

# THE RADIO HILL GAZETTE

Volume XXXIV Issue X

October 2009

*Celebrating Our 34th Year in Publication*

## Club Calendar of Events October 2009

Sat	3	8:00 AM	Official Saturday Morning Breakfast – Maxfields
Sat	3	9:00 AM	VE Testing Session – Schaumburg CRC
Sat	10	8:00 AM	Construction Project – Schaumburg Tennis Plus
Sun	11	<b>Early ☺</b>	Chicago Marathon
<b>Thu</b>	<b>15</b>	<b>7:00 pm</b>	<b>Club Meeting - CRC</b>
Sat	24	8:00 AM	Construction Project – Schaumburg Tennis Plus

## November 2009

Wed	4	7:00 PM	Board of Directors meeting – Schaumburg Airport
Sat	7	8:00 AM	Official Saturday Morning Breakfast – Maxfields
Sat	7	9:00 AM	VE Testing Session – Schaumburg CRC
Sat	14	8:00 AM	Construction Project – Schaumburg Tennis Plus
<b>Thu</b>	<b>19</b>	<b>7:00 pm</b>	<b>Club Meeting - CRC</b>
Sat	28	8:00 AM	Construction Project – Schaumburg Tennis Plus

### Club Nets:

Technical information net. Every Tuesday night at 7:30 pm. On the SARC Repeater 145.23 MHz.-600 kHz WITH 107.2 Hz PL. Bring your Q&A's

Thursday nights are the 2 meter general information net on the SARC Repeater 145.23 MHz.-600 kHz WITH 107.2 Hz PL.

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

## October Meeting Presentation

Chicago Area Radio Monitoring Association (CARMA)

## Passing the Tech Test By Dan Romanchik, KB6NU

I teach One-Day Tech classes. At the start of each class, I go over the following to help focus students on what to keep in mind when taking the test. It occurs to me that these are good tips no matter who is taking the test, so if you know someone who will be testing soon, please feel free to pass along this advice.

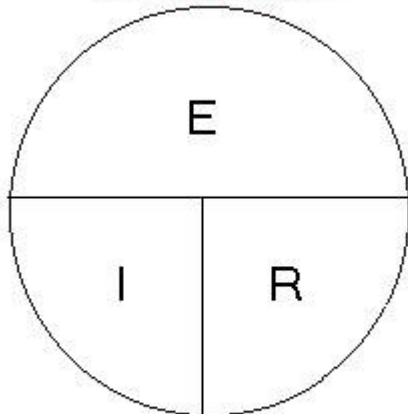
### Technical Topics

The Tech test is not very technical, but there are three technical topics that you need to know:

- \* Ohm's Law,
- \* how to calculate power, and
- \* the relationship between frequency and wavelength.

## Ohm's Law

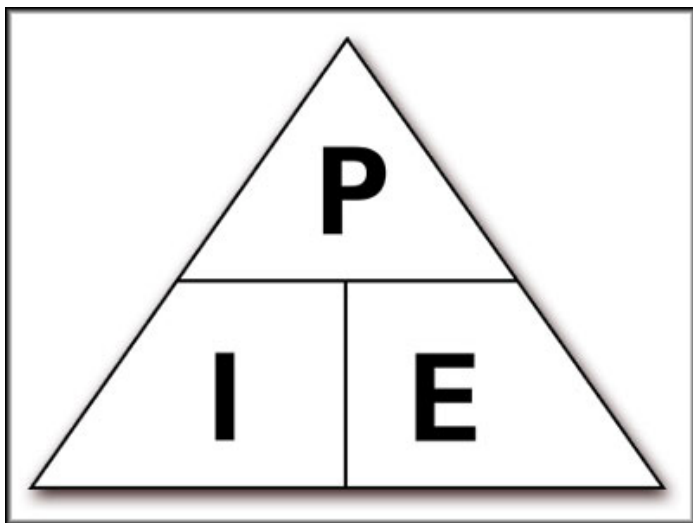
## The "magic circle"



Ohm's Law  $E=I/R$  where  
 $E$ =volts,  $I$ =amps and  $R$ =ohms

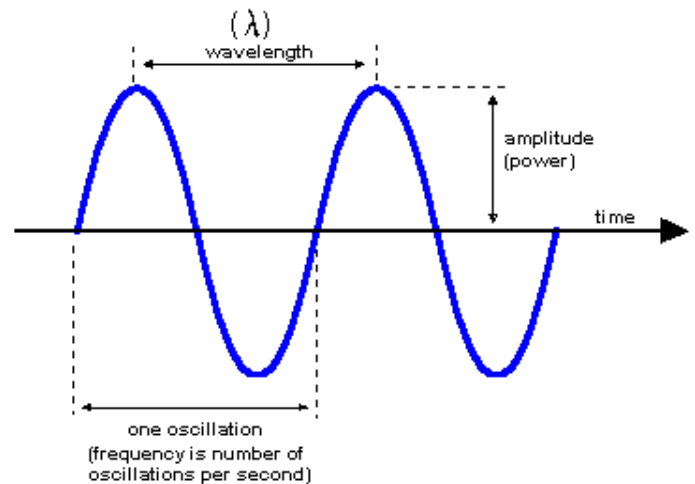
The basic formula for Ohm's Law is voltage ( $E$ ) equals current ( $I$ ) times resistance ( $R$ ), or  $E = I \times R$ . On the test, there are several questions where they give you two of the values and ask you to calculate the third. If you're asked to calculate the current, you use the formula,  $I = E / R$ . If you need to calculate the resistance, use the formula  $R = E / I$ .

## How to Calculate Power



The formula for calculating power is power ( $P$ ) = voltage ( $E$ ) times current ( $I$ ), or  $P = E \times I$ . To calculate the current drawn, when given the power being consumed and the voltage applied to the circuit, use the formula  $I = P / E$ .

## Relationship Between Frequency and Wavelength



There are several questions that require you to calculate the wavelength of a signal or some fraction of the wavelength. The reason for this is that antennas are often a fraction of a wavelength.

The formula that describes the relationship between frequency and wavelength is wavelength in meters =  $300 / \text{frequency in MHz}$ . One question asks for the approximate length of a quarter-wavelength vertical antenna for 146 MHz. To figure that out, you first calculate the wavelength:

wavelength =  $300/146 = 2.05$  m or about 80 inches

One quarter of 80 inches is 20 inches, and the antenna will actually be a little bit shorter than that because radio travels more slowly in wire than it does in free space. The correct answer to this question is 19 inches.

That's all there is to the technical part of the test!

## Safety

There are lots of questions on the test about operating safely and being safe when working on antennas. My advice when answering these questions is to always choose the most conservative answer. The two exceptions are when asked what is the

lowest voltage and current that can hurt you. For these questions, the correct answer is the second lowest choices.

### Emergencies

There are lots of questions about what to do in emergencies. There are two things to keep in mind when answering these questions:

\* You should do whatever you can to help someone who is in an emergency situation.

\* You can even break the rules to help someone in an emergency situation. This includes operating on frequencies you are normally not allowed to operate on and communicating with other stations in other radio services.

### Miscellaneous Tips

Here are a couple of other miscellaneous tips:

\* The answer is 'D.' If one of the answers to a question is, "D. All of these answers are correct," chances are that is the correct answer. There are 18 questions with this option, and of those 18 questions, there are only two questions--T3B06 and T5B03--where that is not the correct answer.

\* Long-Answer Rule. Where one answer is a lot longer than the other options, chances are that this is the correct answer. I haven't done an exhaustive study of this, but when one answer is very long, take a good, hard look at it.

That's all I have. Good luck on the test!

When not helping people pass the Tech test and become good amateur radio operators, Dan likes to work CW on the HF bands and collect QSL cards from stations whose callsigns spell words. To see what else he's up to, go to [www.kb6nu.com](http://www.kb6nu.com)

## Bylaw Changes

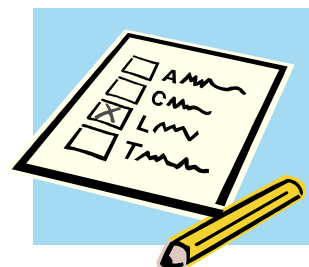
Bylaws changes for the Schaumburg Amateur Radio Club must be submitted to any officer or board member by the October general meeting and will be voted on during the November annual meeting.

## Officer and Board Nomination Notice

It's that time of year again! Now is your chance to change the structure of SARC for 2010 and beyond. If you have never run for a position please consider doing so. You will receive help from the existing officers and board members.

Positions to be elected will be the 4 club officers (President, Vice President, Secretary, and Treasurer) and one Board member position.

Please submit your nominations for officers and board members to Phil Sawicki, N9IQ or Bruce Widenhoefer, KB9JEJ.



### **Notice for Absentee Voting - SARC 2009 General Membership Elections**

For those not able to make the November general membership elections meeting here is the procedure to request an absentee voting ballot.

1. Make a request by mail to the club's official address at SARC - Absentee Ballot Request, P.O. Box 68251 Schaumburg, IL 60168-0251 or in person at the Board of Directors Meeting. All requests should be received by the club **no later than November 1.**

## **Minutes of the Regular Meeting Schaumburg Amateur Radio Club, Inc Thursday, September 17, 2009**

President, Mel Luxenburg, W9FRT, called the meeting to order at 7:08 PM. There were 24 people in attendance at the meeting. Introductions were made by everyone present. The question for the evening was: " Did you attend the recent hamfest? "

### OLD BUSINESS

Treasurer's report – Kent Ochs, W9KAO reported that the club has a balance of \$3,172.99 at the end of August. Most of our income was from club dues and some from equipment sales. There are 65 paid members at the moment. We are still tracking well compared to our budget.

### APPROVAL OF MINUTES AND TREASURER'S REPORT

A motion was made by John Bettasso, AJ9ON, to accept the Treasurer's and Secretary's report as printed in the August RHG. The motion carried by unanimous vote.

### COMMITTEE REPORTS

Net Control –David Dietrich, KC9EHQ, reported that a new net script is ready to go. Previous net control operators were requested to meet after the meeting to develop a new schedule.

Membership – No report this evening.

Public Service – There was a public service event held last Saturday providing communication for a 9.11 Kilometer/Mile Walk/Run event.

Repeater – Rob, N9MVO, reported that the repeater is working well and he is working on a backup transmitter.

Construction Project – Ted Lester, AB9SZ, reported that the construction project will start

on Saturday September 26<sup>th</sup> at Tennis Plus on Payne road. Cliff Sowka gave a short presentation on a voltage comparator circuit board.

RHG/Publicity –Please send articles in to Mark Deelsnyder. General articles on ham radio related topics are needed or items for sale. Submitting an article for the RHG will get your name put into a drawing at year-end for a one year club membership.

Education – No report tonight.

Em-Comm –There is a Simulated Emergency Test coming up on October 3<sup>rd</sup>. The 147.420 Mhz. simplex channel will be used. If you are interested in volunteering to help with Em-comm please contact Bob Langsfeld, WB9TZC.

Program Chair – Program ideas are needed. Please send your program ideas to Annie, KC9CUN. In October a presentation will be made by CARMA.

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

EBay Sales – No report tonight.

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

Social Events – The club picnic was held last month on August 23<sup>rd</sup>.

Fox Hunting – No report this evening.

### NEW BUSINESS

Carl Peterson, KB9WCA, presented the SARC logo which can be put on Cabela's clothing. For \$5.00 the logo can be added to clothing from their catalog system.

For our program this evening a short presentation will be made about a recent visit to a radio station by a few of our club members.

A motion was made and seconded to close the regular meeting at 8:25 pm

Respectfully submitted by Bob McIntyre,  
W9DXR Secretary

## **How Short can a Dipole Be? W8JI - <http://www.w8ji.com/>**

The lower limit in size of a multiband dipole before feed system and matching losses approach the edge of severe problems, is about 200 feet on 160 meters, 100 feet on 80 meters, 50 feet on 40 meters, and so on.

**A good rule of thumb is length in feet must equal 1.25 times the band in meters. The result is the minimum dipole length you can use without using a good matching system in, at, or near the antenna!**

160 meters = minimum efficient length

$160 \times 1.25 = 200$  feet

80 meters = minimum efficient length  $80 \times 1.25 = 100$  feet

The G5RV length of feedline and antenna is the lower limit in size. A normal G5RV system, including tuner, typically has about 1dB of loss on 80 meters and less than 2dB **system** loss (*including loss from coax and matching*) on 80, 40, and 20 meters. People seem to hate G5RV's, yet they now seem to be willing to further shorten the G5RV and recommend others do the same!

As an antenna is shortened from that length, losses in the feed system (even what Hams consider a good one) climb rapidly. 88 feet is just too short for an 80 meters antenna, because as you see above, it is at the limit of what most tuners will match. It also places most tuners at their power limit at a few hundred watts of applied power.

The optimum length for a multiband dipole is near 1/2 wavelength on the LOWEST band,

and the optimum open-wire feedline length is any odd multiple of 1/8th wavelength on the lowest band. This means an optimum 80-meter dipole would be about 125ft long, and the feedline would be 25-30ft, 75-90ft, or 125-150ft long. The longer the feeder, the more likely you are to having to trim it for optimum tuner performance.

Most tuners like to see impedances HIGHER than 50 ohms, and inductive loads at low impedances. Pi's and L's are NOT a solution to matching problems. They actually are significantly more restricted in matching range than a conventional T using the same general style and quality components! Feedline voltage is also a good way to estimate wet-weather performance of "window" ladder line. If voltages are more than 1000 volts RMS at 100 watts, operation in wet weather will certainly cause tuning or loss problems. Use TLA and other tools as a way to plan antennas. Remember, there are more important things than pattern! A good pattern is useless if you cannot feed power to the antenna.

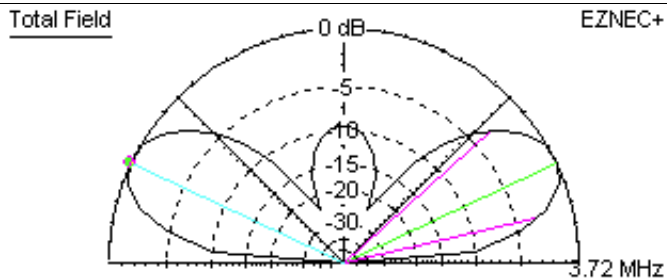
Thanks to the Barrie Amateur Radio Club for this article.

### **Warning about antenna models!**

W8JI

**The dipole is the basic building block of many antennas. A dipole does NOT have 2.2 dB gain over an isotropic radiator when the dipole is placed over earth. The dipole has about 8.5 dB gain over an isotropic radiator! Always remember this when you see antenna models over earth given in dBi. If the model over earth shows a "gain" of about 8.5 dBi, the model effectively has the same gain as a dipole.**

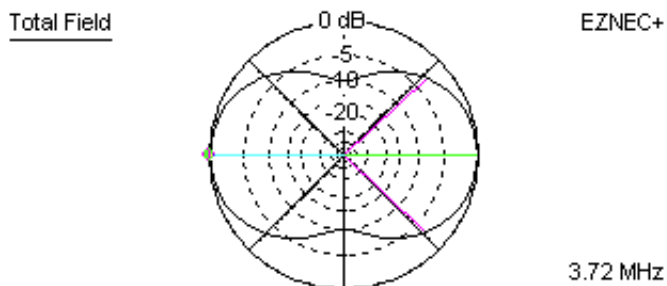
Here is the pattern of a 145 foot high copper wire dipole over medium real earth on EZNEC.



Elevation Plot  
 Azimuth Angle 0.0 deg.  
 Outer Ring 8.55 dBi

Cursor Elev 155.0 deg.  
 Gain 8.55 dBi  
 0.0 dBmax  
 0.0 dBmax3D

3D Max Gain 8.55 dBi  
 Slice Max Gain 8.55 dBi @ Elev Angle = 25.0 deg.  
 Beamwidth 28.8 deg.; -3dB @ 13.1, 41.9 deg.  
 Sidelobe Gain 8.55 dBi @ Elev Angle = 155.0 deg.  
 Front/Sidelobe 0.0 dB



Azimuth Plot  
 Elevation Angle 25.0 deg.  
 Outer Ring 8.55 dBi

Cursor Az 180.0 deg.  
 Gain 8.55 dBi  
 0.0 dBmax  
 0.0 dBmax3D

3D Max Gain 8.55 dBi  
 Slice Max Gain 8.55 dBi @ Az Angle = 0.0 deg.  
 Front/Side 10.08 dB  
 Beamwidth 86.1 deg.; -3dB @ 316.9, 43.0 deg.  
 Sidelobe Gain 8.55 dBi @ Az Angle = 180.0 deg.  
 Front/Sidelobe 0.0 dB

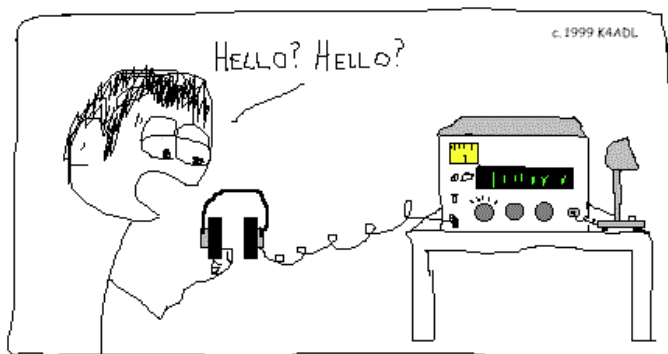
You can see the gain is **8.5 dBi**, and it is a simple dipole just over 1/2 wave high. Any antenna you model should always be compared to a standard like this!

Thanks to the Barrie Amateur Radio Club for this article.

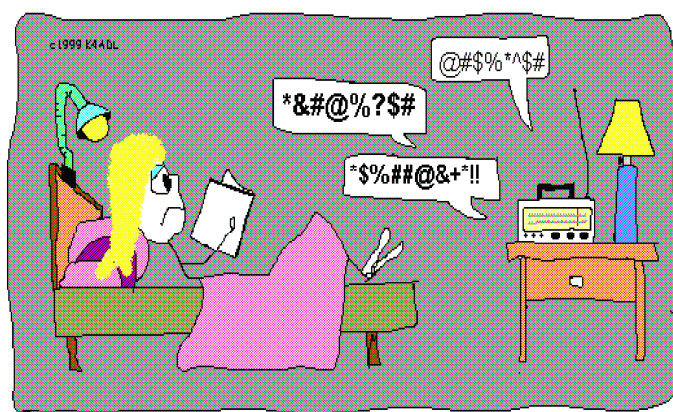


OHM NEVER FORGOT HIS DYING UNCLE'S ADVICE.

<http://xkcd.com/643/>



THE TRANSITION FROM SHORT-WAVE-LISTENER TO HAM OPERATOR WAS SOMEWHAT DIFFICULT FOR EDMUND.



DURING A LATE-NITE STUDY SESSION FOR HER AMATEUR LICENSE, BUFFY LISTENS ON 75 METERS TO PICK UP SOME HAM LINGO.



**VE TESTING RESULTS**

NEXT EXAMS:

**October 3, 2009**

Park District CRC ; Sr. Lounge.

Results for Sep. 5, 2009, test session:

CLASS	NUMBER TESTED	NEW LICENSE or UPGRADE
Technician	0	0
General	2	2
Extra	1	0
	<b>3</b>	<b>2</b>

**UPGRADES:**

**\*\*\*\* GENERAL \*\*\*\***

Charles Aldridge      KC9QIK  
 Michael Lawson      N9KJV

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 Springinsguth 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: [NO9A@ARRL.NET](mailto:NO9A@ARRL.NET)



**Schaumburg Amateur Radio Club  
 Monthly Treasurer's Report  
 August 2009**

<b>Beginning Balance</b>	<b>\$3,172.99</b>
<b>Expenses</b>	
Debit Card – ATT Phone Bill	\$30.59
1028 - RHG Printing - July & August	\$78.50
1029 – Spare link receiver – New Crystal	\$75.57
<b>Total Expenses</b>	<b>\$184.66</b>
<b>Deposits</b>	
Club dues	\$250.00
<b>Total Receipts</b>	<b>\$250.00</b>
<b>June Ending</b>	<b>\$3,238.33</b>

**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: Bruce Widenhoefer	KB9JEJ
Director: Geoff Stevens	KA9QGH
Director: Annie Mitchell	KC9CUN

**CLUB COMMITTEES**

Programs	- Open -
Social Activities	Kim Bettasso
Membership	- Open -
Education	Annie Mitchell, KC9CUN
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

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](mailto: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. Unless otherwise clearly identified as copyright protected, all material in the RHG may be used when due credit is given to the author and to SARC.

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SARC Home Page URL:

<http://n9rjv.org>

