SPURIOUS EMISSION

ORLEANS COUNTY AMATEUR RADIO CLUB (OCARC)
14064 West County House Road Albion, New York 14411
OCARC Newsletter March 2013
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 March 11, 2013 at the EMO office. Refreshments are (food) Warren KF7ILU and (drink) Howard KC2EZJ.

Club Officers

President: Terry Cook KC2JKU
Vice President: Chuck Lind N8CL
Secy: Steve Licht WF2S
Treas: Wayne King N2WK
Dir: Bruce Sidari WA2TMC
Net Mgr: Marion Toussaint KA2BCE
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:

Mar	5	KA2BCE	Marion
Mar	12	KA2BCF	Dick
Mar	18	KA2BCE simplex	Marion
Mar	19	KC2JKU	Terry
Mar	26	WA2TMC	Bruce
Apr	2	KA2BCE	Marion

WA2DQL 2-Meter Net

If anyone would like to be a Net Control station, please let me know, I'd be glad to send you the call up procedure or script for the net. It's not that hard. Or if anyone has any suggestions, please let me know.

73 Marion, Net Manager KA2BCE

OTHER 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 SHACK OF KZ2R

Hi gang. I've been chasing a lot of DX lately, mainly concentrating on stations who use LOTW for confirmations. I have 108 confirmed countries as of 3-3-2013. It's been a blast. I am expecting my DXCC as well as my WAS certificates any day now. I have also worked the Clipperton Island Expedition, TX5K, twice so far. They are on all bands and modes and are working split frequencies as the pileups are HUGE. I've also worked one RTTY contest as well as a few contacts in the latest DX International SSB contest this past month. It's great to be retired and able to work radio whenever I want.

Why not submit something for the newsletter about your activities. I'm sure a lot of our membership would be interested.

73 de
KZ2R Steve

ORLEANS COUNTY AMATEUR RADIO

Minutes for February 11th 2013 Monthly Meeting

7:35pm - Meeting called to order by Club President Terry Cook

1st Order of Business: - We all welcome "New Member" Clifford Braun (W2ODY) and introduced ourselves by "Call " and name.

Secretarie's Report: - by Terry Cook (Club Pres.) Substituting for Club Secretary Steve Licht (WF2S), who is on Vacation.
January Meeting Minutes (which can be read in the Newsletter or on the Yahoo NewsGroups website) were "Motioned for Approval" by Wayne King and Seconded by Mike Moriarty.

Treasurer's Report: - by Wayne King (Treasurer)
Club bank account current balance $2139.35 .

Member's Report: - by Terry Cook
Club Secretary Steve Licht (WF2S), is currently vacationing in Florida.
Dick Toussaint (KA2BCF) , fell and has come home from the hospital and is currently resting/recovering, but is doing OK.

Contesting Report: - by Wayne King (Contest Manager)
ARRL RTTY RU 2013 - Ended in beginning of January
Currently our Club RTTY Team's Score is Approximately a ½ Million Points Ahead of our Closest Competitor.

CQ WW RTTY WPX 2013 - Ending this past weekend 2/9 & 2/10
We had Good Club Participation from our "Club Members" : Steve (KZ2R) - 482,667 points
Chuck (NR2C) -119,535 points
Wayne (N2WK) - 47,180 points
Terry (KC2JKU) - 34,320 points
Jeff (KD2CKS) - 5,495 points
Bruce (WA2TMC) - 100 QSO's

ARRL WW CW CONTEST - coming up February 16th & 17th
NAQP (North American Qso Party) - coming up February 23rd & 24th

Field Day Report: - by Mike Moriarty (Chairman)
Mike has secured permission from the Orleans County EMO to use the Bay in the Building in the back. Mike and his wife have volunteered to do the cooking on Saturday during Field Day weekend.
Bruce said his Brother-In-Law should be donating the use of Bucket Truck Again this year.
NOTICE: We need the use of several EZ up canopies for the event, as we are not Renting the "Big Tent" again to save a lot of money.

JOTA 2013 Report: - by Jeff Strickland (Chairman)
JOTA 2013 will be Held this year on the Weekend of October 10th . Some new ideas are being considered for this year's event to make it even more fun for the Scouts, such as a small "Foxhunt" for the Kids. I am going to be asking Ron for some insight on "Foxhunting" if he doesnt mind me "Picking his Brain". Anyone interested in helping out during this year's event would be greatly appreciated.

HAMFEST REPORT: - by Terry Cook (Chair./Pres.)
Terry made the Executive decision to cancel the Hamfest due to Rising costs and a Low profit margin.

SPECIAL EVENT STATION: - by Terry Cook (Chairman)
Idea: Special Event Station for the Erie Canal - Lockport Locks. We may also ask for Lockport Radio Club's involvement. Another Idea from Dan (N2OBX) was putting a "Live Video Feed" of the Locks on the website.

REPEATER MAINTENANCE: - by Bruce Sidari (Director)
On the morning of February 14th - the repeater will be down for repairs.

NEW BUSINESS:

Gary Smith - Thanked everyone from our club that attended Lockport Amateur Radio Club's (LARA) Hamfest.

Terry Cook - Looking for people that are Interested in Pre-Sale tickets for Dayton.

Bruce Sidari - looking for anyone interested in Club parking Reservations for Dayton's Flea Market.

REFRESHMENT SCHEDULE:

MARCH MEETING - Warren (food) & Howard (drink)
APRIL MEETING - Gary & Dan (choices yet to be determined)

8:45pm Motion to Adjourn by Chuck L. , seconded by Howard F.

February 11th Minutes of the meeting respectfully submitted by Jeffery Strickland (KD2CKS)

From The Pres

Well here we are starting the third month of 2013. I have been having fun chasing DX and working on The Triple Play Award. That is WAS on Digital,CW,and phone.I am 2/3 of the way there. I did make WAS 40 Meters and only need 11 States for QRP WAS. I hope others are doing the same thing working for a goal know matter what it is. I know some members are having a great time chasing DX and Contesting. Don't forget the ABC Club award to be had by any club member. For more info on that award see Steve WF2S and he will explain it to you.
We wish good luck to Steve WF2S with his Knee surgery
I meet with the Lockport Club about the Special Event for The Lockport Locks and they were very interested in helping with it. We will be meeting with some of them for a meeting so more to come. The Dayton Hamvention is coming soon and KA2BCE Marion needs to know how many tickets to order so please contact her as soon as possible.
We now have our repeater up to 40 Watts and working very well. I worked with WA2TMC Bruce on it and learned a lot. I am looking forward to hear what all of you have been doing with Ham Radio in the last month at the March Club meeting. Don't forget to read the Secretary report before the for a easy vote. See you at the Meeting on March 11.

Terry KC2JKU

How High should my Dipole be?

Dipole Antennas - the Effect of Height Above Ground

I frequently hear the question: how high should my dipole be? Or alternatively, will my dipole work well at this or that height? Unfortunately, these questions can not be answered without first stating what you want the dipole to actually DO, i.e. how you plan to operate with it. Some possible goals for a dipole might be:

1. DX work.
2. Local work: nets and rag chewing.
3. Directionality: gain in one direction, or nulls in some other direction
4. Omni-directionality.
5. Feed point impedance of 50 ohms.

As you may surmise, many of these potential goals are mutually exclusive, or at least tradeoffs. However, once you define what you want to do with your dipole, then you can look at the radiation patterns to see if it will accomplish those goals.

I make the assumption that anyone reading this understands that DX work requires a low angle of radiation, with gain in the favored direction being desirable. Nets and rag chewing require a much higher angle of radiation and an omni-directional pattern. A null aimed in some direction may be desirable in various situations. Something close to 50 ohms impedance will aide matching and power transfer to/from coax cable.

There are many other potential goals for a dipole, but the ones I have listed are those that are most dependent on it's height above ground. Thus this discussion will not touch upon the issues of multi - banded operation, tuned open wire feeders, and the like. So, lets limit the issue at hand to: how the character of a dipole varies with its height above ground.

To investigate this problem, I have modeled a hypothetical wire dipole using the EZNEC program (from W7EL). This model is well within the verified capability of EZNEC.

For those interested in the modeling details, this dipole, named D40M, has the following specifications:
Material: #12 copper wire.
Length: 69.057 feet.
Ground Type: good (.005,13) NEC Sommerfield.
Frequency: 7.00 MHz nominal, but the comparative patterns were computed by adjusting the frequency slightly for resonance at each height.

The dipole was modeled at various heights from .05 wavelengths (7 feet) to 4 wavelengths (560 feet) above good ground. One may argue that 560 feet is ridiculous for a 40 meter dipole, but keep in mind that the data can be scaled down to a 10 meter dipole with similar results.

The table below tabulates the results. In the first two columns, the antenna's height above ground is given in wavelengths and in feet. The next two columns show the maximum gain in the favored direction (i.e. broadside to the wire), followed by the launch angle and the -3 dB vertical beam width. The next two columns once again present the gain and launch angle / beam width, but for the axial direction (off the ends of the wire). Finally, the last 2 columns list the complex impedance at the feed point, and the actual resonance frequency at that specific height.

Height	Height	Fav Dir	Fav Dir	End Dir	End Dir		
			Launch		Launch		
Wave		Gain	Angle/	Gain	Angle/	Feedpt	Res.
Lengths	Feet	(dbi)	Bmwidth	(dbi)	Bmwidth	Z	Freq
4.0*	560	7.75	**4 / 4**	5.57	72 / 13		6.93
3.0	420	7.83	**5 / 5**	5.25	68 / 14	77+ j11	6.94
2.0*	280	7.80	**7 / 7**	0	39 /	75 + j12	6.95
1.5	210	7.72	**9 / 10**	-2.50	33 /	75 + j11	6.96
1.0*	140	7.64	**14 / 15**	-11.00	20 /	74 + j08	6.96
.9	126	7.03	**16 / 17**	-8.30	22 /	85 + j13	6.94
.8	112	7.16	**18 / 19**	-6.40	25 /	84 + j26	6.88
.7*	98	7.95	**20 / 22**	-4.50	30 /	70 + j30	6.88
.6	84	8.35	**23 / 26**	-1.95	40 /	60 + j16	6.94
.5*	70	7.45	**28 / 33**	-0.51	43 / 33	71 - j00	7.00
.4	56	6.06	**35 / 47**	1.30	59 / 102	93 + j04	6.98
.3*	42	5.59	**50 / 137**	4.71	90 / 80	100 + j32	6.86
.2	28	6.70	**90 / 118**	6.70	90 / 67	71 + j56	6.77
.1*	14	8.21	**90 / 103**	8.21	90 / 66	23 + j39	6.84
.05	7	9.61	**90 / 99**	9.60	90 / 72	7 + j12	6.95

* Elevation plots shown below

Analysis, Favored Direction:

The first thing to notice is that the gain in the favored (broadside) direction varies very little with height. The important change in the broadside pattern occurs in the launch angle of the primary lobe. As the antenna moves closer to the ground, the launch angle of radiation gets higher and the -3 dB vertical beam width becomes broader. Note that below the benchmark height of ½ wavelength, the launch angle increases rapidly. Once the dipole is lowered to 0.3 wavelengths, most of the radiation goes in a vertical direction. This explains the frequently heard “rule” that a dipole must be at least ½ wavelength high to work. The seeming anomaly with the beam width below 0.4 wavelengths is easier to understand by viewing the plots shown below.

Analysis, End-Fire Direction:

One frequently sees a dipole azimuth pattern depicting a very sharp null off of the ends of a dipole. While technically accurate, this can be very misleading as the table above shows, and is a result of trying to depict a 3 dimensional pattern in 2 dimensions. This often seen null is only evident at the same launch angle as the maximum broadside gain. Of major significance is the large amount of gain off the ends at higher launch angles. Due to multiple lobes forming above ½ wavelength, this is not easily shown in tabular form. I have arbitrarily chosen to list gain and launch angle for the secondary lobe with the lowest launch angle, but recognize that there is frequently a stronger primary lobe at higher angles. Consult the plots below for a better visualization.

The reference antenna length was chosen to resonate at the ½ wavelength height. As expected, the feed point impedance oscillates significantly as the height changes from our reference point. Thus we verify the old adage that you must trim the dipole to fit your particular QTH (height being very important). The corresponding resonant frequency for each height is shown in the last column for reference, since complex impedance's may be of less practical importance to some.
So, How High should the dipole be to work well?

Now we are back to looking at what we want the dipole to achieve.

For DX work, higher placement is warranted, since more power concentrated between 5 and 15 degrees is reported to be of major benefit. Heights around one wavelength are necessary to get the broadside lobe to launch in this range. However, higher may not always be better. Pay careful attention to the magnitude of secondary lobes in the broadside direction, as well as high angle radiation off the ends. Some heights would appear better than others due to concerns with nulling out local QRM. A complete discussion of of this aspect is beyond the scope of this article, but may be investigated at a later date.

For local work, lower heights appear to be more beneficial. Note especially how omnidirectional our dipole becomes at lower heights. Below 0.4 wavelengths, there is less than 1 dB of attenuation in the end fire direction, which suggests a height between 0.4 and 0.3 might be an ideal compromise for local nets and rag chewing.

Feed point impedance and matching does not seem to be of major concern except at very low heights. The effect of height on 2:1 SWR bandwidth was not investigated.