

# New Bern Amateur Radio Club



foto by W2RLG & WA0ZGL

Volume 31, Issue 6, June, 2008



Logo tnx to Eve, XYL of W2HVX

**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 5, 2008

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

**Program:** speaker for the June meeting will be Mac, **WA0ZGL**. Mac will speak about the latest in digital techniques.

### FINANCIAL REPORT

MAY 01, 2008	MAY 31, 2008
<b>CHECKING</b>	
Balance @ Apr.30, 2008	\$ 1,707.16
<u>Expenses:</u>	
05/05 Trailer Tax	\$50.46
05/08 Prog Enrg	22.42
05/19 Embarq	<u>27.51</u>
Total	(\$100.39)
Subtotal	\$ 1,606.77
<u>Deposits:</u>	
05/06 Memshp	\$ <u>40.00</u>
Total	\$ 40.00
Subtotal	\$ 1,646.77
<b>SAVINGS</b>	
Balance @ Apr.30, 2008	\$ 3,074.29
05/04 Dr.Prz	21.59
05/01 Pd. Guest meal (\$8.41)	
Balance @ May.31, 2008	\$ 3,095.88
<b>GRAND TOTAL</b>	<b>\$ 4,742.65</b>

Charlie, **K4VC**

### Minutes of Meeting

1 MAY 2008

The regular monthly meeting of the New Bern Amateur Radio Club was held on the above date and the meeting was called to order by president Dave Warwick, **K4DJW**, at 6:30pm. Introductions were made from the floor and there were thirty-one present; roster attached. The meeting notes and the financial report were accepted as submitted.

Bill Sanford, **K4VHO**, spoke on skywarn, mentioning that a new EOC has been set up at Newport. Mark Rappaport, **W2EAG**, mentioned that Field Day was just around the corner (June 28-29). Mark also discussed the antenna situation and it was decided that new antennas would be made up for the event. A sign-up sheet was sent around for more participants of field day which will be held at the JC's pavilion, Glenburnie Park, off Oaks Road. Jim Wright, **KS40**, Emergency Coordinator for the club,

gave an update on the communication trailer, which will be available for field day.

With all the business transacted, the speaker was introduced by Dave Sousa, **K2CQV**. Tom McGraw was the speaker and the topic was the New Bern Tercentennial, which will be held in 2010. He outlined all the activities that are scheduled for the year and gave a history of the history of New Bern. The main point was that his committee was interested in creating permanent infrastructure that would enhance the local culture and improvements around many areas of the water front that could be enjoyed by locals as well as tourists.

Billie Morton won the door prize, which was picked up by Mac Eutsler, **WA0ZGL**, since Billie had to leave early.

Respectfully submitted:

Ray Hemphill, **W7OPH**, Secretary

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## PRESIDENT'S CORNER

I hope everyone had a great Memorial Day! I do not like to travel on holidays so we stayed home, did some yard work, and grilled out. The weather was beautiful. Of course, Memorial Day is to remind us to appreciate our men and women who have served, and who are currently serving, in the military protecting our county and the freedoms that we enjoy in this country. I think one reason why people who want to do harm to the United States is because they have never had the freedoms that we sometimes take for granted, and therefore, just do not understand how this country works with so many cultures and religions within one border. That compiled with negative propaganda from their own country can create a volatile situation. Anyway, thanks, to everyone who has, and to those who are currently protecting our country.

I would like to encourage everyone to at least monitor the New Bern Repeater. Many times especially during the day I would put my call out and no one returns. I thought that if this was my only means of calling for help, I would be in trouble because no one is listening. Many people are at work and cannot have a radio on, but if you are home, or in your car, turn your radio on. I have an old radio I set up in my shop, which is about 100 feet away from the house, so when I am out there working I can monitor the repeater. Of course, if you have an HT, you can carry that with you. Once it is realized that more people are monitoring the repeater, I think more people will put their call out and expect a return.

As a reminder, the Club's Emergency Communication Trailer is at Jim Wrights (**N4SU**) house in River Bend. Please drop by and take a look. All ideas are welcome.

Thanks for supporting the club and amateur radio.

73, Dave, **K4DJW**

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## HAMFESTS

### June 14 Winston-Salem Classic Hamfest

Dixie Classic Fairgrounds [421 West 27th Street](#)  
<http://www.w4nc.org> email [hamfest08@w4nc.org](mailto:hamfest08@w4nc.org)

July 12 Salisbury details in next newsletter

July 19 Cary details in next newsletter

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## SPECIAL EVENTS

**May 31 Neuse River Day** it'll be done by the time you get this newsletter. Pictures next month?

**Jun 6-Jun 8, 1600Z-2200Z**, Linthicum, MD. Historical Electronics Museum Amateur Radio Club, W2W. D-Day Commemoration. 14.244 14.044 7.244 7.044. Certificate. W2W-HEMARC, Box 1693 MS 4015, Baltimore, MD 21203. [w3hem@arri.net](mailto:w3hem@arri.net)

**Jun 7, 1400Z-2000Z**, Asheboro, NC. Randolph Amateur Radio Club, NC4ZO. NC Aviation Museum Fly-In and War Bird Display. 21.350 14.260 7.250. Certificate. Butch Simpson, WS4H, 6747 King Mountain Rd, Asheboro, NC 27205.

**Jun 28 – 29 FIELD DAY** it's rumored that the club will have one this year. Details at the June meeting.

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## Swap Shop

### For Sale:

MFJ-616 Speech Intelligibility Enhancer.

Used less than 10 hours. \$50.

Contact John, **KR4ZJ** at [jajask@suddenlink.net](mailto:jajask@suddenlink.net)

**WANTED:** Will buy tubes & parts for use in getting & keeping tube eqpt going. Will help anyone who wants to get tube type equipment working and on the air (I work free, or for junk).

Al, **W8UT** [anchor@ec.rr.com](mailto:anchor@ec.rr.com) or 636-0837  
<http://www.boatanchors.org/>

## BALUN XIV

### EVALUATION OF 1:1 BALUN ON FT-240-43 TOROID WITH AIM ANALYZER

W4ULD 7-27-07

In BALUN XIII I reported excellent wide range balance for a 1:1 voltage balun consisting of 8 bifilar turns on a FT-240-43 core. Since that time I have been using this balun on my 1/3 WL all band dipole with good results.

I have recently purchased a new toy- an AIM4170 antenna analyzer. This device is described in the August 2007 issue of QST on page 68. QST reports that at least to 200 ohms load resistance the instrument approaches the accuracy of an expensive impedance bridge. At 1000 ohms load resistance the AIM fell apart. I have not yet compared the AIM to my manual General Radio bridge which is quite accurate but very time consuming to use since each load at a given frequency must be manually balanced using two controls. I will accept ARRL's assessment of accuracy.

The AIM is primarily a bench instrument since it depends upon a computer for readout. It can be fitted to a battery pack and a laptop computer for measurements away from the bench but is nowhere near as convenient as a MFJ-259, for example. The AIM provides a graph of  $R \pm jX$ , SWR, and several other interesting parameters vs. frequency for a user selected frequency range. It also correctly predicts the mathematical sign of reactance (X) and the phase angle. This is one area where the popular hand held instruments fall down. Thus the AIM is very useful for evaluating the input impedance of baluns over the HF range at various load resistances as well as measuring the input SWR and impedance of an antenna.. Of course the AIM cannot detect the balance provided by a balun so its readout is the effect of the transmission line wound on the balun core.

I have found that most 1:1 baluns wound with #16 or #14 bifilar windings on any toroid core will show a characteristic impedance ( $Z_0$ ) in the range of 60 to 100 ohms. Thus any load less than the  $Z_0$  will be correct at low frequency but will increase in  $Z \pm jX$  as the frequency is increased. The AIM4170 graphs this very well.

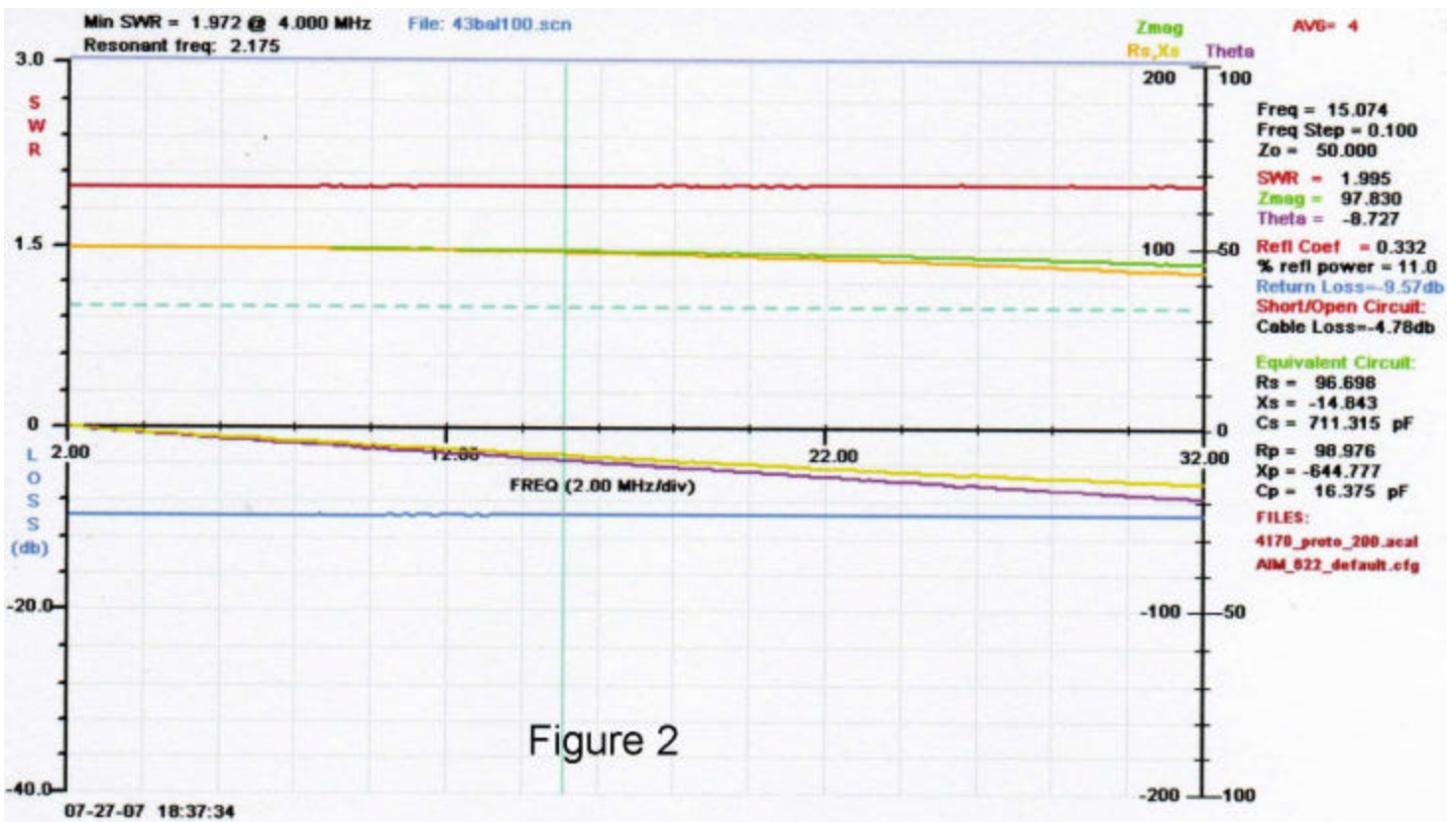
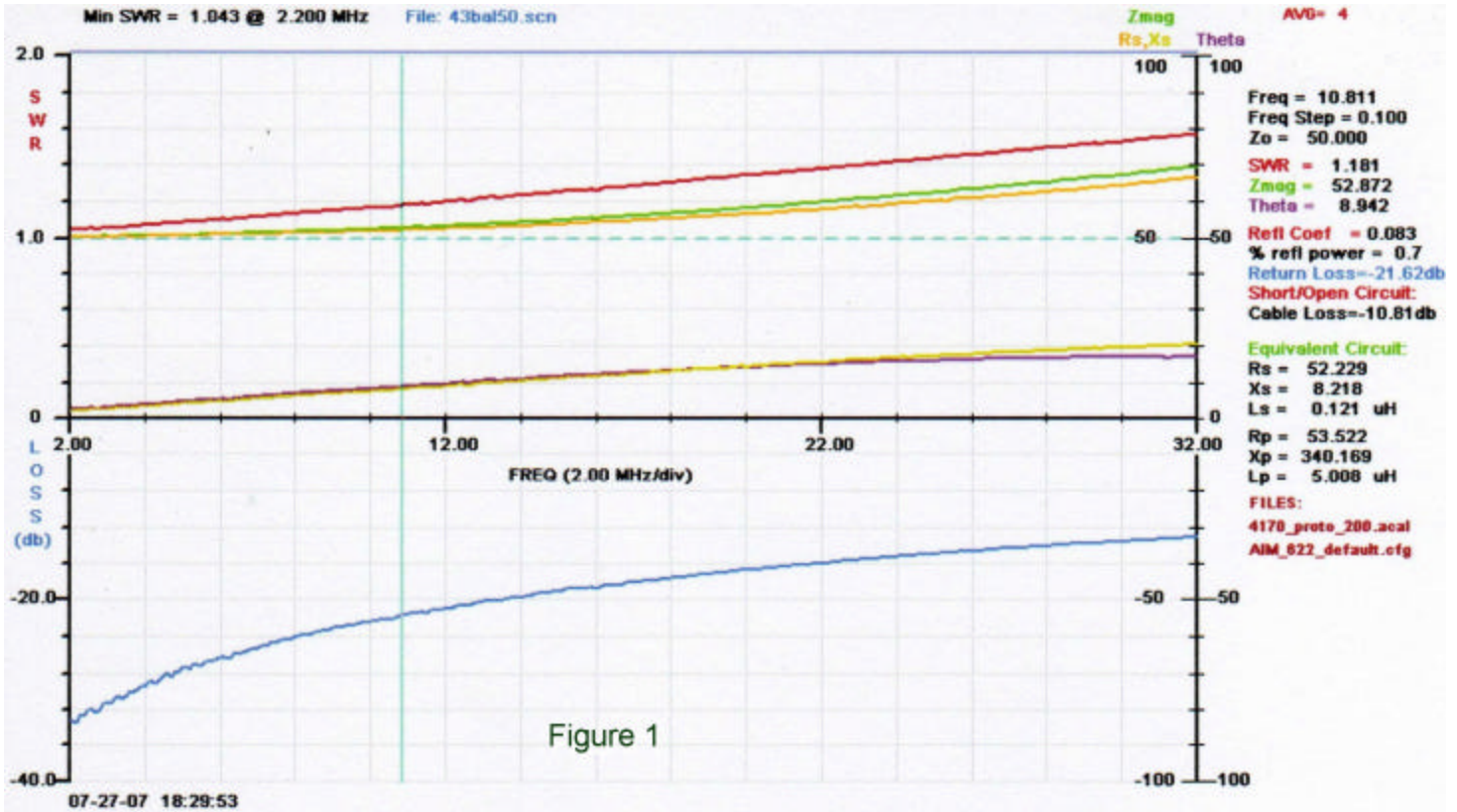
The lesson is that the balance afforded by a balun depends on the amount of ferrite in the core and its permeability, but the input impedance is a function of the characteristic impedance of the bifilar winding on the core. I don't know of any 1:1 baluns that have a  $Z_0$  of exactly 50 ohms. Exactly 50 ohms is hard to obtain with a bifilar winding because it is difficult to maintain close contact between the wires of the winding. Jerry Sevick<sup>1</sup> reports that a bifilar winding of #14 wire should have a  $Z_0$  of about 25 ohms. I find this very difficult to achieve.

In Figures 1 and 2 I have shown an AIM printout for the 1:1 balun on the FT-240-43 core from 2 to 32 MHz. The  $Z_0$  of the winding is also between 60 and 100 ohms. In the figures the red line is SWR as read from the left hand axis. The top yellow line is resistance (R) and the second dirty yellow line is reactance both referred to the right hand axis. In Figure 1 the load is 50 ohms. Both the R and the X increase with frequency because the  $Z_0$  of the winding is greater than 50 ohms. Note that the SWR (red line) is almost 1.6:1 at 30 MHz. but still within the range of most rigs without an antenna tuner.

Figure 2 shows a scan for a 100 ohm load. Since the  $Z_0$  of the bifilar line is less than 100 ohms the trace for resistance (yellow line) decreases with frequency.

This concludes my series of articles on baluns. I hope the readers have learned a little. If you have any questions direct them to my email address [agriffith003@ec.rr.com](mailto:agriffith003@ec.rr.com).

Notes: 1 - "Transmission Line Transformers", Jerry Sevick, 1987, pg. 3-2



Cast of Characters:

President: Dave Warwick, K4DJW  
Vice President: Pete Koonce, KA4SXX  
Secretary: Ray Hemphill, W7OPH  
Treasurer: Charlie Gould, K4VC  
Public Svc/Special Events: Bruce Arnold, N8UTY  
Trustee: Billy Morton, KE4YMA  
Photography: Mac Eutsler, WA0ZGL  
Emergency Communications: Jim Wright, KS4O  
Assistant Em. Comm.: Dave Warwick, K4DJW  
Program Committee Chairman: Bill Lindquist, K2UFC

The Newsletter Team:

Al Parker, W8UT, Editor  
Charlie Gould, K4VC, Data Base/Labels/P.O.mail  
Bob Chamberlain, W2HVX, & Eve, graphics & photography  
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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): 3.571 kHz, at 8PM ET (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

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103 Outrigger Rd., New Bern, NC 28562