

The

# Modulator

Newsletter of the Newport County Radio Club, October 2015

## HF Operating

Fall is the time for antenna fixing to take advantage of winter high frequency operating. With the decrease in atmospheric noise and early evenings, winter is a great time to try your hand at DX, CW, contesting, and good old rag-chewing.

If you are a VHF operator, consider joining the fun and challenge by rigging a simple dipole. There are many how-to sources in addition to many club members who would be happy to lend a helping hand. QST magazine and the Internet are full of operating announcements. For example, entering a search for slow-speed CW nets will give you several regular nets as well as individual operators who would be willing to work with you at your speed.

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## October Meeting

Please note that Columbus Day falls on our usual meeting day. Therefore the October meeting will be on Tuesday, October 13<sup>th</sup> at KVH.

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## December Christmas Party

As is our usual custom, our Christmas Party will substitute for the December 14th meeting. More details to follow about this good time and good food.

## The Kennelly–Heaviside Layer

### Stepping Back in Time

Imagine the strategic military theater at the turn of the Twentieth Century—no radio, radar, sonar, and moving war matériel was done with animals. Critical messages were sent by carrier pigeons and naval battles often depended on who saw whom first.

### Mr. Marconi's box

Then along comes wireless messaging. Considered against this imagined military backdrop, it is hardly surprising that private use of radio was nearly outlawed forever. But something curious happened: the Radio Act of 1912 was passed restricting amateurs to wavelengths "200 meters and down." (Note that this refers to wavelengths *no longer* than 200 meters. The odd nomenclature explains why our 160 meter band is called "Top Band.")

Amateurs were not being given a gift because at that time these "short waves" were considered unsuited for reliable communication and therefore worthless.

### Kennelly–Heaviside Layer

Radio amateurs are generally credited with proving that these short waves are far from worthless. It wasn't long before round the world communication was demonstrated at these wave-

lengths. But less well appreciated is the contribution of Arthur E. Kennelly and Oliver Heaviside. American Kennelly and Englishman Heaviside predicted the existence of what we now call the E-Layer of the ionosphere in 1902. The Heaviside Layer was later confirmed in 1924.

Note that the Radio Act of 1912 is bracketed by the dates of prediction and confirmation. It was amateur radio activity that provided the preliminary data for that confirmation!

### The Ionosphere

This radio reflective layer exists because of two elements, the atmosphere and solar radiation. Solar radiation, light and other forms, causes molecules of atmospheric gas to become charged—ionized. High temperature also causes ionization. These charges are the key to our high frequency (HF) radio wave behavior.

### Going Further

Would you expect HF communication on the Moon? Why does a space craft lose communication on entering our atmosphere? Why are VHF radio waves reflected by a meteor's trail? Solar radiation is strongest at the top of the atmosphere, but that's not the strongest layer of the ionosphere—why?

## Membership Questionnaire

In the past few years Newport County Radio Club has experienced rapid growth and with this growth comes new responsibilities and opportunities. With this questionnaire your club leadership is reaching out to you for your guidance in planning our next few years.

Some of the questions may seem to be a bit blunt, but be assured that many hams have left Amateur Radio and of those, many have returned at a later date. There is no shame in admitting that your interests have shifted. Although not a requirement, we will be able to serve you better if you include your name.

The simplest way to respond is to cut and paste the questionnaire into a text editor, enter your responses, and send the document back as an attachment. Alternatively, you can print and mail your responses to the club PO box. If neither of these work for you, please contact one of our officers using the Membership Information on our web site:

[www.w1sye.org](http://www.w1sye.org)

E-mail  
[editor@w1sye.org](mailto:editor@w1sye.org)

Post Office Box  
Newport County Radio Club  
PO Box 3103  
Newport, Rhode Island  
02840

1. My radio interests are (check all that apply):
  - a. HF operating (cw, contesting, rag chewing and other HF activities).
  - b. VHF operating (repeaters, simplex, contesting and other VHF activities).
  - c. Building (antennas, transmitters/receivers, and other projects).
  - d. Public service (emergency communication, radio support for events, and other).
  - e. Associated with my work or another hobby.
  - f. I'm not particularly interested in radio at this time.
2. When my current membership expires, I will:
  - a. Definitely renew my membership.
  - b. Probably will renew my membership.
  - c. Probably will not renew my membership.
3. Regarding our monthly business meetings:
  - a. I attend some/most of the meetings.
  - b. I would like to attend more meetings, but I'm only able to attend a few.
  - c. I rarely/never attend meetings, but will be able to attend more in the future.
  - d. I rarely/never attend meetings and that's not likely to change.
4. Regarding the NCRC newsletter, the Modulator:
  - a. I read the Modulator and find some/most of the Modulator articles interesting.
  - b. I read the Modulator, but find that some/most of the articles are not of interest to me.
  - c. I receive the Modulator, but I usually don't read it.
5. Assuming that a club office or responsibility matched your available time and skills, would you:
  - a. Be willing to serve NCRC at this time.
  - b. Be willing to serve NCRC, but not at this time.
  - c. I am not available to serve NCRC.
6. In addition to our own internal needs, NCRC is being called upon to provide multiple radio-related services and training opportunities including school stations/clubs, Boy Scout merit radio experiences, and Technician training classes. Our current dues structure is inadequate for these activities. In addition to our standard membership dues, currently \$25 per year, would you be willing to contribute to an optional supporting membership structure?
  - a. Yes, assuming that it was optional and would include several amount options.
  - b. No.
7. I would like to learn Morse Code.
  - a. Yes.
  - b. No.
8. I would like to participate in a club transmitter (fox)hunt.
  - a. Yes.
  - b. No.
9. I would like to participate in another build night like the J-Pole antenna project.
  - a. Yes.
  - b. No.
  - c. If you have a build project that you would like to see, please describe below.
10. Please include any other comments that you would like your leadership to hear in the space below.