using their county unit numbers (Engine 56, Ladder 57, Medic 56, etc.) only on mutual aid calls. Now WCFD uses the county apparatus numbers all the time.

A few weeks ago, I attended an antique fire apparatus show at Germantown, Ohio. I've always wondered about Germantown's apparatus ID's. A few years ago, GFD combined with the third service Germantown EMS. Most of the EMS was moved to GFD's Station 63. GFD uses 63 and 64 for the apparatus (Engine 63, Engine 64, Medic 63, Medic 64, etc.). The EMS Station 65 on Cherry St. is being used to house the 3rd medic (Medic 65) and GFD's other reserve trucks.
See you next time.

We're now accepting photos.
Send in your photos of
2-way radio in action!

ScannerDigest@gmail.com

CONNECTICUT

Keith Victor
alarmroom@yahoo.com

Bridgeport FD	151.0025 MHz	PL 156.7	Fireground 4
Manchester PD	460.1250 MHz	NAC 510	Main Ops
	460.4000 MHz	NAC 322	Encrypted
Milford FD	155.1300 MHz	PL 179.9	Fire # 2 (R)
	154.0250 MHz	PL 100.0	Fire # 3
	158.7900 MHz	DPL 047	Fire # 4
	151.3175 MHz	DPL 047	Fire # 5
New Milford FD	151.2950 MHz	DPL 226	Scene 1
	154.2575 MHz	DPL 445	GFD Scene 2
	154.3475 MHz	DPL 445	Fire Dispat (R)
	154.7175 MHz	DPL 251	GFD Scene 1
	155.8725 MHz	DPL 226	Gaylordsville Backup
	156.0625 MHz	DPL 026	Scene 2
	159.0750 MHz	DPL 026	Scene 3
	160.1250 MHz	DPL 411	Scene 4
South Windsor PD	453.7750 MHz	NAC 132	Main Ops
	453.6500 MHz	NAC 132	Backup
Thomaston FD	453.2250 MHz	DPL 223	
Thomaston PD	460.6000 MHz	NAC 293	

CONNECTICUT AREA 800 MHz UPDATES

#	FREQ	DPL/PL	CITY/TOWN	TRUNKED
1	851.0125	156.7	8 - CALL -90	1
3	851.0500	107.2	Berkshire County	
5	851.0750	167.9	West Hartford PD Backup	
8	851.1125	Trunked	Stamford	T1
14	851.1875	Trunked	Waterbury	T1
25	851.3250	Trunked	West Hartford	T1
26	851.3375	Trunked	Stamford/Waterbury	T2
27	851.3500	114.8	HARTTAC 1	
30	851.3875	Trunked	Stamford	T3
36	851.4625	NAC 310	Wallingford Police	19
37	851.4750	D205	West Springfield Fire	
38	851.4875	NAC 110	Wallingford Police	20
39	851.5125	156.7	8-TAC-91	21
42	851.5625	D155	Chicopee Police	23
43	851.5750	D155	Groton Police	
44	851.5875	Trunked	Waterbury	T3
50	851.6625	Trunked	Stamford	T4
51	851.6750	114.8	HARTTAC 2	
54	851.7125	Trunked	Greenwich	T1
58	851.7625	Trunked	Stamford	T5
59	851.7750	151.4	Farmington Police 2	
60	851.7875	Trunked	Greenwich	T2
61	851.8000	Trunked	West Hartford	T2
63	851.8375	Trunked	Waterbury	T4
69	851.9000	Trunked	Waterbury	T5
71	851.9250	NAC 118	Westport Police	
74	851.9625	NAC 210	Wallingford Police	39
76	851.9875	D245	Meriden Citywide	40
77	852.0125	156.7	8-TAC-92	41
80	852.0625	Trunked	Greenwich	T3
82	852.0875	Trunked	Stamford	T6
84	852.1125	Trunked	Waterbury	T6
89	852.1750	Trunked	Waterbury	T7
91	852.2000	Trunked	Greenwich	T4
95	852.2500	110.9	Shelton Police	
99	852.3000	Trunked	Wethersfield	T1
102	852.3375	Trunked	Stamford	T7
111	852.4500	Trunked	Wethersfield	T2
112	852.4625	NAC 203	Meriden EMA	
115	852.5125	156.7	8-TAC- 93	61
117	852.5500	Trunked	West Hartford	T3
120	852.5875	Trunked	Greenwich	T5
124	852.6375	110.9	Norwalk Police	66
136	852.7875	Trunked	Stamford	T8
136	852.7875	D155	Groton Police	72
136	852.7875	167.9	West Springfield Police	72
138	852.8125	Trunked	Stamford	T9
140	852.8375	Trunked	Wethersfield	T3
143	852.8750	D223	UCONN Patrol 1	
145	852.9000	Trunked	Waterbury	T8
150	852.9625	NAC 203	Meriden Police 2	79
153	853.0125	156.7	8-TAC-94	81
157	853.0750	Trunked	Wethersfield	T4
158	853.0875	Trunked	Stamford	T10
160	853.1125	D125	UCONN Patrol 2	85
162	853.1375	114.8	HARTTAC 3	86
163	853.1500	Trunked	Greenwich	T6
167	853.2000	Trunked	Greenwich	T7
169	853.2250	156.7	WMLEC	
171	853.2500	114.8	Westfield Police	
174	853.2875	Trunked	West Hartford	T4
174	853.2875	110.9	Norwalk Police	92
178	853.3375	Trunked	Stamford	T10
180	853.3625	D174	UCONN Police Special Ops	95
183	853.4000	D155	Groton Police	
184	853.4125	D445	NHASH	97
190	853.4875	114.8	Wethersfield Fireground	100
190	853.4875	110.9	Shelton Police	100
191	853.5000	107.2	Berkshire County	
194	853.5375	D155	Chicopee Police	102
198	853.5875	Trunked	Wethersfield	T5
203	853.6500	Trunked	Waterbury	T9
206	853.6875	D205	West Springfield Fire	108
207	853.7000	114.8	HARTTAC 4	
208	853.7125	110.9	Stratford Police	109
211	853.7500	None	Greenwich	T8
213	853.7750	110.9	Norwalk Police	
213	853.7750	D043	Wilbraham Fire	
214	853.7875	Trunked	Wethersfield	T6
215	853.8125	Trunked	West Hartford	T5
219	853.8500	D047	UCONN Student Patrol	
220	853.8625	146.2	Fairfield Fire	115
233	854.0875		Waterford	123
237	854.1625	Trunked	Waterford	T1
237	854.1625	67.0	Stamford Backup	127
237	854.1625	None	Waterford	T2
240	854.2375	100.0	Wilbraham Police	130
241	854.2625	162.2	Willimantic Police	131
242	854.2875	NAC 203	Meriden Police 1	132
243	854.3125	Trunked	Hartford	T1
243	854.3125	D116	Waterbury Fire 1	133
244	854.3375	D116	Waterbury Fire 2	134
245	854.3625	Trunked	New Britain	T1
246	854.3875	Trunked	Waterford	T3
246	854.3875	D116	Waterbury Fire 3	136
247	854.4125	146.2	MA State Police	137

#	FREQ	DPL/PL	CITY/TOWN	TRUNKED
248	854.4375	D223	Bristol Backup	138
249	854.4625	186.2	West Hartford Townwide	139
250	854.4875	D311	New Haven Fire Tac	140
253	854.5625		Trunked Hartford	T2
255	854.6125	D411	Berlin PD Tac 1	145
259	854.7125	D071	Berlin PD Tac 2	149
261	854.7625	NAC 200	Waterbury Fire Aux	151
267	854.9125	114.8	RAFS-2	157
269	854.9625		Trunked Hartford	T3
270	854.9875	D732	Berlin Police	160
271	855.0125		Trunked Hartford	T4
273	855.0625	156.7	First Student-Vernon	163
280	855.2375	151.4	Farmington Police	170
281	855.2625	179.9	Willimantic EMD	171
290	855.4875	156.7	West Hartford Fire 4	180
291	855.5125	NAC 203	Meriden Police 3	181
292	855.5375	D023	Waterford PD Tactical	182
294	855.5875	D043	Wilbraham Schools	184
299	855.7125	156.7	STOCS - 2	189
299	855.7125	NAC 118	Westport Police	189
300	855.7375		Trunked Bristol	T1
300	855.7375	156.7	Stamford Fireground	190
309	855.9625		Trunked New Britain	T2
310	855.9875	156.7	STOCS - 1	200
312	856.0375		Trunked Hartford	T5
319	856.2125		Trunked New Britain	T3
320	856.2375	D043	Waterford FD Tac 1	210
320	856.2375	NAC 293	New London FD Tac 1	210
321	856.2625	156.7	STOCS - 5	211
321	856.2625	D025	Plainville Fire	211
327	856.4125		Trunked Bristol	T2
328	856.4875		Trunked Hartford	T6
332	856.5375		Trunked Waterford	T4
339	856.7125	179.9	Manchester Fire	229
340	856.7375	D023	Torrington Police	230
341	856.7625	NAC 868	Glastonbury Police	231
343	856.8125	D071	CCSU Police	233
348	856.9375	162.2	UCONN Police	238
349	856.9625	NAC 868	Glastonbury Police	239
350	856.9875	162.2	UCONN Fire	240
353	857.0625		Trunked Wethersfield	T6
359	857.2125		Trunked New Britain	T4
360	857.2375	D023	Waterford FD Tac 2	250
360	857.2375	NAC 293	New London FD Tac 2	250
361	857.2625	167.9	Fire Tactical	251
361	857.2625	D606	Trumbull Police	251
366	857.3875		Trunked Bristol	T3
368	857.4125	114.8	RAFS-1	257
368	857.4375		Trunked Hartford	T7
372	857.5375		Trunked Watrford	T5
379	857.7125	NAC 300	Waterbury PD Aux	269
380	857.7375	141.3	South Windsor Police	270
381	857.7625	D023	Torrington Police	271
388	857.9375		Trunked Hartford	T8
389	857.9625	NAC A55	New Britan Direct	279
389	857.9625	D223	East Hartford FD	279
390	857.9875		Trunked Hartford	T9
399	858.2125		Trunked New Britain	T5
400	858.2375	131.8	Derby EMA	290
400	858.2375	114.8	Westfield Police	290
400	858.2375		Trunked Waterford	T5
401	858.2625	156.7	CSPERN	291
408	858.4375		Trunked Hartford	T10
409	858.4625	156.7	STOCS - 3	299

#	FREQ	DPL/PL	CITY/TOWN	TRUNKED
419	858.7125		Trunked Hartford	T11
420	858.7375	D071	CCSU Police	310
420	858.7375	156.7	WMLEC	310
428	858.9375		Trunked Hartford	T12
429	858.9625		Trunked Bristol	T4
430	858.9875		Trunked Hartford	T13
439	859.2125		Trunked New Britain	T6
441	859.2625	156.7	CSPERN	331
446	859.3875	167.9	Intercity	339
453	859.5625	D311	New Haven Fire Dispatch	343
459	859.7125	NAC 100	Watrbury FD/PD Aux	349
459	859.7125		Trunked Waterford	T6
468	859.9375	114.8	Westfield Police	358
469	859.9625		Trunked Bristol	T5
470	859.9875		Trunked Hartford	T14
479	860.2125		Trunked New Britain	T6
480	860.2375	156.7	STOCS - 4	370
509	860.9625	167.9	Cromwell Police	399

SOUTHEASTERN NEW YORK

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KEA954
NIAGARA, COUNTY OF
5526 NIAGARA ST EXT
LOCKPORT NY 716-438-3393

 39.460  FB  100p   20K0F3E
 39.180  FB  300p   20K0F3E
154.755  FB  350p   11K2F3E
155.250  FB  350p   11K2F3E
155.370  FB  350p   11K2F3E
154.755  FB   50p   11K2F3E
 39.180  MO   96p   20K0F3E
 39.340  MO   96p   20K0F3E
154.755  MO   96p   11K2F3E
155.250  MO   96p   11K2F3E
155.370  MO   96p   11K2F3E
156.090  MO   25p   11K2F3E
453.7875 MO    2p   11K2F3E
458.7875 MO    2p   11K2F3E
154.7550 FB  350p   11K2F3E
154.7550 FB  350p   11K2F3E
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WPWW868
ALBANY, CITY OF
526 CENTRAL AVENUE
ALBANY NY 518-458-5613
856.2125  FB2 70p   16K0F3E 16K0F9W 8K10F1E
856.4375  FB2 70p   16K0F3E 16K0F9W 8K10F1E
857.2125  FB2 70p   16K0F3E 16K0F9W 8K10F1E
857.4375  FB2 70p   16K0F3E 16K0F9W 8K10F1E
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858.2125  FB2  70p   16K0F3E 16K0F9W 8K10F1E
859.2125  FB2  70p   16K0F3E 16K0F9W 8K10F1E
860.2125  FB2  70p   16K0F3E 16K0F9W 8K10F1E
858.4375  FB2  70p   8K10F1E
857.9375  FB2  70p   8K10F1E
859.9375  FB2  70p   8K10F1E
858.9375  FB2  70p   8K10F1E
860.4375  FB2  70p   8K10F1E
859.4375  FB2  70p   8K10F1E
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856.9375  FB2  70p   8K10F1E

856.9375  FB2  70p   16K0F3E 16K0F9W 8K10F1E
857.9375  FB2  70p   16K0F3E 16K0F9W 8K10F1E
858.4375  FB2  70p   16K0F3E 16K0F9W 8K10F1E
858.9375  FB2  70p   16K0F3E 16K0F9W 8K10F1E
859.4375  FB2  70p   16K0F3E 16K0F9W 8K10F1E
859.9375  FB2  70p   16K0F3E 16K0F9W 8K10F1E
860.4375  FB2  70p   16K0F3E 16K0F9W 8K10F1E
860.2125  FB2  70p   8K10F1E
859.2125  FB2  70p   8K10F1E
856.2125  FB2  70p   8K10F1E

858.4375  FB2  70p   8K10F1E
857.9375  FB2  70p   8K10F1E
859.9375  FB2  70p   8K10F1E
858.9375  FB2  70p   8K10F1E
860.4375  FB2  70p   8K10F1E
859.4375  FB2  70p   8K10F1E
856.9375  FB2  70p   8K10F1E
858.2125  FB2  70p   8K10F1E
857.4375  FB2  70p   8K10F1E
857.2125  FB2  70p   8K10F1E
856.4375  FB2  70p   8K10F1E
860.2125  FB2  70p   8K10F1E
859.2125  FB2  70p   8K10F1E
856.2125  FB2  70p   8K10F1E
858.4375  FB2  70p   8K10F1E
857.9375  FB2  70p   8K10F1E
859.9375  FB2  70p   8K10F1E
858.9375  FB2  70p   8K10F1E
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856.9375  FB2  70p   8K10F1E
858.2125  FB2  70p   8K10F1E
857.4375  FB2  70p   8K10F1E
857.2125  FB2  70p   8K10F1E
856.4375  FB2  70p   8K10F1E
860.2125  FB2  70p   8K10F1E
859.2125  FB2  70p   8K10F1E
856.2125  FB2  70p   8K10F1E


860.2125  FB2  70p   8K10F1E
859.2125  FB2  70p   8K10F1E
856.2125  FB2  70p   8K10F1E
857.9375  FB2  70p   8K10F1E
856.9375  FB2  70p   8K10F1E


860.2125  FB2  70p   8K10F1E
859.2125  FB2  70p   8K10F1E
856.2125  FB2  70p   8K10F1E
857.9375  FB2  70p   8K10F1E
856.9375  FB2  70p   8K10F1E
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NORTHERN NEW JERSEY

Justin Mattes KC2GIK
kc2gik@justinmattes.com
www.justinmattes.com

SCANNING TWO EVENTS AT THE SAME TIME

Talk about being at the right place at the right time. I had the good luck of going to New Jersey Motorsports Park in Millville, NJ to watch my brother participate in the 24 Hours of Lemons car race. The NJ Motorsports Park also happens to be located right next to the Millville Airport and the 2015 Wings and Wheels Airshow was going on at the same time!

24 Hours of Lemons at the New Jersey Motorsports Park

A few weeks ago my brother participated in a modified car race known as the 24 Hours of Lemons, which is where people take the most beat up old cars that can only cost $500 and turn them into racing machines. It's a 24-hour race rotating a team of about six drivers. My brother joined a team a few months ago, they took a while most of the drivers use hands-free cellphones to communicate the track itself utilizes UHF radios to communicate.

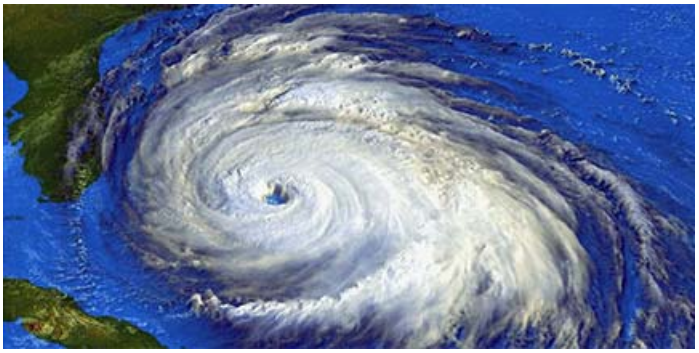
NEW JERSEY MOTORSPORTS PARK

464.7000	CH 1	174 DPL
452.9750	CH 2 (Housekeeping)	023 DPL
457.9750	CH 3 (Track Maintenance)	88.5
461.0500	CH 4	245 DPL
461.3750	CH 5 (Thunderbolt Course 1)	114 DPL
461.9000	CH 6 (Thunderbolt Course 2)	263 DPL
462.0250	CH 7 (Lightning Course 1)	167.9
462.2750	CH 8 (Lightning Course 2)	254.1
463.6000	CH 9	023 DPL
467.0250	CH 10 (Kart Track)	051 DPL
467.2750	CH 11	244 DPL

2015 Wings and Wheels Air Show

Since the Milllville Airport was right next door to the race track the jets were literally flying right over my head. They had the Golden Knights parachute team there also. I wasn't expecting the air show, I relied heavily on the close-call feature on my BC125AT to do the work. I was quite surprised to find out how well it preforms on the mil-air band!!

June 1st begins hurricane season. This year we found numerous sites devoted to emergency management for families. Below are some simple wireless communication tips to review. There are thousands of publications available covering many topics published by the federal, state and local emergency management agencies.



- *Keep phones, tablets, batteries, chargers and other equipment in a dry, accessible location. Simple zip-lock storage bags will shield devices, and today there are many waterproof phones, cases and other protective accessories.*
- *Keep phone and tablet batteries fully charged – in case local power is lost – well before warnings are issued.*

- *Have additional charged batteries and car-charger adapters available for back-up power. Numerous chargers, including solar-powered devices, make it easy to stay powered up.*
- *Maintain a list of emergency numbers – police and fire agencies; power and insurance companies; family, friends and co-workers; etc. – and program them into your wireless devices before an emergency arises.*
- *Distribute wireless phone numbers to family members and friends.*
- *Use your tablet to conveniently photograph and catalogue your valuables and other household belongings for possible insurance claims.*

Access dozens of free weather-, news- and safety-related services for smartphones and tablets. With 4G LTE technology, users can enjoy high-speed downloads, high-definition pictures and video, and advanced performance in a broad array of these applications.

- *Limit non-emergency calls to conserve battery power and free-up wireless networks for emergency agencies and operations.*
- *Send brief text messages rather than voice calls.*
- *Forward your home phone calls to your wireless number if you evacuate.*
- *Check weather and news reports on wireless phone applications – like the Ready System mobile app, or apps from aid and relief organizations such as the American Red Cross' apps for first-aid, hurricane and shelter and FEMA's Commercial Mobile Alert System (CMAS) – when power is out.*

ILLINOIS

Mike Dickerson
ScannerDigest@gmail.com

I found this article to be very informative as amateur explores and implements business technology (NXDN Digital) to their radio communications.

Local Amateur Radio Operators install NXDN radio for Emergency Management

May 6, 2015 - Flora, IL - Members of a group that call themselves IDA (Illinois Digital Amateur) Association began work Wednesday afternoon on fulfilling a plan which had been developed last year to install a 440 MHz UHF antenna, coax and 440 UHF NXDN digital/ analog radio at the Flora Emergency Operations Center.

The center currently utilizes 2 Meter and 70 CM analog-only radios for communications with area hams. The ability to communicate during an incident is always critical, as has been said many times. The idea behind the installation is the ability to communicate with neighboring amateur radio operators in Richland and Wayne county who are utilizing NXDN commercial radios on UHF 440 MHz amateur radio frequencies.

Steven Hamilton - KC9GMX began several years ago teaching area amateurs about the benefits of NXDN digital and which equipment is capable of being used for digital communications. The group has chosen the Icom IDAS radios which utilize NXDN digital protocol, and are known for their ability to hold up well in rugged conditions.
"I started exploring digital voice options in 2006", said Hamilton. "I thought, 'this is an area where I could help advance the radio art'".

The system was slow to start, mainly due to cost associated with the repeaters and convincing locals that Digital does provide more range whereas analog would be static or unreadable. The radios are becoming a little more available 2nd hand via online auctions sites for comparable prices to other used commercial radios.

The system now has 2 UHF 440 MHz repeaters, and 1 VHF 2-Meter repeater. The total number of users on the system varies, but as to last count there were about 21 mobiles and handhelds in the quad county areas of Clay, Richland, Wayne and Marion.
This move has caught the eye of other nearby Emergency Operations Centers (EOC), some of whom have expressed interest in accessing the system as well.

One EMA director even went as far as saying that hams using NXDN is a breath of fresh air and was planning to convince all area Public Safety communication centers in adopting NXDN for their primary ham communications. One local amateur advised he has realized that this system is a benefit to the residents of Clay County by providing communications with weather spotters in Wayne County who can provide information to the Flora EOC for storms which might impact the county moving to the Northeast from the South West.

The repeater system, affectionately called I-LEAD (Illinois Linked Emergency Amateur Digital), is planned to be linked to other NXDN repeaters around the State of Illinois as those repeaters come online.

Jesse Weiss - KC9RHH volunteered to host two of the repeaters on his commercial tower site in Richland county. "When I first found out how much better NXDN was when compared to those 'other' digital modes, I just had to join in", said Weiss. "The radios are affordable, and the audio quality blows D-Star, System Fusion, and DMR out of the water!"

"Today's installation turned out better than we could have expected. The base station our EOC received from IDA has some impressive range, both to distant repeaters around the region and locally on traditional simplex", said Michael Dickerson - KC9PHK. "Steven (Hamilton) made quick work of climbing the tower and mounting the 4-bay folded dipole antenna. Jesse (Weiss) got the Icom F6121D radio attached to the shelf in the Radio Room and we were ready to test it out."

"There are more upgrades we plan to do to I-LEAD down the road as time and money permit", Hamilton added. "We have at least 2 more sites in the area we are gathering repeater parts for now. We would like to add an internet feed of the repeater traffic so those with scanner apps on their smart phones can monitor the system from anywhere in the world. We are looking to possibly add an analog 2 Meter or 70 CM remote base so legacy radios and scanners can monitor the system locally. Then as needed, we will be able to make that remote base open a 2-way street allowing anyone on the remote base frequency to access into the system. We are also currently experimenting with GPS location plotting, Talkgroup filtering, and IP based dispatcher-type consoles."

The project could not have happened if not for the generous support and donation of equipment and money from citizens and hams from throughout the area. You can learn more about IDA and the I-LEAD system at http://www.nxdn.webs.com

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WASHINGTON DC REGIONAL *David Schoenberger*
davidschoenberger@gmail.com

As spring turns into summer, changes continue with the DC trunked system. The old Project 16 system has been shut down, so all communications for the city are on the Project 25 system. The routine fire talkgroups have had encryption removed, as promised. (There remain many secondary fire talkgroups that are encrypted.) There has also been testing on several talkgroups in the 1600 series. Many of the tests occurred in the Metro system, so these may be talkgroups reserved for future use by the Washington Metropolitan Area Transit Authority (WMATA). Metro is supposed to eventually migrate to the DC system, but there is no information on a timeline for this transition.

On May 8, to commemorate the 70th anniversary of Victory in Europe Day, the Arsenal of Democracy flyover was held over the skies of DC. Several vintage military aircraft flew at an altitude of one thousand feet over the National Mall. To coordinate the planes, the Reagan National Airport helicopter frequency (134.3500) was used for air traffic control. 118.9500 (Potomac Departure) was also used for planes exiting the area after the flyover. One of the planes made an emergency landing at Reagan National after vapor formed in the cockpit (the pilot thought it was smoke). To coordinate response to this incident, a couple of talkgroups from the Metropolitan Washington Airports Authority (MWAA) trunked system were active (1696 - Reagan Ops and 2640 - Reagan Fire Alert). The plane landed safely at the airport, and departed several hours later after repairs were made.

The National Cherry Blossom Festival Parade was April 11 on Constitution Avenue in DC. Organizers used DMR radios this year. DMR is a digital format that cannot be decoded by scanners, but a computer and some free software can be used to monitor it (as long as the transmissions are not encrypted). The organizers used several DMR simplex channels for on-site operations, and one or two DMR repeaters for "citywide" operations. I found a few of the simplex channels, but was not able to find the repeaters. CSC Event Staff, which provides security and crowd control for many DC events, used 461.4375 simplex. DC Fire used talkgroup 717, and the DC Emergency Management Agency used talkgroup 2117.

NEW HAMPSHIRE

John Bolduc
JohnBolduc@YMail.com

Sorry, no column this issue

VERMONT

Jim Lawrence
c/o Scanner Digest
ScannerDigest@gmail.com

Sorry, no column this issue

MAINE

Loren Fields
hornsmoke@gwi.net

Sorry, no column this issue

SOUTHWEST OHIO

Mark Meece N8ICW
480 N Twelfth St,
Miamisburg, OH 45342
monixtech@gmail.com

Sorry, no column this issue

RAILROADS

Tom Swisher WA8PYR
5576 Patriot Ave.
Orient, OH 43146-9275
wa8pyr@yahoo.com

Sorry, no column this issue

ALABAMA

Dave Marshall N8OAY
125 Royal Drive Apt 805
Madison AL 35758-1785
n8oayscan@knology.net

Sorry, no column this issue

FEDERAL

Mark Meece N8ICW
480 N Twelfth St,
Miamisburg, OH 45342
monixtech@gmail.com

Sorry, no column this issue

NORTHERN KENTUCKY

Randy True
11205 Mann Rd.
Covington, KY 41015-9094
w4rtt@fuse.net

Sorry, no column this issue.

Scanner**Digest** 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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