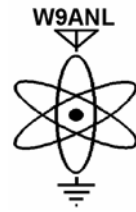


RADIOACTIVITIES

NEWSLETTER OF THE ARGONNE AMATEUR RADIO CLUB



Volume XLVII, Number 3

March 2006

Club Meeting

Nothing sent.

The Treasurer's Report

by Jack Albert, WA9FVP

Members: East 12; Associate 31; Newsletter 6; Retired 11

Balances: Checking \$5195.49; Cash \$0.00; ANL fund \$50.00

Distributed as: Club \$2974.87; Repeater \$2170.62; Newline \$50.00

For the period Feb 1, 2006 thru Feb 28, 2006:

Income: Dues \$100.00; Club \$64.63; Rptr \$133.03; Newline \$24.00; ANL \$0.00

Expenses: Club \$0.00; Rptr \$12.00; Newline \$0.00

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.

15 Meters With 18 Inches

by Deni, W9DS

Before K6NO there was K9LGH writing about end loading using a pair of spiral coils in Feb 1970 73 Magazine article. K9LGH, Allen R. Brown, was smart to file for and was issued a patent, No. 3,432,858, and so unknowingly K6NO didn't invent a new antenna.

However, K9LGH welcomes hams to experiment with these types of aerials in his Feb 1970 article. K9LGH had people disbelieving the size of his aerials (short dipoles). However, he did not run a peanut whistle power, but 350 watts home brew by using four 1625's in grounded grid.

K9LGH made aerials for the HF bands only and they are 80 meters to 10 meters back then. He made a 1 foot dipole and a 2 foot dipole for 80 meters. He claims QSO's in 3 states with the 2 foot 80 meter dipole in his basement on SSB from Park Ridge, IL.

Conceived in 1966, the 18 inch dipole was made from 3/4 inch diameter aluminum tubing using 2 9 inch long sections spaced 1/2 inch at the center using polystyrene tubing. The center matching device is a 1 3/4 turn on 2 1/4 outside diameter coil of 16AWG enameled copper wire. The 2 end coils are printed circuit glass epoxy boards. These boards are painted with photo resist and ruling the edges of the lines with a resist pen and then etched with ferric chloride.

The dipole ends are plugged and the circuit board coil is held by one screw in each leg. One coil is wound left handed the other right handed so premature radiation is reduced. The coils are soldered to the tubing. Coil dimensions are 7 3/8 by 7 3/4 inches and the turns thickness are made wider in the high current center.

The inner first turn conductor is 1/4 inch in width and the next 2 graduations in conductor width are 3/16 and 1/8 inch respectfully. Each coil has a tuning stub, which is a telescoping brass tubing obtained from a local hobby shop. The inner tubing is 1/16 inch outside diameter and the outer tubes are soldered to the ends of their respective printed circuit board coil.

The coax must be kept several inches away from the coil edges to avoid de-tuning. The coax is RG58U or RG8. The system consists of an end-loaded dipole with matching impedance in the center. The dipole has a jumper wire from the center conductor to the first turn to bring the aerial into the tuning range by using a bare copper wire soldered at both ends.

That's the challenge. How about a five foot aerial on 160 meters? Can you imagine the printed circuit board size?

2 Meter Stacked Gamma Matched Turnstile

by Deni, W9DS

An article by WA9LPC of Downers Grove appeared in 73 Magazine May 1969. Four elements are cut from $\frac{3}{8}$ inch aluminum tubing 38 inches. Two of these elements form one turnstile. These elements are bolted together at the center to form an X. One leg of the X is bolted to the top of the vertical mast one inch off center the vertical mast is $\frac{3}{4}$ inch metal $\frac{5}{8}$ wave length long on 47 $\frac{1}{2}$ inches. Coax is RG8X or 8U and the two gamma's made of number 14 wire are connected four inches from the center connection of the horizontal elements $\frac{1}{2}$ inch above each element towards the center. Cross members bolted together at the center includes 3 shields from 3 cables. The gammas using number 14 wire are connected 4 inches from the center connection of the elements running horizontal $\frac{1}{2}$ inch above each element towards the center.

To get 90 degree phase shift between the elements of each turnstile, use a quarter wave section of RG8U 13.31 inches. One end goes to the gamma, the other end to a half wave section 26.6 inches (for a mid-frequency of 146MHz). The other end of the $\frac{1}{2}$ wave cable goes to the coax of the other turnstile, and the coax coming from the transceiver. The transceiver cable being at a right angle to the mast.

Glenn Chamberland hung his turnstile four feet off the side of his tower at the forty foot level. The feed line was 75 feet long. His aerial has a 1.3 to 1 SWR from 144MHz to 147MHz band edges. He compared his turnstile to a commercial eight element beam with a station 145 miles away. The turnstile was measured to be one S unit below the beam aerial. The eight element beam was rated at 15.5db gain and one S unit being 5 or 6 db. Glenn calculated the turnstile at 10db gain. WA9LPC remarks that for more gain, build two or three more of these stacked turnstiles. They can be hung around the perimeter of a tower. Each turnstile being fed with half wave sections of RG8X or U cable.

The turnstile offers omni-directional, light weight, no tuning, and no turning.

An idea by W2EEY, John Schultz, caught my eyes in an article in 73 Magazine March 1973. He said, and rightly so, "Aluminum foil isn't good enough material for the use in an indoor attic radiator, that being a loop." What W2EEY wrote about was the use of hard drawn copper sheeting found at various wholesale metal product outlets. It is sold by the pound. This sheeting has a thickness of 4/1000 inch. It can be cut and bent. Watchout! Shearing the edges can provide cut wounds like from a razor blade.

Back then I made an effort to obtain this material, but small orders weren't taken, however, a few years later my father told me my uncle was a manufactures representative, but had changed job's, so I never went any farther. Well the article goes on to say that hard drawn copper sheeting is 12 inches wide and comes in long rolls. A much greater area on the surface and cost less than tubing and easier to handle in forming shapes, bent, and solder to. Large loops in the attic can be tuned by a match box to resonate the system. Only hang the loop vertically. The loop radiation will either be broadside to the plane of the loop or along the plane of the loop or a combination of both. So vertical is best.

It follows that a horizontal loop might operate in a mode where the maximum radiation of signal is wasted because it travels straight up and down. I changed my mind because I moved to a new location.

<p>ARGONNE AMATEUR RADIO CLUB P.O. Box 741 Lemont, IL 60439</p> <p>————— Officers —————</p> <p>PRESIDENT George Moshko KB9YYW VICE PRESIDENT Bruce Epperson KA9H SECRETARY Jack Albert WA9FVP TREASURER Jack Albert WA9FVP DIRECTOR Dick Konecny K9IB DIRECTOR Torben Lauritsen KF9MI DIRECTOR Charles Doose KB9UMF DIRECTOR Jim Jorgensen K9RJ DIRECTOR Tim Smith N9UEB DIRECTOR Dale Travis AG9H</p> <p>e-mail: w9anl@bigfoot.com www.bigfoot.com/~w9anl</p>	<p>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.</p> <p>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.</p> <p>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.</p>	<p>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.</p> <p>EDITOR Dale Travis AG9H EVENTS SKYWARN ACTIVITIES Deni Lamoreaux W9DS</p> <p>Please send club and editorial correspondence to the club address, or to travisdj@bigfoot.com Please include "AARC" in the subject.</p>
--	--	--