

New Bern Amateur Radio Club



foto by W2RLG & W2HVX

Volume 30, Issue 6, June, 2007



W4EWN/R

146.610/ 146.010 PL 100 Hz.
444.900 / 449.900 PL 100 Hz.

Website: <http://www.nbarc.org>

Next Meeting -- Thursday, June 7, 2007

6:30 PM at Famous Subs & Pizza, 2210 Neuse Blvd.

Program: Jamie, **KJ4JK**, will show & tell us all about the trip he and Susan took last year around the country.

FINANCIAL REPORT

MAY 01, 2007 --- MAY 31, 2007

CHECKING

Balance @ Apr. 30, 2007 \$ 2,101.99

Expenses:

05/03 D. Warwick \$ 645.02

05/07 SERA 20.00

05/07 Prog Nrg 22.70

05/19 Embarq 27.05

Total (\$ 714.77)

Subtotal \$ 1,387.22

Deposits

05/07 Membership \$ 120.00

Total \$ 120.00

Balance @ May 30, 2007 \$ 1,507.22

SAVINGS

Balance @ Apr. 30, 2007 \$ 2,792.33

Deposits

05/04 \$ 64.00

Balance @ May 31, 2007 \$ 2,856.33

GRAND TOTAL \$ 4,363.55

CR Gould, **K4VC**, Treasurer

NEUSE RIVER DAY "HEADS UP"

The following notice was sent last Saturday via e-mail to all who signed up for Neuse River Day. Some of the addresses I have used successfully did not match those in the club roster on the NBARC website, so I'm not sure that everyone received a copy. At the risk of overkill, our esteemed editor has graciously allowed the message to be repeated in this newsletter.

Following is a list of suggested assignment locations to prepare participants for their likely participation:

Net Controls: Bill, **K4VHO**; Ray, **W7OPH**

Shadow Pat Gully: Sonny, **W3ADD**

Land Fixed: Mac, **WA0ZGL**, Bill, **K2UFC**

Land Standbys: John, **KR4ZJ**, Bob **W2HVX**

Boats: Ralph, **N4RAB**, Pete, **KA4SXX**, Tony, **N4WAJ**,

Ed, **KI4EQH**, Dave, **K4DJW**, Charlie, **K4VC**, Ken,

K4KDM, Lloyd, **KC2KR**, Dick, **K4JJW** (Safety Boat

Coordinator)

Detailed locations and specific boats will be given to you at the early briefing (0715-0730) on **NRD, Saturday, June 2**. We will gather at the old stage at **Union Point Park**.

We will start again with land-based radios on 445.900 MHz. simplex and boat radios on the 146.610 repeater. We will use the usual 146.490 simplex frequency as an alternate. The repeater tone will be turned off to accommodate older radios.

Experience has proven that earphones and speaker mikes help, especially in the noisy boat environment. And, again, it's always good to have backup batteries for extended use.

If you have any questions or need to make changes, please contact me at 638-9299.

Thank you for your participation. It's good for the event, for ARES, and for ham radio.

73, Bob, **W2HVX**

Minutes of the meeting -

May 3, 2007

The regular meeting of the New Bern Amateur Radio Club was held on the above date and the meeting was called to order by President Mac Eutsler, **WA0ZGL**, at approximately 6:50pm. Introductions were made from the floor with forty present; roster is attached.

Doug Blizzard, **N4HAJ**, gave the nightly program on the Down East UHF repeater linking system. This Carolina 440 system provides coverage from Wilmington, up to Greenville, and as far West as Durham. More info on this system including a coverage map and frequency information can be found at www.carolina440.net. This system is open for all amateurs to use.



Dave Warwick, **K4DJW**, was selected as the custodian of the club's new LCD projector. It was also decided to let the projector be borrowed by club members to use without charge. The club wants to revisit the issue in six months to make sure this policy is working out.

Bob Chamberlain, **W2HVX**, passed around a sign-up sheet for the Woman's Shelter Walk/Run as well as Neuse

River Day. Both of these events will take place before the next meeting.

Al, **W8UT**, told the club to make sure that he has their correct e-mail address in order to make sure everyone gets their copy of the newsletter. He also had a list of items for sale from Tommy Phelps' estate.

Denton Dodd, **KF4KZD**, won the two meter radio door prize. The meeting was adjourned at 8:20pm.

Respectfully Submitted,
Robbie Rikard, **KG4MBQ**, Secretary

OUR FIRST SERVICE EVENT OF 2007

On May 12, the **Women's Shelter 5K Run/Walk** was back in action after a year off. Meant to be a fund raiser, about 75 participants registered to run and walk the course, starting and ending at Creekside Park in New Bern.

NBARC members were on hand at an early 0700 hours to get a mug shot, practice our comm skills, try to remember how our radios work, and check our batteries. Good thing we had back-ups because at least one of them was a bit tired from its winter sleep.



On hand were Pete, **KA4SXX**, Tony, **N4WAJ** (new call), Ken, **K4KDM**, Lloyd, **KC2KR**, Charlie, **K4VC**, and Bob, **W2HVX**, to do the honors. It's nice to see Lloyd back with us in these events after taking a few years off.

Ken rode shotgun (shot-radio?) aboard the SAG truck to keep us up to date on its activities and whereabouts. Pete, Tony, Lloyd and Charlie took up posts along the course to let us know back in the park how the lead runners and slow walkers were progressing. This information was especially helpful to the timers and data gatherers to ensure accuracy in awarding prizes. Even the **WITN-7 TV** weather truck was there to give us the wx condx. It was warm for running!

I'll include a photo (next page) of our John, **KR4ZJ**, who made the course on the run. He didn't think he would

carry a radio and add his puffing to our communications. Congrats to him; I couldn't do it!



John, **KR4ZJ**

With police available at key points, we had no emergency incidents for which assistance would be needed.

To do a little editorializing, it would be good to have a few new folks each year to participate in public service events. If you're newly licensed or just haven't participated in the past, I find these events to be both fun and useful. They help us to practice for ARES, help us keep our gear in shape, and provide assistance to the served group.

There's a lot of good to be gained, requiring not much effort. Since this newsletter will follow **Neuse River Day**, why not think **Field Day** and the **MS-150** in September! And sincere thanks to the "regulars" who show up every time!

73, Bob, **W2HVX**



Get to Know Folks

Next Month we will have some short biographical sketches of some of our newer members.

The ARES Angle

Three big events coming up in June: The opening of hurricane season, the Neuse River Days, and Field Day. If you have not checked your coax, your batteries, your generator, and all that stuff yet this year, please do so. While predictions can always be wrong, they are calling for another active hurricane season. They are right more often than wrong. Last year was an exception, but let's not count on it.

Neuse River Days will be here before our next meeting. It may be here before you get this newsletter. So, I will just say I hope we all had a great time!

Field Day: as always, the last full weekend of June. This year, it's June 23rd-June 24th. We have that great new club-owned shelter now, and it seems that the Park Dept has not yet torn down the old stage, so we may be there one more year. I will check it out this week and have more information at our club meeting in May.

Bruce, **N8UTY**
Craven County EC

Friday, May 04, 2007 9:17 AM

NC Antenna Bill Approved by House Committee!

Yesterday, the NC House Ways and Means Committee approved House Bill 1340, referring it to the full House. H1340 is essentially a North Carolina version of the FCC's rule PRB-1, which requires counties and cities to provide reasonable accommodation for Amateur Radio antenna. If the bill passes the full House, it will be sent to the state Senate to replace a current Senate bill, S404 - a more narrowly crafted bill covering only New Hanover County. While H1340 doesn't add anything not already covered by PRB-1, we think it's important that North Carolina join the 23 other states who have placed PRB-1 accommodations into state law. Local city councils, county commissions and zoning boards generally refer to state law when crafting zoning regulations, not FCC regulations. Former Wilmington Mayor, Ham Hicks, KB4HR, has been the prime mover behind the bill and he testified before the House committee yesterday. Ham told the committee: "This bill will help ensure that zoning laws will reasonably accommodate the installation of antennas so we can gain the useful communication so badly needed in times of emergency."

H1340 is sponsored by Rep. Daniel McComas (R-New Hanover) and Rep. Nelson Dollar (R-Wake).

ARRL North Carolina Section
Section Manager: Timothy B. Slay, N4IB
n4ib@arrrl.org

BALUN PART V POWER RATING OF BALUNS

W4ULD, 1-9-07

The power rating of a balun depends on many factors and cannot be readily calculated. Most baluns will fail from overheating and the limits on temperature rise for powdered iron and ferrites have been fairly well established. It is reported that the core of a balun will shatter when subjected to over power and thus over temperature. I have never had a core shatter but also I have never subjected a FT-240-61 core to more than 800W.

The only way I know to get accurate measurements of temperature rise is to place the balun in a calorimeter under various loads and powers. I don't know of any Hams with a fancy calorimeter.

Amidon Associates gives the following formula to calculate the flux in a core:

$$B_{\max} = \frac{E_{pk} \times 100}{4.44 \times A_e \times N \times F} \text{ Gauss}$$

E_{pk} = Applied RMS volts across winding

A_e = Crossection area of core, sq. cm.

N = Number of wire turns

F = Frequency, MHz.

Amidon also gives the allowable flux for the HF bands as seen in Figure 1. (next page)

The equation for the curve in Figure 1 is:

$$\text{Log} B = -0.48299 \text{Log} F + 2.17609$$

B = Flux in Gauss

F = Frequency, MHz.

The above information is great for designing chokes and conventional transformers where the entire voltage across the windings creates flux in the core. In the case of a well balanced balun the theoretical net voltage across the winding is zero so a small core will take a lot of power. We cannot depend on operating with perfect balance so what level of unbalance should we use for design. I have found that 1.5/1 is about right: that is, if the total voltage is say 1000 V, the voltage across the two halves of the load will be 400V and 600V with a net unbalance voltage across the winding of 200V.

As an example, The allowed flux at 7 MHz. is 57 Gauss. The FT-240-61 toroid core has a crossectional area of 1.57 sq. cm. The bifilar winding on the core is 9 turns. By rearranging the above equation we obtain the allowed *E_{pk}*.

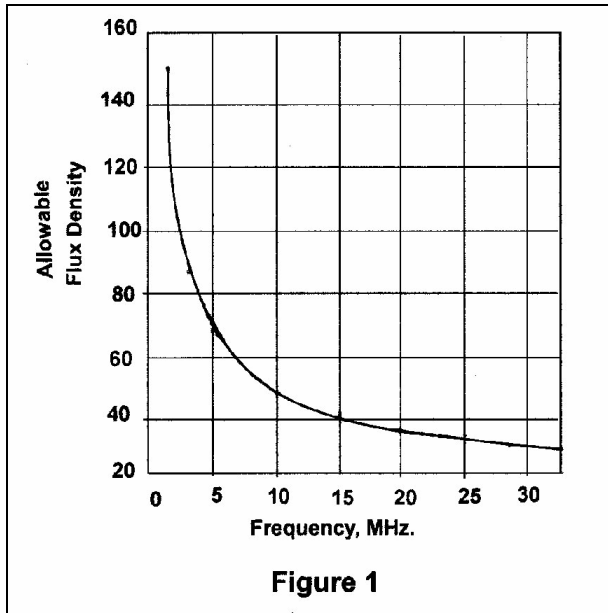
$$E_{pk} = \frac{57 \times 4.44 \times A_e \times N \times F}{100} = \frac{57 \times 4.44 \times 1.57 \times 9 \times 7}{100} = 248V \text{ allowed across the winding.}$$

This translates to a total of 1240V across the output terminals. Then for a 1000 ohm load (20:1 SWR is about maximum for most situations) the power is

$$P = \frac{E^2}{R} = \frac{1240^2}{1000} = 1538W$$

Two stacked FT-240 cores with 13T are used in the MFJ-986 tuner rated for 3000W SSB and 1500 W AM.

A 1:1 balun having six bifilar turns on a FT-140-43 core (1.4 in. OD) calculated out to be good for 181W into a 1000 ohm load. I evaluated this core with 100W for one minute into a 50 ohm load and about 300 ohm load at 3.9 MHz. and 7.2 MHz. With a 50 ohm load I could not detect any increase in temperature. With the 300 ohm load at 3.9 MHz. the balun warmed just enough to detect by hand. At 7.2 MHz. no increase in temperature could be detected. This is consistent with the allowable flux at the two frequencies. I concluded that the 181W rating was pretty close.



Be A LOWFER? or, how about “600 meters and up”

Your editor was recently chatting via email with a fellow concerning audio filtering with digital signal processing. He told me about his application, and it was something that I'd had some interest in for some time. I had listened on VLF, frequencies below the broadcast band, and “surfed” the Non Directional Beacons (NDB's) (from airports), that appear there. I knew there was some amateur experimental work going on on the low frequencies, but had never delved much deeper into things.

Here's what he sent me, there's more than just 500kc, but activity on 160 to 190kc and 135.7 to 137.8kc also.

Hi Al,

Go to <http://www.500kc.com/> and you will find out station, freq, and other info to find the guys on 600 meters. Rudy /20 in Oregon will be on starting at 0400z in regular CW on his assigned CW freq. Pat /6 is always on in QRSS-3 and some CW on his QRSS freq. Best to run with no AGC on that band and run the narrowest CW and audio filter you have. I found the DSP-40 helping tons last night. /12 was on 505.400kc in regular CW with a long dash at the end of his callsign. He ID's about every minute with some dead air between ID's.

My amp is just a day or two away from being done and I will be on nearly every night and many days. I have a transverter so will be floating around the band as needed to stir up some action.

The goal of this ARRL sponsored Part 5 license is to get us hams a 600 meter Amateur Band. There are others working on 2200 meters which is 135.7 to 137.8kc CW and QRSS and

some FSK digital modes. You probably have already heard of 1750 meters (160-190kc) where there are dozens of 1w input stations all over the lower 48 states and into Canada. There are a couple of us that have Part 5 licenses on that band too with plenty of power and antenna capabilities to be heard worldwide, although 1w will get regular CW easily out to 500 miles at night on that band with good antennas and 1w CW goes easily 200 miles during high noon.

The goal there is also having a Amateur Band down the road. The FCC tried to give us the band a few years ago but the powerline companies cried that we would cause interference. The FCC OET group then said we can apply for Part 5 licenses and the guys did and now many run up to 2500w output on 2200 meters and up to a kilowatt on 1750 meters. In fact one of our 600 meter guys Ralph Hartwell, ran a beacon on 166.5kc for a few years at the 400w output level and there were zero interference issues. Now we can take that to the FCC on the next try and that will prove to all government & private sectors that we do not interfere with anyone on any of the 3 bands. We should get what we want the next go around and have 3 new Amateur Bands (2200, 1750 & 600 meters).

I will be testing SSB on 1750 meters this year sometime with a kilowatt output...hi hi...should be fun. There is a guy in New England with SSB capabilities on 1750 that I will be testing with. I don't see an issue working that far away as that band supports signals very well with little noise issues.

Some will say holy crap the noise is crazy on 160 meters, how do you expect to hear anything down lower? The lower bands support a signal better than the higher freq bands with much slower fade cycles from 15-30 minutes on 600 meters to a few hours on 2200 meters. It doesn't take mad power to get anywhere on the MF or LF bands. Most are licensed for mad power and run whatever they need to, given the band conditions that day or night. 30w on 600 meters goes to Europe. 100w on 2200 meters goes to Europe. It takes a kilowatt to get to Australia or New Zealand on 2200 meters. Nobody has tried 1750 meters to Australia yet...

Keep in mind those NDB beacons are typically 25w output and you know how far they go. One thing on 1750 meter stations, go to <http://www.lwca.org/> and look for the Part 15 station info. Freq's and locations listed so you have something to look for. 185.3kc is a hot freq to watch as many go there to see themselves on the New England Grabber <http://www.w3eee.com/>

Also I should mention the 600 meter Grabbers <http://www.lower.us/grabber.htm> and http://ne-ohio-grabber.kn8azn.com/NE_Ohio_Grabber.html are good places to see the 600 meter guys showing up. So much to look at and not enough time usually.

73's
Mike
WE0H

Cast of Characters:

President: Mac Eutsler, WA0ZGL
Vice President: Pete Koonce, KA4SXX
Secretary: Robbie Rikard, KG4MBQ
Treasurer: Charlie Gould, K4VC
Communications: Bruce Arnold, N8UTY
Trustee: Billy Morton, KE4YMA
Assistant Treasurer: Ralph Bitely, N4RAB
Public Service/Photog: Bob Chamberlain, W2HVX
Emergency Communications: Bruce Arnold, N8UTY
Assistant Em. Comm.: Dave Warwick, K4DJW
Program Committee Chairman: Bill Lindquist, K2UFC

Selected Local Nets Times are local time, unless otherwise stated

Club Net Manager: position open
Craven County ARES: 146.61 MHz, 2000 before threatening
wx; monitor during ARES activations
NC ARES Net, 3.923 MHz, 19:30 daily
Waterway Radio Cruising Club: 7268 kHz, 0745 daily
Fairfield Harbor Cruising Net, 7224, 0730 M-F
NC Morning Net: 3926 kHz, 0745 daily
Carolina Slow Net (CW): 3571 kHz, 8PMET (5wpm) daily
Coastal Carolina Emergency Net: 3908 kHz, 1900 daily
Carolinas Net (CW): 3573 kHz, 1900 (25 WPM), 2200 (12-15
WPM) daily
Carteret County ARS/ARES: 145.45 mHz, 1930 Tues./ Emerg
Traffic handling 1st Tues. after 4th Sat., monthly Skywarn:
145.21 mHz, 2100 Tuesdays
Pamlico County ARES: 147.210 MHz, tone 151.4, 1930 Wed.
ENC Emergency: 146.685 mHz, 2100 Thursdays
ENC Traffic: 146.685 mHz, 2030 daily
NBARC Ragchew: 146.61 mHz, 2000 daily

New Bern Amateur Radio Club

<http://www.nbarc.org>

103 Outrigger Rd., New Bern, NC 28562

The Newsletter Team:

Al Parker, W8UT, Editor
Charlie Gould, K4VC, Data Base/Labels/P.O.mail
Bob Chamberlain, W2HVX, graphics & photography

The NBARC Newsletter is the newsletter of the New Bern Amateur Radio Club, Inc., 103 Outrigger Rd., New Bern, NC 28562. NBARC is an affiliated club with the ARRL and ARES.

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