



SARA Newsletter

January 2005

Shreveport Amateur Radio Association

Meeting:

First Thursday of each month at 6:30 P.M. in the Bossier Main Library History Center

Local Amateur Information

Available at:

www.qsl.net/nw1arn/

or

www.K5SAR.com

SARA Repeaters:

145.050 - K5SAR

DX Packet Cluster

145.110 - N5FJ

146.700 - K5KDJ

146.820 - K5SL

440.900 - N5FJ

SARA

PO Box 37632

Shreveport, LA

71133-7632

2005 Club Officers

President – [Richard Lee, N5PFZ](#)

Vice President – [Glenn Pettiet, K5TGP](#)

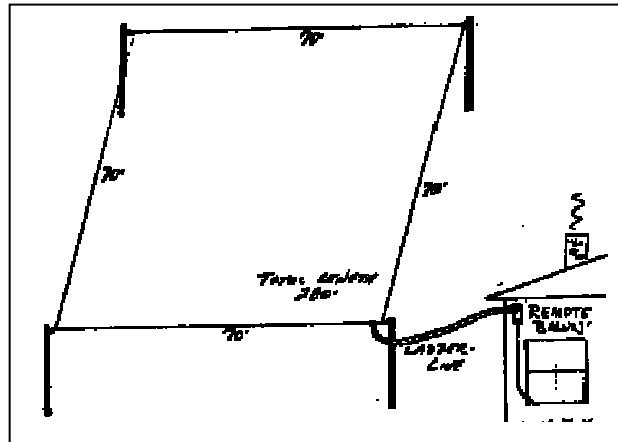
Treasurer – [Randy Fulco, K5SL](#)

Secretary – [Ellen Dupuy, K5LND](#)

Wes Attaway Guest Speaker

We get a real treat this month. Wes is going to speak on ham radio stations, antennas, grounding, and more. You will be your own worst enemy if you miss this meeting. See you at 6:30 PM on February 33rd at the Bossier Library History Center.

Full-Wave Loops



There are many articles about full-wave loops on the internet and in books this one came from

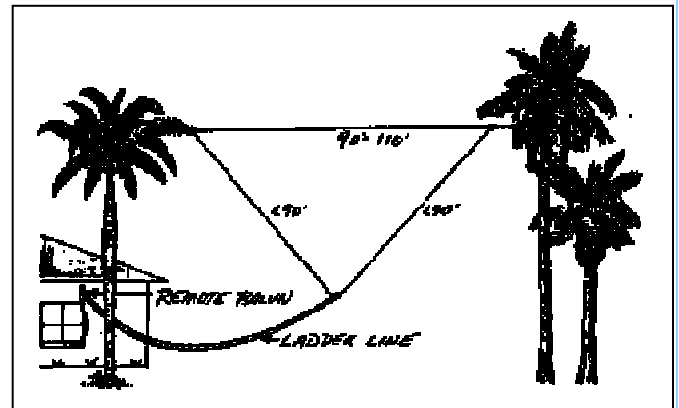
<http://www.radioworks.com/nloop.html>. If you try a loop,

you will find it is one of the best inexpensive multi-band antennas you have ever used.

Full-wave loops are very popular antennas. They are especially useful on 80 and 40 meters where they perform well at modest heights. These

are closed loops that are one full wavelength long. Horizontal loops may be fed at any convenient spot. For best performance, make your horizontal loop into a square, especially if it is to be used on several bands.

The Vertical Loop is a good DX antenna. The shape can be a circle, square, rectangle or a triangle. The larger the area of the loop the better it will work. Feed square and rectangular loops at a corner. For best results, triangular loops should be supported apex-down. This puts less of the antenna parallel with the ground and increased the effective height. Feed triangular loops either at a corner or in the case of apex-down loop, at the apex.



Use ladder line and a wideband transmatch (a naturally balanced tuner, like a Johnson Matchbox) for multiband operation. The RemoteBalun 4 is recommended if you will have problem getting ladder line to the operation position. Multiband operation is possible when feeding the loop with coax. The losses will be slightly higher, but the convenience of the coax may be worth the slight signal loss.

The design frequency, the feedpoint impedance, will be between 80 and 150 ohms. Coax fed loops will usually have an SWR between 2:1 and 3:1. You may feed this antenna with a 4:1 balun. If the loop is in the shape of square or large rectangle, the SWR can be below 2:1, but will not get much below 1.5:1.

If you decide to feed your loop with coax, I'd suggest using RG-8X or RG-213 and a high power, high performance 1:1 or 4:1 Current-type balun. Experiment with full-wave loops. You may find them to be excellent multiband antennas.

Antenna wire can be #14 hard-drawn antenna wire. Use #12 wire for large loops on 160 or 80 meters.

Freq	Length	Freq	Length	Freq	Length
3.5 MHz	287'	7.2	139'	21.2	47' 6"
3.6	279'	10.12 MHz	99'	24.93 MHz	40' 4"
3.7	272'	14.0 MHz	72'	28.0 MHz	35' 10"
3.8	264'	14.2	70'	28.5	35' 3"
3.9	258'	18.12 MHz	55' 6"	29.0	34' 8"
7.0 MHz	143'	21.0 MHz	48' 10"	29.5	34' 1"

With this particular antenna, a RemoteBalun 4 and Ladder Line are used to permit multiband operation. If you have a naturally balanced tuner (i.e. a Johnson Matchbox), the RemoteBalun 4 is not needed. Check out the the RemoteBalun's application notes at <http://www.radioworks.com/nbaltop.html>.

Survey Results are In

No real surprises here, antennas were the number one requested meeting topic followed by digital modes and operations, technical topics, VHF/UHF operating, and direction finding/transmitter hunting to round out the top fifty percent. The survey also tells us that we need to cultivate relationships with local news media and generate/participate in community events to increase public awareness. Top operating activities included building antennas, running digital modes and interfaces, satellite operations, fox hunting, and contesting operations. Making the top half of the committees are Field Day, youth support, VE testing, and education.

All told, the survey says we have a lot of work to do. Special Event Activities are paramount and volunteers are necessary to coordinate and facilitate each. Think about how you can participate. Teach ham radio to youth, help upgrade techs and generals, VE testing, fox hunting, build computer soundcard interfaces for digital mode operation, work with the news media... Everyone has a special talent that is needed to make SARA a better more effective club.

Yalta Conference Special Event Station:

Special event station EM60J will be on the air February 4-11 from Ukraine to mark the 60th anniversary of the Yalta Conference. The historic 1945 talks brought together the "Big Three" Allied leaders--(left to right in photo) Great Britain's Prime Minister Winston Churchill, US President Franklin D. Roosevelt and Russia's Joseph Stalin--to discuss post-World War II reorganization of Europe. The conference's primary purpose was to re-establish the nations that had been conquered by Nazi Germany, and one result was the partitioning of Germany into US, Russian, British and French zones. QSL via UU5JYA or direct to PO Box 378, Yalta 98600, Ukraine.--The Daily DX <<http://www.dailydx.com>>

Promote Amateur Radio Week and Field Day

1. Type a news release onto your club letterhead. Be sure to fill in your club's name and contact.
2. Mail or fax the news release to the city editor of your local paper, radio and television stations two to three weeks in advance of the time you want it to run. You may wish to follow-up with a telephone call within a few days to see that it was received and offer any additional information.
3. Approach your local cable TV and radio stations with ARRL public service announcements. If they're aired, you'll get good exposure for Amateur Radio and your club prior to Amateur Radio Week and Field Day activities.
4. Give the enclosed backgrounders to reporters looking for more information or use them to help you write up your publicity materials.

5. If a local editor or reporter expresses interest in ham radio or local classes, consider inviting him or her to take a course and write about it.
6. Consider developing informational handouts that can be left in local radio/electronics stores.
7. Consider posting attractive, easy-to-read notices in prominent places: libraries, supermarkets, radio/electronics stores, schools, etc.
8. Put a local reporter on your club newsletter mailing list.
9. Set up a station in a public place. Shopping malls are great. Have plenty of handouts on hand, and be sure a sign identifies who you are and what you're doing.
10. Call local broadcast radio talk shows and volunteer to be a guest. Be sure to propose a thought-provoking topic.
11. Write a letter to the editor of your local paper and invite readers to visit your Field Day site and learn more about Amateur Radio.
12. Hands-on involvement builds commitment. So consider ways to let others "try out" the equipment. Third party operation with other members of your club would be a thrill for local school children, for example.
13. Volunteer to speak on the subject of Amateur Radio at a local Rotary, or other service club meeting.
14. If your club has a Web page, make sure you pass the URL on to the media you are working with. If not, or for more information on ham radio give ours (<http://www.arrl.org/>).

Ground Loops

<http://www.geocities.com/SiliconValley/2775/gndsys.html>

Ground loops are the major concern and worry to be dealt with as you lay out an RF ground system! Lets lay out a worst possible case scenario of what would be a terrible way to ground a 20 meter (and all harmonically related bands) home station.

Lets say that our 20 meter Ham has his "Ham Shack" in approximately the middle of his house, up on the second story of the house. He uses a nice low resistance and low inductance flat braided strap (lets let him do at least one thing right), which runs from his 1500 Watt amplifier to a 2 foot deep ground rod in his front yard. This braided conductor runs between the floor of the second story and the ceiling of the lower story. It then runs down the outside of his stucco covered home to the ground rod. Its total length is 33 feet long from the amplifier to the ground rod.

Fifty feet (15.24 meters) of coaxial cable goes up between the walls of the second story, is draped over to the top of his tower, and terminates at his TH6DXX beam on this 65 foot tall tower. Lets break down these dimensions in terms of wavelength, and even look at them as they may appear to form a **"current loop"**!

Our rueful Ham friend is using a ground conductor that is almost exactly one half wavelength long and is raised in the air by the buildings structure. Even if this length were reduced to about a quarter wavelength, it would still very nicely couple energy into other wiring in the house, and also the wire mesh beneath the stucco walls. This other wiring could be telephone wires, television cabling, and the 110 volt power wiring in the house. His coax cables shield is a nice **"odd order harmonic"** radiator, as it is 3/4 wavelength long! The ungrounded tower is about a half wavelength tall.

This last point about the tower must be viewed carefully. He might want to ground it as an RF consideration, and he might not! Think about it this way. One ground rod is in the front yard at the end of a half wavelength wire. The shield of the coax cable ultimately goes to ground in the back yard at the tower base at an electrical length of about 7 quarter wavelengths ($50 + 65 = 115$ feet). This makes another sort of odd order harmonic radiator! If you add into this loop circuit the length of the front yard ground rod conductor, the loop circumference becomes 9 quarter wavelengths. Yet another odd order radiator dimension!

My assessment of this Ham's station would inform me that he is throwing away some of the advantage of his beam and the height of his tower because, all of the radiating conductors strung around the house raise the **"angle of radiation"** considerably higher than it could otherwise be! He is also enhancing the prospects of **"audio rectification"** to his own and to neighbors telephones. He is also enhancing the possibility of **"TVI"** to his television, and maybe to the neighbors as well if they all use a cable TV system.