

The Open Feed Line

A Publication of the Michigan Amateur Radio Alliance (MARA)

Volume 18, Issue 1 - Friendship, Community Service & Advancement of the Hobby - Jan.-Mar.-2009

NEWS – 3 January 2009

By Abe W8HVG

Grand Rapids, Michigan has a new city Ordinance affecting amateur radio antennas and towers! The City of Grand Rapids, Michigan adopted a completely new codification of City Ordinances on September 22, 2008 replacing the old. The new requirements pertinent to amateur radio towers and antennas are contained in Article 9 - Use Regulations, Section 5.9.37. Titled Wireless Communications Facilities, Paragraph C, Subparagraph 2 as follows:

Amateur Radio and Receive-Only Antennas. This Chapter shall not govern any tower, or the installation of any antenna, that is under seventy (70) feet in height, including building height, and is owned and operated by a federally-licensed amateur radio station operator or is used exclusively for receive-only antennas.

A conversation with the City Planning Office personnel revealed that any amateur radio or receive-only tower or antenna over seventy (70) feet in height must abide by Chapter 5.9.37 pertaining to Wireless Communications Facilities.

The new ordinance replaces an older amateur radio tower and antenna ordinance created in early 2003 with the support of radio amateurs working with City Planners. The new ordinance makes no mention or reference to PRB-1.

Reported by W8HVG

The Independent Repeater Association's (IRA) Hamfest is June 6. The flyer is on page 8.

Editor's Corner

By Jim ki8jd

Life has been pretty hectic for me lately. The first newsletter of the year is coming out when the second one should. It's not for lack of material, there's been plenty going on. You will find reports about some of these things on succeeding pages.

Speaking of the newsletter, there's been more talk lately of saving paper, toner, stamps, manual labor, and printer maintenance by going to an electronic version (internet or e-mail). This has been discussed in prior years, but with the downturn in the economy came a downturn in club revenue.

There is a lack of agreement on how to proceed. I would like to propose a compromise.

Our club's By-Laws indicate in several places that all members shall receive a newsletter by mail. However, it is not specified whether it must be by postal mail or e-mail. So, several months ago, I created a separate e-mail account exclusively for the newsletter. Anyone who would like to save the planet's resources (and the club's money) can just send an e-mail to the following address, and they will be put on the e-mail mailing list. Other correspondence regarding the newsletter may also be sent to this address, and the sender will be automatically added to the e-mail list, unless you specify otherwise.

As this is basically a free service provided by myself, you do not need to be a MARA member to receive the e-mail version, at least not at this time.

I suggest that you do not sign up unless you have broadband, because the PDF file might be too big for dial-up (color pictures and all).

The address is maranews@sbcglobal.net

The Open Feed Line

The Open Feed Line is published quarterly. It is the official journal of the Michigan Amateur Radio Alliance, or MARA for short.

MARA, an American Radio Relay League affiliated club, was created to provide opportunities for friendship, community service, increasing technical knowledge, and upgrading our skills in the hobby of Amateur Radio.

You may freely reprint any material in the Open Feed Line, but please credit the Open Feed Line, the original author, and the original publication, if given.

Everybody is encouraged to submit original articles on topics relevant to the hobby of Amateur Radio to the editor. The deadline for submission is the end of January, April, July, and October, and the newsletter will be published within the following month.

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Membership Information

Annual dues to MARA are \$20. Family memberships are an additional \$5. Persons aged 70 and over - \$5.00. Membership is free to students under 21. Memberships expire on December 31st, and club dues are due on January 1st. MARA membership is open to all interested persons.

Please send change of address information and membership applications to the club secretary.

Great Lakes Award

Send inquiries regarding the Great Lakes Award to the Awards Manager
Larry Dells KC8KVR c/o

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* Some of these positions become open occasionally. If you'd like to volunteer, contact one of the board members and let them know what your interested in. *

Club activities

MARA holds their weekly 2-meter Net, every Thursday, at 8 PM on the MARA W8USA repeater, 145.230 MHz -600Khz PL. 94.8. MARA holds their monthly meetings on the 2nd Wednesday of the month at 7:30PM, at the Steepletown Building, located on the SW corner of 5th street and Davis NW, in Grand Rapids. This site is handicap accessible, with additional parking on the West side of the building. All are welcome to attend our meetings.

Tom Hansen N8DGD West Michigan Ham of the Year

By Richie K8JX



*Tom accepts the plaque at
The Welcome New Hams Dinner*

The 2009 West Michigan Ham of the Year was awarded to Tom Hansen N8DGD. Tom has accomplished much in the West Michigan Ham community.

He came forward and took on the task of maintaining the GRARA repeaters when they were in rough shape. He helped upgrade the entire system when they got new equipment.

But his involvement goes far beyond any one club. There are not many Hamfests or other Ham club events where Tom doesn't participate. You'll find him involved in Fox Hunting, Open-Radio Room, and Summer Ham's Picnics.

Tom is usually the first to volunteer to help raise an antenna, climb a tower or just help as best he can. He encourages new hams to get more involved and goes out of his way to help older hams upgrade.

Tom is a joy to know. Congratulate him when you see him.

Abe W8HVG Receives The Pillars of Society Award at The Welcome New Hams Dinner

By Richie K8JX

The Michigan DX Association made its 5th presentation of the "Pillars of Society" Award. For 2008, Ray "Abe" Abraczinskas W8HVG received the award for his outstanding contribution to Ham Radio. We congratulate Abe upon receiving this acknowledgment of his achievements in Ham Radio. Thank you Abe.

The past recipients of the award are: Al Eckman WW8WW, Frank Schmidt N8UVI, Bela Lindenfeld N8SHZ, and Sam Nabkey K8SN.

This year, the MDXA joined the Lowell ARC, Grand Rapids Amateur Radio Association and The Michigan Amateur Radio Alliance in putting on The Welcome New Hams Dinner.

The Welcome New Hams Dinner was held on February 14, 2009 at Fire Mountain. Once again, Michigan provided the almost-blizzard conditions, but that didn't stop the hams from having a great time.

The Dinner was smaller than usual, probably due to the raging snowstorm we were having at the time. But those who braved the weather conditions were well rewarded with a great meal, and of course, visiting our Ham friends who we haven't seen since the last time we had this dinner.

A reminder that if you would like to nominate a candidate for either "West Michigan Ham of the Year", or "Pillars of Society", now is the time to think about the folks in our community. For more information on both of these programs, visit <http://www.mdx1.org> and click on Pillars Awards. For "WMHOTY", visit <http://www.w8usa.org> and click on Ham Of The Year.

These programs came about by seeing all the outstanding achievements YOU folks have made.

Waves V

By Jim ki8jd

*It seems that I should apologize for
Waves IV, I didn't plan to get so technical.*

Imagine a bathtub with about a half-foot of water in it. If you put your hand in the water, and move your hand from end to end very slowly, you will make waves, but nothing dramatic will happen. Similarly, if you move your hand very quickly, you will make waves, but nothing dramatic will happen. However, if you move your hand back and forth at just the right speed, a wave will build until the water sloshes over the ends of the tub, and makes a huge mess. In this case, your hand works with the properties of the water and the tub to form a "standing wave" that keeps growing until it sloshes over the ends of the tub. When you find that perfect speed to move your hand, you have found the resonant frequency of the water in the tub.

Everything has a resonant frequency. For instance, it was discovered that the water molecule resonates at a microwave frequency, and the microwave oven was born.

A resonant antenna also has a standing wave that surges back and forth. When you key your transmitter, you start a standing wave that surges back and forth on the antenna. Since your transmitter is set to the same frequency at which the antenna is resonant, it keeps adding energy into the antenna, and the wave gets larger for the first few microseconds. After the first few microseconds, the energy level on the antenna is so large that it begins to throw off electromagnetic radiation

(radio waves) as fast as the transmitter is pumping in power.

A reader e-mailed some questions:

1- *If you use a tuner to obtain 50 ohms at the transmitter, does the antenna see 50 ohms at the tuner or does the tuner simply trick your transmitter into thinking it sees 50 ohms?*

2- *Is a resonant antenna a better performer than a non-resonant antenna?*

To answer the above questions, let's consider a non-resonant dipole, 100 feet long, fed with ladder-line and a tuner. When you key the transmitter, you send power through the jumper coax, through the tuner, through the ladder-line, and into the antenna. But wait, the antenna is not resonant, and there is a mismatch at the antenna feed-point, so a portion of the power is reflected off from the antenna, and flows back down the ladder-line towards the tuner. Due to the fact that the non-resonant antenna exhibits reactance, this reflected wave is out-of-phase (see Waves IV).

A similar thing happens to the reflected wave when it hits the output of the tuner—it is reflected back towards the antenna.

When the tuner is properly adjusted, the output side of the tuner will exhibit an equal but opposite reactance as the antenna. Because the output of the tuner has the opposite reactance as the antenna, this re-reflected power is put back into phase, and adds to the power being pumped in from the transmitter, flowing towards the antenna.

Continued on page 6



Still Another Way to Mount an Antenna

By Jim ki8jd

The top picture on the left shows an MFJ-2990 43-foot vertical antenna sticking up from the center of N8VWI's garage roof. You might wonder, "Where is the tripod?"

The center picture on the left shows aluminum tubing going up through the roof deck. The question is, "Where is that going?"

Both of those questions are answered by the bottom photo, which shows the base of the vertical mounted just above the rafters. Since this photo, 450 feet of counterpoise wire has been strung around the garage rafters, the coax has been hooked up, and contacts have been made both stateside and overseas, right at the bottom of the solar cycle.

These 43-foot verticals seem popular lately, and are offered by several different antenna manufacturers. At first thought, the length seems odd, since it is not resonant on any ham bands. However, they don't want it resonant, since there is an impedance transformer in the white box. They want the impedance to be high on all bands, so that they can transform it to low impedance on all bands, which makes it suitable for coax feed, on all bands.

Another interesting fact is that 43 feet is about $\frac{5}{8}$ of a wavelength on 20-meters, which should make it a screamer for 20-meter DX.

It looks like Bill is making good use of his newly acquired General-class license. Keep up the good work!

Waves V

Continued from page 4

During the first few microseconds, the power levels on the antenna, the ladder-line, and the output of the tuner increase until the antenna throws off power (radio waves) as fast as the transmitter is pumping it in. The current levels, and voltage levels, can get very high on this "resonant antenna system". The more non-resonant the doublet is, the higher the power levels will be on the feed-line and tuner output. Typically, the losses will not be that large, and this resonant antenna system will work wonderfully. The process described in the previous paragraphs is called "conjugate matching".

In certain situations, however, the losses can get large enough to convert a significant portion of the transmitter's power into heat, instead of radio waves.

The data in this paragraph comes from the ARRL Antenna Book, 18th Edition, chapter 24, page 12. We have a 100-foot dipole, 50 feet above the ground, with 100 watts from the transmitter, at 1.830 MHz. This dipole is less than 1/5 of a wavelength long at this frequency. If we use 100 feet of coax between the antenna and the tuner, the SWR at the antenna is 1828:1, and the loss in the coax is 99.75 watts. This means that only 1/4 of a watt is going out as radio waves. If we use 100 feet of 450-ohm ladder line instead of the coax, the SWR drops to 397:1, and the loss drops to 94 watts. While 6 watts is 24 times better than 1/4 watt, it is still not all that good.

In spite of the facts presented in the previous paragraph, people make contacts on such antennas, and are often quite happy with them.

The paragraph after this one comes from the ARRL weekly newsletter. Please note that Mike's antenna is longer than 100 feet.

Mike Hoteling, KD7IBE of Colville, Washington wrote "Just want to report some good propagation from northeastern Washington on 160 meters late at night. These quiet sunspot conditions offer some unique opportunities. QSO into Wyoming and Texas complete with QSL cards with the Century Club on 1892 kHz with 100 watts into a 75-meter dipole at 35 feet. Don't be afraid to give it a try."

M. Walter Maxwell, in his book "Reflections II", says that a dipole should be at least 1/4 of a wavelength long, but he recommends at least 3/8 of a wavelength long to make tuning easier. In the previous paragraph, Mike's antenna is 1/4 wavelength long. Of course, he doesn't mention which feed-line he is using. Maybe he is using 600-ohm open wire, which is the only feed-line to have less loss than ladder-line.

Well, I've been working on this newsletter almost all day now, and I can't believe it took this long. I have a bunch of material left over, but it didn't fit very well. Maybe I'll use it to make a really strange newsletter later this month.

73 Jim

On the Bench...

By Richie K8JX

These new modern radios are a thing to behold. They can include Digital Signal processing, automatic antenna tuning and a host of other features we didn't know we were missing. They can also break down. When it comes time to have our trusty rig repaired, we're usually left to deciding on sending it back to where we bought it, or pack it up and ship it to the manufacturer. Not very pleasant choices to say the least. We do have several local companies that might, if time permits, attempt to mend our rigs, but what we're looking for is a local Radio Repair person to do our mending. Starting with this issue, we've begun to search for local repair shops. If you know of a dependable person who can repair electronic equipment, please write our Editor, and share with him what you've found.

For our very first listing, we have had Paul Kitchka WB8LQZ recommended to us. Paul's first love is repairing electronic devices, especially Amateur Radio gear. If you wish to try out his service, give him a call and leave a message, including your name, phone number and when you can be reached and what radio you have and the trouble your experiencing with it. Paul will get back to you. Paul lives in Sparta MI and his phone number is 887-0511. Our thanks to Tom WD8RER for supplying this information.

Remember, we're only supplying the contact information. If you know of another shop, please contact Jim KI8JD.

E-mail from Abe

Just wondering if you heard that there is a Michigan PRB-1 activity going to affect the Michigan legislature on amateur antennas? You might be interested in getting on the email list. Check out these websites for info: www.arrl-mi.org/ www.prb1michigan.org/ Need to get about 500 hams connected into the project to write their representatives when the time comes. Spread the word in MARA. 73, Abe

On the Bench...Continued

By Jim ki8jd

Dave Smith KC8PCL also repairs radio gear, including Amateur radios, microphones, power supplies, CBs, etc. His shop is at his house on G.R.'s southeast side. You can call him at 719-2745 or e-mail at kc8pcl@yahoo.com

Mail from Richie

Good Morning dudes and dudettes. Below is the letter I wrote up and mailed to Dan Mills N8PPQ. Just wanted to let you know.

April 7, 2009

Dear Dan,

I wanted to take this time to personally thank you for the very informative presentation you made at the March 11, 2009 Mara club meeting. Your antenna design has stirred the interest of several members and I've already heard that folks are interested in visiting your web site for further information. To help disseminate information on your new antenna and presentation, we're going to write up an article about your presentation and if our editor can manage it, insert the photo you have on QRZ of your QTH and EZO antenna. I will tell Richard Douglas KC8NKA and Tom Hansen N8DGD, of the Grand Rapids Amateur Radio Association, about your presentation.

I hope as you present your antenna design to other Hams, you'll receive the success and acknowledgment you rightly have earned!

Congratulations on a great job of constructing and engineering!

If I, or the club, can be of any further help, please do not hesitate to contact us.

Thank you again Dan for the great presentation and also for taking the time to work with the students at Grand Valley State University.

Richard Ranta K8JX
President Michigan Amateur Radio Alliance
2009

GRAND RAPIDS, MICHIGAN I.R.A. 'GOOD OLD DAYS' HAMFEST

Saturday, June 6, 2009 - 8 a.m. until 2 p.m.



We're still bringing back the 'Good Old Days' at West Michigan's Largest Hamfest & Computer Fair. Support your Michigan linked repeater system. Be there!

Convenient location with spacious facilities at the Hudsonville Fairgrounds. Located 14 miles west of Grand Rapids, two miles north of I-196 at exit 62. FREE tables and FREE trunk sale spaces (tickets required). Friday night potluck, camping, demonstrations, and exhibits. We have listened to your suggestions!

OVER 22,000 SQUARE-FOOT INDOOR FACILITIES with CONVENIENT ACCESS and FREE PARKING. FREE 8' tables (indoors) and FREE trunk sale spaces (outdoors). **Sellers and dealers must reserve tables and/or trunk sale spaces with a prepaid ticket order!** Tables/spaces first come, first served. Tickets: \$5.00 ea. through June 5th; \$6.00 ea. on June 6th. NOTE: Prepaid ticket table/space reservations held until 7:45 a.m. Saturday then released (no refunds). All reservations with SASE please. Camping, tables, and trunk spaces are not an admission to Hamfest; tickets are required. \$5 fee for each electrical hookup for table, trunk space, or camping. Friday night set-up available after 7 p.m. or 6:00 a.m. start on Saturday. CAMPING: \$10 fee, showers and rest rooms available for camping. Food and drinks available in comfortable indoor facilities. Many sit down "Eyeball QSO areas." Children under 12 admitted free accompanied by an adult. Handicapped parking and access. In case of rain, trunk sellers could move indoors if space is available.

•FAMOUS "ROADKILL-CHILI" POTLUCK FRIDAY EVENING

Bring a main dish to pass and join in the fun Friday at 6:45 P.M. after helping with setup. Enjoy "Eye-ball QSOs," entertainment, awards, and surprises. Last opportunity to purchase reduced-price Hamfest tickets. GRARA Club meeting held immediately after the potluck. Over 125 people attended the potluck last year.

•VE AMATEUR EXAMS - 9:00 A.M. START

All walk-ins. Technician, General and Extra Class. Please bring original and a copy of your license, any C.S.C.E.'s with some form of photo ID and a check made out to "ARRL / VEC".

•ARRL FORUM - 11:00 A.M. START

Jim Weaver, K8JE, Director ARRL Great Lakes Division will speak on recent ARRL activities; Dale Williams WA8EFK, Section Manager, ARRL Great Lakes Division will speak on the Michigan PRB-1 Program, and former Kentucky Section Manager John Meyers, NB4K will speak on the ARRL Legislative Action Program.

•"FOX HUNTING" DISCUSSIONS - 12 NOON

•2-METER "FOX HUNT" - 12:30 P.M. START

Bring your fox-hunting equipment and participate.

•GRAND RAPIDS FESTIVAL OF THE ARTS - DOWNTOWN

Write for reservations & tickets to: I.R.A. Hamfest, 562 92nd Street SE, Byron Center, MI 49315. Camping fee: \$10.00; w/elec. \$5.00 more. Tickets: \$5.00 ea. before June 5th; \$6.00 ea. on June 6th.

INFO: Call Don at (616) 532-7769 after 4 p.m. (E.D.S.T.) for info and discount rate motels. Check out the IRA Web-site at: www.w8hvg.org. Talk-In will be on 147.160 link system (94.8 pl).

DEALERS: BRING YOUR HAM EQUIPMENT, COAX, COMPUTER EQUIPMENT, SOFTWARE, WIRE, ALTERNATIVE ENERGY EQUIPMENT, BOOKS, PARTS, JEWELRY, CAPS, SWEAT-SHIRTS, JACKETS, ETC, TO SELL BE THERE!

HAMS: BRING YOUR RADIOS, BOOKS, ANTENNAS, COAX, COMPUTERS, AND EQUIPMENT TO SHOW, TRADE OR SELL BE THERE!

COMPUTER HOBBYISTS: BRING YOUR EXCESS HARDWARE, BOOKS, SOFTWARE, PARTS, ETC., TO TRADE OR SELL BE THERE!

EVERYONE: LOOK AT ALL THE ACTIVITIES BE THERE!

cut here

NAME _____ CALL _____ DATE ____/____/2009
 ADDRESS _____ COMPANY _____
 CITY _____ STATE _____ ZIP _____ PHONE () _____
 NUMBER OF TABLES ____ TRUNK SALE SPACES ____ NUMBER OF TICKETS ____ CAMPING: Y / N (circle)
 ELEC. HOOKUP: Y ___ / N (circle) KIND OF MERCHANDISE _____
 TOTAL ENC. _____ MAKE CHECK OUT TO: INDEPENDENT REPEATER ASSOCIATION, INC.
 INCLUDE S.A.S.E. AND MAIL TO: I.R.A. HAMFEST, 562 92ND STREET SE, BYRON CENTER, MI 49315