RADIOACTIVITIES

NEWSLETTER OF THE ARGONNE AMATEUR RADIO CLUB

W9ANL

Volume XLVII, Number 2 **Febuary 2006**

Club Meeting

The February general meeting is uncertain at this time. Stay tuned to the Monday night net for updates on this months meeting.

The Treasurer's Report

by Jack Albert, WA9FVP

Members: East 25; Associate 52; Newsletter 6; Retired 21
Balances: Checking $4860.03; Cash $0.00; ANL fund $50.00
Distributed as: Club $2810.44; Repeater $2049.59; Newsline $0.00
For the period Dec 23 2005 thru Jan 31, 2006:
Income: Dues $53.00; Club $1.18; Rptr $0.86; Newsline $0.00; ANL $0.00
Expenses: Club $00.00; Rptr $0.00; Newsline $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.

Mil's Corner for February

10	George	K9GF	Berwyn, IL
10	Bob	N9QGU	Willowbrook, IL
25	Charles	K9AGY	Chicago Ridge, IL
26	John	W9MVP	Park Ridge, IL
27	Henry	KA9CRU	Joliet, IL

The Flat Top

by Deni, W9DS

The most popular aerial of the 30's, 40's, 50's, & 80's, and now the new century is the flat top. Fed with open line balanced feed line, this multi-bander beats out the doublet and single band coax driven dipoles. The G5RV is a multi-band aerial much misunderstood. Designed for 3.5MHz to 28MHz, the G5RV has evolved as the top flat top aerial with a special feeder arrangement. The flat top of old was a half-wave dipole for the lowest frequency and fed with open line, thus harmonically able to radiate with gain on these higher frequencies.

The modern flat top is fed with 450 open line one inch width. The 450 line being flat can run through a window under the frame. It is most flexible more so than coax, and much lighter, but needs a few twists if near a tower or metal. It can withstand 10 to 1 SWR and still radiate all of the energy.

The old way is still the best way for multiple band use. There are all kinds of tuners on the market today even automatic ones, so you don't have to turn that dial. Here is what will happen harmonically as we rise in frequency from 80 to 10 meters. The flat top becomes 1 wavelength on 40 meters with ½db gain, 2 waves on 20 meters with 1.3db gain with main lobes at 36 degrees, 3 wavelengths on 15 meters with 2db gain with a major lobe at 28 degrees, and 4 wavelengths on 10 meters with 3db gain at 25 degrees.

My flat top works great from 160 to ten meters. 160 meters requires the feed line to be tied into a single wire and on 40 meters the legs are ¾ wavelength long or 100' on each leg, as much horizontal as is possible. Update! Now added 30' to each end of the wire and it now is a 160 meter dipole. The 30' ends are at 90 degrees horizontal to the 200' horizontal section and no longer single wire fed.

I have been hearing the G5RV doesn't work well on some frequencies. It may be one aerial that you shouldn't use. It is designed for limited horizontal space 102' which most of the useful radiation takes place from the center ⅔ of its total length, up to 1/6 of its total length at each end of the antenna. The G5RV is not designed as a ½ wave dipole, but a 3/32 wave center fed long wire antenna on 14MHz.

From 14MHz and up, most energy is in the vertical plane and is at angles good for working DX. At these higher frequencies, 18, 21, 24, and 28MHz, the matching section presents a reactive load and needs the use of the correct type of matching network. A most informative discussion of the G5RV appears in the ARRL antenna compendium volume one, page 86 by Louis Varney, G5RV.

2 Meter Circle Quad

by Deni, W9DS

The question remains; How to boost power using a 1 ½ watt handheld? Why not a 4 element antenna. Easy to handle out of doors. It can radiate horizontal or vertical or a combination polarization. It is where you feed the aerial, at the bottom or at one side. The author, K6KTS, Nick Testa of Cypress, CA, wrote his article in the May 1983 73 Magazine. He wanted his design to be self supporting with easy adjustment of size. The four circles are made from #8 aluminum ground wire from Radio Shack (try Home Depot). Cut 4 lengths determined from quad design as found in ARRL Handbook. His dimensions are:

Element	Length (inches from 90 deg bend)
Director 2	73 ⅜
Director 1	74 ⅜
Driven	79
Reflector	83 ¼

Element center to center spacing:

From	To	Distance inches
Boom end	director 2	6
Director 2	director 1	11 ¾
Director 1	driven	8 ⅝
Driven	reflector	14 ⅛
Reflector	boom end	~7

Cut these wires plus one inch extra to be used as hooks at the attaching points, less the bolt length through the boom for the reflector and director elements. In these 3 elements, the ¼ inch by 2 inch bolts serve as one inch of the resonant length.

Each hoop element has its ends bent 90 degrees and then made to fit around the bolt and screw heads. Now cut PVC type 40 pipe ten feet long into a 4 foot and 6 foot length. Now cut the top bar of a PVC T joint in half lengthwise. The stem portion is glued to the end of the 6 foot section of tubing to form the mast. Now mount the four foot section onto the U shaped cradle formed by the remaining top of the T using 2 ½ inch diameter hose clamps. The clamps can be loosened to allow rotation of the boom for vertical or horizontal polarization.

Three ¼ inch holes are drilled through the boom for the two directors and the reflector. A 5/64 inch hole was drilled through the boom for the driven element. A ¼ inch by 2 inch bolt is passed through all of the larger holes. Using flat washers on each side of the boom. The small hooks at the elements are slipped between the washers at each side and a nut is used to fasten the assembly.

Now the driven element uses #8 by ¾ inch sheet metal screw is placed in each side of the boom. Each screw has a pair of ¼ inch washers and a #8 washer nearest the head, mounted on it. The shield and center conductor (50) ohm coax are connected, one to each screw, which acts as a terminal. Solder or crimp #8 spade lugs to the ends of the coax to insure secure attachment to the aerial. Tune the aerial adjust the element length and spacing for the middle of the two meter band. To keep the circular from, three pieces of 60lb test fishing line are tied to each element length and the boom ends which extend beyond the elements. If the loop is fed fishing line along the 9, 12, and 3 o'clock positions. A knot is tied at each element with a little inward bend of the wire at the knot point to stop slippage. The ends of the 3 fishing lines are tied together and passed through spare holes at each end of the boom. The squareness of the boom and parallelism of these elements to each other reduced the near lobes of the aerial. For long lasting protection, wrap each with electrical tape or use silicone sealer to cover them.

Testing showed a 20db front to back ratio.

ARGONNE AMATEUR RADIO CLUB
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Officers

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DIRECTOR	Dale Travis AG9H

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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.

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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.