UPDATES TO DIGITAL MOBILE RADIO (DMR) IN NEW ENGLAND

November 13, 2025

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TemplatesWise.com

Digital Mobile Radio

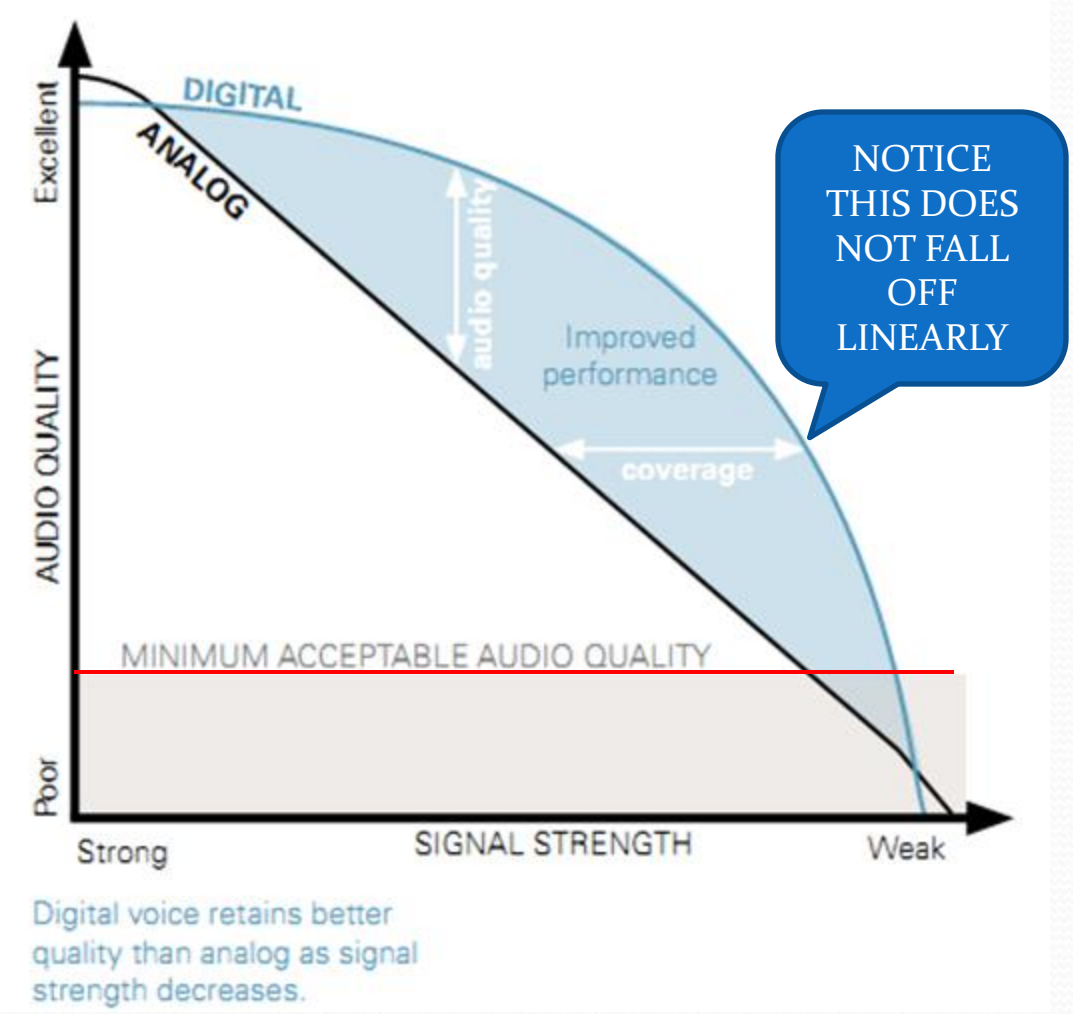
- An ETSI commercial worldwide standard
- Over a DOZEN manufacturers of radios (Anytone, Alinco, Baofeng, BFDX, Connect Systems, Motorola, Tytera/TYT, etc.)
- Improved voice quality (AMBE+2 vocoder) vs older digital modes (AMBE, IMBE, GMSK)
- Longer battery life by using TDMA
- Spectrum Efficient
- Network is digital end to end

Digital Mobile Radio

Advantages

- One repeater can support two simultaneous conversations using time sharing (Each voice path is called a time slot)
- Each time slot can support various groups of users (called talk groups)
- Equipment is available from a variety of companies. Used equipment is easily found.
- For those mobile over large areas a ROAMING function is available that works well.

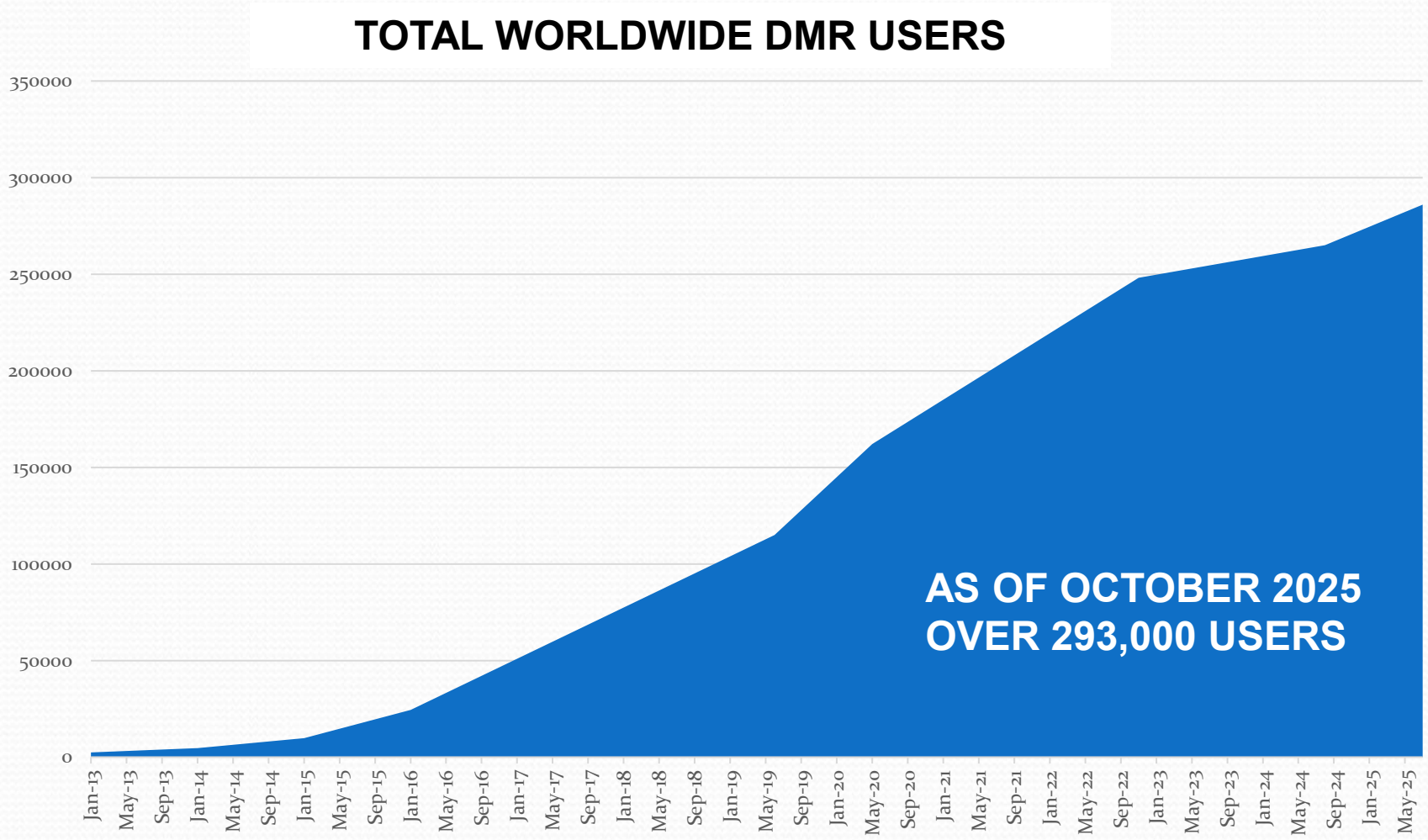
Better Signal Quality



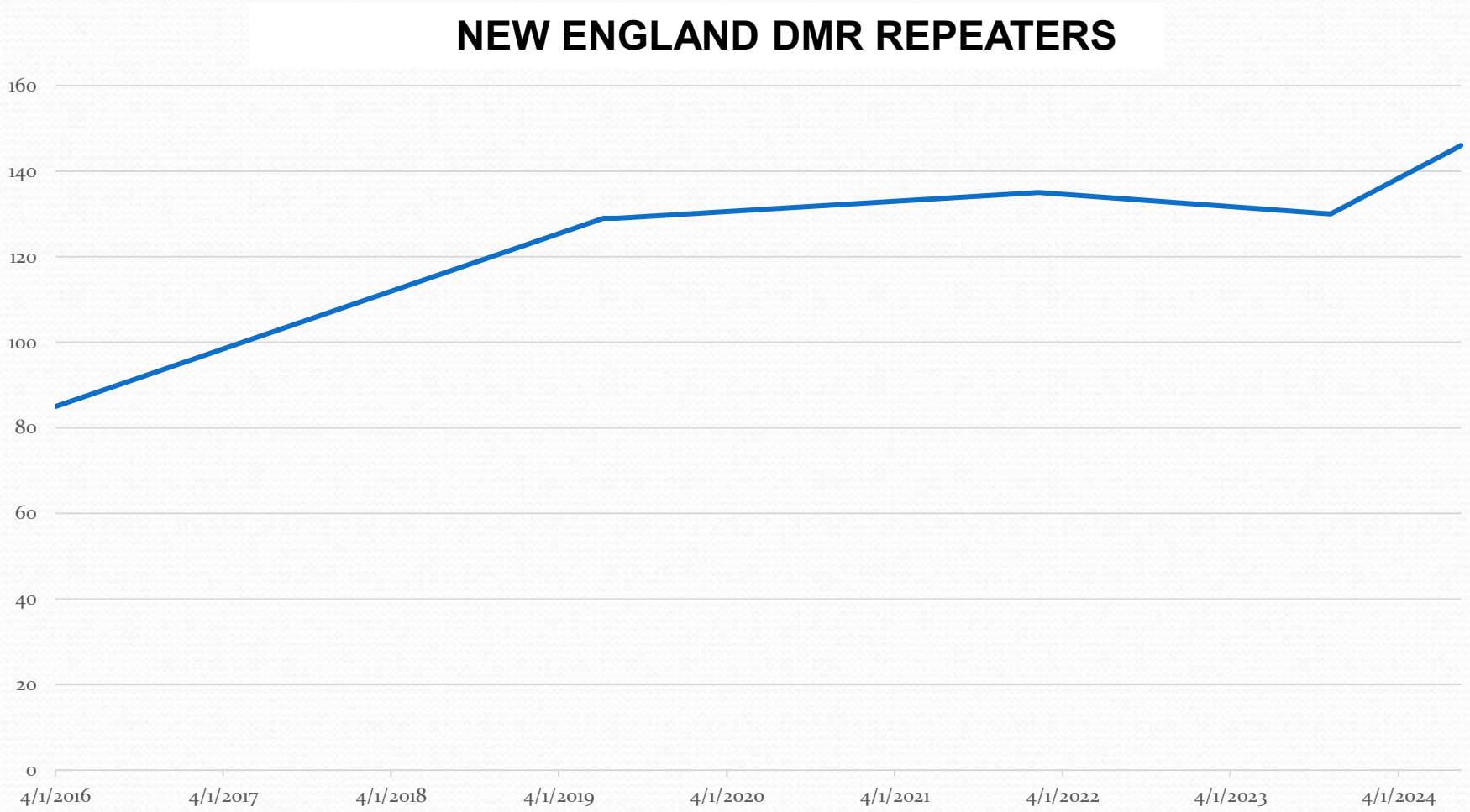
Digital voice retains better quality than analog as signal strength decreases.

- No hiss, popping, or static (but there can be packet loss on very weak signals)
- Better RF range than older digital technologies
- Forward Error Correction and Cyclic Redundancy Check coders
- This improvement is common to most digital voice systems (i.e.: DMR, YSF, P25, etc.)

Worldwide Amateur DMR activity is Trending Up



Amateur DMR activity in New England



Amateur DMR activity in New England

- **Why is DMR activity trending up in past few years.**
  - **Cost of radio and programming software has fallen significantly as ham radios have replaced professional radios on DMR.**
  - **Hams have developed large networks with wide area coverage.**
  - **Programming knowledge has improved in the various clubs in the area.**

Predominant New England DMR RF Networks

NETWORK	NE REPEATERS (JAN 2025)
NEDECN	83 (ADDITIONAL REPEATERS IN NY AND CANADA)
CT ARES	32 (31 IN CT, 1 IN NH)
BRANDMEISTER	22
MISC.	4

- **Your DMR ID works on ALL these systems**
- **NEDECN (New England Digital Emergency Communications Network) is part of the DMR-MARC worldwide system**
- **BrandMeister is a worldwide system. BrandMeister is an 'on demand' system with a choice of 1300 talk groups. Kind of like D-STAR and its reflectors.**

Amateur DMR activity in New England

A significant amount RF based New England DMR activity is on the New England Digital Emergency Communications Network (NEDECN) which is part of the worldwide DMR-MARC system.

During a typical week the NEDECN system has approx. 170 individual users.

NEDECN changes in last couple of years

NEDECN looked at the activity on the various talk groups on the system and also requests from users and changed its talk group availability.

Eliminated 'Worldwide English', 'Region North', UA1 and UA2 which had almost no use in a year.

Changed TAC310 which was previously only restricted to only New England/MARC systems is now a US wide talk group like it is on all other systems.

All repeaters in the system now have access to all New England NEDECN statewide talk groups via Push to Talk (PTT).

WHAT ARE SOME OF TALK GROUPS AND WHAT TIME SLOTS ARE THEY ON IN THE NEDECN NETWORK

TIME SLOT 1	TIME SLOT 2
SKYWARN (Group Call 759)	NEW ENGLAND WIDE (Group Call 3181)
PARROT (Group Call 9998) *	MASSACHUSETTS STATEWIDE (Group Call 3125)
AUDIO WATCH (Group Call 9999) *	LOCAL (Group Call 9)
WORLDWIDE (Group Call 1) *	NE TAC 2 (Group call 8802) *
NORTH AMERICA (Group Call 3) *	
NORTHEAST (Group Call 3172)	
MAINE STATEWIDE (Group Call 3123) *	
NH STATEWIDE(Group Call 3133) *	
CT STATE WIDE (Group Call 3109) *	
RI STATE WIDE (Group Call 3144) *	
VT STATEWIDE (Group Call 3150) *	
TAC 310 (Group Call 310) *	
TAC 311 (Group Call 311) *	
NE TAC 1 (Group Call 8801) *	
CAPENET (Group Call 8804)	

NOTES: Talk groups in red with an asterisk are PTT activated for 5 minutes
SKYWARN has absolute priority on Time Slot 1 (think of it as a hams 911)

What are TAC, UA and NE TAC channels on NEDECN

The TAC, and NE TAC Channels allow two or more users to perform an ad hoc tie of two or more repeaters together. This allows users spread over a wide area to talk without tying up wide area channels and 100's of repeaters like "Northeast". The talk groups are activated by PTT. They all have timers which drop the link after a few minutes of no use.

Talk Group (Time Slot)	Coverage Area	Notes
TAC310 (1)	US	Same on all systems.
TAC311 (1)	US	Same on all systems.
New England TAC 1 (1)	New England	Only available on NEDECN. Used for some nets weekly
New England TAC 2 (2)	New England	Only available on NEDECN.

WHAT ARE THE MOST ACTIVE TALK GROUPS ON THE NEDECN NETWORK

- TAC 310
- Maine Statewide
- Vermont Statewide
- Local
- Massachusetts Statewide
- NE TAC 1
- New England Wide

WHAT ARE SOME SYSTEM WIDE NETS ON THE NEDECN NETWORK

THESE THREE NETS ARE HEARD ON ALL REPEATERS IN THE NEDECN SYSTEM

- **NEW ENGLAND DMR NET – Monday at 8 PM on 'New England Wide' talk group**
- **SKYWARN- Thursday at 7:30 PM on 'SKYWARN' talk group**
- **OFFICE HOURS TECH DESK – Thursday at 8 PM on 'NE TAC 1' talk group**

CT ARES TALKGROUPS

CT-ARES DMR Network Talkgroup Information				
Time Slot 2			**Time Slot 1**	
8900	ALERT Message		8907	ALERT Message B
8901	CT-Statewide		8908	CT-Statewide B
8902	CT-TAC 1 (UA or PTT)		8909	CT-TAC 11 (UA or PTT)
8903	CT-TAC 2 (UA or PTT)		8910	CT-TAC 12 (UA or PTT)
8904	CT-TAC 3 (UA or PTT)		8911	CT-TAC 13 (UA or PTT)
8905	CT-TAC 4 (UA or PTT)		8912	CT-TAC 14 (UA or PTT)
8906	CT-TAC 5 (UA or PTT)		8913	CT-TAC 15 (UA or PTT)
9	Local		8914	NJ-TRBO (UA or PTT)
			9	Local B
			99	Digital Simplex

Other Network Talkgroups Outside CT-ARES DMR Network				
Time Slot 2			**Time Slot 1**	
3172	Northeast Region		1	Worldwide (UA or PTT)
9998	Parrot (UA or PTT)		3	North America
			13	Worldwide English
			9999	VU Meter Audio Test (UA or PTT)
			9998	Parrot (UA or PTT)
			310	TAC 310 (UA or PTT)
			311	TAC 311 (UA or PTT)
			3100	Conference Bridge (UA or PTT)

BRANDMEISTER TALKGROUPS

BrandMeister has over 1600 active talk groups to choose from.

Go to their website to see what is available.

Some BrandMeister talk groups link directly to D-STAR, YSF (C4FM) and other networks.

Most BrandMeister repeaters have defaults to particular talk groups. This default list is determined by the individual repeater owners.

WHICH TALK GROUPS ARE COMMON TO ALL DMR SYSTEMS

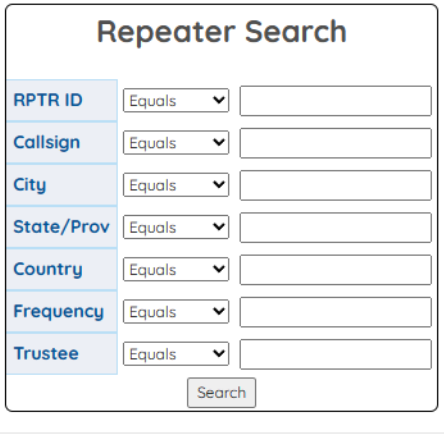
NORTHEAST

TAC310

TAC311

Finding DMR Repeaters

- **RADIOID.net**
  - **allows you to search for repeaters by specified limits**



- **NEDECN (DMR-MARC) Network**
  - **See the NEDECN website**
- **CONNECTICUT ARES**
  - **See the CT ARES website**
- **BRANDMEISTER**
  - **See the Brandmeister website**

What is the PARROT

The PARROT is a voice recorder that allows you to hear how you sound through the system. A lot of people use it to make sure that their signal is making the repeater without problems.

You announce on the PARROT talk group something like;

“N1DM TESTING ON THE PARROT ON SOUTHBORO”

About 7 seconds after you release the PTT button on your radio you should hear your voice repeated if you are within the repeaters receive range.

DMR Simplex

DMR simplex does exist

The common New England DMR simplex channels in use are:

- **VHF Simplex 145.790**
- **UHF Simplex 446.075**

When programming your radios set the talk group as 99 and define that talk group as SIMPLEX.

Select Color Code 1 and Time Slot 1.

Please DO NOT program DMR simplex on FM simplex channels such as 146.520.

Getting Started

- **REGISTER FOR A DMR ID ON THE RADIOID WEBSITE (http://www.radioid.net) *You can do this without having a radio.***
- **BUY A DMR RADIO and PROGRAMMING CABLE**
- **GET IT PROGRAMMED**
- **TALK**

WHY DO I NEED A DMR ID ?

The network requires you to have a digital ID to allow all the C-bridges and servers to properly direct your conversation between repeaters and talk groups.

Getting Started

HOW DO I GET A DMR ID AND WHAT WILL IT LOOK LIKE ?

- **Go to the radioid.net website and follow the instructions to upload a copy of your license.**
- **In a couple of days you will receive a 7 digit ID number which follows the format:**
  - **Subscriber IDs are 7 digits: XXXYZZZ like 3125180**
    where XXXY= Country and State/Province
    ZZZ= Sequentially assigned subscriber number

YOU CANNOT MAKE UP YOUR OWN ID.

- **Also, do not use a friend's ID. You may have trouble talking to each other.**

Programming your radio

You need the Customer Programming Software (CPS) for your particular radio and programming cable for your radio type.

At the minimum you need to know the following to program a radio:

-your DMR radio id

-the talk group you want to talk on and put that in the digital contacts list as a 'group call'

-the time slot being used for the talk group on the repeater you are programming

-you need to know the input and output frequencies for the repeater you will use. (On 2M this is not always a 600 kHz difference we are accustomed to)

-you need to know the color code for the repeater you are using. (Color code is like pl tone)

Programming your radio

DMR radios allow you to assign an 'alias' to a radios ID. The 'alias' allows you to display the call and name of the person that ID belongs to. This uses a lookup table in the radio.

Bringing almost 300,000 ID's into a radio is sometimes an issue, as many older radios do not have that much memory.

Luckily the N0GSG.com website has provided a software tool called 'Contact Manager' to help with this task that allows you to select the parts of the list you want. It works very well.

It can be found at: http://n0gsg.com/contact-manager/

RADIOID.NET and some other websites also have tools for this.

DO NOT PROGRAM ENCRYPTION. IT IS NOT LEGAL FOR HAM USE.

Hotspots

HOTSPOTS ARE A VERY LOW POWER (<10 milliwatt) RADIO THAT USES YOUR LOCAL INTERNET CONNECTION TO TALK ON THE NETWORK.

It allows you to use your HT or mobile when out of range of a repeater.

Other than the Brandmeister network, hotspots are limited in what talk groups they can access on network reflectors (servers). This is especially a concern on the NEDECN network (DMR-MARC).

Some hotspots allow you to link to other digital systems like D-STAR using your DMR radio.

Hotspots

The easiest reflector (server) to use to access NEDECN talk groups is the CAN-TRBO SYSTEM (ALSO KNOWN AS NEDECN HAMNET). See https://www.can-trbo.ca for info.

CAN-TRBO currently has connection to the following NEDECN talk groups;

759 Skywarn

3109 CT

3123 ME

3125 MA

3133 NH

3144 RI

3150 VT

3181 New England Wide

8801 NETAC1

8802 NETAC2

8804 Capenet

Hotspots

KNOWN GOOD HOTSPOTS FOR CAN-TRBO (NEDECN) SYSTEM

- **SHARK OPEN SPOT 4**
  (Note: the obsolete 'Open Spot 1' does not have wifi capability and 'Open Spot 2 and 3' had wifi but are discontinued)

- **SKYBRIDGE (from Bridgecom Systems)**

- **ZUMSPOT (sold by Ham Radio Outlet)**

Some thoughts about using your radio

DMR exhibits a property called latency (delay). Therefore, you cannot 'fast key' on a conversation. This latency is a property of the network (which is very large).

DMR works well for wide area QSO's.

When a station gets too weak its signal breaks up. This is referred to as packet loss.

<u>Most</u> DMR radios also do conventional FM. So, you can carry one radio to talk on traditional repeaters and DMR repeaters.

FAQ

- **WHAT HAPPENS WHEN THE REPEATER LOOSES ITS NETWORK CONNECTION?**

  The LOCAL channel (talk group 9) on the repeater always works.

- **WHAT IS AN EASY WAY TO CHECK IF THE REPEATER IS ON THE NETWORK?**

  There are 2 ways:

  - **Go to the Parrot and try it, if the Parrot is working the repeater is on the network.**
  - **The second is to go to NEDECN and check Netwatch NewEng-TRBO (nedecn.org) on the Monitor tab as you transmit. If you see your call come up the repeater is on the network.**

A Very Small Sampling of DMR Radios

Alinco
DJ-MD5

Anytone
AT-D578UV PRO

Connect Systems
CS800D

Some DMR Web Sites

(check out the links below)

- http://dmr-marc.net/
- http://nedecn.org (New England Digital Emergency Communications Network)
- https://www.radioid.net This is where you get your radio ID
- https://ctares.org/dmr-digital-mobile-radio/ This is the CT ARES site regarding their DMR network
- https://wiki.brandmeister.network/index.php/What_is_BrandMeister intro to the BrandMeister network

And now for something completely different

PICTURE FROM MONTYPYTHON.COM

Since My Last Visit Boston PD have gone to P25 encrypted on all BPD channels

They have decided to allow <u>some</u> channels including a number of Boston Fire channels to be accessed on the internet. The police channels are provided with a time delay.

The website is: https://radio.rapidsos.com/boston

It is available 24 hours a day.

What does the Boston Police webpage look like?

You can set the channels you want to scan and their relative volumes on the webpage.

Boston PD on P25 encrypted

BPD AVAILABLE CHANNELS

CH 1 – SPECIAL EVENTS

CH 2 – AREA A, DOWNTOWN, EAST BOSTON, CHARLESTOWN

CH 3 – ROXBURY, MATTAPAN

CH 4 – WEST ROXBURY, HYDE PARK, JAMACIA PLAIN

CH 5 - BACK BAY, SOUTH END, ALLSTON, BRIGHTON

CH 6 – SOUTH BOSTON, DORCHESTER

Boston PD on P25 encrypted

Why this webpage exists per BPD;

"This service provides residents with time-delayed access to Boston Police radio communications to promote transparency and public awareness."

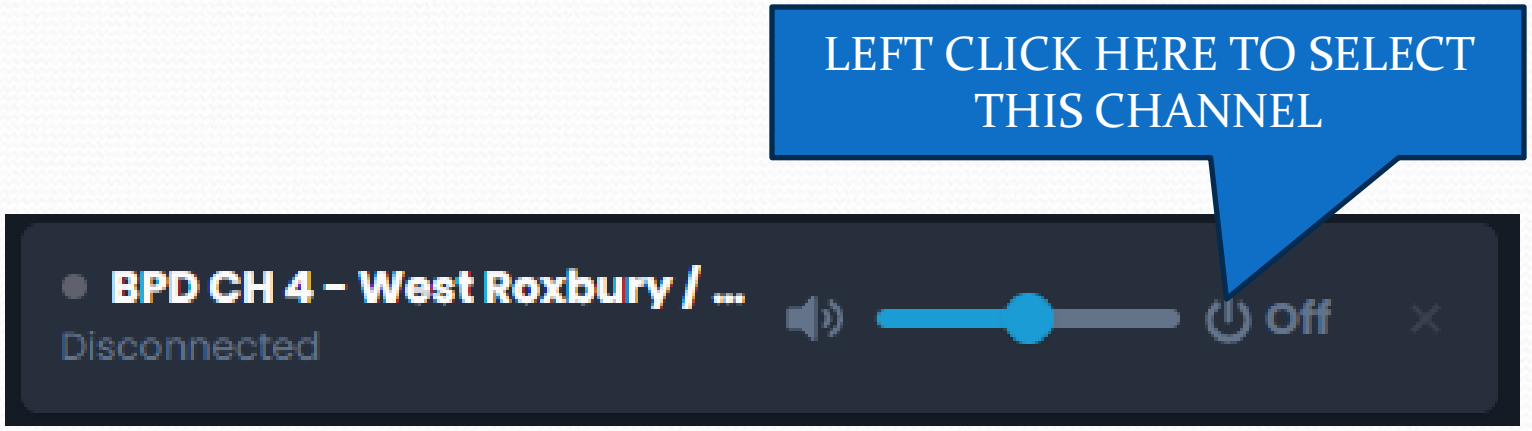
They do not mention the 10+ channels not provided by this service.

Boston PD on P25 encrypted

On this webpage Boston Police transmissions are delayed by 7 minutes.

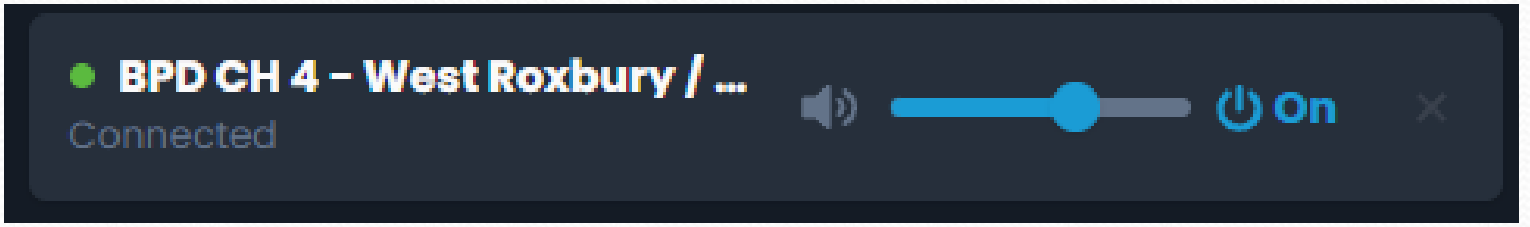
Boston Fire channels are provided with no delay. Note that Boston Fire has not encrypted their channels so you can still hear them on your analog police scanner.

Select a channel to monitor



YOU WILL THAN SEE THE SYMBOL WITH ‘ON’ HIGHLIGHTED IN BLUE.

THE CIRCLE TO THE LEFT WILL BE GREEN INDICATING THE CHANNEL IS SELECTED AND WILL TURN BLUE WHEN THE CHANNEL IS UNSQUELCHED.



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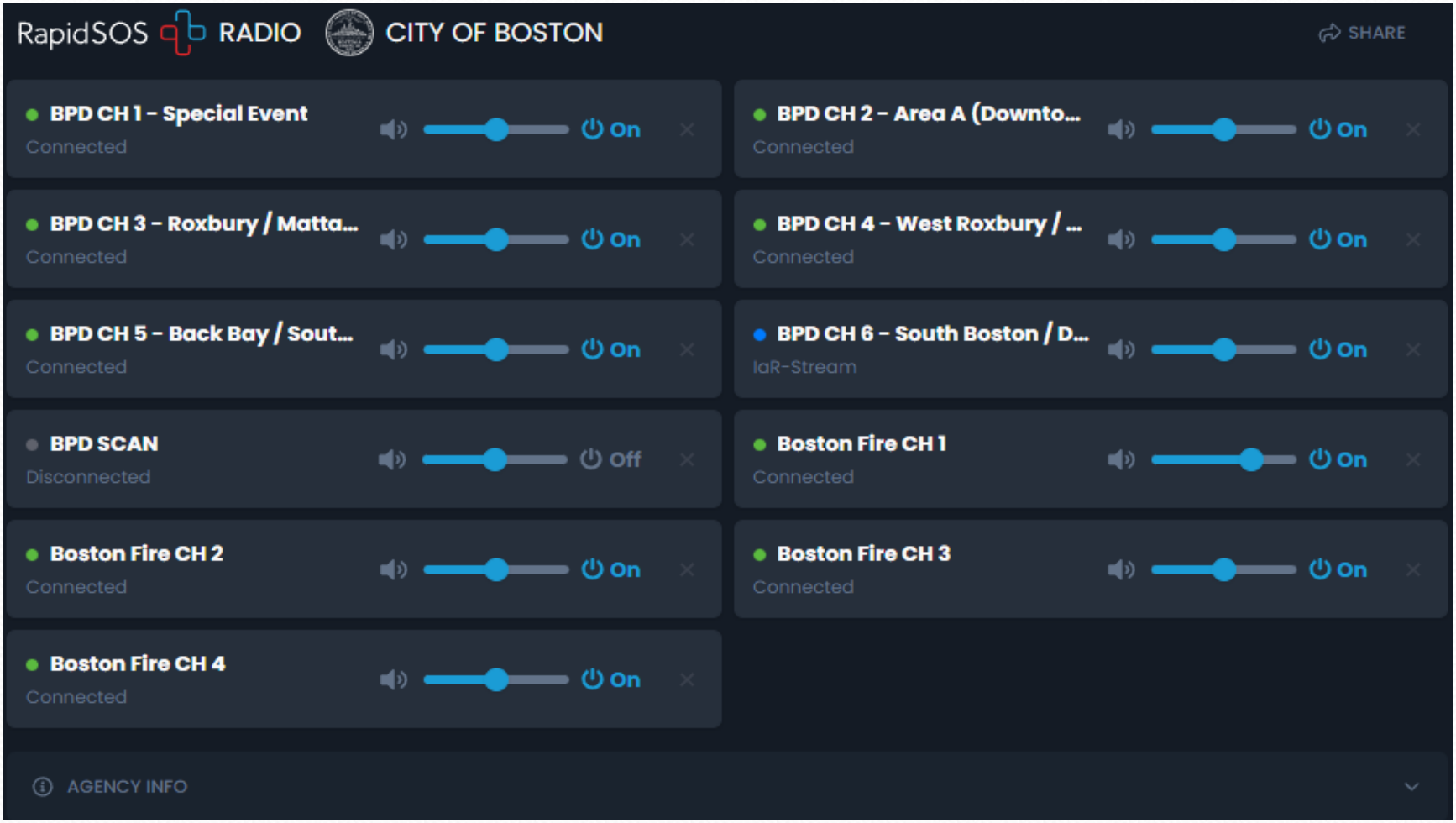

Boston PD on P25 encrypted

For listeners do not ‘check’ both individual Boston Police channels and BPD SCAN at the same time. You will get a time echo affect that makes anything hard to understand.