



Welcome to the DMR-MARC Newsletter

Welcome to the first issue of the DMR-MARC/Motorola Amateur Radio Club Worldwide Network newsletter. We plan to use this newsletter to keep the readers informed of developments and innovations going on within the DMR-MARC network. However, the newsletter needs support from the DMR network users. Please send your contributions to k1imd@arrl.net

DMR-MARC Announces Sandbox for Devs!

The DMR Sandbox is a project sponsored by DMR-MARC for experimenters who want to develop new features specifically for amateur radio DMR while not disrupting a large and stable network with many users. While DMR-MARC is a very structured network focused on stability and availability in 19 countries, the DMR Sandbox is much smaller. Patches between DMR and other technologies such as D-Star, Allstar, Echolink, and IRLP are permitted on the Sandbox network. However, the sandbox network does not feature any connections to DMR-MARC, DCI, or Hytera international, national, or statewide DMR networked talkgroups. The DMR-Sandbox is a unique network, with unique talkgroups, and a unique purpose! To Learn more or contact the DMR Sandbox custodian visit: <http://dmr-marc.net/sandbox.html> or visit <http://dmr-marc.net> and click on "Innovations" at the top of the page. - AA9VJ

Tweak your Audio thanks to the NorCal Group

Calibrate your Audio with the help of NorCal DMR. You must use Google Chrome for this utility. Just key up on TS1 TG9999 to use it. Right now, this is only available on a few bridges including the DMR-MARC core bridges. So, if your audio does not work, contact Tim, K6BIV and request a CC connection from NorCal to your bridge. We are using a 2 min time out timer on DMR-MARC core bridges. - dmr-marc.net

Need Sample Codeplugs for Motorola Radios...

Join the Mototrbo Yahoo Group. "This MOTOTRBO Yahoo Group is dedicated to the Amateur Radio Community, not the Commercial Sector. Mototrbo utilizes TDMA ETSI-TS102361-1 digital voice, messaging, and GPS radio Technologies " This is a good resource to start with along with the information on the DMR-MARC website. See: <http://groups.yahoo.com/neo/groups/MOTOTRBO> - K1IMD

Need Sample Codeplugs for CT700 or 701...

Join the csidmr Yahoo Group. "This group is present to share information on the new CSI CS700 and CS701 hand held radios as well as the upcoming CSI DMR mobile radios. " All the latest information on the CSI radios are available on this Yahoo group website See: <http://groups.yahoo.com/neo/groups/csidmr> - K1IMD

Please visit our booths

16-18 May 2014

Dayton Hamvention®

Booth BA-0449

and

17 - 19 July 2014

ARRL National Convention

DMR Continues to Grow!

6877 Worldwide User IDs

629 Worldwide Repeater IDs

Weekly Nets

Worldwide Net

DMR-MARC WW - TG1

Saturdays @ 1600 UTC

Tech Net

DMR-MARC NA - TG3

Thursdays @ 0100 UTC

Digital Voice the basics...

Almost all of us use DV mode virtually every day of our lives. In fact, to many, it is their life! Mobile phones use advanced digital voice modes and the older 2G networks use a version of TDMA very similar to our own. All digital voice standards use encode/decode software called "codecs", which can be proprietary, as in the case of D-Star, or open source, as in the case of DMR. DMR uses a form of FSK or "frequency shift key" known as C4FM four level FSK constant envelope modulation. The voice is encoded/modulated, transmitted as a stream of data, then decoded by the receiver. The advantages of DV include easy IP distribution, excellent bandwidth efficiency and high quality audio. DMR applies a channel access protocol known as "Time Division Multiple Access" to allow two timeslots or voice channels within a single 12.5kHz frequency allocation. Conventionally, the timing algorithm for this is controlled by the repeater but the latest Motorola radios such as the 4000 series can also provide the facility. - *Timeslots and Talkgroups - Issue 2 February 2014 - Newsletter of DMR-UK & Yorkshire DMR Group*

New DMR Portable - CS700 Huge Success...

Connect Systems Inc. recently introduced the CS700 an entry level DMR/Analog UHF portable with the CS701 VHF model due to ship any day now. Although these radios are missing some of the bells and whistles of other radios on the market they seem to be star performers with a lot of bang for the buck. As with any new product they have not been without some software issues but the manufacturer has been quite responsive to getting updated firmware out to fix bugs in the radio and the programming software. Connect Systems hopes to have an entry level mobile radio out by the end of the year. If you are interested in DMR and would like to use the DMR-MARC network one of these radios might be for you. - *K1IMD*

Important to Stay within the Matrix...

Repeaters	ONLY R02.20.12
XPR4550,DM3601,XPR6550,DP3601	R01.09.10* (or newer)
Mobiles and Portables	
XPR5550,DM4601,XPR7550,DP4601,SL7550	R02.30.01 (or newer)
Mobiles and Portables	
CP200d, CM300d, XPR2500	R01.00.00
Mobiles and Portables	
C-Bridge	7770
SmartPTT Server and Dispatcher	8.4

Although less important with a subscriber radio than an infrastructure radio, we recently discovered that new repeaters come delivered in the last few months don't always come with the same version of firmware. DO NOT use the latest version of firmware if you are going to use IP Site Connect (IPSC). Your repeater may seem to operate correctly but there will be other erratic behavior like keying up for hours and hours with no traffic on the system. - *dmr-marc.net & K1IMD*

NorCal XPR8400 Master Survives Fire...

Tim Barrett, K6BIV of NorCal. He is part of the DMR-MARC Admin. His XPR8400 Master was in the Mt. Diablo Fire last summer. Apparently it was low in the rack and only had minor smoke damage. He cleaned it up and put it back on the air at another site. Stuff up higher in the rack melted from the heat. - *Source NE1B*

DMR-MARC Facts & Fiction

Fact - All repeaters that are connected to the DMR-MARC network must be Motorola repeaters.

Fiction - Only Motorola subscriber radios can be used on the DMR-MARC network.

Fact - Most any DMR radio can be used on the DMR-MARC network for voice! However some manufacturers do not offer some of the enhanced features available with Motorola radios.

NEARFest DMR Repeater Owners Meet!

Twice a year hams from all over New England, New Brunswick, Quebec, New York and New Jersey gather for the New England Amateur Radio Festival (NEARFest). This was the case last weekend, May 2 and 3.

What was unique this year was: A DMR Booth/Table, DMR Forum, DMR Repeater Owners meeting each other for the first time

This past year we created an association of repeater clubs called New England Digital Emergency Communications Network (NEDECN). So this was the first opportunity to get our message out to the region's largest gathering of hams.

It was a great weekend for meeting and chatting with other DMR network owners and operators, including: K1OX Ted, N1PA Paul, K1JC Joe, K1IMD Jon, K1LIG Steve, K1RJZ Rick, NE1B Bill, K1DQ, Dan, N1PFB Paul, AE1C Jim, and VE9GLN Glen

We look forward to a similar meeting of DMR Repeater owners at Dayton and at the ARRL Centennial Convention in Hartford this summer. Further information about NEDECN is at: <http://www.nedecn.org> - *NE1B*

DMR-MARC can be Green!

GREEN Repeaters KA1QFE & KA1OAN

Two XPR8400 repeaters are collocated in Northampton, MA and are "WindSolar" powered. The VHF repeater is a peer on the K1MOT Master which hosts the Northern New England Network (NNE) and the UHF repeater is a peer on the K1IMD Master which hosts the Southern New England Network (SNE). KA1QFE explains the nuts, bolts and volts below. - K1IMD

Renewable Energy for DMR Repeaters

This will describe the Solar/Wind power supplying my DMR repeaters.

The major components of the system is a Bergey XL.1 windmill with a maximum output of 1 kilowatt at 24.6 MPH. It is mounted atop a Rohn 55G type tower at 125 feet. The windmill comes with its own charge controller set up for a 24 volt battery bank. Next are 12 Hoxan Photovoltaic panels the will generate a total 576 watts in full sun-light. They are mounted so that the elevation angle can be adjusted for the different sun elevations through the year. The charge controller for the photovoltaic panels is a Outback FLEXmax 60. This is a Maximum Power Point Tracking type controller. The photovoltaic panels are wired in series for a higher string voltage, minimizing wiring conductor size from the panels to the charge controller. The battery bank consists of eight Trojan L16RE-B deep cycle type batteries. These are 6 volt batteries wired in a series/parallel arrangement to obtain a bank voltage of 24 volts. The batteries have a combined amp/hour rating of 740 amp/hours. Accessories to the system are a Vanner battery equalizer for 12 and 24 volt DC outputs, and a Trace 1500 watt inverter for AC output. The Bergey windmill is a 24 volt upwind type windmill, the controller looks at the generator output and adjusts it to charge the batteries, there are a series of LED's that show battery voltage and generator status. The controller output is connected to the DC buss of the system. The photovoltaic panels connect to the input of the FLEXmax solar controller, this regulates the voltage coming from the solar array and adjusts its output, using Maximum Power Point Tracking, to 24 volts to also charge the batteries. The output is also connected to the DC buss. The Vanner battery equalizer connects to the DC ground point, 12 volt point of the battery bank, and the 24 volt point. This allows for 12 and 24 volt outputs while maintaining equal charge across the entire battery bank. Battery interconnecting cables are fine strand number 2 gauge welding cables in parallel. The DC to AC inverter is a 24 volt input type, this connects across the entire battery bank. Other components of the system are various AC and DC disconnects for isolation or shutting down either wind or solar system. DC loads are connected to the DC buss through either fuses or circuit breakers rated of DC operation. Maintenance of either system is minimal with the wind mill having sealed bearings and slip rings. Expected life span is 20 years. The solar system panel mounting design I use allows to have the angle of the panels adjusted for the different elevations of the sun through the seasons to maximize solar production output. Battery maintenance consists of checking water level twice a year and individual battery voltage for health. - KA1QFE



Charge Controllers & Vanner Equalizer



Trojan L16RE-B Deep Cycle Battery Bank



KA1QFE & KA1OAN DMR Repeaters



Bergey XL.1 atop the KA1QFE Tower

The Ever Growing Pin Map!

Each color pin indicates a repeater but also which of the several network it is on. When you visit this page you can select an individual repeater by zooming in. Once you zoom to the desired repeater you “click” on it to get the necessary information to program it into your radio. - K1IMD



DMR-MARC Worldwide Network—"Pin" Map—<http://dmr-marc.net/repeaters.html>

Useful Links

DMR- MARC Website: <http://www.dmr-marc.net>

DMR-MARC Network Map: <http://www.dmr-marc.net/repeaters.html>

Request an ID for subscriber mobile or portable: http://www.dmr-marc.net/request_subscriberID.html

Program your radio: <http://www.dmr-marc.net/subscriber-program.html>

Listen and Audio Level Check: <http://norcaldmr.org/page42/index.html>

Listen: <http://www.broadcastify.com/listen/feed/10347>

Repeater Listing: <http://dmr.darc.de/dmr-rptr.php>

Last Heard List: <http://dmr.darc.de/dmr-lh.php>

Last Heard List: <http://trbo.info/dci/cBridge/netwatch.html>

Contact Us

DMR-MARC

Contact Information:

<http://www.dmr-marc.net/contact.html>

Visit us on the web at:

<http://www.dmr-marc.net>

Like us on Facebook:

<https://www.facebook.com/pages/DMR-MARC-Network/368220439945653>

Email text of articles, photographs and information in editable electronic format to: k1imd@arrl.net

~ Editors Note: I would like to thank those that contributed articles on short notice to get this newsletter out under a very compressed schedule to make this edition available for Hamvention 2014



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The DMR-MARC World Wide Network brings the world to your radio...