



# The SPARC

Amateur Radio - Communicating Worldwide for A Century  
Newsletter of the Boston Amateur Radio Club  
Serving Hams in the Greater Boston Area  
October 2012 - VOLUME 24, NUMBER 10  
[www.barc.org](http://www.barc.org) - [w1bos@arrrl.net](mailto:w1bos@arrrl.net)



## Message from the President – Joe Chapman, NV1W

*I recently ordered a 1.2 GHz module for my beloved Yaesu FT-736R VHF/UHF/boat-anchor. A few days later I got a metal box, some hardware, and an instruction sheet that began by telling me to remove a bunch of screws on the rig and open it up. The installation is relatively painless: I bolted the thing down, then connected a power wire and two plugs. Piece of cake.*

*What I wasn't prepared for was how liberating an exercise this was in our world of "no user serviceable parts inside," with its glued cases and tamper-proof screws. Few of us may build our radios these days, and I'll be the first to admit that if the tone squelch on the aforementioned Yaesu boat-anchor were to malfunction, I'd probably (a) try reseating the relevant connectors and (b) swear. Still, that's twice as many options as my iPod offers.*

*Many of you have heard of the "Maker Movement," a loose community of people who hack electronics, build robots, and construct loony projects like an old VCR repurposed into an automated cat feeding system. One could argue that ham radio is the original maker movement, and we've talked about how we might get Makers interested in our hobby. But the flip side of that observation is that there's a lot in the Maker Movement of interest to hams.*

*The Arduino is a cheap single-board microcontroller that's about the size of a business card. K3NG has used it to make a remarkably full-featured CW keyer that you can learn more about by Googling. I've also seen it used for controlling an antenna rotor or a radio. For a bit more processing power, there are some small single-board Linux computers like the BeagleBone and the Raspberry Pi. None of these devices is expensive. As an extra added bonus, having a bunch of breadboards with wires plugged into them makes your shack look really edgy and cool, at least if your friends, like mine, are mostly geeks.*

*The Maker Movement has also spawned web-based services to do things like laser cutting and circuit board fabrication. Those of us in the AARP set will remember what etching a board used to entail and the sinister array of reagents we had to deal with in the process. (To say nothing of keeping Mom ignorant of possible Superfund interest in that corner of the basement.) Now you can use a free web application to lay out the board, and a short while later FedEx drops it on your doorstep.*

*At our September meeting, Harold, WJ1B, talked about teaching a basic electronics course and the delight his students had when they hooked up their first electronic circuit, pushed a switch, and saw the LED light up. There's a lot of fun to be had making electrons do tricks, and I recommend it to both present and future hams.*

*Happy hacking, good radio, and 73,  
Joe Chapman, NV1W*

## SAVE THE DATE

The annual BARC Holiday Party will be held on **Wednesday, December 12**, at Not Your Average Joe's in Arlington. Details and reservation information will be in the November issue of *The SPARC*. Also, there will be your opportunity to nominate a member as 2012 BARC Ham of the Year, with the award at the party. Check your calendar and SAVE THE DATE.

## **October General Meeting**

The October General meeting will be held on Thursday, October 18, at 7:00 pm at the Brookline Police Headquarters. Our speaker will be Dave Pascoe, KM3T, one of the directors of the World Radiosport Team Championship (WRTC-2014) <<http://www.wrtc2014.org>>. This is the World Cup of contesting, held every four years in a different location. The last one was held in Russia, and in 2014 it will be held in New England.

Even if you don't participate in contests, there's a lot to be learned from these operators and their equipment. Some of the most productive hams in the Katrina disaster were contesters, and much has been gleaned from watching club members who do a lot of contesting at work. You might even be inspired to give it a try. There's probably no more efficient way to make progress on WAS or DXCC than to participate in a contest.

## **Brett, AB1RL, Named BARC Public Service Coordinator**

Brett Smith, AB1RL has been appointed as the Club Coordinator for public service events by President Joe Chapman, NV1W. Brett succeeds Bob Salow, WA1IDA, who is retiring after 25 years in this position.

Brett is a system administrator for a non-profit organization, and has been a ham since November 2011.

His responsibility for BARC is to manage our support for all public service events and the specific Event Coordinators. He will appoint coordinators for each event and provide them with central services. In transition, Bob will introduce Brett to the staff of each event's sponsor staff, and mentor him with the logistics of each type of event.

When requests are announced for ham support for one of our events, respond for public service and fun. You will benefit from both.

## **It's All In the Waves – Not Too Tough To Figure It Out -- ARRL Contest Update, 12 September 2012**

The timeless Bell Labs training film, "Similarities in Wave Behavior" hosted by Dr J. N. Shive is now available online as a video at <[www.youtube.com/watch?v=dovunoxly1k](http://www.youtube.com/watch?v=dovunoxly1k)>. The mechanical version of a transmission line is used to show velocity of propagation, reflections, standing waves, and other phenomena. The explanation of SWR is particularly clear. If you've ever been mystified at how SWR "works," this video is a must-see. The AT&T Archives has more material, as well at <<http://techchannel.att.com/showpage.cfm?att-archives>>.

## **Why Does Solder Melt The Way It Does? -- ARRL Contest Update, 12 September 2012**

Gene, WB8WКУ, cleared up some confusion about solder composition recently. "The solder that has the lowest melting point is (by weight) 63% tin (Sn), 37% lead (Pb). This ratio also has the same temperatures for "starts to melt" and "completely melted," i.e., no temperature range with "pasty" solder. Note that the greater amount is of tin, not lead, because tin melts at a lower temperature than lead. Note also that tin is more expensive than lead. 60Sn/40Pb melts very closely to 63Sn/37Pb and has only a small pasty range." Manfred, XQ6FOD, recommends web pages from the University of Bolton, <[www.ami.ac.uk/courses/topics/0244\\_tsm/index.html](http://www.ami.ac.uk/courses/topics/0244_tsm/index.html)>, and the European Space Agency, <[http://spaceflight.esa.int/impress/text/education/solidification/phase\\_diagrams.html](http://spaceflight.esa.int/impress/text/education/solidification/phase_diagrams.html)>, for more detailed information and phase diagrams of tin lead solders or other alloys.

## **A Sure-Fire Way to Improve Your Signal -- -- Bob Salow, WA1IDA**

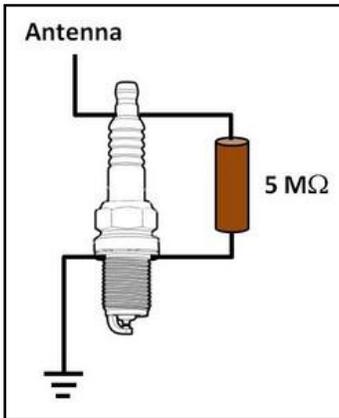
You cannot escape the fact that your HF signal characteristics will be a function of ground conductivity. Regardless of how high or how wide your antenna is, the ground is part of the signal path.

As reported in *ARRL Contest Update*, in the 10 October 2012 issue, - your government at work: a ground conductivity map is available from the FCC which can be assembled into a wall-sized display. It can be downloaded from: <[www.fcc.gov/encyclopedia/m3-map-effective-ground-conductivity-united-states-wall-sized-map-am-broadcast-stations](http://www.fcc.gov/encyclopedia/m3-map-effective-ground-conductivity-united-states-wall-sized-map-am-broadcast-stations)>.

Find your station location and the nearby conductivity. Decide on how much improvement you want to make on your signal. Locate an area of suitable conductivity and move there.

## Protect Your Antenna From Static Discharges

The graphic here shows a method of draining charge from an antenna while also providing some protection against high voltages from static electricity. The basic idea is presented on the K2AV Folded Counterpoise antenna website at [www.w0uce.net/k2avantennas.html](http://www.w0uce.net/k2avantennas.html). The value of the 5 Megohm resistor is not critical and just needs to be high enough to minimize its effect on antenna impedance while surviving normal operation. A resistor power rating of 2 watts or better is generally recommended in this application. The spark plug can be mounted directly to a grounded plate, as well.



## Easy Measurement of Feedline Losses -- Dave Hachadorian, K6LL

A good thing to do every year or so is to measure your feedline losses. If you have an antenna analyzer that reads high values of SWR with reasonable accuracy, the measurement can be done from the comfort of your radio room, without disconnecting the antenna.

Attach the analyzer to the feedline in question, with the antenna still connected. Tune the analyzer's frequency until you see the highest peak in indicated SWR on the meter. There will usually be several high peaks. Pick the highest one near the high end of the analyzer's range.

Plug the peak observed SWR into the following equation:

$$\text{Loss} = 10 \log_{10} \frac{\text{SWR}+1}{\text{SWR}-1}$$

For example, if you see a peak SWR of 8 at 24 MHz

$$\text{Loss} = 10 \log_{10} \frac{9}{7} = 1.09 \text{ dB at 24 MHz}$$

Then all you have to do is consult a coax loss chart to see if the measured loss is reasonable for the type and length of coax being used, and whether it would be cost effective to put up new or different coax.

The reason this method works is that almost all antennas present a high value of impedance when operated outside their design range. This high impedance is a close approximation of an open circuit, and the equation above is valid. This idea was presented in *QST* a few years ago, but the author presented a graphical, rather than mathematical, solution. I like the mathematical solution better, because you don't have to go back and dig up the *QST* article to find the graph.

Some people distrust the accuracy of high value SWR readings obtained on inexpensive analyzers, and prefer to take repeated measurements over several years to detect trends, rather than believing the absolute numbers. That's ok too. Whenever I have used the above method to measure brand new coax, the results have always agreed closely with expected losses.

## ***The SPARC***

### **Looking Ahead At Public Service -- Bob Salow, WA1IDA**

When hams engage in public service as mandated by the FCC Rules, the benefits go well beyond just following the rules. We can enjoy our hobby - have fun! We protect the health and safety of event participants. We support worthy charities. We learn to work within an organized effort. We experience the technical aspects of operating under adverse conditions. We practice communicating under emergency conditions. We can demonstrate these qualities to the communities we serve and thus promote our service for their acceptance.

Throughout the year BARC coordinates numerous public service events. Most of these are suitable for hams who are new to helping at such events as well as experienced hams. For 2013, we have already been tasked with several events which will be announced later. Feel free to contact Brett Smith, AB1RL, at 859.466.5915 or <[ab1rl@arrl.net](mailto:ab1rl@arrl.net)>.

- *BAA Half Marathon – 7 October* – (Boston)
- *SKYWARN Recognition Day - 1 December* - (Blue Hill, Milton)
- *BAA 5K and 1 Mile Races – 14 April 2013* – (Boston)
- *Run of the Charles – 28 April 2013* – (Charles River, Needham to Brighton)

Other events may jump in on short notice. Among our skills is the ability to apply our technical, organizational and staffing quickly and proficiently. Join our team and join in the fun and learning.

### **For Sale: Kenwood TS-2000 HF/VHF/UHF Transceiver**

TX: 10-160 M + WARC / 6 M / 2 M / 70 cm

RX: 0.03-60 / 118-174 / 220-512 MHz

100 Watts, SSB/CW/FM (25 W on AM); on 160-2 meters, 50 W (12.5 W AM) on 70 cm.

With VS3 voice synthesizer – good for sightless operators or eyes-free operation.

With original hand mike, manuals, and shipping carton.

Lightly used – under 50 hours per year on HF, VHF, and UHF; and typically at 50W or less.

With USB control cable (free software available on the internet).

Asking \$1150/BRO

Contact Eric, K1NUN, at <[k1nun@netscape.net](mailto:k1nun@netscape.net)>, or leave a message at 508.659.6146.

### **BARC Growth**

It's a rare month when we fail to add or upgrade a few members. Periodically we publish their names so that you can give them a special welcome. There may also be some upgrades and long lost members who rejoin, so greet them, too.

Christophe Gerard	K1TOF
Harold Kramer	WJ1B

Please welcome new BARC members and congratulate the new upgrades. Make it a point to introduce yourself when you see them at a meeting. In addition, we would like to note here all upgrade and call sign changes. If you fit any of these categories, please promptly notify the Keeper of the Database, Bob Salow, WA1IDA, at: 508.650.9440 or email: <[wa1ida@arrl.net](mailto:wa1ida@arrl.net)>.

### **Volunteer Examiners Needed – Hank Buccigross, K1QK**

BARC is in need of more Volunteer Examiners (VEs) for our exam sessions. In some cases we have only the required 3 VEs for our sessions. If any unforeseen situation arises and a VE is not able to make a session we would be forced to cancel the test.

There are some BARC members who are qualified VEs that have not been participating in the testing. We urge these VEs to attend our test sessions. If you can spare one night a month please come to a session.

We can surely use additional VEs. The test procedure for qualification is simple. Materials are available from the ARRL and the examination is an open book test. Hams with General and Amateur Extra class licenses are eligible to become VEs. If you would like to become a VE and help with the testing please contact Hank, K1QK, or Jim, N1ICN.

**Repeater: 145.230 (-) CTCSS 88.5**

**Simplex: 147.420**

## ***The SPARC***

### **The Weather Channel to Begin Naming Winter Storms -- *The ARRL Letter, 4 October 2012***

Beginning this winter, The Weather Channel will begin naming what it calls "noteworthy winter storms." As The Weather Channel explained on its website, "[a] storm with a name is easier to follow, which will mean fewer surprises and more preparation. In addition to providing information about significant winter storms by referring to them by name, the name itself will make communication and information sharing in the constantly expanding world of social media much easier."

Unlike the National Hurricane Center (NHC) - which has named tropical storms and hurricanes since the 1940s - the National Weather Service (NWS) does not name winter storms. "One of the reasons this may be true is that there is no national center, such as the National Hurricane Center, to coordinate and communicate information on a multi-state scale to cover such big events," The Weather Channel's website said. "The National Centers for Environmental Prediction's Hydrologic Prediction Center does issue discussions and snowfall forecasts on a national scale, but it does not fill the same role as the NHC in naming storms. Historically, many major winter storms have been named during or after the event has occurred, such as 'The President's Day Storm' and 'Snowmageddon.' Yet, until now, there has been no organized naming system for these storms before they impact population centers." In Europe, forecasters have named winter storms since the 1950s, and many local television stations in the US name winter storms, as well.

According to The Weather Channel, a winter storm will be given a name only after a complete assessment of several variables, including snowfall, ice, wind and temperature, as well as taking into account the time of day (rush hour vs overnight) and the day of the week (weekday school and work travel vs weekends). The Weather Channel will name a storm no more than three days before its anticipated impact.

Below is the 2012-13 winter season list of names, along with some information about the origins of the names.

- **Athena:** The Greek goddess of wisdom, courage, inspirations, justice, mathematics and all things wonderful.
- **Brutus:** Roman Senator and best known assassin of Julius Caesar.
- **Caesar:** Title used by Roman and Byzantine emperors.
- **Draco:** The first legislator of Athens in Ancient Greece.
- **Euclid:** A mathematician in Ancient Greece, the father of geometry.
- **Freyr:** A Norse god associated with fair weather, among other things.
- **Gandolf:** A character in a 1896 fantasy novel in a pseudo-medieval countryside.
- **Helen:** In Greek mythology, Helen of Troy was the daughter of Zeus.
- **Iago:** Enemy of Othello in Shakespeare's play, Othello.
- **Jove:** The English name for Jupiter, the Roman god of light and sky.
- **Khan:** Mongolian conqueror and emperor of the Mongol empire.
- **Luna:** The divine embodiment of the moon in Roman mythology.
- **Magnus:** The Father of Europe, Charlemagne the Great, in Latin: Carolus Magnus.
- **Nemo:** A Greek boy's name meaning "from the valley," means "nobody" in Latin.
- **Orko:** The thunder god in Basque mythology.
- **Plato:** Greek philosopher and mathematician, who was named by his wrestling coach.
- **Q:** The Broadway Express subway line in New York City.
- **Rocky:** A single mountain in the Rockies.
- **Saturn:** Roman god of time, also the namesake of the planet Saturn in our solar system.
- **Triton:** In Greek mythology, the messenger of the deep sea, son of Poseidon.
- **Ukko:** In Finnish mythology, the god of the sky and weather.
- **Virgil:** One of ancient Rome's greatest poets.
- **Walda:** Name from Old German meaning "ruler."
- **Xerxes:** The fourth king of the Persian Achaemenid Empire, Xerxes the Great.
- **Yogi:** People who do yoga.
- **Zeus:** In Greek mythology, the supreme ruler of Mount Olympus and the gods who lived there.

## ***The SPARC***

### **BAA Half Marathon - Run and Done -- Bob Salow, WA1IDA**

The weather was chilly - just right for the runners, but some shivers for those of who had to stand around. OK, so we had to get out of bed in the dark, but it was smooth from there. The event was the tenth running of the BAA Half Marathon on a certified course on the famous "Emerald Necklace" - 98% in Boston and 2% in Brookline. On Sunday, 7 October, we deployed 16 hams, from White Stadium in Franklin Park to the Fenway and back. As requested, we supported medical and water stations, certain hazardous locations and administrative needs.

The Half Marathon is now an internationally recognized event in the running field. With recent success, the 7100 openings for this year were grabbed shortly after the announcement. When the BAA Half Marathon was over, we received the gratitude of not only the BAA staff and the medical team, but also the Boston and State Police, and the Boston Emergency Medical Service for our professional integration with them.

The Boston Athletic Association Half Marathon has now taken its place as a "Boston Tradition." Ham radio has established its community value at times like these. Here's who we were:

Dave	K2DPB	Steve	KC1SJ
Jim	KB1JKJ	Keith	N1KLK
Jimmy	KB1VWX	Alan	K1ALL
Ralph	N1LAH	Bob	WA1IDA
Eric	K1NUN	Rick	KB1LYJ
Christophe	K1TOF	Gary	N1ZCE
Bob	WA1SCH	Mike	NZ5H
Steve	KB1NMJ	Brett	AB1RL

### **Your Personal Ad Could Have Been Here**

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 the Editor, Joe Harris, at <n1qd@n1qd.org>.

### **I See the Future**

***Note that VE sessions are suspended in October, November, and December.***

**18 Oct BARC General Meeting**  
21 Oct MIT Flea (Cambridge)  
2 Nov HCRA Auction (Feeding Hills)  
3 Nov FARA Flea (Bourne)  
3 Nov IRS Flea (Londonderry, NH)  
**15 Nov BARC General Meeting**  
**1 Dec SKYWARN Recognition Day (Blue Hill Observatory, Milton)**  
**6 Dec BARC Business Meeting**  
**12 Dec BARC Holiday Party**  
16 Feb AARC Flea (Marlborough)

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.

# The SPARC



## 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 x 2 in. (business card)	\$15 per issue
1 col x 2 in. (business card)	\$75 per 6 consecutive months
1 col x 2 in. (business card)	\$125 per 12 consecutive months
1 col x 4 in. (1/2 column)	\$30 per issue
1 col x 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 Joe Harris, N1QD, at 781.844.8684 or <n1qd@n1qd.org>; or Bob Salow at <wa1ida@arrl.net> or 508.650.9440.

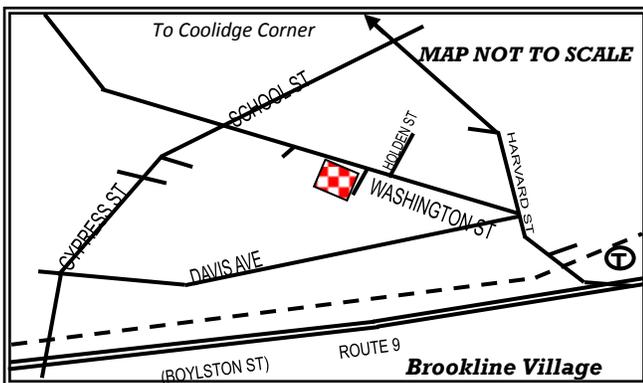
## Quarterly Business Meetings -- Bob Salow, WA1IDA

We have Business meetings quarterly. Unless circumstances warrant, BARC Business meetings will be held on the first Thursdays of December, March, June, and September. The next such meeting will be on **6 December 2012** at the Brookline Police Headquarters. All members are urged to attend and participate in club affairs. This is where club functions are discussed and decided, and your help is needed to guide us.

A short opening period of each General meeting will continue to be used to bring any immediate business matters to everyone's attention.

To provide continuity of club business between meetings we also have a virtual business meeting via an email list. Any member interested in the affairs of the club can ask to be on this virtual meeting list – just give your name, call and your email address to President Joe Chapman, NV1W.

## Directions to the Brookline Police Headquarters, 350 Washington Street, Brookline MA



The Clay Center Observatory  
Welcomes BARC members

[www.claycenter.org](http://www.claycenter.org)

Public Astronomy Nights, Astronomy Day Events,  
Amateur Radio Classes, Amateur Radio Youth Club,  
Community and Adult Education, Weather Festival,  
Science Lecture Series, Educational Outreach

20 Newton St., Brookline, near Larz Anderson Park

## BARC Volunteer Exam Sessions

The Boston Amateur Radio Club VE session schedule is being revised to suit the needs and interests of the applicants and examiners. **The next exam session is planned for January 2013 at a date and place to be announced.** Generally, sessions are held at 7:00 pm at Brookline Police Headquarters, 350 Washington St in the Community Room across from information desk. A map is shown above.

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
- Any CSEs you are claiming, and a photocopy of them
- Valid ID (picture ID preferred)
- 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>

Linda Blair, NA1I, <na1i@arrl.net>



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## Got a Story? Why Not Share It? -- Joe Harris, N1QD

We are always looking for articles for the newsletter. I have reserved this space for your articles, tips, how-to's, or other ham related information. Send your submissions to the Editor, Joe, N1QD, at <n1qd@n1qd.org>.

Articles for the November issue must be received by November 3.

## ARRL Will Be 100 in 2014; National Convention To Be In Hartford

ARRL, the National Association for Amateur Radio<sup>®</sup>, announced the organization will hold its national Centennial Convention in Hartford, CT, on **17-20 July 2014**. The Convention will mark 100 years of the ARRL's founding in Hartford. The theme for ARRL's Centennial year is "Advancing the Art and Science of Radio - Since 1914."

More information on this exciting event will be published as it is released. Save the date and plan to be there.

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### BARC Officers and Staff

President: Joe Chapman, NV1W  
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**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 Special Service Club, and is a member of the Council of Eastern Massachusetts Amateur Radio Clubs (CEMARC) and 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 5:30 pm	Eastern Mass/Rhode Island Phone Net (NTS)	3.915
Daily 7 and 10 pm	Eastern Mass/Rhode Island CW Net (NTS)	3.658
Daily 8 pm	Eastern Mass 2M Traffic Net (NTS)	145.230 (PL 88.5)
Daily 8 pm	Slow Speed CW Net	28.160
Daily 10:00 pm	Heavy Hitters Traffic Net (NTS)	MMRA-linked repeaters: 146.610, 146.670, 146.715, 146.820, and all 222 and 440 repeaters
First Mon 8:30 pm	EMA Section ARES Net	146.610 and all MMRA links
Mon 9 pm	BARC Club Net	145.230 (PL 88.5)
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	HHTN Swap Net	146.640
Thu 8:30 pm	AMSAT Net	146.640
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 Newsline)	145.470