# tam Chatter



Amateur Radio only fail-safe system of communication



Volume 47 Issue 1

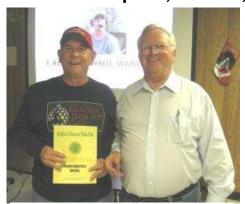
An Official BARC, W4AMC, Publication

January 2013

Email: barc@w4amc.com

Editor, Dave Langley, W4YDY

#### Richard Campbell, W4JNC, BARC Ham of the Year



Richard Campbell, W4JNC, receives BARC Ham of the Year award from Mike Langley, KD4MTT.



Brenda Bertrand, KJ4GDS, YL of the Year & Ted Bertrand, OM of the Year, KI4PWX, receive awards from Mike.

Club held its annual Christmas party on Chairmen; Tom Parsons, W4TEP, Club KD4MTT, Board Member and Thomas December 11 with families attending. A Station Trustee; Pat Williams, KG4NSC, Styron, KB7L, Board Member. great time was had by all. Mike Langley, Public Relations; Taylor Millar, W4WTM, KD4MTT, had a presentation with slides Publicity and Dave Langley, W4YDY, duced. They are - Richard Campbell, and some video in introducing the annual Ham Chatter and Web site Editor. awards winners. Even Herman Munster was calling CQ on his ham radio!



Josh Steele, KB4VKH, receives New Ham of the Year award from Master of Ceremonies, Mike, KD4MTT.



Mike Langley, KD4MTT, presents BARC Elmer of the Year award to Peter Van Houten, KG4WEZ.

The Brightleaf Amateur Radio Campbell, W4JNC, 2012 Field Day Co- KI4PWX,

to Thomas Styron, KB7L, and Richard Clayton, K4IDD, Tom McLaughlin, land, K4BMH, Board Member.

#### **Next Meeting January 8, 2013**

The Brightleaf Amateur Radio Club will have its next meeting on Tuesday, January 8 at 7:30 PM at VFW Post Home 7032 on 1108 Mumford Road in Greenville. Program TBA. All members, families and guests are invited to attend.

The next board meeting will be January 29 at 7:30 PM at VFW Post Home 7032 on 1108 Mumford Road in Greenville. All members invited.



KE4NOP, Terry Monday, K4ZYD, Dan Wallace, K4HMW and Byron Highland, K4BMH.

Certificates were presented to the 2012 officers, Richard Campbell, W4JNC, President; John McCoy, K4KBB, 1st VP; Terry Monday, 2nd VP, Brenda Bertrand, KJ4GDS, Secretary; Ted Bertrand, Treasurer; Mike Langley,

The officers for 2013 were intro-W4JNC, President; John McCoy, Certificates were also awarded to K4KBB, 1st VP; Terry Monday, 2nd VP; VE Liaison, Ted Bertrand, KI4PWX, Ted Bertrand, KI4PWX; Gerry Clayton, In addition to the those receiving Dave Langley, W4YDY, Thomas Styron, K4IDD, Treasurer; Thomas Styron, awards above, Mike handed out certificates KB7L, Richard Campbell, W4JNC, Gerry KB7L, Board Member and Byron High-

# **2013 Dues**

Membership dues for BARC are due January 1. Those who have not paid their dues will not be listed on the roster and will be removed from the Ham Chatter mailing list starting in April. Membership dues are the same as they were in 2012 and are as follows:

Regular Member \$20.00 Family Member \$2.00

Associate Member (Non-Licensed) \$5.00

Honorary Member \$0.00

New Hams: 18 and younger (1st year) \$5.00

New Hams: 19 and older (1st year) \$10.00

the member application form to: Brightleaf cian. Amateur Radio Club, P.O. Box 8387, KK4NOW, and Fred Zera, KK4NOX, Greenville, NC 27835. We are requesting Ernul, NC, passed the Technician exam. that you send the application form in so The FCC granted Robert and Fred their that we can have your correct information new call signs on December 28. Congratuon file. The form can be downloaded from lations to all for their accomplishment. http://www.w4amc.com/application.pdf. If anyone has any questions concerning their Liaison Ted Bertrand, KI4PWX, Richard membership status or their dues, please Campbell, email Gerry Clayton, K4IDD, BARC K4HMW, Byron Highland, K4BMH, Treasurer, at gclayton4 @ suddenlink. Tom McLaughlin, KE4NQP, Thomas Stynet (remove spaces in email address)

Thank you for your support and participation in BARC

#### December 18, 2012 BARC **VE Session Results**



applicants took and passed exams at the December BARC VE session. The Amateur Extra e x a m was passed b y

Four

Nikki Berry, KD7TKC, Greenville, and she upgraded from General. She upgraded to General 2 months ago at the October session. Joseph Swigert, N4JNC, Farm-Please mail your dues, along with ville, upgraded to General from Techni-Robert Clark.

> The VE's that attended were VE W4JNC. ron, KB7L, and Dave Langley, W4YDY.

> The next regular VE session is scheduled for February 19, 2013.

### **Next VE Session**

The next Brightleaf Amateur Radio Club VE session will be held Tuesday, **February 19** at the VFW Post Home 7032 on 1108 Mumford Road and will start promptly at 6:30 PM. Ted Bertrand, KI4PWX, 756-3734. bertrandf@ecu.edu. Please bring the following required:

- Photo ID (drivers license)
- Original Amateur Radio License
- Copy of Amateur Radio License
- **Original CSCE's**
- Copy of CSCE
- Test fee is \$15.00.
- Proof of Tech Plus if before 3/21/87 and doing paper upgrade to General.
- SS Number will be needed if you don't have an FRN number.

Go to <a href="mailto:com/">com/</a> barcinfo.html#VE> for more information.

#### **NC ARES Internet**

http://www.ncarrl.org/ares/ **Pitt County ARES** http://www.pittares.com/

BARC Christmas party and awards

2013 DUES ARE DUE JANUARY 1

In This Issue



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Thoughts and Prayers go out to the follow-

Brightleaf Amateur Radio Club members Charlie Wells, K4SKI

birthdays in <b>January</b> .			
2	KD4AFL	Mac Manning	
6	W4ESO	Frank Spencer	
9	WA4MGU	Bob Schwemley	
12	K4CRD	Richard Cox	
15	W4EHF	Bill Finch 101!!	
16	K4VBS	Ranny Chitwood	
26	KJ4RGO	Tim McGuire	

Please let me know of any additions or Please inform John McCoy, K4KBB, corrections. - W4YDY k4kbb @ earthlink.net of any changes.

Tom Parsons, W4TEP

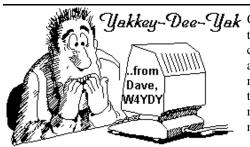
Hollis Thigpen, KC3X

Phyllis Nobles, wife of Bernie, WA4MOK

December VE Session Results 2 Next VE Session - October 16 2 Happy Birthday 2 Well Wishes 2 3 Yakkey-Dee-Yak from Dave An SDR receiver for under 30 bucks! 3 Ham Ads 5 Regular Meeting minutes 6 **Board Meeting minutes** 6 Amateur Radio Quiz 6 Nets

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A few weeks ago Josh, KB3VKH, sent an article for Ham Chatter that he wrote about an SDR receiver for a very low cost. I pasted it in this month's Ham Chatter because there was not room in the December Ham Chatter. A couple of weeks later, I received my January issue of

newsletters.

interest to BARC members that they would your club members and get to know them like to see, please don't hesitate to send better. It has always been a feature that them to me. At present the newsletter is has been well received. It was helpful to limited to 4 sheets or 8 pages due to post- me when I had an associate editor to help age costs. Long articles could be contin- with the interviews. I spend a lot of time ued to the next issue like the WITN article on the newsletter and w4amc.com so it that finished up in the December issue

**Uakkey-Dee-Uak** QST. On page 30 there is an article about that have not been featured in the Meet the the same receiver. If I had not almost Member column. One is planned for the completed the December when I got Josh's February issue but I would like to have article, we would have beat OST by a some more. I have asked at club meeting month! Josh's article starts below and con- for members to download the interview tinues on page 4. Maybe we will be seeing form but have had no volunteers. I guess I more great articles by Josh in future BARC will have to start asking again for interviews. If you have seen past issues of the If any members have an article of newsletters online, you can find out about would be helpful if I could get some more There are several of our members articles about members. - W4YDY

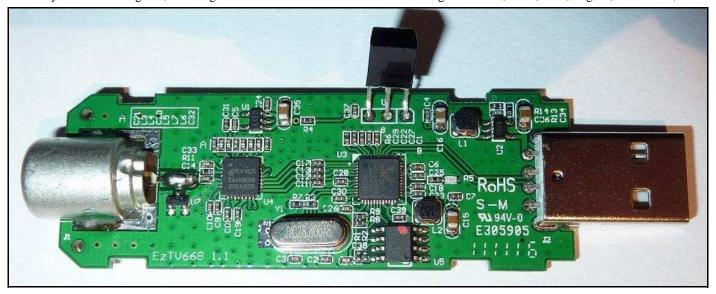
#### A SDR 6M to 2.2GHZ Receiver for Under \$30 Bucks - Josh Steele, KB3VKH

In recent years, Software-Defined Radio has been all the fuss in the amateur world. Software-Defined Radio, or SDR for short, is a method of taking all of the usual radio parts and producing them in software to be ran by a computer. This includes your mixers, modulators, amplifiers, detectors, demodulators, etc. that were once hardware in your transceiver. You still need some basic hardware though, such as an antenna and a way to connect the antenna to a computer system, but everything else is written as software on a computer where possible. The amateur radio community has persistently pushed the bounds of technology, and SDR is just a recent example.

Of course, sometimes this push will put you smack in the middle of some interesting places. To illustrate, let's take a look at some developments that have been taking place with SDR - and how you can benefit at home and start to experiment on your own.

The Realtek company, which produces many types of computer components and chips, produced a chipset for use in a USB TV Tuner adapter. This adapter plugs into any computer with a USB port, and allows the connection of coax from the local cable company to receive television stations on your computer, or with the use of an antenna, over-the-air digital stations. It's made for the home users, simply to watch TV on a computer. Of course, as inquisitive as we are, the amateur community decided to dissect this adapter to see what it was made of. What we found has sparked a listening revolution and an SDR breakthrough.

The amateur community discovered that the Realtek chipset, specifically called RTL2832U, used in the adapter is capable of receiving not just television signals from coax or an antenna, but all types of radio signals. Even better, the chipset allows us to receive essentially RAW radio signals, meaning we can use software to demodulate the signals to FM, USB, LSB, Digital, Television, etc.



A picture of the EZ-CAP USB TV Tuner utilizing the Realtek RTL2832U Chipset, removed from its case. Notice how small the adaptor is...on the right is a standard USB port like you will find on countless other devices. Tiny! (Continued on Page 4)

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#### A SDR 6M to 2.2GHZ Receiver for Under \$30 Bucks (Continued from Page 3)

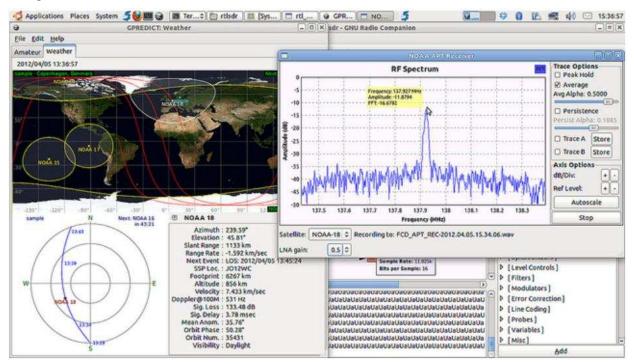
Realtek produces and licenses the RTL2832U chipset to many different companies, so finding a capable TV Tuner card is very easy...it's just a matter of ensuring that the adapter you bought does indeed have the right chipset. This is easily accomplished by doing some research before making your purchase. Once you have the right USB Adaptor, simply install some software on your computer – available for Linux/Unix, Windows, or Mac OS X – plug in your adapter to a free USB port on your computer, and connect the adaptor to the antenna of your choice. Of course, the better quality and placement of the antenna, the better quality of signals you will be able to receive...SDR can't defy the laws of physics.

But SDR can turn a bad or noisy signal into a brilliant spectacle. It can do this because of the near-infinite number of filters you can use in software in real time. Keep in mind; most modern transceivers have very limited filtering options. SDR on the other hand can use an infinite number of filters, combined in any manner, and even custom designed by you as you sit in front of your computer screen. What this translates into is your ability to find a small signal far below the noise floor, use pin point accuracy to filter out everything surrounding it, and hear that small signal in remarkable clarity. All with a few clicks of your mouse, and the experience is like building LEGO blocks...just keep adding and removing "blocks" or filters until things start sounding good.

So once you're up and running... adaptor plugged in, antenna connected, and software running, the sky is the limit. Find a nice SSB voice signal taking place on 6 Meters...or cruise up to 2M to listen to the BARC net on 147.09 FM, then round off the day by discovering the huge world of RF above 73CM that we amateurs typically neglect.

The frequency range of the chipset is dependent on which manufacturer produced the adaptor, but in general (when used outside of the intended specifications), some of the widest receive ranges are from 50 MHz to 2.2 GHz, with a gap from 1100 MHz - 1250 MHz (all adaptors will include this gap, regardless of manufacturer). Other adaptors start at 22 MHz and end around 1 GHz. It all depends on who manufactured your adaptor, which is easily determined by the brand name and by doing some research. According to the RTL-SDR project, the RTL2832U outputs 8-bit I/Q-samples, and the highest theoretically possible sample-rate is 3.2 MS/s, however, the highest sample-rate without lost samples that has been tested so far is 2.8 MS/s.

What could be better? Oh, I forgot to mention the price, which will be the most appealing aspect of this neat weekend project. An adaptor, with the Realtek RTL2832U chipset, will cost anywhere from \$20 to \$30 dollars, if ordered through an internet dealer. Typically, adaptors will come with a small antenna meant to be placed on your desk or nearby...of course you can use a better antenna solution if you so desire. The software is 100% free and open source, meaning you can download it, redistribute it, modify it, etc. to your heart's content. So total investment is about 30 bucks...probably the cheapest piece of amateur radio equipment you will ever purchase.



GNURadio and GPredict software utilizing the Realtek RTL2832U chipset to listen to a signal at 137.9 MHz.

More information can be found online at the RTL-SDR Project at http://sdr.osmocom.org/trac/wiki/rtl-sdr and I would like to encourage all BARC members to take a look at some of the amazing videos at of the Realtek 2832U in action. Simply search for "RTL 2832U" or "RTL-SDR" on www.youtube.com and enjoy listening! - Josh Steele, KB3VKH

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# Ham Ads

Ham Ads will be run, free of charge in Ham Chatter for three months for each renewal. Ads must be received by the last week of the month to be included in the following issue. Send ads to: Ham Chatter, PO Box 8387, Greenville, NC 27835, ATTN: Dave Langley or email to: barc @ w4amc.com (no spaces) NOTE: Commercial rates on page 7.

**For Sale:** Kenwood TS-850 transceiver with: CW filters, mike, power cords, manual and original box: \$800.00. Kenwood SP-520 speaker: \$30.00. Kenwood MC-50 desk mike (with connector cable): \$60.00.

Murray, K4MHM: mmmm0320@gmail.com

# HAM ADS work! And non-commercial ads are FREE!



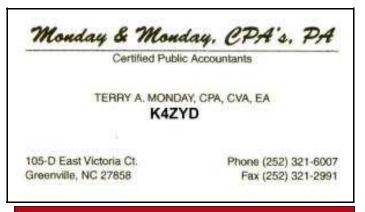


2400 S Memorial Dr Greenville, NC 27834 Tel 252.756.1209 Fax 252.756.6378 patrick.williams@tax.hrblock.com www.hrblock.com

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# BARC Meeting Minutes - December 2012



### 2011-2012 BARC Secretary Brenda Bertrand, KJ4GDS

There was no meeting in December. The Christmas party was held in its place. See the front page of this newsletter for the activities and awards.

# BARC Board Minutes - December 2012

No Board Meeting in December due to the Christmas holiday. Thanks to BARC Secretary Brenda for doing an outstanding job for the past 2 years.

# **Logbook of The World Web Page Now Features Daily and Hourly Status Updates**

The ARRL has created a new informational page to issue daily status updates and information of interest to the Logbook of The World (LoTW) user community. These updates will include planned downtime and changes that will impact LoTW operations. In addition, LoTW's processing queue is now updated hourly, telling how many logs and QSOs have been uploaded to the LoTW system and are awaiting processing. New hardware that will improve LoTW's throughput is on order and is expected to be running in six to eight weeks.

Rick Murphy, K1MU, and Dave Bernstein, AA6YQ, have been charged with rebooting the Trusted QSL open source project. If you have demonstrably strong C++ development skills that you're interested in applying toward improving LoTW's usability and efficiency, please contact Bernstein via email aa6yq(at)ambersoft(dot)com.

We appreciate the user community's patience while we while work to bring LoTW's performance to an acceptable level. - via ARRL.COM 12/11/2012

# New York City Ham Wins Appeal, Can Keep His Tower

In September 2010, Paul Isaacs, W2JGQ, of New York City, obtained a building permit for his Amateur Radio antenna support structure, comprised of a 40 foot tower topped by a Yagi antenna. Isaacs installed his antenna system on the roof of his four story brownstone -- 58 feet above ground -- in lower Manhattan.

Almost four months later -- months after the erection of the system -- the New York City Department of Buildings (DOB) declared its intention to revoke Isaacs' properly attained building permit, claiming that his Amateur Radio antenna system was not, in the Department's opinion, "an accessory use." Isaacs appealed the decision through the Department's bureaucracy, and when that didn't reverse the decision, he had a series of hearings before the New York City Board of Standards and Appeals.

In November 2012, the Board ruled that though perhaps uncommon, an Amateur Radio antenna system is indeed an accessory use under New York City's zoning ordinance and the building permit was properly granted. "The Board agrees with DCP [Department of City Planning] that the size of a use can be relevant to whether it is 'incidental to' and 'customarily found in connection with' a principal use," the Board wrote in its decision. "However, it finds that in the case of Amateur Radio towers, unlike cellular [towers] and certain other uses, there is no articulated standard to guide DOB in determining at what height a particular radio tower becomes a non-accessory."

The full decision may be found http://www.arrl.org/news/new-york-city-ham-wins-appeal-can-keep-his-tower under "Application of Paul K. Isaacs." Isaacs was represented by attorneys Fred Hopengarten, K1VR, Stuart Klein and Chris Slowik. - via ARRL.COM 12/19/2012

# Amateur Radio Quiz: Specs or Pepper? By H. Ward Silver, NOAX n0ax@arrl.net

Pondering a possible purchase puts the potential pocketbook provider in a pickle! Unless, that is, they are a savvy savant of specifications. This quiz will lead you through a jumbled jam of jargon to see how well you speak the language of the specification!

1) Which one of these units is used to describe a receiver's sensitivity?

a. decibelsb. microampsc. volts/meterd. microvolts

2) What does "TOI" stand for?

a. threshold of instabilityb. third-order intermodulationc. total overload immunityd. tested omnidirectional insub-

ordination

3) Which of the following is a method of specifying transmitter output power?

a. DTMF c. PEP b. IMD d. CCITT

(Continued on page 7)

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(Continued from page 6)

#### 4) What is measured by a two-tone test?

a. a transmitter's linearity b. power dissipation by a transceiver

c. cabinet finish quality d. phase noise in an oscillator

#### 5) An antenna's SWR bandwidth is the frequency range over which its...

a. SWR can be reduced to unity by an antenna tuner. b. feed point impedance equals 50 ohms.

c. SWR is less than 2:1.

d. SWR causes transmitter output

to be reduced by 1 dB or less.

#### 6) Which of the following is used to specify antenna gain?

b. dBW a. dBV c. dBd d. dBm 7) How is an antenna's wind load specified? a. in-lb b. square feet c. acre feet d. kg/m

#### 8) Insertion loss is used to measure the performance of what equipment?

a. dummy load b. audio recorders

c. low-pass filter d. high voltage power connectors

#### 9) Which parameter describes a preamp's contribution to received noise?

a, noise figure b. noise gain c. noise bandwidth d. shot noise

#### 10) Which of the following is another way of specifying SWR?

a. peaking factor b. return loss c. rise time d. standoff voltage

#### 11) Which of the following is a unit for specifying feed line loss?

b. characteristic impedance a. percent shield coverage

c. nepers d. dB/meter

#### 12) A receiver's blocking dynamic range (BDR) measures its ability to respond ◆ linearly in the presence of what type of signals?

b. off-mode a. image c. multi-path d. strong

#### 13) Which is used to evaluate a band-pass filter's ability to reject undesired signals?

a. Q c. pass-band ripple

b. notch depth d. ultimate attenuation

#### 14) How is a digital voltmeter's precision specified?

a. accuracy b. resolution c. input impedance d. jitter

#### 15) Duplexers use this parameter to show how well they prevent signals from coupling between bands:

a. insulation b. insurrection c. isolation d. deviation

## Bonus: What kind of a device could be characterized as having steep skirts?

#1) d -- Sensitivity is a measurement of a receiver's response to input signals, measured in microvolts #2) b #3) c -- Peak Envelope Power is a measurement of instantaneous power output at the peak of an SSB or AM signal. #4) a -- By inputting two closely spaced audio tones, distortion in NTS CW Nets the transmitter's amplifier stages can be observed as spurious output signals. #5) c #6) c -- The "d" after "dB" stands for "with respect to a dipole" -- gain must be specified with respect to some reference. #7) b -- At a given wind speed, a towers are rated for a maximum amount of antenna area. #8) c -- The loss encountered by a signal in the signals passband. #9) a -- Noise figure is a "figure of merit," measured in dB, that gauges the noise added by a circuit. #10) b -- Higher return loss indicates less signal is reflected by a load. #11) d -- Loss is frequency-dependent and must also be specified at a specific frequency. #12) d -- Excessively strong signals can cause a receiver's gain to drop, "blocking" other signals. #13) d -- This is the attenuation of the filter outside the filter's rolloff or transition region. #14) b -- But don't confuse precision with accuracy! #15) c -- High isolation is better.

Bonus Answer: A band-pass filter – "steep skirts" means the filter's attenuation increases very quickly outside the passband. - via ARRL.COM 12/06/2012

#### Commercial Ad Rates

1/8 page, Business Card Size \$10 per Month - \$100 per Year Send ads to: Ham Chatter. PO Box 8387, Greenville, NC 27835 ATTN: Dave Langley, W4YDY or email barc@w4amc.com Help support *Ham Chatter* and the club. **Donations accepted!** 

#### NETS

#### VHF

- ♦ BARC Net, Mondays, 2000 on 147.09 MHz, W4GDF Repeater.
- Pitt County Emergency Communications Net, Mondays, 2030 on 147.09 MHz. (131.8 Hz Tone)
- Kinston Amateur Radio Society Net. 1,3,4 Tuesdays, 2000 hrs. on 145.47 MHz., W4OIX repeater in Kinston.
- Eastern North Carolina Traffic Net, Every night, 2030 on 146.685 MHz.
- Wilson Amateur Radio Club Net, Thursdays @ 2000 on 146.76 MHz.
- Piedmont Coastal Traffic Net, Nightly 2030 on 146.88 MHz.
- Newport WFO SKYWARN Net, Tuesday, 2100 on 145.21 MHz
- Carteret County ARS (CCARS) Emergency Net, Tuesdays, 1930 on the Newport 145.45 (-) MHz.
- Coastal Emergency Linking Net, Wednesday, 2100 ET on Ahoskie 145.13, Buxton 145.15, Columbia 146.835 & 443.30, Elizabeth City 146.655, Greenville, 145.35, Hertford 147.33, Williamston 145.41 & 444.25

#### HF

Tar Heel Emergency Communications Net on 3923 kHz Nightly 1930.

- 3.571 2000 hours, slow speed (5-8 wpm) Carolinas Slow Net
- 3.573 1900 hours, high speed (20 wpm)
- 3.573 2200 hours, slow speed (12-14 wpm), South Carolina/North Carolina

#### **Pitt County Repeater Association**

http://www.pcra.us/

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## BARC CALENDAR OF EVENTS

Jan 5/6. ARRL RTTY Roundup Jan 8 . Regular Meeting Jan 25/27. CQ WW CW 160M Contest Jan 29 Board Meeting Feb 2 HAM CHATTER DEADLINE Feb 9/10. CQ WPX RTTY Contest Feb 12 Regular Meeting	Mar 16/18. BARTG HF RTTY Contest  Mar 26 Board Meeting  Mar 30 HAM CHATTER DEADLINE  Mar 30/31. CQ WW SSB WPX Contest  Apr 9. Regular Meeting  Apr 16. BARC VE Session – TUESDAY  Apr 30. Board Meeting
Feb 16/17 ARRL CW DX Contest	May 4 HAM CHATTER DEADLINE
Feb 19 BARC <b>VE</b> Session – <b>TUESDAY</b>	May 14 Regular Meeting
Feb 22/24 CQ WW SSB 160M Contest	May 28 Board Meeting
Feb 24 NC QSO Party	Jun 1 HAM CHATTER DEADLINE
Feb 26 Board Meeting	Jun 11 Regular Meeting
Mar 2 HAM CHATTER DEADLINE	Jun 18 BARC <b>VE</b> Session – <b>TUESDAY</b>
Mar 2/3 ARRL SSB DX Contest	
Mar 12 Regular Meeting	Regular Meeting - 2nd Tuesday @ 7:30 PM
S G	Board Meeting - Last Tuesday @ 7:30 PM

BARC 2 METER NET - MONDAY NIGHTS AT 8:00 PM - 147.09 W4GDF REPEATER - 131.8 Tone PCEC 2 METER NET - MONDAY NIGHTS AT 8:30 PM - 147.09 W4GDF REPEATER - 131.8 Tone BRIGHTLEAF AMATEUR RADIO CLUB STATIONS

### WIVOA - W4AMC - W4UHS



January 2013 Mext Meeting January 8

:oT



Brightleaf Amateur Radio Club PO Box 8387 Greenville, VC 27835

Ham Chatter