Big Rapids Area Amateur Radio Club

July 2013

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Presidents Message:

If you were to survey the general public and ask what the electrical components resistors, capacitors, and transistors do, I bet you would get very few correct answers. The general public is very poorly informed about electrical/electronic stuff and I wonder if this is getting worse over time since very little is taught in schools now. However, there is some good news. Amateur radio licenses continue to increase and as you all know, some knowledge of electronics is required to pass the exams. Also, there continue to be more and more makerspaces established. A makerspace is a place where folks can go to make things. They don't always focus on electrical projects but I bet there are few of them that never do. These places are very important for the teaching that goes on. There are many websites that talk about makerspaces but look first at makerspace.com. We actually have a small makerspace here (mecostamakers.org) but it is more virtual than real so far. We would very much like to grow it. Also look at Make magazine to get an idea of projects that makers work on. As this trend continues to grow, there will be more and more folks that learn about electronics. It might be accurate to say that ham radio people were makers long before that term existed. Given that electronic gizmos play a much larger role in our lives, this legacy we have of learning and teaching electronics is hugely important and may be under-appreciated.

The next regular club meeting will be July 11 and there will be a presentation/demo on amateur paging.

73s, Jeff, K8OE

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June Minutes

Jeff Sell presented a video on high altitude balloons,
Please sign up for a net control
Next breakfast July 6th at 9am Sharon's Restaurant
Next meeting July 11th at 7pm Big Rapids Public Safety Department
Treasurer report accepted

6m repeater working good
2m repeater working good
440 good so far some people report not being able to get into it well
Tom Behler will be resigning from Mecosta County EOC and they need a volunteer.
Bulldog Bike Race 6/29/13 in need of volunteers to help with communications.
Golden packet 7/20/13?? Mapping the North Country Trail with APRS
Big Bad Wolf Race, Jeff Sell will not be leading communications for the event as he will be in it. So we are in need of a volunteer to lead it.
Field Day June 22 at noon. Field day this year will be at Jeff and Delcy Hernden's house. Maps will be emailed out. If you have any questions about field day call or email Jeff Sell or Mike Mckay.
50/50 winner was Bruce Werner
Thanking Bill Stankey for the refreshments last meeting.
Jeff Sell will provide refreshments for the next meeting.
Jeff Sell also presented a video on a California Ham Radio Club. The Anacapa School contacting the space station.

Monica, KD8GGB
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Announcements:

July 6, Saturday, Club Breakfast (This is a Re-Scheduled date due to July 4th holiday) at Sharon's in Rogers Heights, 9am.

July 11, Thursday, BRAAR Club meeting (This is a Re-Scheduled date due to July 4th holiday) in the Big Rapids Public Safety Building, 7pm. Program: presentation/demo on amateur paging.

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Girls on the Run

The Girls on the Run event was also a big success. Over three hundred girls ran and the weather cooperated. There were seven ham operators that worked and Jim was net control. Thanks to all that helped out.

Jeff, K8OE

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Midnight Glitch

DON MACCONNEL WA4FRJ

I like to work late; so being in the lab after midnight is not unusual, particularly when a project deadline is pushing me. This particular night lightning flickered and thunder rumbled from an approaching storm. My job was to find a ghost transient that was upsetting a PLL in a satellite data

link, and I had a scope set to catch glitches. Things happened fast. The scope triggered, displayed the glitch and the lights went out.

Sitting there for a few minutes didn't get the power back on, so I walked out of the lab and found that lights were on in other parts of the building. My first thought was that the glitch was coincident with a breaker trip. Sure enough a check of the breaker box showed that the breaker for the lab was tripped. Like many of the breakers in the box, it was a GFCI. Was that a clue? It was, but not in a way that was obvious. Resetting the breaker got me powered up and I went back to work.

The next night after midnight the breaker tripped again and resetting it worked just fine. The night was clear with no storms so lightning transients seemed unlikely. The third night, once again, the breaker tripped after midnight.

By this time I'd found the source of the PLL upset, and it didn't have anything to do with the simultaneous breaker trip and circuit glitch. The breaker was another issue. Was something sneaky tripping it?

Years ago in a problem-solving course we'd been taught that every problem was a change plus a distinction. What had changed and what was the distinction? Not much goes on in our small business that I don't know about, and the only change I could think of was that the power company had installed a new meter. The distinction was that it was a digital type that could be read remotely.

Read remotely? A call to an engineer at the power company gave me a heads up on the remote reading method. This particular company sends a 12.5 kHz signal down the power line and the meter responds with its data. The engineer and I decided to try an experiment as he sat in his office some 100 miles away and I sat in the lab. Using their system he interrogated our meter. Less than a second later the breaker tripped. Why the heck was that one GFCI breaker tripping? We decided that neither one of us had a clue other than the fact that it was an older breaker.

I replaced the trip-prone GFCI breaker with a nice new one, and we set about trying to make it trip by interrogating the meter. The engineer pinged the meter a dozen times and the power stayed on. Evidently the old breaker had significant sensitivity to high frequency common mode signals.

As a follow up the PLL glitch was a power buss problem—a missing decoupling cap on a Vdd buss. The timing of the glitch and power failure showed that there were such things as coincidences. Once again we proved some version of Murphy's Law.

Last Month's Technical Question:

The RMS heating value of a sine wave current is:

a. The average value
b. The peak value
c. Twice the peak value times the square root of two

d. The peak value times 1.414
e. The peak value divided by 1.414

Ans: e. The peak value divided by 1.414

This Month's Technical Question:

What power will reach an antenna when a transmission line has a loss of 3 dB?

a. Full authorized power
b. 22.5% of authorized power
c. 50% of transmitter power
d. 100% of transmitter power
e. No effect

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BREAKFAST

Sharon's Restaurant

9:00AM

Saturday, July 6

Come order from the menu or
enjoy the breakfast buffet!!!

Note: this is a re-scheduled date due to July 4th Holiday!!

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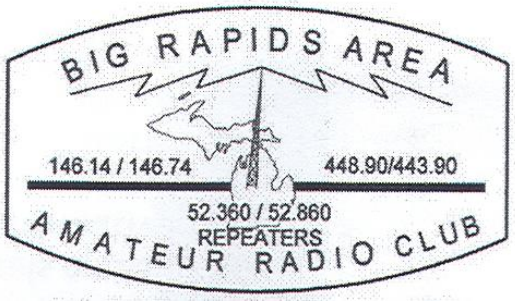
9	8	6	4	1	3	7	2	5
4	3	2	9	7	5	6	1	8
5	7	1	6	8	2	9	4	3
6	9	3	8	2	1	5	7	4
7	2	5	3	4	6	1	8	9
8	1	4	5	9	7	2	3	6
1	5	9	2	3	4	8	6	7
2	4	8	7	6	9	3	5	1
3	6	7	1	5	8	4	9	2

Solution to last month's puzzle

3				6	9	4	5	
		2				8		6
	1		4				2	3
2		3		9		5		7
	7		3	2				9
	9						3	
8			5	7	3			4
6	3							
7			1	4				

Field Day 2013 was a big success. We worked 160, 80, 40, 20, 6, and 2m. On Saturday 6 m was dead but came alive on Sunday and it was quite fun. We also made some ISS and SO-50 satellite contacts. The weather was hot but some breeze helped alot and the bugs were fine. So FD was a great experience!



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