SPURIOUS EMISSION

ORLEANS COUNTY AMATEUR RADIO CLUB (OCARC)
14064 West County House Road Albion, New York 14411
OCARC Newsletter May 2014
News Editor Steve Maier (KZ2R) Email kz2r@rochester.rr.com

Meeting Time

The Orleans County Amateur Radio Club (OCARC) meets at 7:30 p.m. on the 2nd Monday of the month at the Orleans County Emergency Management Office at 14064 West County House Road in Albion, New York except in September when we have a dinner meeting.The next meeting will be May 12, 2014 at the EMO office. Refreshments provided by Chuck N8CL and Steve WF2S.

Club Officers

President: Terry Cook K2EYS
Vice President: Chuck Lind N8CL
Secy: Jeff Strickland KD2CKS
Treas: Wayne King N2WK
Dir: Bruce Sidari WA2TMC
Net Mgr: Joe Gangi AC2NB
Contest Mgr: Wayne King N2WK
Programs: Bruce Sidari WA2TMC

ORLEANS CO. AMATEUR RADIO CLUB 2-METER NET

WA2DQL repeater 144.67 MHz in/145.27 MHz out with a tone of 141.3. Every Tuesday night at 9:00PM We will be calling for officers first then anyone else that wishes to join in. We also have a simplex net once a month on the Third Monday at 9:00PM on 145.270.

Upcoming net control stations are:

May	6	AC2NB	Joe
May	13	AC2NB	Joe
May	19	AC2NB simplex	Joe
May	20	K2EYS	Terry
May	27	KD2CKS	Jeff

OTHER 2-METER NETS

2 Meter Sideband Net 144.260 USB 9:00 Mondays
Lara (Lockport Amateur Radio Club)
Sunday 8 p. m. 146.820
Swapnet after regular net Sept- May

From The Editor

DAYTON TICKETS ARE HERE

I have gotten word from Marion KA2BCE that these tickets are in. She will have them with her at our May meeting. Please make sure that you have your money at this meeting for the tickets you ordered .

The Dayton "Wagon Train" is about ready to get under way. Some of us will be leaving on Wed. 14th while others will leave on Thurs. the 15th. I don't know about the rest of our club attendees but I sure spend way too much money when I go. I can't seem to pass up a good deal on things that I can't live without. This will be my 4th Dayton Hamvention. Most of us will be returning on Saturday evening. By Sunday I will already be thinking of Dayton 2015.

I am still working DX. I am up to 214 confirmed DXCC entities. My goals are expanding as I get closer to different awards from ARRL. I only need 26 confirmations for my WAS Triple Play, that's WAS on CW, Phone and Digital. Working all the W1AW stations around the states during the ARRL Centennial sure has helped with this. I also have 801 confirmed DXCC contacts for the Challenge award. The DXCC Challenge Award is earned by working and confirming at least 1,000 DXCC band-points on any Amateur bands, 160 through 6 meters (except 60 meters). DXCC on 40 & 80 meters is sure proving to be tough. On these lower bands I only have a folded dipole. I think that if I had another dipole oriented 90 deg. from my current one I would have more success.

As usual, I am always looking for more articles for the newsletter. This is YOUR newsletter, I am only the publisher. I need more good reporters. Why not write a short article on your ham radio activities . Sharing some small bit of knowledge with the rest of us will be greatly appreciated.

A special thank you to Ken, KB1Z, for the two articles he has submitted.

73 & GOOD DX
de KZ2R

ORLEANS COUNTY AMATEUR RADIO CLUB
MONTHLY MEETING - APRIL 14, 2014

7:30 - MEETING CALLED TO ORDER ….....By Club Pres. K2EYS
7:32 - PLEDGE OF ALLEGIENCE SAID
7:35 - SECRETARIES REPORT ….....NOTED: as being published and moved to be accepted by WF2S 2nd by AC2NB

7:38 - TREASURER'S REPORT.....By Club Pres. K2EYS

7:44 - CONTEST REPORT.....By K2EYS
Many Contests are coming up starting this weekend
Terry NOTED: Link on the CLUB WEBSITE.

7:54 -FIELD DAY REPORT ….....By Club Vice Pres. N8CL
Chuck reports that all PC's are Functioning properly and have been UPDATED and tested and that some need more MEMORY (1GB PC 3200 DDR RAM) and has been approved to purchase.
WA2TMC Reported : He would be able to help w/Field Day Food.

8:10 - NOMINATING COMMITEE.....K2EYS NOTED: ELECTIONS are coming in Sept. a NOMINATING COMMITEE is needed.

8:15 - OLD BUS.....$xxx Purchase @ DX Engineering Order is coming in soon.

REPEATER COUNCIL MEETING - attended by K2EYS &KK2R
RE: CHANGING PL TONE ….....Yes our Tone could be changed

REPEATER ACTING UP ?.....NOTED

CONTEST STRATEGY ….....WA2TMC & N2WK
Bruce Explained His and Wayne's RTTY RU Strategy this year

8:40 - CHRISTMAS PARTY REPORT.....WF2S speaks about idea to hold Party another Facility ie: Masonic Lodge /Albion

8:47 -ANNUAL SEPT. ELECTION DINNER/ MEETING.....Show of hands yields 50/50 Approx. Split - TABLED
WF2S to get Prices

8:52 - NEW BUSINESS ….....DAYTON (MAY 16th -18th)
Marion to get tickets - if you want them ……tell her.

W1AW ….....By K2EYS is having Fun Working all the States

CONGRATS TO: K2EDW & AC2NB …..NEW EXTRA'S !!
and Michelle KD2GED NEW HAM - TECHNICIAN !!

8:58 - MEETING MOTIONED FOR ADJOURNMENT.....By Joe AC2NB and 2nd By Cliff W2ODY

9:00 - MEETING ADJOURNED ….....Minutes Respectfully submitted ...By KD2CKS

Introduction to simple small loops for low band receiving

By KEN - KB1Z

This is the 2nd article contributed to the OCARC newsletter and fulfills a bargain wherein if Ed (K2EDW/AE) were to take his Extra exam (he passed with colors), Ken (KB1Z) would (struggle) to write two articles for the newsletter. It should be stated that in these writings, any resemblance to "good science" is completely coincidental.

A couple months ago I penned a small article on a 75M antenna that required no trees or other support system, the 75m "Helically Wound" Antenna. The technology defined a .5 wavelength wire wound on a 24 foot Fiberglas vertical pole which tunes nicely (SWR 1.2) and performs nicely both locally and for DX. The intention at the time was to replace a 75M Dipole in order to continue on 75m, given tree losses after hurricane Sandy. Surprisingly, the project continues to be a success and has allowed me to expand my net activities to several East Coast 75m nets.

As a relative new-comer to 75M, the new capability has also exposed me to the variability, frailties, and general personality of the 75M band. While the transmit signal seemed to get anywhere needed, there would be numerous times that reception produced challenges given the bands propensity to be susceptible a number of man-made and natural occurring interferences. There was always a challenging signal or two on simplex nets, even with good conditions, but especially frustrating when the band was not optimal. My little station has a half dozen antennas that can be sampled quickly, but nothing seemed to be the "fix",until a friend pointed out a class of antennas called "Small Loops". One sees small loops on war movie airplanes and warships for direction finding, and that is in fact one of their distinct amateur applications as well. From the available research, loops don't appear to compete well for transmitting until reaching the higher HF bands, but can excel on the low bands as receiving antennas.

One of the reasons small loops can produce better S/N ratios, is that radio signals have both electrostatic and magnetic components and either contain the information you need. The theory of loops is covered well in the ARRL Antenna handbook, and the advantages of some small loop designs, is that you can shield (separate) the two components so that the receiving loop is limited in its reception of man-made and nature made electrostatic signals, while allowing the magnetic portion of the desired signal to present itself without much of the interference effects. While the magnetic wave component is considerable weaker (if the shielding is considerable), the remaining signal can be amplified as necessary to produce a much better signal to noise ratio than otherwise available. Such loops are called "shielded loops" and with experimentation you can vary the shielding to the level you require.

To date experience has come from building four different loops. All loops, whether for transmit and receive or receive only, are simple resonant circuits, consisting of a loop of conductor (the larger diameter the more efficient) at a length of typically not greater than .1 wavelength and with a capacitor at the termination ends. Many amateurs find the use of a butterfly or other dual gang air variable capacitor to tune the loop, to be the most economical approach. Receive loops can be constructed in minimal time and with minimal expense. A piece of good coax and a capacitor can produce a very usable small loop. For transmitting a very high voltage will appear across the capacitor, and as such this will require a high voltage, low resistance capacitor (most usually a Vacuum Variable ($$$)). For my receive loops, dual gang air capacitors were used to achieve the required capacitance to accommodate tuning over a useful bandwidth. Dual gang capacitors are used so that the two gangs can be connected I series while not using the rotator contact due to its resistance.

One of my loops is for a specific frequency, and without any tuning capability but manages about 25KC of BW. You will find loops to have a high Q and therefore a minimal bandwidth unless one uses variable capacitors (typically remotely driven if used outside). If you only need a loop for a specific frequency, then mica Padders (very inexpensive) can be used. For 75m, a 4 foot diameter loop made of ½" coax, with a capacitance of roughly 800pf, will tune the loop. I used several fixed capacitors and then a variable for the last 150 pf.

As an aside, there are commercial shielded loops that are not "tuned" loops such as the Wellbrook or "Pixel" loops, but these will require significant amplification (30db pre-amplifier) which comes with their packages and add considerable cost. Loops with amplifiers are called "active" loops so these are shielded, active loops and could be tuned or untuned depending upon design. There is a "tuned shielded" loop by MFJ, that allows a wide bandwidth coverage but end up in the same price range as other commercial loops. These loops all have rather wide bandwidth capabilities whereas the loops I use operate on 75m, and only occasionally 40M in a receive mode also.

Having built several trial loops and trying them out, my locations (perhaps) appeared to benefit most from an unshielded, tuned approach with no pre-amplification (non-active). The need for a pre-amp (which will add noise) did not appear to bode well with having chosen a very low noise receiver (K-3), so although the unshielded loop does allow a good component of the electrostatic waveform to penetrate, ,however, it still performed well in reducing all sorts of additional noise experienced at my QTH. (Your results may vary hihi). My final loop was made with a 10 foot piece of 1/2" copper water line ($23) with a variable air capacitor ($6 EBAY) which is controlled by motor remotely ($3.50 on EBAY). A small plastic box ($8.50 Lowes) and very used rotator (optional) finished the project.

You can see photos of this loop on my QRZ site KB1Z. This simple and very small receiving antenna currently sits on our deck and most recently was added to a trotator connected to and awning frame. Loops are directional in receiving, and receive along the axis of the loop edges, not through the "bulls-eye". Aiming the bulls-eye will greatly reduce a single point of noise and is both a very sharp and a very deep null. I use the null capability when our TV is on for a particular Sunday morning net or if something out there is on the frequency being used.

Conclusions and Observations:

Loops are very simple to construct but do have a few tricks associated with construction. Prime consideration in loop construction is resistance, and using copper strips or wide braid reduces losses in wire connections. You want as little resistance in the circuit as possible. Wipers on air capacitors are critical, and if possible avoid them.

There are several nets in which participation at my station would be frustrating possible without the use of the loop. Loops are also terrific for small space receiving and when necessary (from what has been read or seen on YouTube) quite effective on the high bands for small space transmitting.
For more in-depth information reference:

http://www.ahars.com.au/documents/the_underestimated_magnetic_loop_hf_antenna_vers%201.1.pdf