

New Bern Amateur Radio Club



foto by W2RLG & W2HVX

Volume 33, Issue 3, March, 2010



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, Mar. 4, 2010

6:20 PM at The Courtyards at Berne Village, 2701 Amhurst Blvd.

Program: unknown at deadline time

Treasurer's report for February 2010

We deposited \$336 in the savings account and \$138 in the checking account. Most of that is dues, but the auction netted \$317 for the club, from some very generous hams. The door prize last month was \$39. Expenses were \$37 to ARRL for membership renewal (KI4EQH) and \$51.71 to Progress Energy. Total account balances as of Feb 23: Savings \$2,798.73....Checking \$1,037.13.

Almost all the membership has renewed....

Thanks.....Ray Hemphill, **W7OPH**, treas.

Meeting Dinner Menu

Cup of Chef's Choice soup, , pork with rice, Chef's Choice veggie, Chef's Choice dessert, Coffee and Tea service, second meat alternative available for 5-8 ppl. \$7.00 per person all incl.

Field Day is coming

W2EAG will bring up Field Day proceedings. A sign up sheet will be passed around, and discussion of committees will be formed. Everyone interested should put the last weekend of June on their calendar NOW.
73 to all.

Mark, **W2EAG**

The President's Corner

The March 4, 2010 meeting will be at our new meeting place, the Bern Village Courtyard Dining Room, located on Amhurst Road, which is off Glenburnie Road. The Club Auction was a success! Thanks to Ed Valentine (W2YPM), Mac Eutsler (WA0ZGL), Bill Ash (N2GAH), Greg Mijal (WA7LYO) and all others who helped plan and carry out the auction. A lot of good stuff was sold and bought. We made over \$300 for the club. Thanks guys!

The other day I was monitoring 20 meters and about 1500 EST I heard an amateur radio news

broadcast on 14.275. I am not sure if it was a bootleg or legal station. Has anyone else heard this station?

Looking forward to seeing everyone Thursday.

73's Dave, **K4DJW**

Meeting Minutes

2 February 2010

The regular monthly meeting of the New Bern Amateur Radio Club was held this date and the meeting was called to order at 7:25 by Vice President Ed Valentine, **W2YPM**. There were 37 names on the roster, one of which is attached to these minutes.

Introductions were made from the floor Jim Wright, **KS40**, introduced guest Chris Brown and we hope he will join our club and be an active member.

A discussion was held on the upcoming club auction of 6 February 2010. Bring your items and bring your cash for a great time.

Ed, **W2YPM**, gave the results of the 2 meter "Sprint" contest held in January. 2 meter QRM is not a regular occurrence and just goes to show how many participants enjoyed the contest. We covered an area of about 30 miles during the contest and the following awards were presented. First place handheld went to Dick Boyack, **WA2LUQ**, fixed station Honorable mention was Jim Wright, **KS40**, second place was Bob Melle, **KJ4HJH**, and first place was taken by our own Al Parker, **W8UT**. Hopefully another contest is just around the corner. A special thanks goes out to Ed, **W2YPM**, for his hard work on the contest.

Bill Lindquist, **K2UFC**, gave a presentation on his Ten-Tec Argonaut 516. Bill really likes the radio and the DSP which he added really cuts out the noise. If you want to see this great little rig in action, you need to see him making contacts and adding up the points at Field Day. Many of us have personally seen him with this radio and the hours he put in during our last Field day. Thanks Bill.

Motion to adjourn at 8:20

Robert Melle, **KJ4HJH**, Secretary

A Successful VE Session

On Saturday, Feb. 20, we had a very successful VE session. It was the most candidates that we'd had for some time, a total of 5. We created one new Technician, upgraded two from Tech to General, and upgraded one from Advanced to Extra. Several of the guys tried taking the next highest test when they passed the one they came for, and although none succeeded, they felt like it was worth their time to have tried and seen what it was like.

All of our VE team were pleased with the turn-out and the fantastic results Examiners this month included: Tom Hill, **KJ4IV**, Tommy Banks, **KI4MFF**, Tom Houck, **KV4CQ**, Ben Epting, **NC3Z**, and yours truly. A special welcome to Ben on his return to active involvement with NBARC!

Special thanks to Ken McCain, **K4KDM**, for opening the church up for us and making coffee. Ken has the VE Workbook and hopefully will be certified as a VE before long.

73,
Bruce Arnold, **N8UTY**

For Sale:

Butternut HV 6 vertical antenna, multi-band HF, 80 - 10m. One year old. Looks new. No rust, bends or missing parts. Includes 160m add on coil kit (never installed), instruction sheets for all. \$200 firm, or trade. Pick up in Kinston. Greg, **WA7LYO**, (252)523-1690, or email at: bluebirdtele@embarqmail.com

Hamfests

Mar. 13-14: **Charlotte Hamfest**, Concord

April 3: **Raleigh Hamfest**, NC State Convention

HOW FAR CAN I TALK?

By Sid Purvis - WA4VBC

A question most of us have asked from time to time in connection with our FM VHF or UHF radio is; how far can I talk? Following are some talking points on that subject and I am sure it will be a review for most members. Keep in mind the comments apply only to VHF or UHF operation, FM mainly, do not include the many variables that may be encountered, and apply to systems designed for local coverage under ordinary atmospheric conditions. Today, we have many very accurate computer programs that can be used to make range calculations, however, they can be cumbersome to use and if you want real accurate results getting a professional to run a range projection can be costly. To get accurate results from a computerized program will require the location by latitude and longitude, TX power, RX sensitivity, system gains and losses (coax, connector, jumper, and filter losses), antenna gain and directivity and if side mounted, the mounting specifics. Longley-Rice is a popular and often used program for range calculations. This sophisticated program requires additional input factors like: surface refractivity, dielectric constant of the ground, soil conductivity, and the climate zone to determine the path loss. You also get to pick the coverage % confidence level and the % of time coverage is expected to be available. The results can be given in several formats with dB per micro volts meter being a popular one. Very pretty maps with colored bands showing the signal strength levels can be produced. Computerized programs like Longley-Rice make calculating radio range a lot more accurate and can be a life-saver if doing micro-wave design. One of our members, Tommy Banks did a lot of RF design work and is familiar with this and I am sure Andy Griffith and others are also. Of course, for ham work this precision is not often, if ever, needed. Also, coverage is a lot easier to determine in our flat terrain than in the hill country.

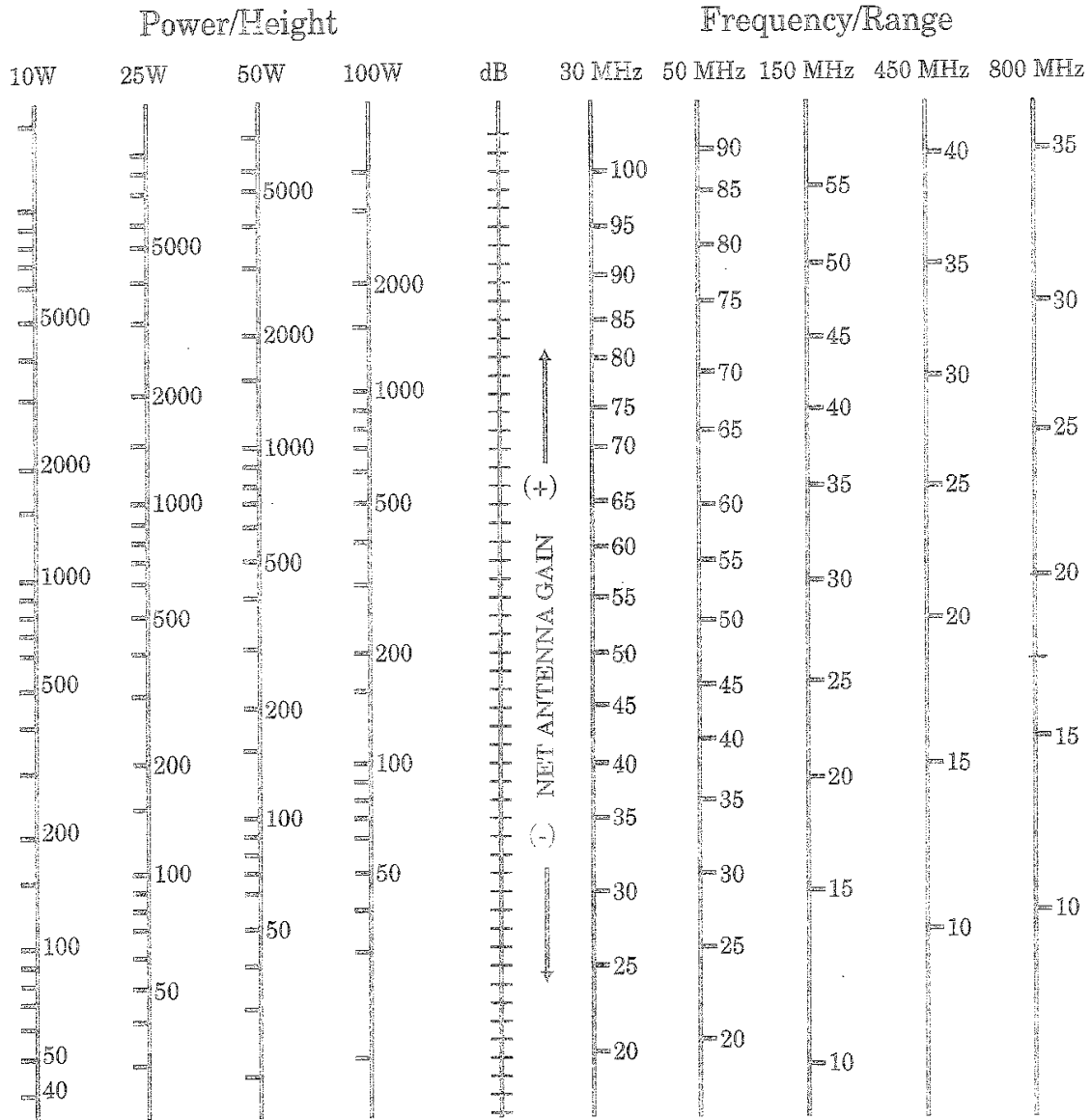
Over the years many different formulas and charts have been used to calculate range. One of the earliest charts I saw was one from the Bell System back in the late 50s/early 60s. These charts were used to project mobile coverage for the first version of mobile telephones that were basically modified VHF two-way radios. These charts were derived from calculations and field trials and were better than nothing. Over the years range estimation charts were improved and were good for rough estimations, but did not allow for terrain variations. One such chart is attached, on the next page.

Another way to estimate/calculate radio range is to use the formulas listed below. One interesting thing I ran across some years back in regard to the radio horizon is how (according to some) the 3 mile ocean limit came about. If you do a line of sight to the horizon from the ocean shore using the height of your eye, it comes out to be about 3 miles, by using the formula for line of sight that is; square root of the height divided by 0.5736. The calculation would be: square root of 6 ft/0.5736 = about 3 miles. So the 3 mile limit was set based on what could be seen from the shore. Maybe some of the boaters can verify that or be-bunk it. Keep in mind, if you do a line of sight to the horizon, that while VHF/UHF radio waves travel in straight lines they can be bent and reflected so the radio horizon is different from the line of sight horizon. ARRL and others estimate that the radio horizon will be 15% more than the line of sight. Hint-this is an extra class exam question.

One formula sometimes used for radio range in miles is: square root of antenna-1 height X 1.415; + square root of antenna-2 height X 1.415. A sample calculation for a base station at 30 feet to a mobile at 6 feet would be: square root of 30 X 1.415 + square root of 6 X 1.415 = 5.477 X 1.415 + 2.449 X 1.415 = 11.2 miles. This seems about right for flat terrain with a good transmitter and receiver, low loss coax, and a good antenna. Now Ed Valentine and his SSB friends will work many, many more miles than that, but the transmission path is not related to the radio horizon.

Another formula often seen is same as above except the factor used is 1.33 instead of 1.415. These calculations are theoretical and based on ideal conditions and using an average of the other variables. If we use the range calculation chart it yields about the same answer, so we are close. Do a calculation or use a chart to estimate your 2 meter base station coverage and see if the results are close your actual range to a mobile or fixed station. Remember a key is keeping the signal loss between the radio and antenna at a low level.

Antenna "Range Calculator"



This range chart is designed to assist you in finding the approximate talkout range to a mobile unit when the antenna height, transmitter power and frequency are known.

There are many factors which determine accurately radio propagation characteristics and resulting coverage. These factors include seasonal changes, atmospheric conditions, local noise level and even sun spot activity. However, it is possible to obtain a rough indication of range in average rolling terrain for a given base station transmitter power, antenna gain and height using the range calculator.

The following steps explain the use of the "Range Calculator" when an estimate of range is needed for base station to mobile communications.

1. Subtract the transmission line loss and combiner, duplexer or filter loss (if used) from the antenna gain. This may be a plus (+)

or minus (-) value and we call it NET ANTENNA SYSTEM GAIN.

2. Locate the transmit power column that most closely matches the power output of you base transmitter.

3. Move up this column until you find the height of you antenna (above average terrain).

4. At that point move across to the right until you intersect the NET ANTENNA GAIN column.

5. From that point move up or down the column by the number of dBs arrived in Step 1.

6. Move across to the right until you find the column that represents the frequency band you are using. This figure will give you the approximate talkout range in mile for a 1 microvolt received signal level.

Cast of Characters for 2010:

President: Dave Warwick, K4DJW
Vice President: Ed Valentine, W2YPM
Secretary: Bob Melle, KJ4HJH
Treasurer: Ray Hemphill, W7OPH
Emergency Communications: Jim Wright, KS4O
Assistant Em. Comm.: Mark Rappaport, W2EAG
Public Svc/Special Events/VEC: Bruce Arnold, N8UTY
Repeater Trustee: Sid Purvis, WA4VBC
Program Committee Chairman: Shamu the whale
Photography: Mac Eutsler, WA0ZGL

The Newsletter Team:

Al Parker, W8UT, Editor, Ray Hemphill, W7OPH, mailings

The NBARC Newsletter is the newsletter of the New Bern Amateur Radio Club, Inc., 1508 Kimberly Road, New Bern, NC 28562. NBARC is an affiliated club with the ARRL and ARES.

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Selected Local Nets Times are local time, unless otherwise stated

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: 3927 kHz, 0745 daily
Carolina Slow Net (CW): 3695 kHz, at 8PM ET (5wpm) daily
Coastal Carolina Emergency Net: 3908 kHz, 1900 daily
Tarheel Emergency Net: 3923 kHz, 1930 daily
Carolinas Net (CW): 3573 kHz, 1900 (20 WPM), 2200 (10 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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1508 Kimberly Road, New Bern, NC