



The SPARC

Amateur Radio - Communicating Worldwide for A Century

Newsletter of the Boston Amateur Radio Club
Serving Hams in the Greater Boston Area

July 2021 - VOLUME 33, NUMBER 7

www.barc.org - w1bos@arrl.net



Message from the Editor – Doc Kinne, KE1ML / M7RCK



As I write these words now, BARC is engaging in what may be the first in-person event in over a year – the Boston ARC QRP Cookout. People are gathering now, and while I wish we could be there, transportation issues and health dictated that it was not to be. I will, however, be looking very forward to whatever reports come from this little event.

What I find really great about this event is that this was cooked up (Wait? Did I actually say that?) by someone not in leadership. Dan Cross basically sent out an email to our list and the event snowballed from there wonderfully.

We are all leaders! OK, sure, some of us have titles, and that's very important for keeping things going on a month-by-month level, but everyone is quite capable of starting something like this and doing it. Further, I'm very glad our new groups.io list provided the glue needed in organizing things. I think this month has seen more traffic on the mailing list than has been there in several years!

It doesn't take a title. It just takes a person. Thanks, Dan, for being that person this time!

In this Issue of The SPARC

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BARC General Meeting, Thursday, July 15, 7:30 pm

BARC will be holding a General Meeting on Thursday, July 15, at 7:30 p.m. on the Zoom teleconferencing platform. We will be voting on new officers for the upcoming year, so this meeting is fairly important.

To join the Zoom meeting above go to:

<https://zoom.us/j/99918732995?pwd=cFhSbmwySUQ2QjI9eGVUNFNhQ0N4Zz09>

Meeting ID: 999 1873 2995 Password: BARC

Repeaters: 145.230 (-) CTCSS 88.5 in/100.0 out

Simplex: 147.420

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BARC's Online Discussion Group – Joe Harris, N1QD



BARC has an online forum at Groups.io. The group serves as a sounding board for members to post their suggestions and comments, and is intended to foster discussion. The group can also be used to share photographs from club events! Come visit us at: <https://groups.io/g/BostonARC>. You can join, if you're not already there, by sending an email to "BostonARC+subscribe@groups.io."

What Did You Miss at the June 2021 Gen Meeting? – Doc Kinne, KE1ML / M7RCK

A Meeting of the Boston Amateur Radio Club was held on Thursday, June 17, on the Zoom teleconferencing platform.

We discussed our needs as a club in the face of our upcoming election. More information about that, and our next discussion, will be in this issue of the SPARC

A Thousand Thanks – Morgan Johnstone, KB1ZFP



It's been an honor to be Vice President for the past year and to have been so involved with the club. My only regret is that my lack of energy has kept me away from several meetings. I want to thank several people for helping me on this journey and you have all had equal impacts in my life over the past year.

I'd like to thank Mark Duff, Geri Duff, Joe Chapman and Joe Harris for helping me get my bearings and for their ongoing support this last year. I've gone to them for advice and help on several topics and I'm just so thankful. I'd also like to thank Doc Kinne, our secretary and my partner for his hours of work on the SPARC and running meetings. I couldn't have done it without Doc by my side. Finally, I'd like to thank Linda Blair and Jim Clogher for their willingness to meet with Doc and myself to discuss club finances and how things work behind the scenes in the financial area of the club.

In my year of leadership I've learned a lot and I've helped bring BARC into the modern era. I really wish I could stick around and be part of leadership for longer as was my intention but I believe the club deserves someone who can

meet the requirements of the office they are elected to. I look forward to working with our new incoming leadership team and figure we'll have several meetings over the next month or so.

Thanks so much, it means everything!

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A DMR Primer – *Ethan Hansen, KC1OIP*

Depending on how closely you pay attention to the footer of the SPARC you may have noticed the line “449.175 (-) DMR CC1”. The first half is pretty self explanatory, it’s a 70cm repeater with a negative offset but what’s this business about DMR CC1? It means that BARC runs a Digital Mobile Radio (DMR) repeater with a Color Code of 1. If you’re unsure about what any of that means let me save you some Googling and go over some of the basics of DMR!

Background and Technical Bits

Much like many things in the ham world, DMR is a commercial standard that was adopted by amateurs. DMR has three “tiers” and the first two were developed in 2005 with the third coming about in 2012. The first tier (Tier I) allows for unlicensed operation and is primarily used in Europe while the third tier (Tier III) is a trunked system. Amateurs adopted the second tier (Tier II) which is a system that uses conventional, non-trunked frequencies in both simplex and repeater operations.

Before diving into the technical aspects of DMR I wanted to highlight some of the advantages that DMR has over analog. A DMR repeater can support two conversations at the same time thanks to use of TDMA and time slots with each of those time slots supporting different groups of users. In addition you’ve got better battery life and better signal quality over longer distances. Though it should be noted that while you don’t get the hiss or static like you do with analog there can be very choppy audio when the signal quality starts dropping.

Most of these advantages are due to Time-Division Multiple Access or TDMA. Without going too deep technically, TDMA allows there to be two voice channels in the 12.5KHz bandwidth that DMR occupies. Each channel has a bandwidth of 6.25KHz and can carry either voice or data depending on the system and

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are called Time Slot 1 (TS1) and Time Slot 2 (TS2). Each time slot has a 30ms window and they alternate allowing for one repeater to have two separate channels at the same time. However all the end user needs to do is program the correct time slot on the radio and the repeater figures out the rest.

TDMA also allows for better battery life because your transmitter is only active around half the time as it would be on an analog transmission of the same length. Some studies have found this results in a 40% improvement in talk time over analog transmissions. If you're interested in the nitty gritty technical details I'd recommend reading "Amateur Radio Guide to Digital Mobile Radio" linked at the end of this article.

Finally the better signal quality is due to the fact that on repeaters the audio quality remains about the same until you are at the very edge of the coverage range of the repeater. The DMR standard utilizes Forward Error Correction which can correct some of the small errors and increase the range as well.

There is an active DMR community in New England but before I get into that I wanted to go over some of the DMR terminology and how it compares to the analog side of things. A Talk Group is a way to have a one to many conversation with a specific set of users and can range from users on the local repeater all the way to users across the globe. Some talk groups are "full time" and are always active while others are Push To Talk (PTT) and must be activated to be used. As an example my further contact using DMR was a ham in Australia.

Some other terminology: a Color Code is effectively a digital PL tone for the repeater, a Zone is grouping of individual channels much like a scan list and a Code Plug is the programming file for the radio. The Parrot Talk Group is a special channel that allows you to test your connection to the repeater.

DMR In New England

With all that out of the way let's talk about DMR in New England. The predominant DMR network around here is NEDECN (New England Digital Emergency Communications Network) which comprises 95 repeaters in New England and is linked to repeaters in New York and Eastern Canada. The W1BOS DMR repeater along with 16 other repeaters in Massachusetts are part of this network.



NEDECN is a DMR-MARC affiliated network but there are also a handful of Brandmeister repeaters in New England along with repeaters run by CT ARES. Brandmeister is another extremely popular DMR network that has some limited interoperability with the DMR-MARC network through the use of

PTT TAC talk groups. However DMR-MARC and Brandmeister use different Talk Group numbering schemes so a DMR-MARC one won't (usually) work on Brandmeister and vice-versa.

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In terms of user activity there were 356 “callers” split across the NEDECN network between 3/7 and 3/13 and there are around 185,000 issued DMR radio IDs worldwide.

Getting Connected

Before you can hop on a DMR repeater and start talking you need to register for a DMR ID which identifies you to the repeater and other users and allows your conversation to be routed properly. This can be accomplished by navigating to <https://www.radioid.net> and following the sign-up process. Important note: this does not replace the requirement of identification every 10 minutes.

You will also need a DMR Tier II compatible radio . The good news is that there are a significant amount of radios out there that meet this requirement which conversely is also the bad news. Some manufacturers include Motorola, Kenwood, Connect Systems, Alinco, Tytera, Anytone and Radioditty. Most of the manufacturers offer both HT and portable models.



Some of this comes down to personal preference but as long as you’ve got the programming software you’ll be able to get on DMR and analog repeaters. Just make sure the radio you’re buying is either dual band or matches with the repeater you’re going to use. Another caveat is that the commercial radios like Motorola may charge you a fee to use the programming software. I personally own two Anytone radios and a Radioditty GD-77 and would recommend them.

In terms of programming each radio is going to be different but at minimum you’re going to need to have the repeater, time slot and talkgroup information along with your DMR ID to program your radio. Thankfully NEDECN provides most of this information on their website along with code plugs for a variety of radios. Other resources include the New England Repeater Directory, Repeater Book and the Repeater Map on Radioid.net.

After you’ve programmed your radio it’s just a matter of choosing the closest repeater and a Talk Group and keying up! After a short delay you’ll be transmitting to the other hams on the Talk Group, or yourself if it’s Parrot. The repeater takes care of all the routing and connecting to other repeaters in the network.

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I would recommend turning on the “start reminder” if your radio supports it so it chirps at you when you’re connected to the repeater. This will help avoid the beginning of your conversation getting cut off.

If you don’t have any DMR repeaters near you or you want to access the Brandmesiter network you can also use a Hotspot. These are small computer powered radios that use your internet connection to connect your HT or mobile to a DMR network. On the DMR-MARC network Hotspots are limited to a specific set of Talk Groups but on Brandmeister you can access around 1600 Talk Groups across the globe. Some Hotspots also allow you to access System Fusion, D-Star and P25 networks.

In Conclusion

Hopefully I was able to spark an interest in DMR or at least answer some questions some of you may have had about it. Since this is only a primer I only scratched the surface of DMR and would recommend that you check out the resources below to learn more. We’d love to have more hams on the W1BOS DMR repeater!

In terms of programming each radio is unique and outside the scope of this primer. However if you own an Anytone radio or a GD-77 and want assistance with programming feel free to email me at kc1oip@arrl.net as I own these radios. I’d also be happy to (attempt) to answer any questions you may have about DMR.

Resources

<https://nedecm.org/> - NEDECM Website

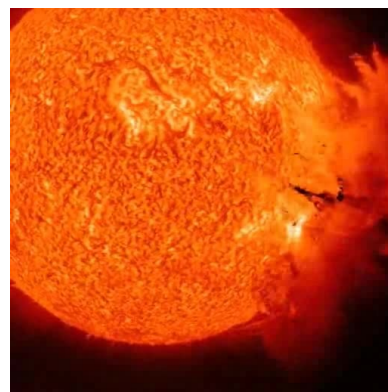
Solar Cycle 25’s First Burp - *Doc Kinne, KE1ML / M7RCK*

On 3 July Cycle 25’s Sun burped with it’s first Class X flare in four years, blacking out the HF bands for most of Earth’s sunlit side for a couple of hours. This particular X1.5 class solar flare caused a “R3 Strong Radio Blackout.”

The solar flare “X” scale is open ended. As mentioned, this was an X1.5. The strongest ever recorded was an X28 in 2003. Lower in scale than an X flare are M flares, which can cause disruption at higher latitude pathways than Boston. A, B, and C-class solar flares – small and frequent – do not interfere with HF propagation.

Solar flares will not affect VHF and above propagation, but that *can* interfere with satellite VHF and UHF signals as they come down or approach the satellite in orbit.

We’re only at the very beginning of Solar Cycle 25. Only time will tell how the sun will behave over the next decade.



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The Upcoming Election – *Doc Kinne, KE1ML / M7RCK*

As we all should know by now, this coming Thursday will see Officer Elections for the next year for BARC. As you should also know, things for the current Vice President and Secretary have gone south from a health perspective over the last year, and they cannot see themselves continuing in the roles they have, especially as BARC moves back, hopefully, into a new normal of real-life, physical meetings.

We have spent the last couple of months looking for various people. Offices that needed to be filled were President, Vice President, and Secretary. Our stalwart Jim Clogher, N1ICN, will be running again for Treasurer, but he's indicated that he'll need a break soon!

Brendan Baldonado, NW1S has publically thrown his hat into the ring for BARC President. The Nomination Committee has indications of interest from people regarding Vice President and Secretary, but no one has been public about their intentions to my knowledge so far.



The club has always been about more than its elected officers. We have various people who the Administration appoints to particular duties. Of particular note in these modern times is the position of Webmaster, which Steven Provost has expressed interest in, and SPARC Editor, which Doc Kinne has expressed interest in continuing. Other staff positions have included Public Service Coordinator, which we'll need again as we move back to a physical existence, Public Information Officer, and Membership Services.

Again, people taking these positions will be at the pleasure of the incoming administration. While it seems normal for these positions to carry over from year to year, if you're interested, speak up. Even if you're not interested in the position, if the *job* interests you, speak up! We can all use the help.

Thursday's meeting will be critical. This past administration saw BARC through much of COVID-19, and we successfully made changes to the club in order to keep it viable in this weird time. The next administration will use the foundation that has been set during COVID to bring us, not back to the "old normal" but to a "new normal" where we will combine what we've done during the past year what whatever the future brings us.

It takes a village. Be part of BARC's!

General Radio News From Around the Net – *Doc Kinne, KE1ML / M7RCK*

- KC1NDQ activates Phoenix State Park, Fairhaven for Parks on the Air. 1300-1800ET, 17 July
- Eastern Area Net merges with RRI EA Nets. Moves frequency to 3552KHz, meeting at 2030L.
- New Group formed to discuss New England Division Elections. Join at groups.io/g/NE-elect.

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BARC Meeting Calendar for 2021

Unless otherwise noted, all meetings will take place at the Brookline Police Headquarters, unless via Zoom.

General Meetings (* Business/General Meetings)

July 15 2021 Thu 7:30 pm via Zoom – Elections

Meetings past this – and how they will be done (Zoom and/or physical) will be decided by the incoming Administration.

VE Sessions

None scheduled at this time.

BARC Net Preamble

The control operator for the BARC Net is Joe, W1JJE. He rarely misses a net, but when he does any ham can take up the position and run the net. To assist you in opening and closing the net The BARC Net Preamble is printed below. Do not be afraid to step up and take the challenge.

Is there any further business for the repeater before we begin the Boston Amateur Radio Club Net? This is «YOUR CALL». Calling the Boston Amateur Radio Club Net. This is «YOUR CALL», my name is «YOUR NAME» and I am located in «YOUR TOWN». This net meets each Monday evening at 9 pm Eastern Time on the 145.230 Boston repeater, PL 88.5. This net is an informal round table discussion concerning matters of interest to the members of the Boston Amateur Radio Club and the Boston Amateur Radio community in general. When checking into the net, please say, “this is” and drop your carrier to check on doubling. Then give your call sign, name and location. All amateurs are welcome to join the net. Any check-in’s for the Boston Amateur Radio Club Net please call now.

[Compile the list of the check-ins and proceed with the net.]

Is there any further business for the net before I close? Hearing nothing, this is «YOUR CALL» closing tonight’s session of the Boston Amateur Radio Club Net. I would like to thank everyone who participated in the net and those who stood by while I ran the net. The Boston Amateur Radio Club Net will return next Monday evening at 9 pm Eastern Time. This is «YOUR CALL» returning the repeater to general amateur use. 73.

I See the Future

10-11 July	IARU HF World Championship
15 July	BARC General Meeting, 7:30PM, Zoom Teleconferencing Platform ▲
7-8 August	ARRL 222MHz & Up Distance Contest
21-22 August	ARRL 10GHz & Up, Round 1
22 August	ARRL Rookie Roundup, RTTY

▲ Note change from usual date and/or location

Before going to any event over the next few months, please confirm that the event will take place and what the hours are.

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As you might expect, there are many more events (public service, hamfests, flea markets, etc.) taking place—some only peripheral to ham radio. For information on these, covering much of the Northeast, the “Ham - Electronic Flea Market” and the “PSLIST” lists tell the story. Of course, if you know of an event that would be of interest to the readers, please let the Editor know.

For an up-to-date calendar of events, including web links, visit <http://www.barc.org/calendar>.

Businesses Can Advertise Here

The SPARC accepts commercial advertisements. BARC encourages monthly promotion of your products and services which would be of interest to hundreds of our members and others interested in the Amateur Radio Service.

The rates for display advertising are:

1 col × 2 in. (business card)	\$15 per issue
1 col × 2 in. (business card)	\$75 per 6 consecutive months
1 col × 2 in. (business card)	\$125 per 12 consecutive months
1 col × 4 in. (½ column)	\$30 per issue
1 col × 9.5 in. (full column)	\$60 per issue

Originals of ads must be presented to the Editor in MS Word or .jpg format to print 1:1. Other composition will be at extra cost. We will be glad to quote other ad sizes and durations. Members are urged to seek prospective advertisers who are appropriate to our readers. For additional information, contact Doc Kinne, KE1ML, at 617.297.2718 or kinnerc@gmail.com.

Two Ways to See Yourself in Print! (well, PDF) – Joe Chapman, NV1W

We are always looking for articles for the newsletter. I have reserved this space for your articles, reviews, tips, how-tos, hints, kinks, photos, schematics, or other ham related information. Photos of you operating or your shack are especially welcome. Send your submissions to the Editor, Doc, KE1ML, at kinnerc@gmail.com. Articles for the September issue must be received by September 6.

Are you a depressed BARC member because you have a treasure you must turn to cash? Cheer up, Bunky! The SPARC will run your (non-business) ad for free. Of course, a 10% donation if you sell it will be cheerfully accepted. Just send your ad to Doc Kinne, KE1ML, kinnerc@gmail.com.

BARC Volunteer Exam Sessions

The Boston Amateur Radio Club usually offers license exams quarterly. **Due to uncertainty caused by the COVID-19 pandemic, the next test session is yet to be announced.** Test sessions are held at Brookline Police Headquarters, 350 Washington St. in the Community Room (across from the information desk).

We give all exams (Technician, General, and Extra). *Testing is by reservation only.* Please bring the following with you:

- Your current license and a photocopy for the ARRL, if you are upgrading

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- Any CSCEs you are claiming, and a photocopy of them
- Valid picture ID or two valid non-picture IDs
- A pen and a calculator (if you want to)
- **\$15.00** (good for all the tests you take at that session, except for retests)

Note: Written tests can be taken sequentially at the same session for the same \$15 fee. The needed FCC forms will be provided.

To reserve a seat or for further information, contact: Jim Clogher, N1ICN, n1icn@arrl.net, or Linda Blair, NA1I, na1i@arrl.net.



New England Sci-Tech Inc is a new 501(c)(3) STEM education center, amateur radio training center, and maker space located at 16 Tech Circle, Natick. It is home to New England Amateur Radio Inc (NE1AR) and the youth radio club Sci-Tech Amateur Radio Society (STARS). NE Sci-Tech welcomes memberships and donations via www.NESciTech.org or www.NE1AR.org.



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BARC Officers and Staff

President: (*position vacant*)

Vice President: Morgan Johnstone, KB1ZFP
857.287.9586; morganjohnstone87@gmail.com

Secretary: Doc Kinne, KE1ML / M7RCK
617.297.2718; kinnerc@gmail.com

Treasurer: Jim Clogher, N1ICN,
781.901.3545; n1icn@arrl.net

Volunteer Exams:

Jim Clogher, N1ICN, n1icn@arrl.net
Linda Blair, NA1I, na1i@arrl.net

Public Service Coordinator: Brett Smith, AB1RL
859.466.5915; ab1rl@arrl.net

Public Information Officer: Geri Duff, KB1ISG
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Membership Services: Linda Blair, NA1I
617.500.4406; na1i@arrl.net

Newsletter Editor: Doc Kinne, KE1ML
617.297.2718; kinnerc@gmail.com

The Boston Amateur Radio Club is a non-commercial association of persons interested in the Amateur Radio Service. The Club is organized for the promotion of interest in Amateur Radio communication and education, for the establishment of emergency communications in the event of disasters or other emergencies, for the advancement of the radio art and the public welfare, for the representation of the radio amateur in legislative and regulatory matters, and for the maintenance of collegiality and a high standard of conduct.

The Club is open to all persons interested in Amateur Radio without regard to race, color, religion, creed, national origin, gender, disability, or sexual preference. Our General and Business meeting locations are handicap accessible. Other meeting and activity locations may be handicap accessible by arrangement.

The Club is an ARRL-affiliated club, and is a member of the New England Spectrum Management Council (NESMC). The Club is also an associate member of the Courage HandiHams system.

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Greater Boston Net Directory

Daily 7 pm	MARI (Mass/Rhode Island CW Net) (NTS)	3.565
Daily 8 pm	Eastern Mass 2M Traffic Net (NTS)	145.230 (PL 88.5 in/100.0 out)
Daily 8 pm	Slow Speed CW Net	28.160
M,T,F,S 8:30PM	Massachusetts Rhode Island Slow Net	3598
First Mon 8:30 pm	EMA Section ARES Net	146.610 and all MMRA links
Mon 8 pm	New England DMR Net	DMR New England Talk Group (TG 3181)
Mon 9 pm	BARC Club Net	145.230 (PL 88.5 in/100.0 out)
Sun Mon Wed Fri 10 pm	Heavy Hitters Traffic Net (NTS)	MMRA-linked repeaters: 146.610, 146.670, 146.715, 146.820, and all 222 and 440 repeaters
Mon-Sat Sat, 5 pm	MA RI Phone Net (NTS)	3.978
Tue 8 pm	Sci-Tech Amateur Radio Society (STARS) Net	446.325 (PL 146.2)
Tue 8 pm	MMRA Club Net	146.610 and all MMRA links
Wed 8 pm	Wellesley Amateur Radio Society Net	147.030; 444.600 (PL 88.5)
Wed 9 pm	Waltham Wranglers Swap Net	146.640 (PL 136.5)
Sat 9 am	Northeast SATERN Net	7.265
Sun 9:30 am	Yankee SSB Net	50.275
Sun 8 pm	Algonquin Amateur Radio Club Net	446.675 (PL 88.5)
Sun 8:30 pm	NSRA Net (with Newslines)	145.470 (PL 136.5)
Sun 9 pm	CAARAnet	145.130 (PL 107.2)

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