THE RADIO HILL GAZETTE

Volume XXXIV Issue IV **April 2009**

Celebrating Our 34th Year in Publication

Club Calendar of Events

April 2009

Wed	1	7:00 PM	Board of Directors meeting – Schaumburg Airport
Thu	2	8:00 PM	SARC Net 145.230 kHz NCS:
Sat	4	8:00 AM	Official Saturday Morning Breakfast – Maxfields
Sat	4	9:00 AM	VE Testing Session – **Schaumburg CRC**
Tue	7	7:30 PM	Tech Net – SARC Repeater – 145.230
Thu	9	8:00 PM	SARC Net 145.230 kHz NCS:
Sat	11	8:00 AM	Construction Project – Schaumburg Tennis Plus
Tue	14	7:30 PM	Tech Net – SARC Repeater – 145.230
Thu	**16**	**7:00 pm**	**Club Meeting - CRC**
Tue	21	7:30 PM	Tech Net – SARC Repeater – 145.230
Thu	23	8:00 PM	SARC Net 145.230 kHz NCS:
Sat	25	8:00 AM	Construction Project – Schaumburg Tennis Plus
Tue	28	7:30 PM	Tech Net – SARC Repeater – 145.230
Thu	30	8:00 PM	SARC Net 145.230 kHz NCS:

May 2009

Sat	2	8:00 AM	Official Saturday Morning Breakfast – Maxfields
Sat	2	9:00 AM	VE Testing Session – **Schaumburg CRC**
Tue	5	7:30 PM	Tech Net – SARC Repeater – 145.230
Wed	6	7:00 PM	Board of Directors meeting – Schaumburg Airport
Thu	7	8:00 PM	SARC Net 145.230 kHz NCS:
Tue	12	7:30 PM	Tech Net – SARC Repeater – 145.230
Thu	14	8:00 PM	SARC Net 145.230 kHz NCS:
Fri, Sat, Sun	15 16 17	8:00 AM	Dayton Hamvention – Dayton OH.
Tue	19	7:30 PM	Tech Net – SARC Repeater – 145.230
Thu	**21**	**7:00 pm**	**Club Meeting - CRC**
Tue	26	7:30 PM	Tech Net – SARC Repeater – 145.230
Thu	28	8:00 PM	SARC Net 145.230 kHz NCS:

CLUB MEETINGS ARE HELD AT THE SCHAUMBURG RECREATION CENTER ON THE SOUTHEAST CORNER OF SPRINGINSGUTH AND BODE ROADS. OUR NETS ARE HELD EVERY THURSDAY (except Meeting nights) AT 8PM ON THE K9IIK REPEATER; 145.23 MHz.-600 kHz WITH 107.2 Hz PL

APRIL CLUB MEETING PROGRAM:

Vacuum Tube Technology

EmComm Membership / Call List

With the severe weather season upon us, we would like to re-activate our Emergency communications call list. Please consider adding your name to the list of folks that would be available to assist in communicating during an emergency. This is a rewarding area of amateur radio many people really enjoy.

If you are not familiar with how to assist in an emergency, please see our Emcomm Chair Bob Langsfeld WB9TZC for information.

A form to provide your info is attached to this newsletter on page 7. Please take a minute to fill it out an return it to any club officer or Bob.

Experiment with Linear Loading
Build the LL2 - 2 Meter Linear Loaded Beam

by Bob McIntyre W9DXR

I've been intrigued by the tape measure beam which is commonly used for 2 meter fox hunting. While searching for RDF (radio direction finding) articles on the internet I came across the web page of Joe Leggio, WB2HOL, with his classic design for two and three element tape measure beams. They have many merits such as low cost, easy construction, and flexible elements. His three element design was optimized for a pattern with a nice null towards the rear of the beam. It benefits from a shortened boom length with closely spaced elements not to mention an excellent front to back ratio.

I considered constructing one of these antennas but I began to think of alternatives and wondered how to combine this great design with my own preferences. The flexible elements make it easy to get in and out of a vehicle but the down side is that they can twist and bend in the wind. I wanted to have a more rigid design that wouldn't flap in the breeze and one that could possibly be held on a short mast from the driver's seat of a vehicle. The biggest obstacle with 2 meter antennas is that an element length of 36-40 inches makes it a difficult size to get in and out of a car door let alone through the window. The answer I was looking for was a reduced-sized antenna. Shorter elements would have less wind resistance if the vehicle was moving. Reducing element size might produce a stealthier appearance and would improve handling the antenna.

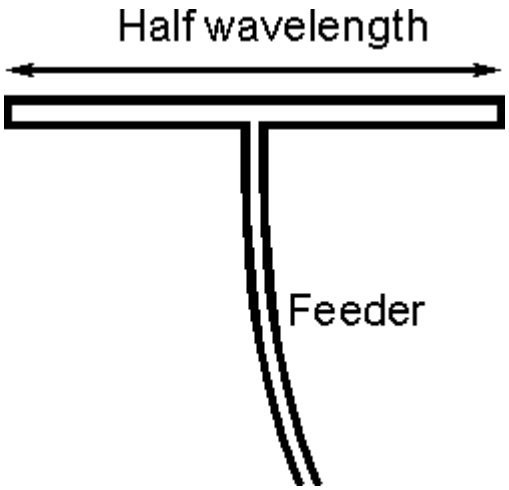
So how about shortening the element length physically but still make the antenna appear to be the right size electrically? There are several ways to accomplish this such as the use of loading coils or perhaps helically wound elements like the commercially made Hamstick antennas. Each method has its own merits and problems both electrically and physically. The less than ideal part of loading an antenna with loading coils is the potential to introduce loss in the coils and there can be also be a reduction in bandwidth.

I went a different direction with my design and chose to explore the use of linear loading for the elements. So I named the antenna the LL2 for Linear Loaded 2 Meter Beam. This technique has been around for many years and has been used commercially but hasn't found its way into many amateur radio antenna designs. I was attracted to this method primarily because I could reduce the overall antenna element length to approximately 60% of full size. In addition, there's minimal loss incurred with this type of loading as opposed to actual coil windings. This method can be applied to antennas of any frequency and should be considered where reduced size is needed.

Since I also wanted to minimize the overall boom length, I decided to go a step further and marry the WB2HOL tape measure boom design with my use of linear loaded elements. It looks like this could be a marriage made in fox hunting antenna heaven. The overall boom length comes in at just 20 inches and the elements have a 26 inch maximum length for the total dipole length.

To construct the antenna I decided to build a light supporting framework using wooden dowel to minimize weight (see first photo above). I chose 5/16 inch dowels to hold the element wires and 3/4 inch wooden dowel for the main boom. I made the boom 26 inches long so I would have a six inch handle on the end to use for holding the antenna by hand and aiming it. The first challenge came when I attempted to drill three holes through the boom and get them parallel. I came close but after inserting the elements I found that you have to be very precise so nothing is skewed. A future improvement might be to use a square boom which would be easier to drill than the round one. This must be why some of the Arrow antennas are constructed with square boom material. I also drilled a hole in the boom for general use with a short four foot ½ inch wooden dowel mast .

The ARRL Antenna Book (20th Edition) gives a short one page overview of linear loading in Chapter 6. Basically, linear loading is accomplished by folding the antenna back on itself. This has the effect of loading or coupling the antenna to itself "linearly" across its length. The following diagram illustrates a folded dipole design. Imagine using this design but cutting the wire and opening up the folded dipole on the top side of the loop across from where the feed line is attached.



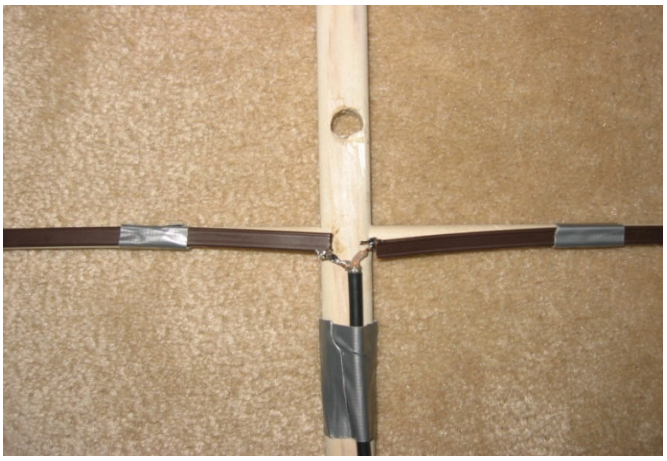
This produces a dipole that loops back on itself on both sides across its entire length. The ARRL Antenna Book shows that this arrangement will produce an impedance of about 35 ohms and resonates at about 0.60 times the frequency of a simple dipole of the same length. Although the antenna impedance is close to 35 ohms it should still produce a reasonable match to RG58/U or similar coax. It won't be a 1:1 match but it should be usable. Applying these factors and recalculating the required dimensions gives the following approximate lengths for the total of the elements and spacing:

Reflector	25.8 in	<u>Element Spacing</u>
Driven Element	23.5 in	8.0 in DE to Reflector
Director	21.6 in	12.5 in Director to DE

The LL2 antenna elements were made from TV twin lead I had purchased at Radio Shack some time ago. It's a very narrow width of just ¼ inch. They may not sell this size any more so if you have a larger twin lead then the dimensions I have given should be used as a guideline or starting point. Your results may vary, especially if you choose something like ladder line. A standard 300 ohm TV twin lead would be a better choice to use.

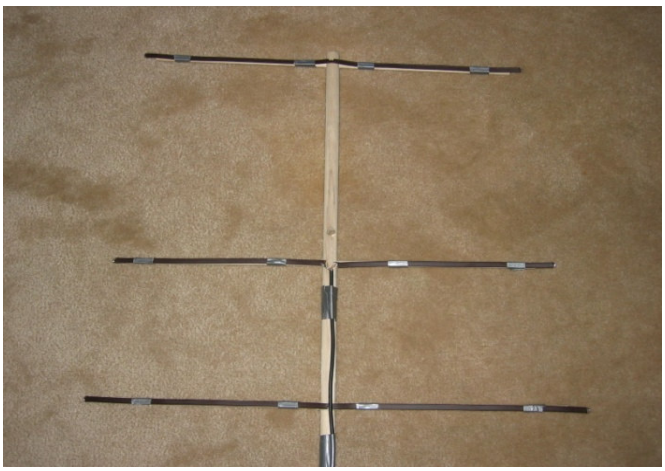
The best way to construct the antenna is with an SWR meter or an antenna analyzer if you're lucky enough to have access to one. Start by constructing the driven element but make the dimensions slightly larger than needed. Measure the SWR at your desired design frequency and carefully trim ¼ inch at a time until you get the desired match. To attach the twin lead I just used duct tape. The antenna was designed for use at 146 Mhz.

The following pictures show some of the basic design:



Connecting Coax to Driven Element

Notch cut in twin lead for Reflector & Director



LL2 -Linear Loaded Beam

So how does it play? I'd love to tell you that it has phenomenal gain and it's the best thing since the automatic antenna tuner. But the truth is I haven't had enough time to evaluate its performance yet. Like most hams I don't have an antenna range nor do I have a wealth of antenna test instruments. However, I do know that the SWR is somewhere between 1.8:1 and 1.5:1 over most of the 2 meter band which seems reasonable if you want to use it to transmit. It does exhibit directivity and some gain from casual tests I've been able to make. Sometime in the near future I plan to try it out against a low power fox hunt transmitter which will provide a lot more information about its use and capabilities for direction finding.

This antenna was not designed for permanent outdoor use. The wooden dowels would need to be covered with varnish and the entire structure weatherproofed. But it does illustrate how to build a compact reduced size antenna. Not only would an antenna of this design be useful for fox hunting, but the concept could be used for creating rotatable beams in the attic. I hope this inspires you to learn more about linear loading and have fun building antennas. Honey, I shrunk the beam!!

Minutes of the Board of Directors Meeting – March 4, 2009

Board members present:
Bob McIntyre, W9DXR
Jim Kempe, KC9LWO
John Bettasso, AJ9ON

Club Officers & Committee Chairpersons present
Mel Luxenberg, W9FRT
Kent Ochs, W9KAO
Geoff Stevens, KA9QGH
Bob Langsfeld, WB9TZC
Mark Deelsnyder, KB9VHA

The meeting was called to order by John Bettasso at 7:05 pm.

COMMITTEE REPORTS

President's Report - Mel reported that the technical net has been held on two evenings. He suggested that we keep track of ARRL member renewals as the club can receive a small reimbursement if renewals are generated via the club.

Treasurer's Report – Kent Ochs reported there is a balance of $3,462.26 as of February 28, 2009. Kent reported on revenue from new members and recent revenue from eBay sales. Kent presented a letter he prepared for a general information mailing about SARC and a potential list of active hams in the area to send it to.

Secretary's Report –SARC club records have been updated on the ARRL website. The club contact person listing will also be updated.

Membership - No report tonight. The chairman position is open.

Public Service - Public service events will resume this spring. Kent reported that Ryan Ochs will be meeting with Andy Sharkey to help with running some of the events.

RHG Newsletter/Publicity –Mark Deelsnyder reported the RHG is almost printed and ready to be issued. This month there was an article included on for sale items and an additional article on the ARRL National Convention.

Repeater System –The computer controller had a problem during the last net but Kent Ochs got it operational again. Work is still progressing on making the repeater work better.

Construction Project – No report tonight.

VE Testing/eBay Sales – Larry Carr sent an email as he could not attend this evening. Currently there is nothing new to report on VE testing. Four new items have been boxed and will be listed on eBay within the next several weeks.

Social Activities – Nothing new to report tonight.

Nets – The club information net time is 8pm on Thursday night. Technical net is 7:30pm on Tuesday evenings.

Education – No report tonight. The chairmanship position is available.

Fox Hunts – Fox hunts will begin this spring.

Meeting Programs – The March meeting will have a presentation about Ham Radio Deluxe presented by Kent Ochs.

Em-Comm – Bob Langsfeld reported that the severe weather net is ready to begin operations. Bob would like to get a committee together for this group.

OLD BUSINESS
REVIEW OF RECURRING CLUB CALENDAR

Articles may now be submitted for the March RHG

NEW BUSINESS

John Bettasso made a motion for Kent Ochs to purchase a new USB drive to use for keeping the treasurer's records. Geoff Stevens seconded the motion. The motion passed unanimously.

ADJOURNMENT
Meeting closed at 8:30 PM.

Respectfully submitted by Bob McIntyre, W9DXR
Secretary

Minutes of the Regular Meeting
Schaumburg Amateur Radio Club, Inc
Thursday, March 19, 2009

President, Mel Luxenberg, W9FRT, called the meeting to order at 7:05 PM.

There were twenty-six people in attendance for the meeting. Introductions were given and the question for the evening was: "What microphone do you use?"

OLD BUSINESS
Treasurer's report – Kent Ochs, W9KAO reported that the club has a balance of $3462.26 at the end of February. Liability insurance has been renewed. A prospective membership letter has been created to be sent out with the RHG mailings.

APPROVAL OF MINUTES AND TREASURER'S REPORT
A motion was made by Cliff Sowka, to accept the Treasurer's and Secretary's report as printed in the March RHG. The motion carried by unanimous vote.

COMMITTEE REPORTS
Net Control – Rob Glowacki, N9MVO, is doing net control until May of this year or until David Dietrich, KC9EHQ, returns as net control.

Membership – no report this evening.

Public Service – A new public service chairman will be needed Public service events will begin this Spring.

Repeater – Rob, N9MVO, reported that the repeater is temporarily using a different controller due to a recent lightning strike. He indicated John Bettasso is working on new computer equipment for the repeater.

Construction Project – Bill Smead reported that meetings are held on the 2nd and 4th Saturday of the month. The next meeting will be held next Saturday at 8am in the basement of the Schaumburg Tennis Club.

RHG – Please send articles in to Mark Deelsnyder. General articles on ham radio related topics are needed or items for sale.

Education – No report tonight.

Em-Comm – The net is ready to go and control operators are ready. At this time we have not had any severe weather. Bob Langsfeld, WB9TZC, has made contact with the emergency manager at Alexian. Anyone interested in this area please contact Bob.

Program Chair – Ham Radio Deluxe will be presented this evening. Upcoming programs may be presented on vacuum tube technology or the club repeater.

Field Day - No report this evening.

Fund Raising - The club is looking for someone to fulfill this role.

EBay Sales – Larry Carr is looking for help with some items and there are additional items to be sold.

VE Testing – Testing is held on the first Saturday of the month.

Social Events – nothing current to report.

Fox Hunting – Fox hunting should begin in April.

NEW BUSINESS

Tom Campana, K9ZAD, and Don Smith, K9UD, were presented as new members tonight. A motion was made by Cliff Sowka to accept them into the club as new members. The motion was seconded and carried unanimously.

Tonight's presentation after the meeting will be Ham Radio Deluxe presented by Kent Ochs.

A motion was made and seconded to close the regular meeting at 7:50 pm

Respectfully submitted by Bob McIntyre, W9DXR
Secretary

VE TESTING RESULTS
NEXT EXAM:
April 4, 2009
Park District CRC ; Sr. Lounge.
RESULTS FOR March 7, 2009, TEST SESSION:

CLASS	NUMBER TESTED	NEW LICENSE or UPGRADE
Technician	1	1
General	4	3
Extra	1	1
	6	5

NEW LICENSES:
*** * * * TECHNICIAN * * * ***
Juan Martinez KC9PFG
UPGRADES:
*** * * * GENERAL * * * ***
William Boesch KC9PAU
Fred Kaufman KC9OHP
Konrad Kubit KC9NUW
*** * * * EXTRA * * * ***
Michael Schulz W9MJS

The SARC-sponsored VE exam sessions are held at 9:00 a.m. on the first Saturday of each month (unless it is a holiday or advised to the contrary by Schaumburg Park District) at **Schaumburg Community Rec Center (CRC)**; 505 N. Springinsguth Road; Schaumburg, IL. The CRC is located at the S.E. corner of Springsinsguth and Bode Road. Park in the North lot and enter through the North doors. Testing will be in the Senior Lounge just inside the doors. Signs will be posted to guide the way to the room.

The fee for taking a VE exam is $14.00.

According to the FCC, the test fee allows an examinee one attempt to pass or fail each of the three examination elements. In addition, the order in which the examination elements are taken is not restricted; they may be taken out of sequence.

As in the past, an identical fee will be assessed to any applicant who fails an exam and wants to retest at the same session. The only condition is that the same exam (identical set of questions) cannot be given to the applicant. Since all our exams are unique, this is not a problem at our sessions.

Larry Carr NO9A
W5YI-VEC CVE & Test Session Manager
847-593-8658
E mail: N09A@ARRL.NET

Schaumburg Amateur Radio Club
Monthly Treasurer's Report
February 2009

Beginning Balance	**$1,740.94**
Expenses	
1006-Kent Ochs – Tent pole replacement	$42.34
1007-Illinois Secretary of State, Annual Corporate Report	$10.00
619-Kim Bettasso	$9.47
639-Superior Copies	$36.80
1008-Seabury & Smith – Club Insurance	$320.00
PayPal	$1.95
Total Expenses	**$420.56**
Deposits	
Dues Receipts, 3 new, 3 renewal	$145.00
Ebay Sales	$1996.88
Total Receipts	**$2,141.88**
February Ending	**$3,462.26**

2009 SARC OFFICERS

President:	Mel Luxenberg	W9FRT
Vice Pres.:	Phil Sawicki	N9IQ
Secretary:	Bob McIntyre	W9DXR
Treasurer:	Kent Ochs	W9KAO
Director:	John Bettasso	AJ9ON
Director:	Bob McIntyre	W9DXR
Director:	Jim Kempe	KC9LWO
Director:	Bruce Widenhoefer	KB9JEJ
Director:	Geoff Stevens	KA9QGH

CLUB COMMITTEES

Programs	Annie Mitchell, KC9CUN
Social Activities	Kim Bettasso
Membership	- Open -
Education	- Open -
Public Service	- Open -
Emergency Communications	Bob Langsfeld, WB9TZC
Special Events / Field Day	Geoff Stevens, KA9QGH
Publications	Mark Deelsnyder, KB9VHA
Publicity	Mark Deelsnyder, KB9VHA
Net	Dave Dietrich, KC9EHQ
Technical Assistance	Bill Smead, K9IIM
Fund Raising	- Open -
Fox Hunt Coordinator	Bruce Widenhoefer, KB9JEJ
Repeater	Rob Glowacki, N9MVO

SARC Emcomm Membership Information Form

PRIVACY NOTICE: All information you provide here will NEVER be disclosed to any outside companies or organizations. It will NEVER be made publicly available, and will NEVER appear on any publicly accessible internet web sites. This information is strictly for the use of the SARC Emcomm organization to work with you as an Emcomm volunteer,

Member Information:

First: _____ **Last:** _____ **Callsign:** _____

License Class Held: _____

E-mail address: _____

List phone numbers **in the order you want us to call** when trying to reach you for an emergency activation:

	Area code	Number	Number type (home, work, cell, pager, other)
1) Phone:	_____	_____	_____
2) Phone:	_____	_____	_____
3) Phone:	_____	_____	_____
4) Phone:	_____	_____	_____

Equipment and modes I have for Emcomm use:

(Check all that apply)

		HF	2M	220	440
HT	■				
Mobile rig	■				
Base (home)	■				
APRS					
ATV					
Packet					

Emergency power I have for Emcomm use:

Portable Gel Cell (or similar) - ☐

Home QTH Gel Cell (or similar) - ☐

Portable Generator - ☐

Home QTH Generator - ☐

Training Completed: (Check all that apply)

ARRL Emergency Communications Course - Level 1 ☐ Level 2 ☐ Level 3 ☐

SKYWARN training - ☐ Date of last SKYWARN training: _____

Registered with ARES - ☐ Red Cross trained - ☐

Additional Information:

This section is provided for you to give us any emergency contact info you would like us to use ***ONLY*** in the event you become ill or injured while involved in an emcomm activity. This information is strictly voluntary and is only used to assist you in the event of an emergency.

Final Note to Volunteers: If you have any medical condition or concerns that you would like emergency medical personnel to be aware of if you became ill or injured during an emcomm event, please write up that information on a separate sheet of paper. Place it into a SEALED envelope with your name and callsign on it, and give it to a member of the emcomm committee at your first meeting or drill. This will be kept STRICTLY CONFIDENTIAL, and locked in the filing cabinet at the EOC. **This envelope would only be opened for a medical emergency.**

Schaumburg Amateur Radio Club
P.O. Box 68251
Schaumburg, IL. 60168-0251

Deliver To:

Thursday Night 8:00 Net

S.A.R.C. Repeater

145.230 MHz - 600 kHz
PL=107.2

442.275 MHz +5 MHz

PL=114.8 Hz

Don't forget to check into the net! It will only take a minute and will let other club members know how you sound on the club repeater. The net features current club news, weekly NEWSLINE, news from other clubs and (of course) the swap-and-shop. Encourage your friends who are not yet members to check in with as well. Keep in mind that this is an open net and we encourage everyone to check in. See you Thursday at 8p.m.

The Schaumburg Amateur Radio Club, Inc., is organized as a general not-for-profit corporation in the State of Illinois to render public service whenever applicable to the needs of the community and further various pursuits of amateur radio as a hobby. Meetings are generally held on the third Thursday of each month. Visitors are **always** welcome.

Please send all submissions for the Radio Hill Gazette to the following address: **SCHAUMBURG AMATEUR RADIO CLUB, INC. 790 Washington Blvd. Hoffman Estates, IL 60169-3077**

Or E-mail to: **sarc-rhg@comcast.net**

We solicit letters, articles, news items, quizzes, advertisements, suggestions, and criticism -- plus anything else you can think of, including ideas to improve the RHG!

The editor reserves the right to edit submissions due to size or formatting limitations. S.A.R.C. shares newsletters with a number of other clubs. We scrutinize their publications very closely to make sure that we do not infringe on any copyrights. As a matter of form, we try to acknowledge all prior sources.

SARC is a recognized ARRL Special Services Organization.

The Schaumburg Amateur Radio Club publishes the Radio Hill Gazette monthly.

SARC Home Page URL:

http://n9rjv.org