

DMR FAQs

Q. What are Color Codes?

A. Color Codes are like Network Access Codes or PL (CTCSS) tone access. Each DMR repeater can have one of sixteen different Color Codes.

Q. What are Time Slots?

A. With a TDMA (time division multiple access) system like DMR, the mobile or portable radios are synchronized typically by a repeater and assigned a time slot. In DMR Tier 2, there are two time slots, i.e. 2-slot TDMA. A mobile radio transmits for 30 milliseconds and then receives for 30 milliseconds. It listens for a permission to transmit and then begins a call to all other talk group members who will also receive on that same time slot, e.g., Time Slot 1. Meanwhile, a different group of users on another talk group could be using Time Slot 2 simultaneously. Well almost simultaneously, offset by 30 ms., but you would never know the difference, because two voices can come out of two radios simultaneously from the same repeater.

Q. What are Talk Groups?

A. Talk Groups are like different work groups that you communicate with. They are programmed as “channels”. Several can share a Time Slot on a repeater like multiple PL codes can share a community repeater. Each talk group can be isolated from the other, but may get a busy tone if the same time slot is in use by another. Greater efficiency can be achieved by bridge routing and trunking techniques. Each radio can have more than one talk group and may scan or roam based on talk group.

Q. How does the network work?

A. Generally, networks can be created by an IP Site Connection between two or more repeaters. MotoTRBO’s IPSC protocol communicates Peer-to-Peer. Usually there is a Master and up to 15 Peers in each IPSC. Multiple IPSCs can be bridged together on each talk group and routed to different destinations.

Q. How many Amateur DMR Networks are there?

A. More than a twenty. Go to: <http://dmr-marc.net/FAQ.html> scroll to bottom of the page for a sampling.

Q. What radios can roam?

A. Generally speaking, all the Motorola high tier mobile and portable radios (XPR4550, 5550, 6550 and 7550).

Q. How does Roaming work?

A. The radio will look at the RSSI (Received Signal Strength Indicator) from each site in its list on a specific talk group and select the strongest site to receive and transmit on.

Q. Isn't that like scanning?

A. No. Scanning will select a signal, regardless of signal strength, as long as it breaks the squelch threshold. However, scanning can also accommodate more than one talk group and multiple analog channels.

Q. How is this different from D-Star?

A. DMR is ETSI Standard, Multiple Vendors, TDMA 2-slots

Q. Is this just a Motorola technology that is being pushed into the ham community?

A. NO. There are multiple manufacturers: Kirsun, Tait, Vertex, Motorola, Hytera, Simoco and perhaps Yaesu. Kenwood has just announced DMR models for Europe.

Q. Will your repeaters interfere with existing 144 or 440 analog repeaters?

A. No. Normal Frequency Coordination is required, but DMR Emission Bandwidth is 7.6 KHz. Normal UHF channel spacings are 12.5 KHz also VHF are 10 KHz.

Q. Will your radios also support legacy analog operation?

A. YES

Q. Where can I buy this stuff and how much does it cost?

A. Ham Friendly Dealers list on DCI website, <http://www.trbo.info/dci/hamfriendlydealers.html>)

Q. Where do I get programming cables and CPS software, and why can't I do front panel programming?

A. Motorola Dealers, eBay suppliers and Motorola On Line (MOL). FPP is available from a 3rd Party ham.

Q. With so many competing digital standards, which one is right for the ham world?

A. Standards Based with multiple manufacturers to choose from.

Q. If DMR is so great, why aren't Kenwood, Yaesu, and Icom on board?

A. Yaesu has alluded to plans to enter the Amateur DMR market on their website and Kenwood has announced DMR models for Europe.

Q. Can I select specific groups or reflectors with DMR?

A. Yes, DMR has a capability to have Talk Groups which can be local, statewide, regional, national or world-wide via the IP Site Connects, cBridges and SmartPTT servers.

Q. Can I have my location reported into APRS.fi?

A. Yes, there are several systems doing this now on local and regional networks.

Q. Can I connect my Vertex DMR repeater into the DMR-MARC network?"

A. No, Vertex repeaters do not support IP Site Connect.

Q. Can I connect my Hytera DMR repeater to a MOTOTRBO repeater network?

A. No, Hytera has an IP Site protocol which is incompatible with DMR-MARC.

Q. How many Talk Groups and/or Channels can I have in a MOTOTRBO radio?

A. Up to 1,000 Talk Groups or Channels can be programmed into the 4550, 5550 and 6550 radios. The 3500 series can have 500 Channels.

Q. Why don't all stations show callsigns on the radio display?

A. The DMR radios have a frequent user alias lookup that is similar to a cell phone contact list. Common callsigns can be downloaded and programmed into the radio or added manually, just like a cell phone.

Q. Why do I need to get an ID assignment?

A. DMR IDs are like phone # assignments. You program it into your radio. Then, others will see you show up on their displays. The assignments are logical and follow GSM numbering protocols.

Q. Who do I get my ID # from?

A. Go to www.DMR-MARC.net and "CONTACT US" on the menu.

Q. Who is DMR-MARC?

A. DMR-MARC is the group that is coordinating ID assignments world-wide.

Q. Is the range on DMR equal to or better than analog?

A. We are seeing equal or better coverage with DMR compared to an analog repeater at the same location and antenna. Certainly with better quality audio when in fringe areas.

Q. Is battery life really much longer with DMR?

A. Yes, battery life is increased by 40% compared to analog FM or FDMA radios. That is due to TDMA transmit and receive cycle durations being half normal power usage times. Fourteen (14) to sixteen hours (16) of heavy usage is not unusual.

Q. Does DMR have the R2D2 digital breakup in fringe areas?

A. NO. DMR signal fading is minimized using CRC and FEC algorithms AND re-sync time is faster after leaving and restoring coverage. Audio Quality is markedly better.

Q. Is there just one network option?

A. NO. There are many DMR networks, e.g. DCI, TRBO-6, NorCal, DMR-MARC, CMEN, NC-PRN, Lonestar, GA-TRBO and other Statewide and Regional networks. Build your own and/or use all of the above.