RADIOACTIVITIES

NEWSLETTER OF THE ARGONNE AMATEUR RADIO CLUB

W9ANL

Volume XLVII, Number 1 **January 2006**

Club Meeting

Happy New Year to all! The AARC January general meeting will be held Wednesday, January 11th, from 6:30 to 8:30, at the Old County Buffet restaurant located at: 21 Countryside Plaza, Countryside, IL 60525, 708-579-1499. This will be a good opportunity for those members who can't make the lunchtime meetings to get together with their fellow AARC members. Hope to see you there. For more info contact: Chuck Doose 630-252-6037, doose@aps.anl.gov. 73 de KB9UMF.

The Treasurer's Report

by Jack Albert, WA9FVP

Members: East 25; Associate 52; Newsletter 6; Retired 21

Balances: Checking $4804.99; Cash $0.00; ANL fund $50.00

Distributed as: Club $2768.26; Repeater $2036.73; Newsline $0.00

For the period Nov 5 thru Dec 22, 2005:

Income: Dues $0.00; Club $1.13; Rptr $0.84; Newsline $0.00; ANL $0.00

Expenses: Club $00.00; Rptr $0.00; Newsline $0.00

By a unanimous vote the Board decided to make changes to the club's treasury by eliminating the packet and equipment funds and moving the money into the General fund. We also added a new fund called "AR Newsline". Money donated to the AR Newsline will be sent on a quarterly basis when the money exceeds $20 to the AR Newsline organization. The money will help fund the "Newsline" reports that are heard every week on the AARC Monday night net. Changes will also be made to the application form.

If you check in or listen to the AARC Monday Night Net, I strongly urge you to donate even if it's a dollar to help keep the AR Newsline active. They need the money to operate and without it, we won't hear the provocative and informative weekly Amateur Radio news.

REMINDERS

CLUB BREAKFAST: Always the 2nd Saturday of each month, 8:30 AM at:

Old◆Country Buffet◆

59th Street and LaGrange Road in LaGrange

CLUB NETS: Thru our Club Repeater 145.19.

SKYWARN NET: Mondays in season at 7 PM with Deni, W9DS.

THE CLUB'S 9PM NET: every Monday with Jack WA9FVP.

THE NIGHT PATROL: every night at 10:30 PM with Paul, W9FNM.

THE BREAKFAST CLUB: every morning at 8 AM.

THE NOONTIME NET: every weekday at noon.

The Pancake or Saucer Coil

by Deni, W9DS

In the December 2004 Argonne Newsletter, I wrote about a phantom counterpoise that can raise the feed point junction from a few ohms to 50 or 52 ohms. By a method used by K6NO, and I wrote about my long time friend, W9HNM, and his experiences with flat spiral saucer coils. Howie made his 160-meter car whip coil form first from a thick 75 record didn't work. Next he made a wooden hub from wood and drilled an odd number of holes in the hub to attach spokes like we did with our tinker toys. (I remember building many different things like a Farris Wheel.) Howie wound wire maybe 22-gauge wire over and under each spoke. The turns show minimum capacity between turns. The hub was 1 ¼ inch diameter and the spokes were 8" long. The hub was placed 5% down from the top, I guess it was an 8' whip. Howard complained it was too top heavy. He used the last 3 wires for tuning or pruning. The antenna coil generated so much heat that it had affected the transmitter output. While I was speaking to him, he being mobile, lost the aerial; it came off the car. He never did any more experiments that I know of with saucer coils.

K6NO wrote an article in World Radio March 1998 and a later article in World Radio June 1999. By WA8BAB variations on a "Petlowany" about spiral wound coils. First, about Bill Petlowany, K6NO.

K6NO was trying to shorten antennas and noted that hanging wires at the end of aluminum elements effected frequency. He got frustrated, but remembered his father-in-law, W8TS, used unusual coils from the 1920s.

Thus, K6NO found himself winding spiral coils by beginning a turn, very small in diameter, winding each turn into a larger diameter. The coil looked like a pancake. He attached two coils one to each end of the aluminum tubing 12' long. The result was lower frequency. So, the inner most part of the pancake coil is hooked up to the aluminum shaft. The other end of the coil is left free. He found that the shortest self-resonant length of wire wound in this fashion was a ¼ wavelength, longer lengths that were resonant lengths had common RF characteristics. Using a full size aluminum tube with pancake coils on both ends, and the aluminum dipole is resonant on 20 meters, and the two coils slightly longer than ¼ wave each cut for 40 meters. Now he was able to load up on both bands 40 & 20mHz and radiation resistance is 52 ohms. The bandwidth on 40 meters is over a 2 to 1 range was near 90kHz. Bandwidth can be improved by larger wire diameter, more spacing between turns, and keeping the innermost starting turn to be as small as possible.

Due to the low impedance nature of design, the linear portions of the antenna are carrying large RF currents. This results in an efficient aerial.

Short vertical towers can be used on 160 meters by adding a ¼ wave pancake coil attached to the uppermost portion of the tower.

In July 1998 World Radio, W6ZUM puts in his two cents by building a 160 vertical a 36' base loaded coil supported by wood cut from pine wood with 4 radial arms of ½" ash dowel 3' long and 6' diameter. 17 gauge aluminum welding rod is used for the coil. Has anyone worked or even heard him from the west coast?

An article by William Caldwell, WA8ABE, wrote about the work he has done with these coils. It makes no difference whether the coil is round, square, or octagonal. Windings have to be symmetrical evenly spaced and wire size can be anything, the performance is the same. All the aerials he built 160 to 2 meters had the same characteristics if the ¼ wave of wire plus a little (for tuning) spaced symmetrically the radiation impedance will be 52 ohms. He went mobile and his aerial impedance was 120 ohms or so. He made a square 4mHz pancake coil attached it to the ground of antenna base. He laid the coil in the rear car window shelf. He went down the road mobiling on 15 meters. He was getting S-9 reports. Comments were big signals and then he removed the counterpoise and called and called and called the answers had stopped. While WA8ABE used narrow diameter wire but when he built using #14 gauge at lower frequencies the antenna would not tune when in a vertical position but it tunes horizontally. At higher frequencies it works either way. The problem may have been heat.

The Parabeam

by Deni, W9DS

The Parabeam, developed in England by J. Beam Ltd., offers high gain and wide bandwidth. It is another skeleton slot radiator. Its use in stacked arrays is known well in the British Isles. It is formed into a vertical rectangle tilted forward about 30 degrees from the center of the aerial. Vertical gain is about 2.3db over a dipole when standing straight up. Dimensions of loop circumference are ¼ wavelength horizontal top and bottom with both vertical sections being ⅝ wavelength each. Feed is at the center of the vertical section using delta match and balance fed 450 ohm feedline. This antenna was found in the 1980 ARRL Handbook. Dealing with balanced feed to coax can be a problem. Use a tuner.

If the 450 ohm line has a high SWR no matter how you adjust your tuner, change the 450 ohm feedline length by adding a section of cutting off a section of the line. Stranded 450 line is stronger than a single big copper strand. Constant winds flex this one strand breaking it and having to be repaired; however, using the stranded wire 450 ohm line is very strong when twisted every few feet. This relieves breakage and any metal effect that may exist. One last tip about open line; link coupling can be used.

When Does Current Kill?

by Deni, W9DS

Thumbing through the Popular Electronics issue January 1972, I found an article dealing with voltage and current. The measure of death is the degree of shock and is not the voltage applied, but the amount of current forced through the body and need not be very much.

ARGONNE AMATEUR RADIO CLUB
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Officers

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MEMBERSHIP is open to all who are interested in amateur radio. This club is sponsored by Argonne National Laboratory. Employees of ANL or DOE-Chicago are eligible for full membership. Auxiliary membership is available to non-employees.

W9ANL/R is an open repeater, coordinated on 145.19 MHz (-600 input). The AARC repeater has been in operation on this frequency pair continuously since February 5, 1982.

CLUB NETS: 2 meter fm 1) Regular, every Monday evening at 9:00 and 2) the Night Patrol every night at 10:30, both on W9ANL/R. The Peanut Whistle Net (PWN) every Sunday at 1:30 p.m., and many evenings at 8:30 p.m. on 1932 kHz (cw/am/ssb), QRP.

RADIOACTIVITIES is published monthly by the Argonne Amateur Radio Club as a nonprofit newsletter intended only for the use of its membership. Material appearing here does not represent the official position of Argonne National Laboratory or the U. S. Department of Energy. Please give credit to the author and to Radioactivities or the Argonne Amateur Radio Club, when using original material published here. Deadline for submissions normally is the 20th of the preceding month.

EDITOR Dale Travis AG9H
EVENTS
SKYWARN ACTIVITIES Deni Lamoreaux W9DS

Please send club and editorial correspondence to the club address, or to travisdj@bigfoot.com Please include “AARC” in the subject.