

MRAC Hamateur Chatter

The Milwaukee Radio Amateurs Club

October 2014 Volume 22, Issue 10

One of the World's Oldest Continuously Active Radio Amateur Clubs—since 1917

Presidents' Letter

This year's annual Harvest Fair at State Fair Park included "Maker Faire Milwaukee" (<https://makerfairemilwaukee.com/>). The event featured fun, family-friendly, innovative booths, activities, and presentations across all areas of science and industry. I was one of the over 26,000 people who came to explore what the Maker Faire had to offer.

While walking around the event, I realized that we as hams are missing out on this "maker movement". Ham radio is the perfect mix of science, technology, and hands-on learning that fits well into this movement where people become interested by "doing". This is the type of exposure that we need to help promote our hobby and our club.

I am proposing that we apply for and man a booth at the 2015 Maker Faire at State Fair Park as part of next year's Harvest Fair. What we will need to do is start working on this as a club over the next few months. I would like to take some time at each meeting to develop ideas for our booth and what activities we might be able to do to showcase ham radio. This really could be a lot of fun, and a great way to set up a small

"event station" to bring in people to the hobby.

At our October 30th meeting, Joe N9UX also will be giving a presentation on his Raspberry Pi TNC project. He built this project for the KC9EHO balloon launch. This is only one of the many projects that can be done with a Raspberry Pi, which is basically a very small computer with a Linux operating system. Joe will also give us an update on the balloon project.

Finally, at our last board meeting, we talked about the refreshments served at our meetings. We have noticed that people are not drinking coffee, so we are interested to know if we should stop making coffee for the meetings, or if it would be preferable to purchase a single-cup coffee maker for those that would like this? Please feel free to send me an email at ka9wxn@gmail.com with your comments about our meeting refreshments.

'73 Dave, KA9WXN



MRAC Officers:

Terms Expiring in 2016

- President – Dave, KA9WXN
- V-President– Dan, N9ASA
- Secretary – MBH, KC9CMT
- Treasurer – MBH, KC9CMT
- Director – Martt, KB9RQZ

Terms Expiring in 2015

- Director – Al, KC9JJ
- Director – Hal, KB9OZN

The Club Phone Number is: (414) 332-MRAC or

(414) 332- 6 7 2 2

Visit our website at:

www.w9rh.org

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**PO Box 26233
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Board of directors meeting called to order at 7:18 pm via tel-conference by Dave Shank, club president. Dave was stuck in traffic and communicated by cellphone.

Director's present: Michael KC9CMT, Hal, KB9OZN, Dave KA9WXN, Matt Morgan, KB9RQZ, Dan, N9ASA, Al KC9IJJ. Dave, KA9WXN.

Absent: There is one vacancy on the Board of Director's.

Preliminary Discussions: The Board of Director's minutes were accepted as published in the September HamChatter by a motion forwarded by Michael, KC9CMT seconded by Al, KC9IJJ. Michael, KC9CMT gave a report on the treasury. As of the end of August the club had assets of \$18,422.75 in its accounts. Does membership still wants to have coffee made during the meeting. Too much is being wasted.

Meeting programs: In September, Tom Fuszard, KF9PU, will discuss his experience at the ARRL National convention. In addition the club will attempt to interest members in building small uncomplicated electronic kits. In October Joe N9UX will bring in and discuss his Raspberry Pi based TNC. November's meeting could be a presentation on the technicians test. Question and answer with Tom Fuszard. There will be no meeting during December. An Oscilloscope presentation is now in the works, Dave, KA9WXN has enlisted a MATC instructor to give this course at a future meeting. Also a radio technical specification explanation is in the works if that is of interest to the membership. The February 2015 membership meeting will be a food gathering. Something we have been doing for the last few years, when the club Swapfest makes a profit. We need to get into the church meeting place early on that date to setup the food tables and preheat the food. The April meeting will be about radio specifications, and how to setup various radios.

April is also the club election meeting. The club needs three directors' positions filled in 2015. The May meeting is the Clubs annual auction. Our June meeting will be on the 27th this year, the week before ARRL field day. There was a program that Dave attended that specified that club business should not be presented during the membership meeting. Other activities should be incorporated into the club philosophy. A handful of announcements can be made each meeting. Project management is the new idea that clubs across the country are experimenting with. The club needs more participating by its members.

Summary, try to have fun and do stuff. Try to stimulate communities to form after school electronic groups that would emphasize Ham radio. The club needs a new member coordinator. Good idea, pitch idea of making small easy projects, and then having member talk about experience of making circuit. Joule thief is a very good project to start with. The idea was forwarded of doing a quarterly business presentation during the membership meeting. There does not appear to be any language in the club by-laws that require a monthly business meeting. The membership will have to be informed of any changes in the structure of our membership meetings. The idea of a door prize is being discussed again.

Field Day: The farmers market will be at Konkel park in Greenfield again in 2015 during our field day effort. The idea of station captains was discussed; the club wants to get all its members involved in our field day efforts. Dave, KA9WXN will be talking with the city of Greenfield in January to secure our place in the park. The Gateway group is expected to join our effort again in 2015.

Special Project Committees & Committee reports:

Repeater Report: Dave, WB9BWP is the repeater trustee, and a control operator. The club would like more than one repeater control operator. A club repeater control operator must be a extra class operator to have the kind of privileges that are necessary to operate the club stations during field day. The club uses DSL at its main site to communicate with the repeater. Further, there is still interest in running national reports such as the Rain Report, which will require internet access. The club wants Dave DeFebo the club archivist to start writing a column in the monthly HamChatter. The Fusion repeater was returned to service after a brief outage. In addition, our tower consultants fixed one of the clubs antennas that was bent. The tower people were working on site and noticed the anomaly.

New Business:

Swapfest Committee: Next years Swapfest will fall on Valentines day, February 14th, 2015. The club does not think that this will be a problem. The 2015 complimentary tickets should be ready by the October membership meeting. Swapfest entrance tickets should be ready by the first week on January. Swapfest letters will be mailed out the first week of December this year, so that the clubs have enough time to meet and discuss the swapfest. The club is looking at using PayPal for table sales in 2015. We will be continuing with the online Yahoo table spreadsheet which worked very well for us in 2014.

Special Projects: The club needs a committee to work on the 100th anniversary celebration in 2017. At the minimum a special event station would need to be run for a weekend. Also the ARRL wants to hold a convention sometime in the future in Milwaukee. The club needs someone to take over the FM simplex contest for February of 2015. Joe, N9UX has been running the contest since its inception, and now would like to be replaced due to time limitations. **The club recently developed a Facebook page.** All club members are invited to join. Club and general information will be disseminated on the Facebook page. Dave, KA9WXN would like to work on a content management system, so that multiple people can work on projects jointly. The club also needs a better platform for its website. It is now being done in FrontPage format which is no longer supported by Microsoft.

A motion was made to adjourn the meeting at 8:35 pm by Dave, KA9WXN seconded by Matt, KB9RQZ. Meeting adjourned at 8:40 pm. The room was returned to an organized condition as it was when the room was opened.

The September membership meeting was called to order at 7:01 pm by Dave Shank, KA9WXN club president.

Meeting program: Tom Fuszard, KF9PU, gave a presentation on the recent ARRL Centennial Convention that took place this past July in Hartford, Ct. this year. The NCVEC conference that Tom attended took place at the same time and location. Twenty-seven VEC examiners attended this years conference. At the ARRL convention, Thursday was set aside for just seminars, there were Seventeen rooms set aside for presentations. Tom arrived in Hartford on Wednesday to check-in. Hartford maintains a dedicated bus from the Airport to Downtown. On Saturday, Tom took a trip to W1AW to see the ARRL shack. There was a big turnout at the convention, with a large number of presenters. From 10:30am to noon, the FCC gave the NCVEC people a presentation.

The FCC are allowing Alaska potential Ham operators' to take their FCC radio class test via Computer. This exception is expected too only be allowed in Alaska due to distance problems. Roland Anders the chairman of the VEC question pool committee, gave a presentation during the afternoon. During the ARRL convention, the ARRL had a shuttle running from their HQ to the convention site. Convention attendees could go to the W1AW site and operate. Tom operated on 80 meters during the morning on Saturday before departing in the afternoon. The NCVEC maintained a booth during the convention, on Friday and Saturday. Dave, KA9WXN then gave a photo run through of the convention facilities, displays, and setup. Then a photo run-by of the ARRL Site its' self. Many exhibits to look through at the ARRL HQ building. An interesting point is that the ARRL has a testing lab, with all modern test equipment that validates the operating specifications given by the manufacturer of a radio product. Dave, requested operating time at the W1AW facility, and worked 16 contacts on ten meters during his fifteen minute time slot. The W1AW has an extensive antenna array on its' five acre site.

Joe, N9UX gave a brief talk about last weekends great balloon chase, that ascended to 109K ft., and terminated in a wetland area. The payload has yet to be recovered as of September 25th, five days after the event. This will be the presentation at the October membership meeting.

Business meeting preliminary discussions: The combined meeting minutes from August were accepted as published in the September HamChatter by a motion forwarded by Michael, KC9CMT seconded by Al, KC9IJJ. The Treasurers report was given by Michael, KC9CMT. The August balance sheet ended with \$18,442 in our Club accounts. The Treasurers report was accepted as reported by a motion made by Hal, KB9OZN, and seconded by Al, KC9IJJ.

The club needs new people to volunteer for the board of directors. The club also needs people to help out with both content and proofreading of the club newsletter. Poncho would like to see more club members sign-in during the 2 meter net on Friday nights at 9 pm.

A food gathering with Pancho and Jerry will be taking place immediately after tonight's meeting at Denny's on Capitol drive.

A motion was made to adjourn the meeting at 9:14 pm by Dave, KA9WXN seconded by Michael, KC9CMT. Meeting adjourned at 9:15 pm. The room was returned to an clean and organized condition as it was when the room was opened.



News Flash: Our Club President, Dave Shank, KA9WXN makes the cover of a nation publication. CQ Amateur Radio Magazine.

September Issue of CQ Magazine out to subscribers now. Get yours' at AES, or the Hobbyshop on Layton Avenue in Greenfield.

Welcome

Surviving Winter Be Prepared

Some of the dangers associated with winter storms include loss of heat, power and telephone service and a shortage of supplies. To help protect your family, now is the time to put together a disaster supply kit. Here are some items to include:

- Flashlights and extra batteries
 - Battery-powered NOAA Weather Radio and a commercial radio
 - Bottled water and non-perishable food that requires no cooking
 - First-aid supplies
 - Fire extinguisher, smoke detector and carbon monoxide detector
 - If appropriate, extra medications and baby items
 - If you have an emergency heating source such as a fireplace or space heater, make sure you have proper ventilation
- Make sure pets have shelter and plenty of food and water
- Wisconsin Emergency Management's ReadyWisconsin program reminds residents to use caution when using alternative heating sources such as space heaters.
- Keep anything flammable at least three feet away from heating equipment.
 - Make sure portable electric space heaters have an automatic shut-off.
 - Space heaters need constant watching. Never leave a space heater on when you leave a room or go to sleep. Never place a space heater close to any sleeping person.
 - Make sure all cords on electric heaters are plugged directly into wall outlet (don't use an extension cord) and check cord for any frays or breaks in the insulation surrounding the wires.
 - Check the cord and outlet occasionally for overheating; if it feels hot, discontinue use.
 - Place the heater on a level, hard and nonflammable surface, not on rugs or carpets or near bedding or drapes.
- Use a heater that has been tested to the latest safety standards and certified by a nationally recognized testing laboratory. These heaters will have the most up to date safety features; older space heaters may not meet the newer safety standards.

Winter Driving in Wisconsin

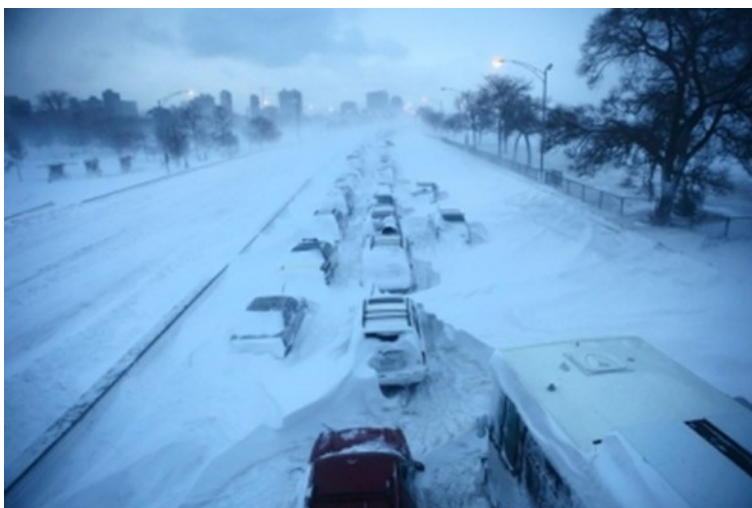
It is important for all of us to prepare for the power of winter storms. Few of us will forget the Groundhog Day Blizzard of 2011.

Between January 31 and Feb 2, parts of the state had snowfall totals between 12 and 33 inches with wind gusts between 40 and 65 miles and hour. Schools and businesses closed and thousands headed warning and stayed home in the near-paralyzing event. Here are some more winter facts:

- In the last five years Wisconsin has averaged 50,000 motor vehicle crashes during the winter months when roads are covered with ice, snow or slush.
 - On average, 45 people are killed and 5,000 injured in Wisconsin each winter season in accidents when roads are covered in ice, snow and slush.
- Many crashes are caused by "driving too fast for current conditions." Also, when the first blast of winter arrives, motorists often need to "re-learn" how to drive in slippery conditions.

- Heavy rains and melted snow in late winter or early spring can result in flooded roads. Turn Around—Don't Drown™! (Turn Around Don't Drown™ is a NOAA National Weather Service campaign to warn people of the hazards of walking or driving a vehicle through flood waters)

Plan your travels and check the latest weather reports to avoid a winter storm. You can find out the latest road conditions by visiting the Wisconsin Department of Transportation travel information website at www.511wi.gov or by calling 511.



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It is also important to check and winterize your vehicles before the winter season begins. Keep your gas tank near full to avoid ice in the tank and fuel lines. Make sure your car's battery is in good shape – cold temperatures can reduce the effectiveness of a battery by 50 percent.

If expecting adverse weather during your trip, tell someone at both ends of your journey where you are going and the route you intend to take. Report your safe arrival. Make certain that both parties have your cell phone number and license plate number before you start your trip. Here are some Driving tips. Be gentle with both the accelerator and brake. Don't use cruise control in wintry conditions. Don't be overconfident in your four-wheel drive vehicle. You may get going quicker than others but you can't stop faster. Four-wheel drive vehicles can lose traction as quickly as two-wheel drive. Carry a winter storm survival kit in the back seat of your vehicle (in case your trunk jams or is frozen shut) that includes:

- Blankets or sleeping bags
 - Flashlight with extra batteries
 - First-aid kit
 - Shovel, tools, booster cables and windshield scraper
 - High-calorie non-perishable food (raisins, candy bars, energy/protein bars, etc.)
 - Sand or cat litter to use for traction
- Cell phone adapter

Safety First - Stay Informed

The National Weather Service (NWS) issues winter storm warnings and watches. Here's what they mean and what you should do.

Winter Storm Watch – Winter storm conditions (heavy snow, sleet and freezing rain) are possible within the next 36-48 hours. Continue monitoring the weather forecast.

Winter Storm or Ice Storm Warning – A significant winter event is occurring or will begin in the next 24 hours. The combination of snow, sleet, freezing rain and moderate winds will impact travel and outdoor activities. An Ice Storm Warning is issued when mostly freezing rain is expected with ice accumulations of 1/4 inch or more within a 12-hour period. Take necessary precautions – consider canceling travel plans.

Blizzard Warning – A dangerous event with winds that are 35 mph or greater in combination with falling and/or blowing snow that reduces visibility to 1/4 mile or less for a duration of at least 3 hours.

What is possible? Residents can expect almost anything, ranging from killer dense fog and flooding rains to widespread heavy snows and blizzards that can isolate a village/city for days. The only month without a tornado in Wisconsin's history is February! Be ready! Wisconsin Winter Weather Facts – National Weather Service

- The coldest temperature in the winter of 2012-13 was -30 at Upson (Iron County) on Jan 4, 2013
 - Upson also had the most snow with 186.4 inches in the 2012-13 winter season, while Timmerman Field in Milwaukee County had the least with only 25.6 inches. Most of the central and southern counties had only 50 to 70 inches which was well below normal.
 - Wisconsin's all-time, lowest temperature is -55°F on February 2 & 4, 1996, near Couderay (Sawyer Co.). Readings of -30°F or colder have been recorded in every month from November through April. Of course, brief readings in the 50's, 60's and 70's are possible during winter as well!
- Average annual snowfall ranges from 32 to 40 inches near the Illinois border to 135 to 168 inches in the Iron County snow-belt from Gurney to Hurley. The extremes are 31.9 inches in Beloit, Rock County to 167.5 inches in Hurley, Iron County, for the period of 1981-2010.

Official snowfall records

- Greatest daily total – Pell Lake, 26 inches of snow on Feb. 2, 2011 and Neillsville, 26 inches on December 27, 1904.
 - Greatest single storm total - Superior, 31.0 inches over Oct. 31-Nov. 2, 1991.
 - Greatest monthly total - Hurley, 103.5 inches in Jan. 1997.
 - Greatest seasonal total - Hurley, 301.8 inches in winter of 1996-97.
- Deepest snow on ground (excluding drifts) - Hurley, 60 inches on Jan. 30, 1996.

Keep Warm and Safe

Frostbite is damage to body tissue caused by extreme cold. A wind chill around -20°F could cause frostbite in just 15 minutes or less. Frostbite causes a loss of feeling and a white or pale appearance in extremities such as fingers, toes, ear tips or the tip of the nose. If symptoms are detected, seek medical care immediately!

Hypothermia is a condition that develops when the body temperature drops below 95°F. It is very deadly. Warning signs include uncontrollable shivering, disorientation, slurred speech and drowsiness. Seek medical care immediately!

Overexertion is dangerous. Cold weather puts an added strain on the heart. Unaccustomed exercise such as shoveling snow or push-

ing a car can bring on a heart attack or make an existing medical condition worse.

Pets also need extra care when the temperatures fall. They should be brought inside when the temperature reaches 30°F with wind chill. Dogs and cats can get frost bitten ears, nose and feet if left outside during bitter cold weather. Chemicals used to melt snow and ice can also irritate pets' paws - be sure to keep anti-freeze, salt and other poisons away from pets.

The Experimenters' Bench

Cross Band Repeating By Ken Larson KJ6RZ

Cross band repeating is a relatively inexpensive means for extending the range of handheld radios. The purpose of a cross band repeater is the same as any radio repeater. It allows stations to communicate that ordinarily would not be able to do so because of the distance or terrain between them. In Figure 1, for example, the people with handheld radios on the left side of the hill are able to talk to net control by communicating through the cross band repeater located in the vehicle parked on top of the hill. If the cross band repeater were not present, the folks with the handhelds could



not talk to net control because the hill would block their signals.

A cross band repeater is similar in function to a standard repeater in that it contains a receiver and a transmitter that are linked together, but which operate on different frequencies. Voice signals that the repeater receives on its input frequency are automatically retransmitted on its output frequency. A repeater is a relay station.

A cross band repeater is implemented using a dual band 2 meter - 70 cm radio. The repeater receives signals on one amateur radio band (for example 70 cm) and retransmits those signals on a second amateur band (2 meters). Thus the name cross band repeater.

A cross band repeater is far less expensive than a conventional repeater. A conventional repeater can cost several thousand dollars. It is expensive because it operates on a single frequency band, 2 meters for example. As a result, its transmit and receive frequencies are only separated by a few hundred KHz. (600 KHz. on 2 meters). This close frequency spacing requires the receive section of the repeater to have extremely narrow filters that are quite expensive. The narrow filters are needed so that the repeater can continue to receive on its input frequency (for example 147.285 MHz) while transmitting on its output frequency (147.885 MHz). If it were not for these expensive filters, the repeater's receive section would be immediately overloaded by its own transmitter, as soon as it began to transmit.

Once overloading occurs, the repeater can no longer receive input signals and thus ceases to operate as a relay station. The cost of a repeater drops significantly if its input and output frequencies are separated by several hundred MHz instead of a few hundred KHz.. With a wide spacing between the input and output frequencies, expensive input filters are no longer required. The frequency spacing between the 2 meter (147 MHz) amateur radio band and the 70 cm (447 MHz) band is 300 MHz. With this wide spacing, the standard low cost input filters on a 70 cm radio will prevent the receive section of the radio from being overloaded by a close 2 meter transmitter and visa versa. Manufacturers of dual band 2 meter - 70 cm mobile transceivers quickly picked up on this fact and added cross band repeating functions to their radios. When in the cross band repeating mode, a signal received on 70 cm is retransmitted on 2 meters. Likewise, a signal received on 2 meters is retransmitted on 70 cm.

Generally, however, a transceiver can only transmit on one frequency at a time. Thus if signals are received on both 2 meters and 70 cm, the signal heard first is the only one retransmitted.

As mentioned above, a cross band repeater is an effective way to expand the range of a handheld radio. The following example illustrates this point. CVARC provided radio communications support during a recent CROP Walk sponsored by Thousand Oaks area churches. The base station for the radio net was located at Nygreen Hall on the California Lutheran University (CLU) campus, the start and finish point for the walk. Two rest stops with water for the walkers were set up along the course.

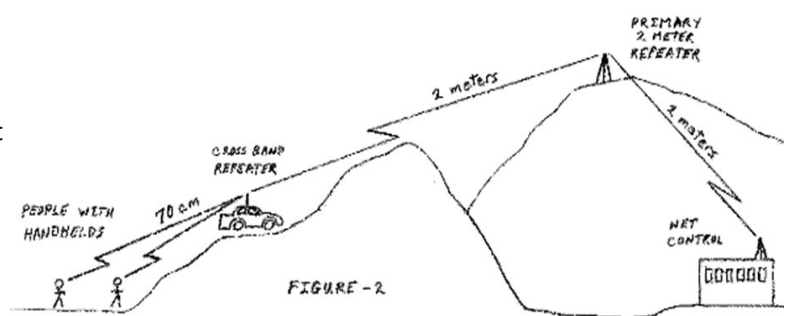
A CVARC radio operator was placed at each rest stop to provide communications from the rest stop back to Nygreen Hall. In addition, two mobile radio units drove along the course looking for people who needed help and also providing the rest stops with additional supplies (water and cups) as needed. Two meter simplex radio communications was used to avoid tying up the local Thousand Oaks repeaters. A handheld radio was used at Rest Stop 1 on the corner of Moorpark and Janss roads since there was not room on this street corner to set up a portable radio station and antenna. The hills between Rest Stop 1 and Nygreen Hall, combined with the handheld's low power and inefficient antenna, made radio communications between the two locations impossible. To overcome this problem, a car with a dual band radio configured for cross band repeating was parked across the street from Rest Stop 1 in the McDonalds parking lot. By using the cross band repeater, Rest Stop 1 could easily communicate with Nygreen Hall, Rest Stop 2, and the two radio equipped mobile units. The handheld at Rest Stop 1 communicated with the car on 70 cm and from the car to the 2 meter simplex net via cross band repeating.

In the more general case, shown in Figure 1, the vehicle containing the cross band repeater is parked on a hill to provide communications between net control and handheld units that can not reach net control because of distance, terrain, or both. One important observation is that people with handhelds can not only talk with net control via the cross band repeater, they can also communicate with each other. This capability is particularly usefully for Boy Scout troops, hikers, and search and rescue missions. People with dual band 2 meter - 70 cm handheld radios, capable of receiving on both bands simultaneously, can hear everyone on the net.

Anyone anywhere on the net transmitting on 2 meters will be picked up by the cross band repeater and retransmitted on 70 cm. A person with a dual band handheld will receive the transmission on either 2 meters, or 70 cm, or both. Likewise, someone anywhere on the net transmitting on 70 cm will be picked up by the cross band repeater and retransmitted on 2 meters. A person with a dual band handheld will receive the transmission on either 70 cm, or 2 meters, or both. People with single band 2 meter or 70 cm radios will not have quite as good coverage.

Those with single band 70 cm radios can hear everyone who is transmitting on 2 meters since everything that the cross band repeater hears on 2 meters will be retransmitted on 70 cm. However, if a handheld person transmits on 70 cm, the cross band repeater will retransmit on 2 meters. Others with only 70 cm capability of course can not hear the 2 meter transmission. They will hear the 70 cm transmission only if they are in line of site with the person transmitting on 70 cm. A similar situation occurs if single band 2 meter handheld radios are used. In this case, the 2 meter handheld people can hear, via the cross band repeater, everything that is transmitted on 70 cm and those 2 meter transmissions which are in their line of sight. Obviously, the best situation is to use dual band handheld radios since people with these radios can hear everything that is transmitted on the net.

Cross band repeating works best in simplex networks. Cross band repeating can be using on a standard repeater network, as shown in Figure 2, however, if this is done, more discipline is required by those operating on the net. The problem is that the cross band repeater will not switch into the 70 cm receive mode until after the carrier of the main 2 meter repeater has dropped. This makes the turn around times on the net (the time between the last person speaking and the next person beginning) abnormally long. If people on the main 2 meter net begin talking before the repeater carrier has dropped, the people with 70 cm handheld radios will rarely get a chance to speak. To provide for fairness on the net, anyone wishing to speak must wait until the repeater carrier has dropped before beginning to talk.



There is a mode of cross band repeating that can allow people with dual band handhelds to avoid the long turn around delay. This mode is called (by Kenwood) locked-band repeating. This mode can be used when those with handhelds can hear the primary repeater (on 2 meters for example), but the low power and inefficient antennas of their handhelds prevent them from reaching the primary repeater directly. I experienced this situation at the Moorpark rest stop during last year's Cruisin Conejo Bike ride.

The Bozo 2 meter repeater was used for communications supporting the bike ride. I could hear the Bozo repeater on my handheld, but the transmit power of my handheld was not adequate to reach Bozo. In the locked-band mode, the cross band repeater receives only on 70 cm and transmits only on 2 meters (or visa versa).

Thus anything that a handheld transmits on 70 cm is immediately retransmitted by the locked-band repeater on 2 meters. The result is that the handheld sounds to everyone as if it were actually operating on 2 meters. There is no unusual turn around delay with locked-band repeating. However, nothing is free. The problem with this mode occurs at the handheld. As the person with the handheld speaks, he hears his voice, slightly delayed, being transmitted by the 2 meter repeater. This is very annoying. I solved this problem by using a hand mic/speaker unit plugged into my handheld. Whenever I push the mic push to talk key, the speaker is cut off so that I do not hear my voice repeated by the 2 meter repeater. This arrangement works very well.

One final note. As with standard repeaters, cross band repeaters should be set up with a receive CTCSS tone on the frequency used by the handhelds. This should be done so that other stations on nearby frequencies do not inadvertently trigger the cross band repeater. This is important when the cross band repeater is working into a larger standard repeater net, particularly if it is a controlled net. Most dual band radios with cross band repeater capability support the standard CTCSS tones on the receive side of the radio as well as on transmit.

The Thought Experiment

And so, why is an article about robotics in a Amateur radio club publication? Because we interact with automation every day, and should/need to become comfortable with our interaction with these automations. Automations (Robots) are Governed by three important laws formulated by a noted SF writer Issac Asimov. Even though Mr. Asimov wrote Science Fiction, some of his ideas have become integrated into the construction and programming of automations. —Editor

Three Laws Of Robotics

IsaacAsimov's Three Laws of Robotics:

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. A robot must obey orders given it by human beings except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

-- StevenNewton

IsaacAsimov wrote wonderful stories and novels around these laws. Oh, and he invented the three laws. The ThreeLawsOfRobotics are first spelled out in the story "Runaround."

ArthurCeeClarke reports that Asimov said that he first heard the laws from John Campbell. This may be a joke by Asimov, or possibly Clarke.

The 0th Law

In the chapter "The Duel" in *Robots and Empire*, Asimov first presents another law, which he calls the Zeroth Law of Robotics, and adjusts the other ones accordingly:

0. A robot may not harm *humanity*, or through inaction allow *humanity* to come to harm.
 1. A robot may not harm a human, or through inaction allow a human to come to harm, unless this interferes with the zeroth law.
 2. A robot must obey orders given to it by a human being unless such orders interfere with the zeroth or first laws.
 3. A robot must defend its own existence unless such defense interferes with the zeroth, first or second laws.
- Does the zeroth law apply to programs in general? If so, there are so many programs whose heads must roll. The pile of spaghetti that I'm currently working is certainly damaging my humanity.*

The problem I see with the Zeroth law is that it's based on groupthink - it's a way of saying, "I have a right to do to you anything I choose to do, <i>for the good of humanity.</i>" It's the rationalization for all collectivist systems, which have proven to lead to tyranny and mass murder <i>EVERY SINGLE TIME!</i> - Rich Grise, Radical Libertarian Loon

The problem with the Zeroth (if you're using it), First, and Second Laws is, of course, perception and definition. Define "human", and "harm", and figure out how to write a program to perceive both with reasonably high accuracy, and these laws become implementable.

It's not the only problem. Another is that often any course of action allows some people to come to harm who could have been helped. You can pretend to get around this by amending the Laws to talk about the "greatest good of the greatest number" or something of the kind, but that doesn't really help because of another problem: you often can't know enough about the consequences of your actions to tell whom they will hurt and harm.

Difficult subject, ethics.

It's supposed to be probabilistic. The robot takes the set of actions that should violate the laws the least. For instance (allow me to steal this instance from one of Asimov's novels) if one man is trying to kill ten, and the robot can only stop him by killing him, the robot will kill the man.

In the earlier novels/collections ("I, Robot", "Caves of Steel", etc.) this is completely false, a robot faced with that choice would go nuts/fry its positronic circuitry/etc. Only in later novels where the Zeroth Law is introduced is even remotely **possible** (but typically still extremely unlikely) that a robot would do a probabilistic trade-off of that sort. And in fact, Asimov underscored throughout even all of the later novels how difficult it was for a robot to make that probabilistic trade-off; it was **never** simply a matter of a robot doing a Bayesian analysis of "the greatest good for the greatest number". Never. For the later novels with highly advanced robots operating under the Zeroth Law, it was, in effect, extremely painful for them to make such trade-offs; they would recruit human agents to perform the necessary action, for instance, at great risk, rather than do so themselves.

The Will Smith movie *I, Robot* (not the book) hints at the Zeroth Law.

Mortar Attack

Story by Mike Swasta

During the weeks after Tet when many of the bases, larger towns and provincial capitals in the Central Highlands had come under attack, Artillery Hill and immediate vicinity had been left untouched. Everyone was expecting something to happen. It was too quiet. The quiet was welcome. Too quiet was viewed with suspicion.

And then it finally happened

An unnerving experience, not unexpected, but still a surprise. At approximately 2:30 am on Wednesday morning, 26 February 1969, the 1/92nd Field Artillery base camp on Artillery Hill was hit by enemy mortar fire.

I was on perimeter guard duty that night, stationed in Tower Three and was in the tower when the rounds came in. Perimeter guard duty every other night was base camp routine for those of us not working nights or in exempt jobs. Some guys pulled guard duty every night several nights in a row since there were not enough people in base camp to man the tower line. Most nights were quiet. We in the towers had been watching bursts of light from explosions and tracer fire from a village under attack far out in the distance in front of our perimeter for about fifteen minutes leading up to the start of the incoming on us. They took much more stuff than we did that night.

Then we saw flashes of light in or near the small village located just beyond and to the left of our perimeter. Nervously and half joking I got on the telephone 'Looks as if it's getting closer, huh?' No joking, it did, as seconds later rounds started to come in. Youthful inexperience on my part, my first time under fire I had mistaken mortar tube flashes for small explosions.

As the first four or five rounds exploded, my thoughts were total disbelief that it was actually happening. The next minutes flew by in seconds, but seemed to last forever. The mortar rounds started landing near Tower One and marched down the tower line to Tower Four. A guard tower is probably one of the worst places to be during a mortar attack. But it does offer some protection compared to being on the ground in the open. I still had the telephone handset in my hand but my flack jacket and steel helmet rested in a corner along with my M14 rifle. I dropped the phone, threw on my gear and crouched low behind the tower parapet wall as rounds hit all around the tower. That was all we could do, powerless to strike back. Hawkins, the tower commander, had been sleeping in the bunker down below and clambered up into the tower as explosions rained all around, smoke and dust filling the air.

I can still see him leaping through the opening in the tower wall, explosions lighting up the night, with dirt and shrap-metal hitting the roof and walls. There is a sense of heightened awareness when such things happen, of sights, sounds and smells. Events do unfold as if in slow motion. Then it was over, quiet again, the welcome quiet, too quiet.

In all, we took 28 rounds of 82mm mortar inside the perimeter. One man received a minor injury. There were no fatalities. A small amount of damage was done in the motor pool. The next morning we discovered how lucky we had been. No tower or bunker had been hit. Rounds had landed all around the towers and up and down the line. One mortar round struck a POL trailer directly behind Tower Three. A trailer tank normally holds about 500 gallons of gas or diesel when full. For some reason this one did not explode or burn.

Due to the proximity of the "friendly" village there was no return fire from either our positions or the 105 SP Howitzers of the 3/6th Artillery on top of the hill. Each tower had an M60 machine gun and an M79 grenade launcher. Tower Four or Five had the 50-caliber machine gun. Base camp guard posts did not get a night vision scope until late 1969. Each tower had an azimuth wheel. In the surprise and confusion, no one in any of the towers had sighted an azimuth to try to pinpoint the origin of the attack. There were many small villages out there beyond our perimeter wire. We were always cautioned to be careful with weapons discharges. It was not a free fire zone. Utilizing hit and run tactics, the enemy would have been long gone from the area before any return fire could be authorized. The morning after, a crater analysis survey team discovered the location from where the mortars had been fired. It confirmed the flashes we had seen were enemy mortar tube flashes.



The only alarm sound-
ed that night was the
sound of the explo-
sions. As the attack
started I remember
someone shouting
over the telephone
'Incoming! Incoming!

Location? I don't know where the hell it's coming from! The battalion siren mounted on a utility pole above the TOC and usually activated from the TOC, malfunctioned that night. It was later discovered that the batteries that powered the siren were dead and the wiring was badly frayed. Everyone in base camp was awakened by the noise of the explosions and was soon in the trenches. They remained in the trenches for about an hour, watching and waiting, but nothing more happened.

Early Radio: Military Communications

The men in Tower Three resumed guard duty routine, watching the wire and the darkness beyond our perimeter lights. The three of us remained awake in the tower talking quietly, unable to sleep, waiting for the sunrise. The natural adrenaline high would last well into the coming day.

It was a small incident. We were lucky. The hill had not sustained an attack in about three months. For many of us it was the first time we experienced enemy fire. It is something I will never forget. It brought the war closer and more personal. There really was a war going on here. It touched deep emotions, of fear, of anger, of hate and afterward, relief.

I was told I slept through my first mortar attack during my first night with the 1/92nd on Artillery Hill. The B Battery barracks was up the hill and away from the perimeter. That night several mortar rounds landed in the motor pool causing minor damage. Most incoming during my one year two months on the hill seemed to land in or near the motor pool. Perhaps they were aiming at the radio antennae above the Battalion TOC and were just poor shots.



The date of the mortar attack, February 26th, is my Mother's birthday. She told me later that she awoke during that night and could not sleep sensing some sort of danger. And least I forget, at the time I was only three months into my tour with some 245 days remaining. I was shorter than some but not nearly short enough.

Survival Preparedness

Here Comes the EMP Blast – Will You Survive?

It has been well established by military experts, congressionally-commissioned studies, and intelligence reports, that an attack on our country by electromagnetic pulse (EMP) is as close to an inevitability as any possible mode of attack. It is also the consensus of all that an EMP burst centered 250 miles over the center of our country would virtually destroy the power infrastructure, knocking the USA back to the pre-electrical age. The dirty little secret is that most EMP aftermath assessments, propagated by these experts, project a population survival rate of between 10% and 20%.

The reports by these experts are very clear in their predictions of the scope of destruction in the aftermath of an EMP attack. Following a well-targeted burst, an electromagnetic field will rain down and will be immediately drawn into electrical lines within its line of sight.

The cascading effect of the intricately linked power grid will overload distribution and transformers in all directions, from the target center to both coasts.

It is projected that resumption of the power supply couldn't even start for several months to a year. Most all battery-based technological devices, including computers, cars, and communications will stop. All production and delivery, including food, water supplies, manufacturing, and medical supplies will cease. Many of these findings don't hide the shocking projection that as much as 80% of the population will perish over a two to three year period due to starvation, disease, murder, and suicide.

What the reports don't describe (and this is the crux of the whole matter for us) is the cold, dark world of survival facing a population of 350,000,000 starving citizens. Even the prospect of hunger is enough to turn law abiding, conscientious people into contemptuous criminals. In the history of societies where hunger reigns, lawlessness remains. As starvation takes its hold, in just a matter of days or weeks, there will be no home, farm or mountain retreat that will be defensible from a continuous onslaught of assaults.

Is there any chance of surviving a direct EMP hit?

Even the most ardent *The End of the World As We Know It* TEOTWAWKI preppers may be ill-prepared for the EMP aftermath. Unless there is at least a two to three year supply of provisions stockpiled into a well-equipped doomsday bunker, 35 feet below the surface, chances of survival are greatly diminished.

Assuming that the chance of survival for non-preppers is slim to none, there are steps that can be taken ahead of time that can improve survivability for resourceful preppers. The cost and effort required for creating absolute invulnerability is prohibitive for most, however, each step can take survivability up a notch. For most TEOTWAWKI preppers, it's a matter of re-imagining the unimaginable and taking the added measures they may have only considered. Those skilled in the tactics of evasion and concealment, with the means of doing so, stand the best chance.

Consider where you live. Within a matter of weeks your home will become a target for looters and refugees. Even the most fortified house can eventually be overrun. Homes located in suburban tracts and rural locations should be considered highly vulnerable. Small, close-knit, and well-armed communities located on large bodies of water can provide a collective defense against all but the most massive groups of intruders. A home in the close proximity of a military base would be a target of last resort as long as the base remains active.

How deep can you hide? A house or retreat stocked to the hilt will be no match for marauding neighbors and gangs unless it exists in the very most remote locations or 30 feet below the ground. Evasion is the best of all survival tactics and it must be applied for at least 6 months to a year to allow for the thinning of the hungry throngs. Where it's not practical to build your own shelter or cave dwelling, there may be a better opportunity to combine resources with other preppers in the construction of a remotely located bunker. Consideration for surviving the travel needed to get to the bunker needs to be a priority.

Shield your electronics. In a post-EMP-blast world, there will still be uses for certain electronic devices such as your HAM radio. You do have a HAM radio don't you? Even computers and satellite phones will have eventual application. Battery-operated medical equipment may be essential for some. While many preppers have taken the measure of insulating rooms from electromagnetic pulses, a simple investment in a Faraday cage may be enough to protect your equipment. Materials such as Mylar™, aluminum foil or copper mesh can all be used as a protection shield as well.

Study pre-electric society. High-tech knowledge and skills will become virtually useless. Studying the skills and applications of the most recent pre-electric society (the late 1800s) would be more essential. The obvious need for this knowledge is for establishing a life without electricity. In the long run, as the underground society emerges, such knowledge and skills will be valuable as a currency.

How much is "enough"? Assuming you have the capability of hiding or defending your food storage in enough time, storing enough food and provisions to survive an apocalyptic, post-EMP world is problematic for most because it requires a lot of space and shelf life. Foods requiring refrigeration will only last a few days. Many canned foods such as stews, beans, fruits, soups, and sauces can survive well beyond their typical one to two year expiration date, but they should be treated like gold and shelf-managed based on expirations. Dried beans, legumes and grains can last the duration. A variety of rice is always a good staple. Oatmeal is also a durable, nutritional food. Dried wheatberries keep forever and can be ground to make your own wheat. Honey is always thought of as a great, long-term survival food.

Possible food lists are too much to cover here. The key to storage is recognizing that heat and air are your biggest enemies. Having a method to seal grains in a vacuum and cool storage is essential. Water will be a critical issue. The best way to store grains and beans is sealed, ideally under an inert atmosphere (nitrogen) or vacuum, and in a cool place (e.g., root cellar).

Water is a critical issue. How much is enough? One gallon of water per person, per day, is considered a minimum, so do the math. Creating a renewable water source is as important as being able to store a year or more of supply.

Increase your health IQ. For people with medical issues, the prospect of depleting necessary medicines is potentially life-threatening. Most medicines have a limited shelf life and are not available in large supply. The best preparation for long-term medical care or needs is preventative health care. Increased knowledge of nutrition and natural remedies can be life extending and increase the quality of life in the bunker. Understanding how natural herbs and oils can mimic the healing effects of pharmaceutical compounds is essential to treating or preventing the onslaught of ailments and disease. Your food list should be prioritized for nutrition and building immunity.

Some would consider a quick death by the direct hit of an incinerating, nuclear bomb blast to be more preferable and, ironically, more humane than living in the aftermath of the more sinister EMP blast.

Who would consider themselves "lucky" to be a survivor in such unfathomable conditions? It's perhaps those with the will to continue in such a world and the foresight to prepare for it.

ARRL Newsline

Ninth Annual ARRL On-Line Auction is Now Underway!

Bidding for the ninth annual [ARRL On-Line Auction](#) is now underway. More than 230 items are on the block, including 24 pieces of gear that were the subject of *QST* "Product Review" articles and road tested by the ARRL Laboratory team. In addition to other miscellaneous transceivers and accessories there are more than 100 vintage books.

"We also have a number of one-of-a-kind pieces, including a hardcover 2014 Centennial edition of *The ARRL Handbook*, imprinted with 'Hiram Percy Maxim, W1AW' to honor our founding president, plus another hardcover 2014 Centennial *Handbook* bearing the number 100," said ARRL Sales Manager Deb Jahnke, K1DAJ. "You'll also find unique items, such as an autographed script from the popular television series 'Last Man Standing' starring Tim Allen. Ham radio has been mentioned in several episodes, and now Tim Allen is licensed for real."

Proceeds from the On-Line Auction benefit ARRL educational programs, including activities aimed at licensing new hams, strengthening Amateur Radio's emergency service training, offering continuing technical and operating education, and creating instructional materials.

Bidding in the 2014 auction ends at 0300 UTC on October 31 (the evening of October 30 in US time zones). Check items in which you have an interest, as bidding end times for each item are staggered.

If you have participated in a previous ARRL On-Line Auction, you may use the passwords you have used on this site before. Your ARRL website user ID and password will not work on the auction site. Check your ARRL user profile to ensure that all address and credit card information remains the same.

Newcomers to the ARRL On-Line Auction must first register in order to participate.

What is the United States doing to make sure that Ebola does not spread?

New screening protocols have begun at five U.S. airports: [Kennedy International](#), Washington Dulles International, O'Hare International, Hartsfield-Jackson International and Newark Liberty International. Travelers from West Africa have their temperatures taken and are questioned about their possible exposure to Ebola.

How contagious is the virus?

The C.D.C. has also announced that a site manager would be sent immediately to any U.S. hospital treating Ebola patients to oversee all aspects of infection control, including making sure that health officials properly remove protection gear.

Officials have emphasized that there is no risk of transmission from people who have been exposed to the virus but are not yet showing symptoms. Ebola spreads through [direct contact with bodily fluids](#). A cough from a sick person could infect someone who has been sprayed with saliva. Specialists at Emory University Hospital in Atlanta have also found that [the virus is present on a patient's skin after symptoms develop](#), underlining how contagious the disease is once symptoms set in.

According to the C.D.C., the virus can survive for a few hours on dry surfaces like doorknobs and countertops and can survive for several days in puddles or other collections of body fluid. Bleach solutions can



Name of Net, Frequency, Local Time	Net Manager
Badger Weather Net (BWN) 3984 kHz, 0500	W9IXG
Badger Emergency Net (BEN) 3985 kHz, 1200	NX9K
Wisconsin Side Band Net (WSBN) 3985 or 3982.5 kHz, 1700	KB9KEG
Wisconsin Novice Net (WNN) 3555 kHz, 1800	KB9ROB
Wisconsin Slow Speed Net (WSSN) 3555 kHz, Sn, T, Th, F, 1830	N1KSN
Wisconsin Intrastate Net - Early (WIN-E) 3555 kHz, 1900	WB9ICH
Wisconsin Intrastate Net - Late (WIN-L) 3555 kHz, 2200	W9RTP
ARES/RACES Net 3967.0 kHz, 0800 Sunday	WB9WKO
* Net Control Operator needed. Contact Net Manager for information.	

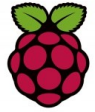
Next Regular Meeting

The next meeting will be on Thursday, October 30th, at 7:00PM. We meet in the Fellowship Hall of Redemption Lutheran Church, 4057 N Mayfair Road. Use the south entrance. Access the MRAC Yahoo group for important details about the February Meeting.

Meeting Schedule:

November 20, 2014 - 7 pm

Please do not call the church for information!



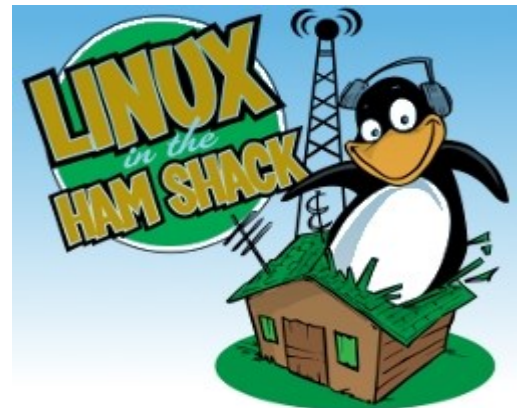
Club Nets

Please check in to our nets on Friday evenings.

Our ten meter SSB net is at **8:00 p.m. at 28.490 MHz USB** Our two meter FM net follows at **9:00 p.m.** on our repeater at **145.390 MHz** with a minus offset and a **PL of 127.3 Hz.**

Visit our website at: www.w9rh.org

Or phone (414)-459-9741



Chatter Deadline

The **DEADLINE** for items to be published in the **Chatter** is the **15th of each month**. If you have anything (announcements, stories, articles, photos, projects) for the 'Chatter, please get it to me before then.

You may contact me or Submit articles and materials by e-mail at: Kc9cmt@earthlink.net

or by Post to:

Michael B. Harris

807 Nicholson RD

South Milwaukee, WI 53172-1447

VE Testing:

November 27th, 9am— 11:30am

No testing: June, July or December

Location: Amateur Electronic Supply Time: 9:30 AM (Walk-ins allowed)

ALL testing takes place at: Amateur Electronic Supply 5720 W. Good Hope Rd. Milwaukee, WI 53223

Area Swapfests

Nov. 1st , Milwaukee Repeater Club Swap-fest Location: Milwaukee, WI

Type: ARRL Hamfest Sponsor: Milwaukee Repeater Club

Website: <http://www.mrc91.org>

Nov. 2nd, Fox Cities ARC Swapfest Location: Appleton, WI Type: ARRL Hamfest

Sponsor: Fox Cities Amateur Radio Club, Inc.

Website: <http://www.fcrc.us/hamfest.php>

MRAC Working Committees

100th Anniversary:

- Dave—KA9WXN
- Dan—N9ASA

Net Committee:

- Open

Field Day

Dave—KA9WXN, Al—KC9IJJ

FM Simplex Contest

- Joe – N9UX
- Jeff – K9VS

Ticket drum and drawing

- Tom – N9UFJ

Newsletter Editor

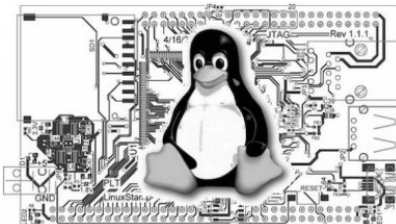
- Michael-KC9CMT

Webmaster

- Dave, KA9WXN

Refreshments

- Hal—KB9OZN



Membership Information

The Hamateur Chatter is the newsletter of MRAC (Milwaukee Radio Amateurs' Club), a not for profit organization for the advancement of amateur radio and the maintenance of fraternalism and a high standard of conduct. MRAC Membership dues are \$17.00 per year and run on a calendar year starting January 1st. MRAC general membership meetings are normally held at 7:00PM the last Thursday of the month except for November when Thanksgiving falls on the last Thursday when the meeting moves forward 1 week to the 3rd Thursday and December, when the Christmas dinner takes the place of a regular meeting. Club Contact Information

Our website address <http://www.w9rh.org>

Telephone **(414)-459-9741**

Address correspondence to:



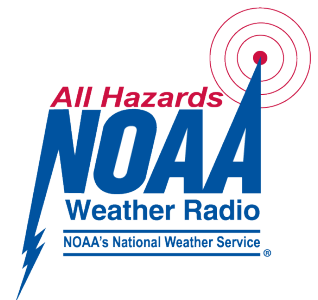
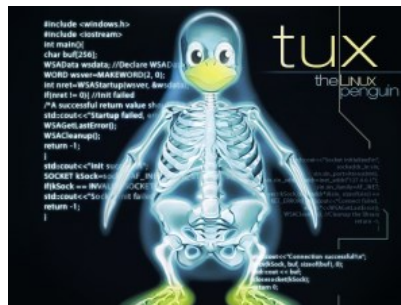
MRAC, PO Box 26233, Milwaukee, WI 53226-0233

Email may be sent to: w9rh@arrl.net . Our YAHOO newsgroup:

<http://groups.yahoo.com/group/MRAC-W9RH/>

CLUB NETS:

- The Six Meter SSB net is Thursday at 8:00PM on 50.160 MHz USB
- Our Ten Meter SSB net is Friday at 8:00PM on 28.490 MHz \pm 5 KHz USB.
- Our Two Meter FM net follows the Ten meter net at 9:00PM on our repeater at 145.390MHz - offset (PL 127.3)



The MRAC HamChatter is a monthly publication of the Milwaukee Radio Amateurs' Club. Serving Amateur Radio in Southeastern Wisconsin & all of Milwaukee County

Club Call sign – W9RH

MRAC Website: <http://www.W9RH.org>

Editor: Michael B. Harris, Kc9cmt, kc9cmt@Earthlink.net

Milwaukee Area Nets

Mon.8:00 PM 3.994 Tech Net

Mon.8:00 PM 146.865- ARRL Newsline

Mon.8:00 PM 146.445+ Emergency Net

Mon.8:00 PM 146.865- Walworth County ARES net

Mon.8:45 PM 147.165- ARRL Audio News

Mon. 8:00 PM 442.100+ Railroad net, also on EchoLink

Mon. 8:30 PM 442.875+ WARC W9CQ net also on EchoLink 576754
Mon. 8:30 PM 442.150+ Waukesha ARES Net on the 1st, 3rd, and 5th Monday of each month.

Mon. 9:00 PM 147.165- Milwaukee County ARES Net

Tue.9:00 AM 50.160 6. Mtr 2nd Shifter's Net

Tue. 9:00 PM 145.130+ MAARS Hand Shakers Net

Tue. 8:00 PM 7.035 A.F.A.R. (CW)

Wed. 8:00 PM 145.130+MAARS Amateur Radio Newsline

Wed. 8:00 PM 147.045+ West Allis ARC net

Wed. 8:00 PM 147.270+ Racine County ARES net

Wed. 9:00 PM 145.130+MAARS SwapNet, link to FM-38

Thur. 8:00 PM 50.160, 6 Mtr SSB Net

Thur. 9:00 PM 146.910+ Computer Net

Fri. 8:00 PM 28.490 MRAC W9RH 10 Mtr SSB Net

Fri. 9:00 PM 145.390+ W9RH 2 MTR. FM Net

Sat. 8:00 PM 146.910+ YL's Pink HAMsters Net

Sat. 9:00 PM 146.910+ Saturday Night Fun Net

Sun 8:30 AM 3.985 QCWA (Chapter 55) SSB net

Sun 9:00 AM 145.565+ X-Country Simplex Group

Sun 8:00 PM 146.910+ Information Net

Sun 8:00 PM 28.365 10/10 International Net (SSB)

Sun 9:00 PM 146.910+ Swap Net

Daily: Milwaukee — Florida Net 7 am, 14.290 mhz.

Thursday's 8:00 PM 448.300+ Tech Net

2meter repeaters are offset by 600KHz - - 70 centimeter repeaters are offset by 5 MHz

