

QRZ NEWS

A MONTHLY PUBLICATION OF
SOUTHERN PENNSYLVANIA AMATEUR RADIO CLUB, INC
PO BOX 1033 - LANCASTER, PA 17608-1033

(Founded June 1960)

AN AFFILIATED SPECIAL SERVICE CLUB OF THE ARRL, INC.
"Public Service through Communication"

Website: www.K3IR.org

Email address: **pending**

Repeaters: 145.230 - 146.715 - 449.975 - Packet 145.030 - ATV 902.145

October 2006

Membership Meetings

September Meeting;

- The meeting was held Wednesday, September 20, 2006 at 7 PM at the Rapho Township Municipal Building

- Present at the meeting were;

Dave Payne N3LOM

Frank Coleman KB3GMZ

Paul Herr KD8WY

Rick Watson N3SWJ

Jim Silvius KE4SUR

Ted Freedman K3KSA

Mike Warner N3XPD

Roger Colvin W3PWH

Grant Beauchamp KB3KIN

Harry Bauder WA3FFK

Gerald Wilson KB3GNB

General Business: The general business section of the meeting was conducted with round robin introductions, readings of previous meeting minutes, treasures report, etc.

Old Business

- Dave Payne has signed the mortgage agreement to pay at the rate of \$409 per month. The payment will be withdrawn automatically from the club's checking account.
- Dave was unable to pay the club's electric bill online because it is a commercial account. He is getting the forms to have the payment withdrawn automatically from the club's checking account.
- Adopt-a-Highway. Harry Bauder reported that he and Rick Watson cleared the trash from Brennaman Road on Saturday, August 19. Dave said we need to do it twice more this year to meet our commitment to the township. Harry agreed to do it again on Saturday, September 30. Initially Rick Watson said he could help, but later learned he has another commitment for the day.
- JOTA – Harry Bauder reported that the local Boy Scout troop had already set their calendar before they heard about JOTA. Harry and Dave Sarraf will work on lining up something for next year.

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New Business

- Dave Payne received an economic development grant for \$5,000 for fencing at the repeater site. Dave expects to receive grants for the driveway stone and for the Operating Building in the future.

Upcoming Events:

- The Heart Walk is this coming Saturday, September 23. There is construction near the F&M Sports Complex where people usually park, so parking will be available at Clipper Stadium and other locations. Transportation from the parking areas to the Sports Complex is being provided. The person coordinating the event has not done it before. The combination of that and the construction make planning a bit tenuous. Volunteers are needed at 6:30 AM to help park cars and to watch the bridge over the railroad tracks. Volunteers are also needed at 8 AM to cover the parade route, which is supposed to be the same as last year's route. All parade-related operations will take place on the 147.015 (PL 118.8) repeater.
- Elizabethtown Library Book Sale. This event is scheduled for Saturday, October 7. The library donates all unsold books to the club for recycling. Volunteers are needed about 4:30 PM to load books on the trailer..
- Rapho Township recycling is Saturday, October 14, from 7 to 11 AM at the Rapho Township Municipal Building. Volunteers are needed to help. This is a good, easy source of income for the club.
- Halloween Parade. This event will probably take place Thursday, October 26, starting about 5 PM. Volunteers are needed to help line up the parade and provide communications during the parade. Food is provided to the participants following the parade.
- Field Day. Harry Bauder and Dave Sarraf have agreed to head up this effort for 2007. They are seeking a more public place to hold the event so the club and amateur radio get more exposure. Park City and Lancaster Shopping Center have been suggested as possible locations. Grant Beauchamp will check into the possibility of using either of these sites.
- The club is also looking into the possibility of having a booth at the 2007 Elizabethtown Fair.
- Harry Bauder informed the club that he and his wife are starting a 34 week course that meets on Tuesday evenings. That means he will not be available to serve as Net Control. Another operator is needed to fill that position. Paul Herr indicated he may be interested in doing that.

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- Mike Warner asked who is updating the club's website. He was informed that he and Rick Watson volunteered to do it! It was noted that the email link needs to be removed since we no longer have that email address.
- Grant Bauchamp moved to adjourn the meeting at 19:35. Harry Bauder seconded the motion which passed unanimously.

Technical Section:

- Following the official meeting, Mike Warner gave a very interesting and informative demonstration on packet and the Outpost Packet Message Manager program. Mike referenced two sources of good information: www.packetradio.com for general information on, and materials for, packet radio and www.coastalchip.com for an inexpensive "TNC-X" kit.

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ARES/RACES

RACES Nets



Lancaster County Net is held on the first Tuesday of the month at 2030 hours local time. Presently being held on the 147.015 MHz repeater with minus offset and 118.8 PL.

Pennsylvania RACES HF Nets are held at 3993.5 kHz LSB on all Sundays except holidays. The statewide net is on the first Sunday of the month at 0800 hours local time. The Central Area (including Lancaster County) net is at 08:30 local time.

Tech Section:

If anyone has anything they would like to contribute to this or a topic they would like to see please let me know.

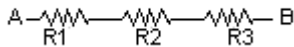
Resistance Calculations – A review of methods for calculating total resistance.

Series-connected resistance.

Resistances in series add as in the formula, $R_t = R_1 + R_2 + R_3$ etc...

Where R_t is the total resistance.

So, if we have a group of resistors connected in series as in the picture



With resistance values of $R_1 = 10$ ohms, $R_2 = 470$ ohms, $R_3 = 1000$ ohms.

Then to find the total resistance we would follow the formula to add the values.

$$R_t = 10 + 470 + 1000$$

$$R_t = 1480 \text{ ohms}$$

.....

Parallel-connected resistance.



This configuration can be a little more complex to calculate.

One formula for this is the reciprocal of the sum of the reciprocals.

$$R_t = 1/(1/R_1 + 1/R_2 + 1/R_3)$$

or using the values above,

$$R_t = 1(1/10 + 1/470 + 1/1000)$$

$$R_t = 1/(.1 + .002 + .001)$$

$$R_t = 1/.103$$

$$R_t = 9.71 \text{ Ohms}$$

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Another method can be used if all of the resistances in parallel are of equal value. In this case it's pretty simple with,

$R_t = R_x/R_n$. Where R_t is the total resistance, R_x is the value of one each of the individual resistances and R_n is the number of resistors.

So if there are 4 resistors of 1000 Ohms each, the total resistance would be,

$$R_t = 1000/4$$

$$R_t = 250 \text{ Ohms}$$

If there are only two resistors connected in parallel than a formula called the product over the sum method can be used. This one works like,

$$R_t = (R_1 \times R_2)/(R_1 + R_2)$$

So if there are two resistors of $R_1 = 1000 \text{ Ohms}$ and $R_2 = 47 \text{ Ohms}$ then

$$R_t = (1000 \times 47)/(1000 + 47)$$

$$R_t = 47000/1047$$

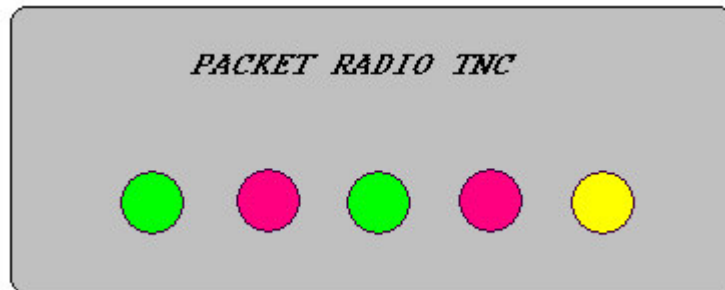
$$R_t = 44.89 \text{ Ohms}$$

A quick check of the answer in a parallel circuit is that the total resistance will always be less than the lowest value resistance. In all three cases above we check out ok in this regard.

Digital Modes:

If anyone has anything they would like to contribute to this or a topic they would like to see please let me know.

A bit about Packet



There is not much to report in this section other than to say that the packet session at the September meeting went well and I would like to thank all those who contributed by asking questions, giving insights and comments and for just being there to participate. I enjoyed it a very much.

General News:

If anyone has anything they would like to contribute to this or a topic they would like to see please let me know.

This from NASA at

http://science.nasa.gov/headlines/y2006/13sep_electricice.htm?list919813

Sept. 13, 2006: Here's something fun to try in your kitchen: Go to the freezer, open the door and pry loose an ice cube. Next, look around the freezing compartment for some frost—the crystalline fuzz that loves to coat your frozen English peas. Found it? Rub the ice cube gently across the frost.

Nothing happens.

Well, what did you expect, a bolt of lightning?

Actually, that's just how lightning gets started. Miles above Earth in cumulonimbus clouds, tiny ice crystals are constantly bumping against larger ice pellets. The two kinds of ice rubbing together act like socks rubbing against carpet. Zap! Before you know it, the cloud is crackling with electric potential—and a bolt of lightning explodes to the ground.

Right: Lightning, photographed by William Biscorner of Memphis, Michigan. [[Larger image](#)]

It may seem hard to believe that a powerful bolt of lightning, which heats the air in its path three times hotter than the surface of the sun, could spring from little pieces of ice. But that's how it is, according to theory, and indeed laboratory experiments have confirmed that you can generate electricity from ice-ice collisions.

Still, it does sound fantastic. So, "we decided to check it out," says Walt Petersen, a lightning researcher at the National Space Science and Technology Center in Huntsville, Alabama.

Over a three year period, Petersen and his colleagues used the Tropical Rainfall Measurement Mission (TRMM) satellite to look inside more than one million clouds. "TRMM has a radar onboard to measure the amount of ice in a cloud. And it has an optical detector called LIS (lightning imaging sensor) to count lightning flashes." By comparing the ice content of a cloud to its flashes, they could tell if ice and lightning really go together.

They do. "We found a strong correlation between ice and lightning in all environments—over land, over sea and in coastal areas." On global scales, the correlation coefficient between lightning "flash density" (flashes per square-kilometer per month) and "ice water path" (kilograms of ice per square-meter of cloud) exceeded 90%. Even stronger correlations were found on the smaller scale of individual storm cells where, for example, about 10 million kilograms of ice would produce

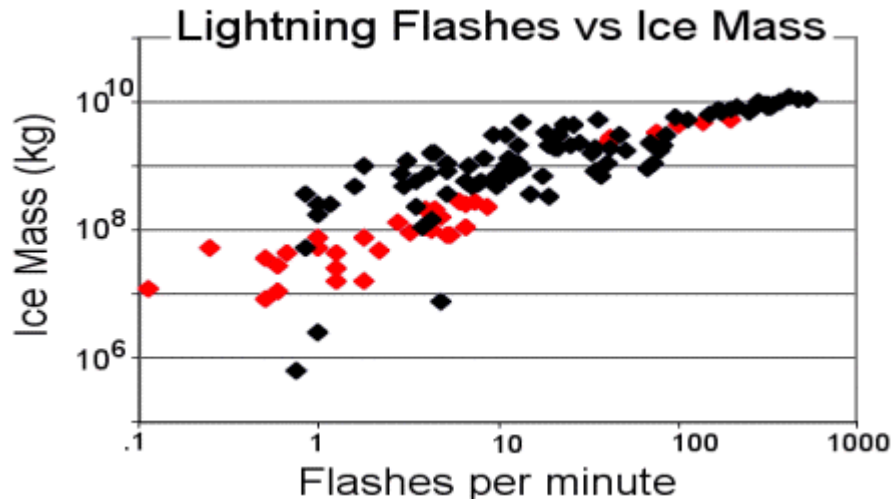


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one lightning flash per minute.

10 million kilograms. No wonder you couldn't get a spark going in your freezer. A great deal more ice is required to make lightning.

In a real thundercloud, millions of pieces of ice are constantly bumping together, pushed by updrafts ranging in speed from 10 to 100 mph. Tiny ice crystals become positively charged and waft to the top of the cloud, while bulkier ice pellets (called "graupel") become negatively charged and plummet to the bottom. This separation creates mega-volts of electrical tension--and hence the lightning.



Above: Lightning rates vs. ice mass measured in thunderstorm cells over Kansas/Colorado (black) and Alabama (red). [[More](#)]

Now that the correlation between ice and lightning is so well established, it can be put to good use. Petersen explains:

"Computer programs we write to predict weather and climate need to know how much ice is in clouds. The problem is, ice is hard to track. We can't station a radar over every thundercloud to measure its ice content. To improve our computer forecasts, we need to know where the ice is."

Lightning can help. "Because there's such a strong correlation between lightning and ice, we can get a good idea of how much ice is 'up there' by counting lightning flashes." Sensors like LIS, which are inexpensive and can be stationed on the ground as well as in Earth orbit, make this easy to do.

Back to your freezer: You might want do something about those English peas.

A complete account of Petersen's research may be found in the proceedings of the [LIS International Workshop](#), being held this week in Huntsville, Alabama.

Hamfests this month:

October 1, CARA-Fest
Howard County Fairgrounds
15 Mi. West of Baltimore, MD
<http://www.carafest.org/>

October 7, Red Rose Tailgate Fest
WEST EARL COMMUNITY PARK
BROWNSTOWN EXIT ROUTE 222
<http://www.qsl.net/rrra/>

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2006 OFFICERS

President: Dave Payne, N3LOM

Vice President: Rick Watson, N3SWJ

Secretary: Dave Sarraf, N3NDJ

Treasurer: Grant Beauchamp, KB3KIN

Directors: Harry Bauder, WA3FFK. Mike Warner N3XPD

APPOINTMENTS

Web site

Dave Sarraf N3NDJ; Rick Watson, N3SWJ; Mike Warner, N3XPD

Training Committee

Max Peters, KI6NJ; Dave Payne, N3LOM; Jim Ibaugh, AA3C; Yogi Bear, WB3FQY.

Tech Committee

Dave Payne, N3LOM; Mike Warner, N3XPD; Harry Bauder, WA3FFK

Newsletter:

Mike Warner, N3XPD

Email: n3xpd@comcast.net

SPARC Nets

SPARC holds nets on the 2nd, 3rd, 4th, and 5th Tuesday (every Tuesday except the first) at 2030 local time on 145.230 MHz minus offset and a PL of 118.8.

That's all for now,

Hope to hear you all on the air and see you at a meeting or club event.

73,

Mike Warner, N3XPD