# LAPORTE COUNTY / HARBOR BEAM MARCH 2015


**146.970 / 441.950 (W9LY)**
**Echolink Node: 193001**
**146.610 (K9JSI)**

## WHO WE ARE

**Communications:**
Matt Lasayko, KC9KUD
Dave Kaufman NU9I
**Repeater Committee:**
Matt Lasayko
Ron Broviak
Dan Sheetz
John Rozinski
Ken Osborne, Todd Saboff
Dan Foster, Dave Kaufman
Mike Broviak, Curt Yeater
**Internet:**
Stan Vandiver
Mike Broviak, Todd Saboff
**Field Day:**
John Phillips
**NEWS LETTER:**
Ken Osborne
**Activities:**
John Phillips
**VE TESTING:**
Scott Tharp
**PUBLIC RELATIONS**
Barb Cave
**MEMBERSHIP:**
Troy Harrison

## AMATEUR RADIO
## A BRIDGE TO FRIENDSHIP

**President:**
Brian Salzer KB9HMR
**Vice President:**
John Phillips KA9PGC
**Secretary:**
Barb Cave KA6OJX
**Treasure:**
Ken Osborne N9ZIP
**Board Members:**
Ron Broviak, WA9RON
Dan Foster, KC9GFO
Scott Tharp N9NKK
**Trustee W9LY:**
Dan Sheetz W9DWS
**Trustee K9JSI:**
John Rozinski, N9CJR
**Tower Site:**
Ken Osborne
John Phillips
Dan Foster
Bob Smith
**Fund Raising:**
Brian Salzer
Ken Osborne
Troy Harrison
Ron Broviak

**MEETING NOTICE:**
**Next LaPorte County Amateur Radio club meeting is Monday March 16th 7pm @ THE KNIGHTS OF COLUMBUS**

# LAPORTE COUNTY AMATEUR RADIO CLUB

**P.O. Box 148,**
**Michigan City, Indiana 46361**
**WEBPAGE: http://lpcarc.org**
**EMAIL: info@lpcarc.org**
**FACEBOOK: lpcarc**
**A 501 (c) (3) Public Charity # 35-1390856**

**ARES EMERGENCY COORDINATOR:**
**Dan Foster, KC9GFO**
**RACES OFFICERS:**
**Ken Osborne, N9ZIP**
**Dan Foster, KC9GFO**
**SKYWARN:**
**Ken Osborne, N9ZIP**

**News & Events**

## In This Issue




**TO THE**

# LaPorte County Amateur Radio Club

**lpcarc.org**

**PICTURE OF THE MONTH**


**The LaPorte County / Harbor Beam is published on the Saturday, before the monthly clubmmeeting, 12 times each year, as a service of the LaPorte County Amateur Club; for it's members and those interested. Inquires and submissions should be sent to the LaPorte County / Harbor Beam Editor at our e-mail address info@lpcarc.org.**

## CLUB DUES

**Club dues for 2015 is only $15.00.**
**Your dues goes towards our repeaters and pays for our insurnace, which is our largest expense, for the club. Our fundraisers keep our dues low and support of activities. Your dues can be paid at any club meeting.**

**Your can also be mailed.**
**Our mailing address is...**
**LaPorte County Amateur Radio Club**
**P.O. Box 148**
**Michigan City, Indiana 46361**
**Support the club!**
**Support our repeaters!**
**Membership is open to all.**

InfoBeat

## HAMFEST RECAP

**Other Cabin Fever Hamfest has past, and this year our numbers our up. Amateurs were comming in all day. There was a number of radios to be found, and deals to be made. One of the best things about Hamfests is that you get meet others, and put a face to voice you hear over the air. Our concession area has become a place to sit and relax with friends. Each year, our hamfest committe spends hours making our hamfest better each. With out them, it wouldn't be where it is today. Each year, it gets a little better each time. Thank you Brian and Ron for the all the hours and hard work. We also have to thank everyone who came out to help setup, working the front door and concessions. It was truly a team effort. Even though this years event is over, plans is in the work for next year.**

## BACK UP BACK UP BACK UP

**Recently my main computer took a major crash. Not just one hard drive but two died. All of the clubs records was stored on those HD's. I'm thank-full that most of the important stuff was backed up, to the towers computer. We have to do some recontruction of the finacial records, since the last back up. Our news letter had to be redone. Membership files need to be re-done. What's a few days of work?**

**I'm glad we backed up most of everything. We hope to have everything back by our meeting.**

## GOING DIGITAL?

**As of the publication of this newsletter, we still have not received any word on our new repeater. Our application was sent out over a month ago, and we think they are back logged with orders.**

**Once we hear anything, we will be given you more information about it.**

**Stay Tuned...**

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## KNOW YOU KNOW

### HALF-WAVE RESONANT DIPOLE ANTENNAS

**The Half-Wave Flat-Top Dipole**

**Most dipoles consist of two pieces of wire of equal lengths with one of the two ends connected together through an insulator. The far ends of the wires are also connected to insulators. The two conductors of a feed-line are separated and connected across the gap at the center insulator. The antenna is held up by rope that connects the insulated ends of the antenna to two supports. It is a "balanced" antenna, because equal currents flow on both halves of the antenna. Coax is an unbalanced feed-line. (The possible effect of using an unbalanced feed-line on a balanced antenna like a dipole will be discussed later.) The dipole that is stretched between two high supports is called a flattop dipole, distinguishing it from other configurations.**

**The simplest antenna system of all is the half-wave resonant dipole fed with coax and no tuner. The only reason for using a half-wave resonant dipole antenna is to eliminate the need for a matching device such as a tuner. The feed-point impedance will be near 50 ohms at ordinary heights and they can be fed directly with 50-ohm coax from the output of todays modern radios. The two halves of a dipole are fed 180 degrees out of phase, meaning when one side is fed positively, the other side is fed negatively. That is why a feed-line has two conductors. Of course, the sides swap polarity on each half cycle.**

**If you could visualize the current flowing on the half-wave dipole, the current will appear to be standing still. The maximum current will be seen at the center of the wire and no current will be at the ends. This occurs because the electrons flowing out to the ends reflect back toward the center where they meet the next wave and the current is reinforced there. The minimum voltage occurs at the center and the maximum voltage occurs at the ends of the half-wave resonant dipole. If you were to measure the voltage and the current at any point on the dipole wire, the voltage times the current will equal the power in Watts.**

**Inverted-V Dipole**

**Another configuration for the half wave resonant dipole is one having one support in the center and the ends stretched down toward the ground. The single support can be a tree, mast, or tower. The ends of a dipole have high RF voltages on them, and need to be at least 10 feet above ground for safety.**

**This antenna is called an "inverted-V," because the shape of the dipole looks like a "V" turned upside down. Most dipoles illustrated in this book can be put up in the inverted-V configuration. This configuration works well because the current is concentrated on the middle two-thirds of the antenna at the apex. The current in an antenna is what is responsible for the radiation. The ends of the antenna have very little current in them and it doesnt matter if the ends are close to the ground. The middle of the antenna is up high where the radiation is taking place and that is the place you want the radiation to be. An inverted-V has an advantage that the horizontal space required for it is less than what is needed for a flattop dipole. The angle between the wires on an inverted-V needs to be greater than 90 degrees. The gain of an inverted -V is 0.2 dBd and it has a radiation pattern nearly omni directional. Since it is easy to construct and works so well, the inverted-V is the most commonly used dipole. An explanation of the decibel will come later.**

**It is a myth that a horizontal antenna orientation makes a difference on 80 meters at heights used by most amateurs. I have heard many amateurs say on 80 meters, "The reason my signal is weak to you is because you are off the end of my dipole." The radiation pattern from a dipole is essentially nondirectional until the dipole is elevated more than a half wave, that is about 125 feet on 80 meters, and it is 65 feet on 40 meters. The main reason it makes no difference regarding orientation is because propagation for signals closer than 500 miles (the distance of most 80 meter contacts) is essentially by high angle radiation nearly straight up and down. Only signals radiated and received at low angles make a difference in antenna orientation even at low heights above ground. At low heights, there are nulls about 3 to 4 dB off the dipole ends.**

**Calculating the Length of a Half-Wave Resonant Dipole**

**The approximate length in feet of a half-wave resonant dipole is found by dividing 468 by the frequency in MHz. The actual length of it will be determined by several factors. Using larger diameter wire will make the dipole resonate lower in frequency. Therefore, to make it resonant at the higher desired frequency, It must be shortened. Raising a dipole higher above ground will make it resonate higher in frequency. An insulated wire will make the dipole resonate lower in frequency than a bare wire.**

**Using the above formula, cut the antenna a little longer than the calculations say. If the SWR is best at a lower frequency than you desire, the antenna will have to be made shorter by pulling the excess wire through the end insulators, folding the ends of the extra wire back on itself. Then wrap the ends of the overlapped wire on itself so it wont come loose. This causes the excess wire to "short" itself to the rest of the antenna. If you are using insulated wire, you will need to cut off the excess wire. The reverse is true if the antenna resonates too high in frequency. The extra wire can be let out to make it resonate on a lowefrequency. This is why you originally cut the wire a little longer.**

**The Decibel**

**The decibel (dB) is a unit of measurement for comparisons of the ratio of power, current, and voltage and is the term we will use in comparing antennas in this book. At one time, antenna comparisons were made using a dipole as a standard, but today most comparisons use the isotropic radiator as a reference. An isotropic radiator is an imaginary antenna that radiates equally well in all directions. It has no gain. The terms "dBi" and "dBd" are used to label which reference is being used. In this book, we will use the dipole as a standard for the most part. How do you derive decibels from power ratios? The formula for power ratios is dB = 10 log P1/P2. For voltage and current, the values are doubled. Formulas of this type are beyond the scope of this book. Doubling the power will produce a 3 dB stronger signal. Double the power and double it again will equal a 4 times power increase and that gives 3 dB plus 3 dB or 6 dB. Double 4 and that is a power increase of 8 and that adds 3 more dB for a total of 9 dB. Increasing the power from 1 Watt to 10 watts or increasing it 10 times will give a 10-dB increase. Multiply 10-Watts times 10 give us 100 watts, which adds another 10 dB above 1 Watt for 20 dB. Therefore, increasing the power another 10 times to 1000 Watts will produce a signal 30 dB stronger than 1 Watt.**

**Your receiver, if modern, will have a signal strength meter or "S Meter." That meter is calibrated in "SUnits" from one to nine and decibels over S-9. S-9 is usually calibrated using 50 microvolts ( uV) from a signal generator. Each S-unit is approximately a difference of 5 or 6 dB. Therefore, a reading of S-9 is about 6 dB stronger than S-8. Therefore, from S-0 to S-9 is 54 dB. On some low cost transceivers, the Sunits and dB above S-9 are only relative signal readings and actually have nothing to do with decibels.**

**We'll stop here for this month.**

**Next month we'll talkk about ANTENNA BASICS Resistances and Reactance.**

Calendar of Events

**GET ON BOARD**
**JOIN IN THE FUN**
**WITH AMATEUR RADIO**

## LaPorte County Amateur Radio Club Meeting Calendar for 2015

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Meeting | 19 | 16 | 16 | 20 | 18 | 15 | 20 | 17 | 21 | 19 | 16 | TBA |
| Location | LP | LP | LP | LP | TS | TS | TS | TS | TS | LP | LP | TS |

LP= LaPorte Knights of Columbus TS= Tower Site, U.S. 35 & Schultz Rd.

# SPRING CLEAN UP

# FIELD DAY JUNE

# FOX HUNTS

# LIGHT HOUSE WEEKEND

# JOTA