

# SARA NEWS

**SCHENECTADY AMATEUR  
RADIO ASSOCIATION, INC.**

**"SERVICE THROUGH  
AMATEUR RADIO"**

**FOUNDED 1930**

**K2AE REPEATERS**

<http://www.k2ae.org/>

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April, 2012

General Meeting, April 2nd, 2012 at 7 PM, Niskayuna High School Little Theatre

## High Voltage Corona and Radio Noise

*with Jim Stewart, K2PK*

Corona is a form of discharge that can occur on high voltage wiring, whether on power lines or in high voltage electronics equipment. It can be seen as a faint blue glow and can be heard by ear because of the unique sound it makes. It also causes electromagnetic interference.

The program features pictures taken of corona in a laboratory environment; where it comes from; what it looks like; and the audible and electromagnetic noise it produces. The taking of the pictures themselves is an example of how it is sometimes necessary to violate conventional wisdom to get good results. How to find it and cure it is the real issue.

The SARA meeting will be held Monday, April 2nd, 2012 at 7 PM in the Little Theatre of the Niskayuna High School on Balltown Road. Attendees should enter the school through the cafeteria entrance located on the side of the school, adjacent to the Nott Street Extension school parking lot.

## From the Trustee

*Hal AK2E Trustee K2AE*

The repeaters are monitored day and night! It seems there are 2 distinct operating modes. We have the daytime mode and the nighttime mode. The daytime mode just about everyone remembers to ID at about the 10 min interval. The nighttime mode it has been observed that the latter the hour the less the ID. Some operators may ID once in a 2 hour QSO, some once a night, some not at all and some at the required 10 min requirement.

It would be nice to get everyone to operate under the daytime mode and operate with the FCC ID requirements.

If operating practices are not improved at night, the repeater may be shut down and turned back on in the morning.

TIP: If you are talking in a large group just say your call while turning it over to the next person. If you happen to leave the frequency or it's more than 10 min. before the QSO gets back to you; you have still ID(ed) at the end of your last transmission.



## Board Meeting

SARA Board Meeting, March 14th 2012

### Attendees:

President, Hal Post, AK2E  
 Vice President James Stewart, K2PK  
 Secretary, Dan Fiorillo, KC2MER  
 Treasurer. Tim long, W2UI  
 Board - Craig Wood, W2XAD,  
 Ken Day, K2DAY, Frank Simon, WB2PUH  
 Called to order at 7:05 PM by President Post

**Secretary's Report:** given by Dan Fiorillo accepted as published

**Treasurer's Report:** Given by Tim Long, accepted

**Repeater:** Two Pro 3 radios have been serviced and are ready to be installed. One for 2 meter, other for 440 . Crystals need to be ordered for the 220 radio.

**Programs:** Vice Pres. Jim Stewart continues to arrange and schedule programs for the monthly meetings. The April meeting will be presented by Jim Stewart K2PK on high voltage corona and radio noise.

**Old Business:** Old Generator Disposition, waiting to remove the generator from the trailer frame, so it can be sold as scrap metal.

**Field Day Location:** The Niskayuna Sports Committee have authorized the use of the Aqueduct Road facility for the Annual. Field Day weekend in June. The site is an ideal site with adequate drainage, pavilion, restrooms, picnic area etc. and field area for antennas. There were discussions with Jim MacMurray and April MacMurray on a combined Field Day with SMARA and SARA working together.

**Election Committee:** The Election Committee has established a slate for the June Elections. Includes:

Jim Stewart, Pres, K2PK            Craig Wood, VP, W2XAD  
 Tim Long, Treasurer, W2UI        Dan Fiorillo, Sec, KC2MER  
 Board Members: Ken Day, K2DAY        Hal Post, AK2E  
 Frank Simon, WB2PUH            Al Kozakiewicz, AB2ZY

**Broughton Award:** The Broughton Award Committee is looking for nominations for the annual Broughton Award. Any member may nominate an individual.

**Training:** Discussions with Craig Wood on conducting the license training over the repeater system. Could use some people to assist with this project.

Meeting was adjourned at 7:45PM

Submitted by Secretary Dan Fiorillo, KC2MER  
 Board meetings are open to SARA members. Board meetings are held on the 2nd Wed. of each month at LT's

## QSY Society Special Event

The QSY Society Amateur Radio Club will be hosting a Special Event at the Samuel F. B. Morse Estate (Locust Grove) in Poughkeepsie, NY on Saturday April 14th from 8:30 am to 1:30 pm EST. This Special Event is a celebration of the invention of Morse Code by Samuel Morse around 1832.

Radio Amateurs who have a confirmed CW contact with the QSY Society's Special Event Station K2QS in Poughkeepsie, NY on the frequencies 7.034 and 14.034 MHz will be able to obtain a Certificate and QSL Card to commemorate the occasion. These can be obtained by contacting David Ruth at 48 Hoof Print Road, Millbrook, NY 12545.

Radio equipment and antennas will be set up starting at 7:30 am and club members will begin making contacts using Morse Code at 8:30 am.

All Amateur Radio Operators who can send and receive CW are invited to help celebrate Samuel Morse's invention of Morse Code. Both slow and fast operators are welcome. Give it try.

Additional information can be obtained at the QSY Society web site [www.qsysociety.org](http://www.qsysociety.org) and by contacting Scott Dunlavy N2NTV the event manager at [sdunlacey@optimum.net](mailto:sdunlacey@optimum.net).

Thank you and 73,  
 Henry Ritz KB2VJP QSY Society PIO

## Basic Antenna Design

*Daniel Reynolds - AAONI - September 23, 1998*

Some folks might think that if they spend \$3000 on a top of the line transceiver that they should be able to talk to just about anyone around the world. Not So! It sure will help, but those folks are forgetting the vital importance of a good antenna. I believe that a station should be 25% radio and 75% antenna. This doesn't mean go out and spend 3 times as much on an antenna either... there's a lot of things you can do in designing and building an antenna that is for less expensive than any radio. It just takes time and a little know-how.

### What makes a good antenna?

The answer to this question can be summed up in one word - "resonant". An object may physically resonate - e.g. a piano string, or a guitar string. Each of those musical instruments has a string that is either struck or plucked - and the string physically vibrates at one specific frequency.

An antenna is similar in many ways to that musical string. It resonates best at one particular frequency. It can resonate a little above and below that frequency, and sometimes at multiples of that frequency, but it usually does best at that one frequency.

### Frequency

A radio signal is based off of an alternating current. A direct current is the type of current that comes from a battery. A direct current (D.C.) flows in only one direction. An alternating current (A.C.) flow first in one direction, then it gradually slows down and flows backwards, then it slows down and flows back the first way. The number of times each second that it makes a complete cycle is the frequency of the A.C. Radio frequency is typically above 20,000 cycles per second (or 20,000 Hertz). Power line frequency is typically 60 Hertz (Hz) in the U.S.

### Wavelength

Radio signals have waves. The length of those waves is dependant upon the frequency of the radio signal. A higher frequency will have shorter waves. A lower frequency will have longer waves. Think of a harp. A harp has many strings

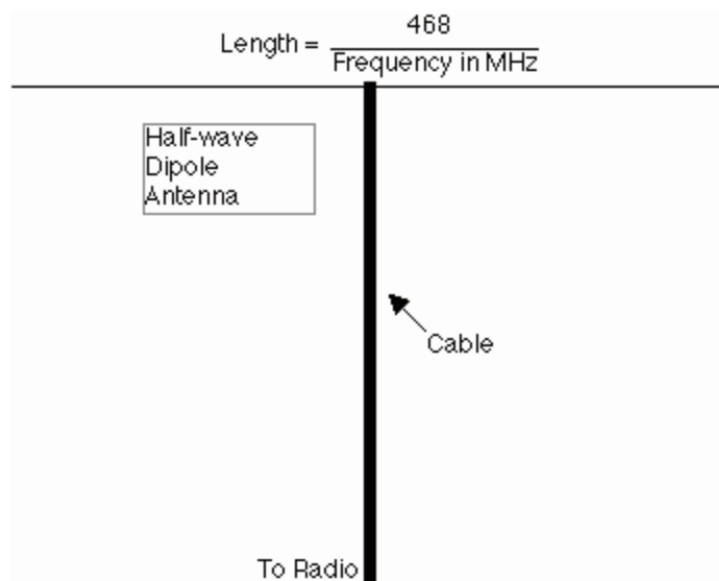
lined up from shortest to longest. The shortest strings when plucked sound high pitched, and the longest strings when plucked sound low pitched. The same with antennas and wavelength. Low frequencies will need longer antennas, and high frequencies will need shorter antennas.

What different kinds of resonant antennas are there?

There are about as many different kinds of antennas as there are cars, but there are a few basic designs you can remember the next time you want to make a resonant antenna.

### The half-wave dipole

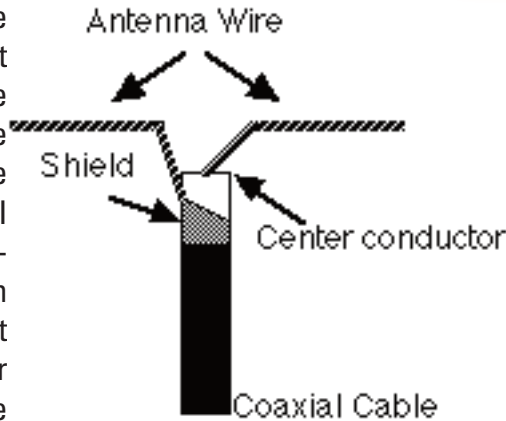
This antenna is one of the most popular antennas used for transmitting and receiving. It is easy to figure out the length of a dipole antenna. Simply take 468 and divide it by the frequency (in MHz - MegaHertz, or Millions of Hertz) you intend to use it for transmitting. If you were making a dipole for 40 meters - 7.1 MHz, then the length would be 65.9 (feet). I failed to mention that this equation gives you the length in feet. If you want the answer in inches, then you would need



to multiply the answer given in feet by 12. For example - you wanted an antenna for the 2 meter band - 146.0 MHz; the length would be 3.2 feet or 38.4 inches.

On the next page you can see how the coaxial cable hooks up the antenna wires. Usually an insulator is placed between the two wires and the coaxial cable in order to give

this junction more physical support and to take some strain off of the wires and the cable. One day, I put up a quick antenna without such an insulator, and it worked great for that day, but the next day I found that the wires somehow shorted out which explained why I couldn't hardly hear anything compared with the day before.



A half-wave dipole can be raised up between two trees (as high off the ground as you can get it... higher is better). It can also be raised in the middle and the ends of the antenna can be tied off closer to the ground (not so close that people can contact the wires). This configuration looks like an upside-down V. It is commonly called an inverted-Vee.

A half-wave dipole works best broadside to the wires. If the wires go North to South, then you will have best results with stations to the East and West of you.

An inverted-Vee has less broadside action than a normal flat dipole.

Height is the key to getting out and being heard. If your 40 meter dipole is too close to the ground (e.g. 10-20 ft), then most of the signal will go up. If it is further up away from the ground (30-50 ft), more of the signal will go out closer to the distant horizon (resulting in being heard farther away). This height will vary with the frequency/wavelength you are using - 80 meters will be twice will work best twice as high as a 40 meter (unless you want most of your signal purposefully going nearly straight up in the sky and coming down around your general vicinity - excellent for close range communication 50-200 miles).

### Multiband antennas

If you would like to use your antenna on many different

frequencies, then there are several options. One is to connect several antennas to the same piece of coax (just be sure to spread the antenna ends out from each other to improve the resonance of each antenna). On one piece of coax, I have successfully used an 80 and 40 meter dipole antenna. I've read elsewhere that it is possible to do 4 bands on one antenna, but I've had a little bit of difficulty in doing that (I'm not saying that it doesn't work, I've just had a hard time getting it to work).

### The full wave loop

There is another antenna that is almost as easy to make, but a little harder to put up. It is a full wave loop. It hooks up to the coaxial cable the same as with the dipole, except that you use about twice as much wire and there are no loose ends.

It is typically made into the shape of a square, or a nearly square shape rectangle. If you make it too narrow of a rectangle, it begins to represent and act like a dipole antenna. Sometimes you can make it into the shape of a triangle. It will perform best if you can get the most amount of area inside of the loop (which is a circle).

Some people like to put a full wave loop up so that it is parallel with the ground (i.e. the whole antenna is at the same height). Others like to put it up on one side so that it stands upright. I prefer the latter design. It, like the dipole, tends to radiate and receive broadside, so if you put it in the first configuration (parallel with the ground), most of the signal seems to go either up into the sky, or down in the the earth. The latter configuration has most of the signal go out lower in the sky - closer to the distant horizon.

A full wave loop's length is found by dividing 1005 by the frequency in MHz. For example, a loop for 40 meters - 7.1 MHz would be 141.5 feet long. I put one of these up between two trees that were about 45 feet apart - I think the top was somewhere around 40 feet, and the bottom around 6-8 feet. It worked well on 40 meters. It's not up anymore because I made the antenna out of 24 gauge speaker wire from Radio Shack (very inexpensive), and certain wire joints broke when the wind blew - so it all

came down. With a little better reinforcement and the ability to have some give for when the trees sway, and it would make a perfect permanent antenna.

### **The quarter wave vertical**

This antenna is almost as popular as the dipole. The center lead of the coax (short for coaxial cable) goes to a conductor (pipe/wire) that is one quarter-wave long (half as long as the whole half-wave dipole). The equation for this conductor is 234 divided by the frequency in MHz. That's only half of the antenna. The other half consists of two or more wire radials that hook up to the shield of the coax. These are also the same length as the first conductor. If this antenna is placed on the ground with the first member pointing straight up (perpendicular with the earth), then the other members are laid upon the ground. If you want to permanently install them, then you should bury those elements a few inches below the surface of the ground so as not to hamper your ability to mow the yard.

Another name for this antenna is the 'ground plane antenna'. It doesn't have to sit down on the ground, although it does okay there. Since the radials represent ground, the whole antenna could be raised up into the air (either mounted to a tower or mast, or hung from a tree if made from wire). The antenna may perform better if the radials are hung at a 45 degree angle below horizontal. Two radials is enough to make it work, but more can be added if desired.

I've made a quarter-wave ground plane antenna for the 2-meter band. Using 12 gauge solid copper wire, a small piece of plywood or plexiglass, and some lightweight RG-58 coax (with the type of connector you need for your radio - PL-259 or BNC attached to the end). The elements were about 19". The center conductor goes to the vertical element. Instead of two separate wires for the ground radials, I took one wire and made it a little bit longer (about 1/4 inch). I bent that wire so that it was 90 degrees/square in the middle. After removing the insulation at the bend, I soldered the shield of the coax to that wire. To give the whole antenna a little bit of support, I placed the coax and the wires on top of a small 3x3 piece of plywood or plexiglass. With a drill, I drilled out small holes on each side of the

wires and coax so that I could tie some strings through the board and around each of the wires and coax. The I took a hot glue gun and ran a bead of hot glue up and down each wire and the coax between them and the board/plexiglass.

To raise this antenna in the air, you can either put a small loop in the top of the radiating element and tie a string to it that goes through your favorite tree, or you can attach it to a mast or piece of wood that puts it up higher than the roof of your house.

The ground plane antenna is easy to make, and it does a good job. When it transmits, it sends most of it's signal down near the distant horizon in all directions. Some folks like to say that it radiates poorly in all directions. That's also true. It does not have the directivity that the dipole and full wave loop have.

### **Antennas for listening only**

If you want to put up an antenna for listening only, then you can try a resonant antenna, OR you could just try a random length wire antenna. This seems to work especially well for Shortwave receivers. This may not help out as much with a VHF/UHF scanner (those usually need an antenna that is resonant - much shorter than those used for 'shortwave').

For example - a shortwave random length antenna could be an antenna that is strung from the side of your house (near a window close to your radio) out to a tree. It could be 20-100 feet... or it could be longer... MUCH LONGER. We've run a 300 foot antenna that is up anywhere from 4-10 feet off the ground in places, and with it we can pick up just about any shortwave station out there (as long as conditions permit), plus we've always improved our AM reception tremendously. While we could only pick up a couple of local stations before (<40 miles), now we can pick up stations up to 100 miles away during the day time on AM.

If you'd like more info on antennas for AM/Shortwave Listening, check out the folks at [www.nordicdx.com](http://www.nordicdx.com). They also have a special section just on antennas.



## Silent Key Tribute to ZL1AMO, Ron Wright

*By W3UR, Bernie McClenny*

It is with great sadness that I report the passing of the legendary DXpeditioner ZL1AMO, Ron Wright. He was 75. Ron was admitted to North Shore Hospital two weeks ago after he had a collapsed lung and was in stable condition at the time. He became a Silent Key early on Tuesday March 6th.

My first QSO with Mr. Wright was ZL3HI/C, on Chatham Island, in 1978 in the 10 meter Novice Band and as corny as it might sound he would later become one of my DX heroes. Ron was a serious CW op and would visit the US Novice bands late in his DXpeditions. He had probably well over 100 DXpeditions throughout the Pacific including 3D2RW, 3D2RW/R, 5W1CW, A35EA, C21/ZL1AMO, FW0BX, H44RW, T28RW, T28RW, T30BH, VR6HI, YJ0RW, ZK1CQ (South), ZK1CQ, (North), ZK1MB (North), ZK2RW, ZK3RW, ZL7AMO, ZL8AMO and ZL9AMO just to name a few! Many of these locations he visited multiple times between the late 70s and 2002.

Some will remember his last DXpedition where he was emergently air lifted back home to New Zealand from Fiji back in late 2002. After his recovery he went back home and continued to give back to the hobby as QSL manager for his good friend ZL3CW, Jacky Calvo. For many years he was also a BOD member of INDEXA and a member of the A1 Club. Ron was the 23rd Amateur Radio operator inducted into the CQ DX Hall of Fame in 1985, as well as recently (2009) the 2nd inductee to the NZ DX Hall of Fame.

AMO was one of the best CW ops and operated most of his DXpeditions exclusively on his favorite mode. His CW DXCC count was 339/346 (current/total), only needing one country to have them all on Code! That one ironically was 3C0 ñ Annobon!

I had the pleasure of meeting Ron as a young man in the early 80s at a National Capitol DX Association (NCDXA) meeting in Virginia. Throughout the years we had many QSOs on CW. One evening I found AMO at home on SSB on 20 meters. Knowing Ron always enjoyed life and had a great sense of humor I broke in and said "Hello Mr. Wright, you're on the wrong mode". His quick witted response was "I guess you can call me Mr. Wrong"! So from that point on when I found him on SSB during his DXpeditions I

would give him reports of "Mr. Wrong"! In all seriousness I wish the Wright family (his wife Jeanette and daughters Karen and Terri) my sincere condolences. Amateur Radio and the DXing Community have lost an extraordinary man and DXpeditioner!

## March's Presentation a big hit!

"I thought the presentation on the Titanic at last night's meeting was excellent. Well done!" *Raleigh K2RI*

It was the best presentation I have ever heard anyone make at a radio club meeting. The speaker is to be thanked and praised.

From Phil Barker to follow up on his talk on the Titanic at the March SARA meeting: Here are some special links that cater to the real technical details about the radio and electrical equipment:

<http://copperas.com/titanic/dynamo.htm>  
[http://marconigraph.com/titanic/wireless/mgy\\_wireless.html](http://marconigraph.com/titanic/wireless/mgy_wireless.html)  
[http://marconigraph.com/titanic/electrician/elec\\_110728.html](http://marconigraph.com/titanic/electrician/elec_110728.html)  
[http://marconigraph.com/titanic/electrician/elec\\_100610\\_notes.html#300](http://marconigraph.com/titanic/electrician/elec_100610_notes.html#300)  
<http://www.hf.ro/>

Here is another site you will might like very much maybe just for your own interest in steam engines and such things. This guy Sam Halpern has the best website related to the engineering details of Titanic that he calls "Titanicology.com".

Here is an article on the Titanic's prime mover from that site:  
<http://www.titanicology.com/Titanica/TitanicsPrimeMover.htm>

At the same website he has many other interesting articles. Here is one on the watertight compartment design capabilities:  
<http://www.titanicology.com/FloodingByCompartment.html>

If anyone wants more the more popular mainstream information, I'd just go to Wikipedia which has a fairly decent article on the ship and the disaster.

## Board Of Directors

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**FCC Exam Registration (518) 982-0144**



**Schenectady Amateur Radio Association, Inc.**

## MEMBERSHIP APPLICATION/RENEWAL FORM

Regular Dues	\$20.00	\$ _____
Spouse	\$5.00	\$ _____
Student	\$5.00	\$ _____
Repeater Donation		\$ _____
Initiation Fee	\$5.00*	\$ _____

Name \_\_\_\_\_ Call \_\_\_\_\_

E-mail \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_

ARRL \_\_\_\_\_ RACES \_\_\_\_\_ ARES \_\_\_\_\_ MARS \_\_\_\_\_

Send to SARA, PO Box 449, Schenectady, NY 12301  
 July, 2010 through June, 2012

## SARA/K2AE Repeaters

Status	ON AIR	ON AIR	OFF AIR	ON AIR
Band	6-Meters	2-Meters	1.25-Meters	70-Centimeters
User TX	52.570 MHz	147.660 MHz	222.460 MHz	449.200 MHz
User RX	53.570 MHz	147.060 MHz	224.060 MHz	444.200 MHz

## Schenectady County Emergency Net

Band	Repeater	Time	NCS
70cm	444.200Mhz+	1:00 PM	Raleigh K2RI
2m	147.060Mhz+	1:30 PM	Raleigh K2RI
75m	3953KHz	2:00 PM	TBA

### Schenectady County Emergency Net

SARA members act as Net Control Stations for the Schenectady County Emergency Net (SCEN) on Sunday afternoons. The nets are open to all amateurs; ARES RACES membership is not required to participate. The purpose of the nets is to train, pass any traffic that you might have and any announcements of general interest.