

# Mich-A-Con RF

Iron Mountain, Michigan

March 2004

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Be sure to read the minutes of the March 10th meeting, action was taken on several of the items on the club survey.

Visit the ARRL's web site at:  
<http://www.arrl.org>

## Remembering the 2002 Tornado



(Tuesday, October 1, 2002)

Daily News Photo by Theresa Peterson

### Storm rips through area; thousands without power

By **SUSAN ROBINSON**  
Staff Writer (The Daily News)

IRON MOUNTAIN — Eighty mile-an-hour winds tore through Dickinson County on Monday night taking down power lines and trees and rupturing gas lines, according to the National Weather Service in Marquette.

## Mich-A-Con ARC March 10 Meeting

The meeting was called to order by Vice President, Tom Martin, at 7:12 PM

### Secretary Report:

The minutes of the February 11 meeting were read and accepted.

### Treasurer Report:

The Treasurers Report was presented by Steve Johnson. As of this meeting, we have \$305.18 in checking, \$2, 573 in regular savings and

No injuries have been reported. Iron Mountain and Breitung Township schools are closed for the day as well as Hillcrest Elementary School in Aurora, Wis.

Power may be restored as late as 5 p.m. on Wednesday although it could be sooner, said Rod Miller of We Energies. A total of 17,000 homes in Dickinson County and parts of Florence County and Marinette County lost power at approximately 7:15 p.m. Monday night, Miller added. And 10,000 homes remain without power still today.

The hardest hit areas at this time include Iron Mountain, Quinnesec, Kingsford, Niagara and Aurora, according to Miller. "We have a helicopter in the air doing damage assessment now and 60 line mechanics from Appleton, Wis. and Milwaukee have been brought in to assist local crews. Some area businesses are assisting We

*(Continued on page 3)*

\$1506.79 in the repeater account.

### Repeater Report:

Lee reported that work needs to be done on the repeater's primary antenna.

### Old Business:

Tom Martin volunteered for the office of President. A motion was made to nominate Tom for the office, the motion was seconded and he was

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## Mich-A-Con ARC March 10 Meeting

*(Continued from page 1)*

elected by unanimous vote.

Mike Boileau volunteered for the office of Vice President. A motion was made to nominate Mike for the office, the motion was seconded and he was elected by unanimous vote.

The club dinner was attended by 20 members and guests and all had a good time. Thanks to Bob Meyers for making the arrangements and notifying club members.

Mike Bray reviewed the results of the club survey and the following action was taken by the club:

The meeting day was changed to the second Tuesday of the month, beginning with the May meeting.

The meeting time was changed to 6:30 PM, beginning with the April meeting.

There will be a weekly net on the 2-meter repeater every Tuesday at 6:30 PM (with the exception of the second Tuesday of the month, which is club meeting night).

Saturday morning breakfasts will be held on the last Saturday of every month, beginning in April. The first breakfast will be on April 24<sup>th</sup> at 9:00 AM at the Holiday Kitchen in Iron Mountain.

Meetings will include a fifteen minute "show and tell", beginning with the May meeting. Bob Meyers is tentatively scheduled for the May meeting. We should have a primary presenter and a backup, volunteers will be solicited in the monthly newsletter.

Three members had requested that the club help them learn CW. Mike Bray suggested that the club purchase a club/instructor version of Ham University which would allow 5 members to register the software at the regular \$40 cost for the CD. Members wishing to register the software would split the \$40 cost among themselves.

### **New Business:**

Robin Turner, of the Marquette office of the National Weather Service, will present a special

session of Storm Spotter Training to the club at our April 14<sup>th</sup> meeting. He will attend our meeting, which will begin at 6:30 PM, and his presentation will take place at approximately 7:00 PM and will last about an hour. All members are encouraged to attend.

Mike Bray requested reimbursement for club newsletter costs for the January and February newsletters. The January newsletter was sent by mail to 67 addressees at a cost of \$40.87. The February newsletter was sent by mail to 7 addressees at a cost of \$4.55, the remaining club members received their February newsletter by email. A motion was made to reimburse Mike for his cost, it was seconded and approved by those in attendance.

The club will participate in Field Day the weekend of June 26-27. Terry Moriarity volunteered the use of his motor home. A chairperson and committee are needed to coordinate the event. Members possessing club equipment related to Field Day activities are asked to notify any of the club officers.

President Tom Martin concluded the meeting with a "For The Good Of The Order" roundtable discussion of members' current Amateur Radio activities.

### **Adjournment:**

The meeting was adjourned at 8: 45 PM

Submitted by: Mike Bray

## Members Wanted

Of the twenty-seven members that paid dues in 2003, nineteen have renewed their membership. Dues for 2004 must be paid by the April meeting in order to maintain active club membership.

We were able to attract nine new members to the club this year and we are seeking more. A single issue of this newsletter is being sent to a new local Ham every month in an effort to increase club membership. Please pay us a visit at one of our monthly meetings or just complete the application/renewal form on page 9 to become a member.

### **License Study Materials Available from the ARRL:**

#### **Technician Class:**

*Now You're Talking* - 5th edition - Order No. 8810  
\$19.95

*ARRL's Tech Q&A* - 3rd edition - Order No. 8829  
\$12.95

*ARRL Technician Class Video Course* - 4th ed.  
DVD Course No. 9116  
VHS Course No. 8837  
\$149 each + \$12 s&h

#### **General Class:**

*ARRL General Class License Manual* - 4th ed.  
Valid through June 30, 2004 - Order No. 8004  
\$15

*ARRL's General Q&A*  
Valid through June 30, 2004 - Order No. 8586  
\$12.95

*ARRL General Class Video Course* - Valid through June 30, 2004  
Order No. 8349  
\$149 + \$12 s&h

*Your Introduction to Morse Code* - Pass 5 wpm test  
Cassettes No. 8322  
Audio CD No. 8314  
\$14.95 each

*Ham University - Complete Edition* - Learn Morse code with this easy to use software. Includes a written exam quiz generator with all three question pools. CD-ROM for Win95-XP  
Order No. 8735  
\$39.95

Phone: 1-888-277-5289  
or

<http://www.arrl.org/catalog/lm/>

<http://www.arrl.org/catalog/8330/>

<http://hamuniversity.com>

## September 30, 2002 Tornado

*(Continued from page 1)*

Energies in the cleanup and repair, Miller said. Radio and the feeder for Dickinson County Memorial Hospital were repaired before 9 a.m. today, he added. "There is still lots of wire down, maybe even some we are not aware of. We urge people to exercise extreme caution with any downed wires," Miller said. He also urged caution in using refrigerated foods and instructed residents to remove anything in or on their stoves to prevent possible fire hazards.

Pete Schlitt, director of emergency prepared-ness for Dickinson County, the following directives are being issued to area residents:

- Stay away from all downed wires as power is in the process of being restored.
  - Make sure ovens are off and everything is off the oven surface.
  - Stay home, if possible, to allow emergency workers to do their jobs.
  - Drive cautiously if you must go out as multiple traffic lights are out and tree debris could cause problems stopping.
- "Nobody was injured — that's what is important," Schlitt added. Winds reached 100 to 120 mph, he said.

Several fender bender accidents occurred this morning due to the traffic lights not operational, according to a law enforcement official.

The weather Monday evening changed quickly leaving little time for residents to prepare for the storm. A severe thunderstorm warning was issued by the National Weather Service at 6:54 p.m. Monday and turned into a tornado warning at 7:11 p.m. when radar showed the storm cell was capable of producing a tornado as it had some rotation in it, a National Weather Service spokesperson said.

A National Weather Service assessment team

will be in Dickinson County today to determine if a tornado hit the area. Warning coordinator meteorologists from the National Weather Service in Negaunee Township today are expected to assess the weather in Dickinson County, determining what type of storm hit the area, said NWS meteorologist Mike Dutter. "Our radar did show evidence of a possible

tornado, but that has not been confirmed at this time," Dutter said this morning. "We'll know more later today after we've investigated the site."

An Iron Mountain firefighter noted that there is damage everywhere today and there are too many trees down to count.



Daily News Photo by Theresa Peterson

Power lines are down in Tipler, Aurora, Spread Eagle and Florence in Wisconsin. Power is also out in the Wisconsin communities of Homestead and Commonwealth affecting some 1,700 residents, according to Florence County Sheriff Jeff Rickaby.

No damage was reported in the Norway area and Iron River and Crystal Falls were also unaffected by the storm.

## Meeting Night Show & Tell

In response to the club survey, we would like to have a fifteen minute "show & tell" type presentation at each meeting. Members interested in providing a presentation on any Amateur Radio related topic should contact Tom Martin or Mike Boileau. Or, if you know of a non-member that would like to do so, please let us know that too!

The fifteen minute timeframe is only a guideline and longer or shorter presentations will be accepted.

We would like to have a primary and a backup presenter scheduled for each meeting.

**SKYWARN** is a concept developed in the early 1970s that was intended to promote a cooperative effort between the National Weather Service and communities. The emphasis of the effort is often focused on the storm spotter, an individual who takes a position near their community and reports wind gusts, hail size, rainfall, and cloud formations that could signal a developing tornado.

It's frightening to see what mother nature can do in such a short time and without much notice! Minutes can be important in getting to a safe place. The storm spotter can provide the information the weather service needs to declare a tornado warning and allow people to seek shelter in a timely manner.

If you would like to serve the community by being a part of the local storm spotter network, you should attend a training session provided by the National Weather Service.

### Storm Spotter Training

Robin Turner of the National Weather Service in Marquette will provide training for our club.

The training will take place after our 6:30 club meeting and last about an hour.

Let's have a good turnout!

Wednesday, April 14, 2004  
7:00 PM Central Time  
Grace United Methodist Church  
basement  
721 Norway Street  
Norway, Michigan

# Let's Go T-Hunting

by Joe Moell KØOV

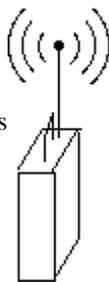
VHF/UHF enthusiasts often install yagis and quads at their home stations. Many take them out on camping trips and use them on public service events. But did you know that some enjoy flying the freeways and beating the back roads with one hand on the steering wheel and the other on a rotating antenna mast?

Perhaps you have seen these hams on weekends, intently driving and turning their beams. What are they doing? They are competing in hidden transmitter hunts.

If you've never experienced one of these mobile radio direction finding (RDF) contests, you have missed some of the greatest excitement a ham can have. While there are several names for it such as "fox-hunting" and "bunny chasing," in southern California this sport is almost always referred to as "T-hunting."

Transmitter hunting seems to be one of the best kept secrets in ham radio, even though dozens of hams here consider themselves to be regular hunters. They range in age from the teens to the eighties. Besides keeping the coordinated two-meter hunt frequency (146.565 MHz FM) hopping, hunters love to hash over their exploits by the hour on their favorite repeaters.

The idea is simple: One or two hams take a transmitter, antenna, and some sort of distinctive audio source to a carefully selected spot, then make continuous or intermittent transmissions. Usually they remain stationary, though mobile "bunnies" are popular with some groups. Sometimes there are more than one "T" to be found. Surplus ammunition cans are often used as hidden transmitter enclosures. The hunters, as individuals or in teams, do their best to home in on the hidden station(s) with their mobile and portable RDF gear.



## Fun, But Beneficial

T-hunters think their events are more fun than any other ham contest. You get to meet and socialize with your competitors both before and after the event. Usually, you'll find out your score and how well you placed before you go home. You may encounter your competitors along the way, with opportunities to try to "psych them out" or misdirect them. (Hence the southern California maxim: "Never trust anything said by a T-hunter or hider.")

"Techies" like the thrill of finding the hidden T with gear they made themselves. They relentlessly work to improve their setups. Mystery lovers and dyed-in-the-wool contesters love

the challenge, because very hunt is a fresh start to a new adventure. Your past performances are forgotten. It's just your team and your equipment against today's hider and the other hunters.

At some point, every ham will find knowledge of RDF techniques useful, because it simplifies such chores as finding a neighborhood source of power line interference or TV cable leakage. T-hunters here frequently are called upon to track down sources of "spurs," intermodulation and noise that can plague amateur (and sometimes commercial) repeaters.

RDF plays an important part in Amateur Radio self-policing. In many areas of the country, including southern California, there are standing agreements between Local Interference Committees and district FCC offices, permitting volunteer ham RDFers to gather evidence leading to prosecution in serious cases of malicious interference.

You have up to a dozen competitive hunt opportunities to choose from every month in Los Angeles, Orange, Riverside and Santa Barbara Counties. They are all different in some way, such as time or mileage scoring, day or night start, single or multiple transmitters, intermittent or continuous signal, wide or narrow boundaries. (Or perhaps there are no boundaries at all!)

Most hunts are on two meters with FM signals, but there are occasional FM hunts on the 50, 223, 440 and 1200 MHz bands. There have even been hunts for Amateur Television transmissions on 434 MHz.

## Winning Isn't Easy

There are many ways to score mobile T-hunts. Due to traffic problems, "First-In-Wins" hunts are less common than "Low-Mileage-Wins" hunts in southern California. Odometer calibration differences are resolved by requesting hunters to obtain an odometer correction factor by driving a standardized course in advance of the hunt. This correction factor is called the Crenshaw Factor because the course runs along Crenshaw Boulevard for approximately 9 miles.

T-hunters have become very sophisticated at finding dastardly hiding places. With the right combination of location and antenna, they make it difficult for hunters to get reliable bearings. Like a ventriloquist, a good hider can make the signal appear to be coming from some other location. With careful planning (and a little luck), the signal's characteristics can cause the hunters to approach the transmitter from the most difficult direction, with impassable roads or other obstructions, even though the T may be easily

## T-Hunting

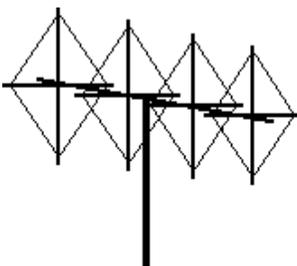
accessible via other routes. Perhaps the hider will camouflage the setup so well that the hunters won't find the transmitter unless they literally trip over it.

The most challenging of all southern California 2-meter RDF events are the All Day Hunts. Despite their difficulty, many enthusiasts like them best of all. The name is a misnomer, because these marathons often last the entire weekend. The transmitter(s) can be anywhere in the continental USA. The hunt starts in Rancho Palos Verdes. Hiding spots have included locations near Yosemite National Park (California), Las Vegas (Nevada), Yuma (Arizona), and St. George (Utah). The record path distance for a two-meter hidden transmitter signal to be heard at the starting point was set on the St. George hunt, well over 300 miles!

Not every T-hunt is this arduous, of course. Several clubs have sponsored hunts just for Beginners, to get things started. Hiders make brief transmissions on a repeater, encouraging hunters to come out and find them. After a while, they give clues to narrow the search area. The idea is to give every participant a good first-time experience, including a story-telling session at a restaurant after the hunt.

While some hunters prefer to go it alone, most have more success by teaming up. The driver concentrates on handling the vehicle, while the Dfer turns the beam and reads the meters. The Dfer also handles maps and plotting, unless there is a third team member for that task.

### Inexpensive Beams Work Fine



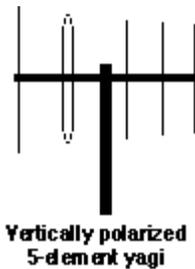
Strung wire 4-element diamond quad

In the Los Angeles basin, most hunters use some sort of beam antenna. Three to five element quads are most popular. Usually they are built in "diamond" form with a PVC pipe or wood boom and elements made of thin wire strung on fiberglass spreaders. Variations include the "stiff wire" version, which is much more tree-resistant. (It can get

mashed, but is easily re-shaped and returned to service, as compared to "strung-wire" quads which more readily suffer wire breakage.)

Yagis are second to quads in popularity. Commercial models work fine, provided that the mast is attached at a good balance point. Occasionally you will see some other kind of gain antenna, such as a "ZL special." Small-diameter loops are seldom used for RDF above 54 MHz because of

their bidirectional pattern and low sensitivity.



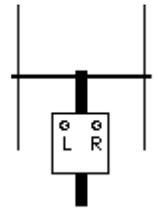
Vertically polarized 5-element yagi

No matter which gain antenna is used, it is important that the mounting system allow for quickly changing polarization. Hiders can use any wave polarization on most hunts, so hunters must attempt to determine the correct polarization and hunt with it. Hunting a horizontal signal with a vertically polarized beam, for example, causes the direct signal to be attenuated. Reflections and scattered signals (multipath) from buildings and terrain features are enhanced relative to the direct signal when the wrong polarization is chosen.

Hunters need sensitive mobile RDF setups for events like the All-Day hunts. They achieve it with their long beams, plus GaAsFET preamps, noise-quieting meters, and SSB receivers (even though the hider is transmitting FM).

### Homing Sets Sniff Well

Another type of RDF instrument, called the homing or dual-antenna RDF, has its place in the arsenal of the well-equipped hunter. These units have a pair of vertical antennas, a switching circuit, and a direction sensor with some sort of left-right indicator, such as a meter or a pair of LEDs. They are easy to use: When the indicator says LEFT, turn the unit left; when it indicates RIGHT, turn right. There is a sharply defined crossover at which the unit points toward the signal source direction.



There are two types of dual antenna sets. One type is called a switched-pattern set and requires a receiver with AM detection. It is used mostly on the aircraft band. More popular with hams is the phase-front detector or Time-Difference-of-Arrival (TDOA) set. It is designed to work with any narrowband FM receiver that covers the frequency of interest. While they could be used in vehicles, these dual-antenna sets are used mostly for on-foot RDF. They are excellent for closing in at the end of a hunt ("sniffing") and for wilderness search/rescue work. Be sure to build or buy one with left-right indicators.

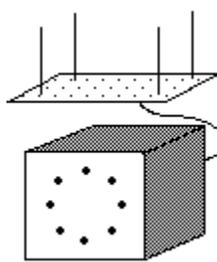
### Dopplers Have Their Place

An ideal RDF system would not require constant manual antenna turning. It would take directional readings hundreds of times per second, and continue to indicate the bearing after the signal leaves the air. Doppler type RDF sets, though far from ideal, fulfill all these wishes. The typical four-whip

*(Continued on page 6)*

## T-Hunting

antenna system can be mounted without drilling holes in the vehicle.



Doppler readouts usually feature a ring of at least 16 LEDs, and may also include a three-digit display in degrees relative to the vehicle. In the clear, a well-installed doppler has about +/-5 degree bearing accuracy. Accuracy is degraded by multipath, just like it is with the homing RDF, but "eyeball averaging" while the vehicle is moving helps counteract this problem.

While popular in places such as Cincinnati and the San Francisco Bay area, doppler RDF installations have not caught on among most southern California competitive T-hunters due to their lower sensitivity compared to beam setups. Vertically polarized doppler antennas are at an extreme disadvantage if the hider transmits horizontal polarization, especially if the signal is weak and non-direct. On the other hand, dopplers are a popular choice of jammer hunters, who are usually tracking strong vertically polarized signals. They like the rapid indication update rate and the ability to quickly get bearings on short-duration signals. Occasionally, you may see RDFers using both a beam and a doppler set on the same vehicle.

### How To Learn More

While commercial RDF equipment is available, the majority of southern California T-hunters prefer to build their own gear. All you need to get started is a directional antenna, an attenuator to knock down strong nearby signals, and a receiver with S-meter. You may have it all right now! If so, it will only take a bit of installation work on the family car to get you going.

For equipment information, installation ideas, and hunting techniques, read TRANSMITTER HUNTING---Radio Direction Finding Simplified by KØOV and WB6UZZ, published by Tab Books (#2701).

<http://members.aol.com/homingin/THRDFSinfo.html>

This book is available at many electronics and ham radio stores. It is also available by mail from ARRL Bookstore and from the authors.

For a new ham radio adventure, try going out on a hidden transmitter hunt. Be prepared for some pleasant surprises. Remember, every time you set out on a hunt, you never know where you'll end up, and you never know what you will find.

Visit the author's web site:

<http://members.aol.com/homingin/>, for RDF news and

links to a variety of RDF items including books, commercial RDF products and projects for the homebrewer.

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### Other Resources:

Radio Direction Finding Projects:

<http://home.att.net/~jleggio/projects/rdf/rdf.htm>

N6QAB Radio Direction Finding Web Site:

<http://www.qsl.net/n6qab/>

Radio Direction Finding:

[http://www.cbel.com/radio\\_direction\\_finding/](http://www.cbel.com/radio_direction_finding/)

Fox Hunting Projects:

<http://home.earthlink.net/~w9xl/>

Hidden Transmitter Hunting:

<http://www.qsl.net/n6bg/thunt/>

Hudson Valley Direction Finding Association:

<http://www.hvdfa.webhop.net/>

Transmitter Hunting Projects:

<http://www.qsl.net/nz0i/projects/projects.htm>

Doppler D/F Instruments:

<http://www.silcom.com/~pelican2/>

## Ham University Software

On the club survey, three members said they would like help from the club to learn CW. Ham University was discussed at the March 10th meeting and three of the attendees expressed an interest in the software.

Ham University provides you with three ways to learn Morse code. First, there are formal lessons which introduce the code one letter at a time. Then there are exercises -- a set of typical transmissions to practice on (you set the speed). And finally there is Pentode, a highly motivating game inspired by Tetris that will make learning the code fun.

The software can be purchased by the club at a cost of \$40 and it can be installed on up to five different PCs, which may belong to five different students. A trial version (which times out after five minutes) may be downloaded at:

<http://www.hamuniversity.com/download.html>

If you are interested in sharing the cost of this software, please contact Mike Bray ([mikebray@chartemi.net](mailto:mikebray@chartemi.net)).

**Upcoming Events:**

**CCRAA**

**Annual Swap 'n Shop  
Saturday, April 24  
9:00 to 12:00**

**Chassell VFW Post  
Admission Fee \$2.00**

**open to the public**

Hall open for "Sellers Only"  
set-up Friday night 6:30pm -  
8:00 pm

and at 8:00am Saturday  
8 foot table \$5.00  
1/2 table \$3.00

**Contests:**

Missouri QSO Party  
April 3 and 4

Montana QSO Party  
April 3 and 4

QCWA QSO Party  
April 3 and 4

Georgia QSO Party  
April 10 and 11

QRP ARCI  
Spring QSO Party  
April 10 and 11

Michigan QSO Party  
April 17 and 18

Ontario QSO Party  
April 17 and 18

Florida QSO Party  
April 24 and 25

Nebraska QSO Party  
April 24 and 25

Kentucky QSO Party  
April 24 and 25

Contest dates are UTC  
see the ARRL web site  
April Contests or April QST  
for more information

## Words from the President

Newly elected president Tom Martin has been a ham since 1959 when he was licensed as K9SNX in Greenfield, Indiana. In 1969 he was a charter member of the Mich-A-Con ARC. Since his retirement in 2000, he has been very active on 160-10 meters. He enjoys chasing DX (311 countries worked out of 335) and contesting. He operates SSB, PSK31, RTTY, and, as a last resort, CW. He is also a member of the Northeast Wisconsin DX Assn.

Last year I did an Internet search for licensed hams in the Dickinson Co. area and was amazed to find a total of 79 amateurs in just the Iron Mountain-Kingsford area. Of these, 37 were Technician class.

I was prompted to perform the search because I have only heard two locals on the high frequency bands, 160-10 meters, in the four years that I have been very active since my retirement in 2000. I suppose that I should be pleased that there is less local QRM and competition for country number 312, but I am not. Our club needs active hams, not only on the air, but active in club events and projects.

We have an exciting year ahead: storm spotting, evening repeater net, Saturday coffees, exam sessions for upgrading or for that first license, Field Day in June, Scout Jamboree in October, just to mention a few. Our club meetings this year will focus on presentations to whet the interests of all hams in the area. They will vary from DXing to QRP operating.

Get active! Support your club and enjoy the hobby to the utmost!

Next month: Upgrading

## Jay Jennings' Antenna



Keith of the ManorCare nursing home sent us photos of Jay Jennings' antenna raising.

Left to right: Jay, W8HFS; Mike Bray, K8DDB; Dan Weaver of ManorCare; Bob Meyers, WA8FXQ; Tom Martin, W8JWN and Lee Michaud, N8LT.

More photos can be seen on our web site:  
<http://www.qsl.net/ka1ddb/>

## Club Activities in April

Club Net on Tuesday's at 6:30 PM on the 2-meter repeater.

Club Meeting on Wednesday the 14th at 6:30 PM, followed by Storm Spotter Training.

Saturday Morning Breakfast, 9:00 AM on the 24th at the Holiday Kitchen in Iron Mountain.

## Mich-A-Con ARC Activities - APRIL 2004

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6 Net	7	8	9	10
11	12	13 Net	14 Meeting	15	16	17
18	19	20 Net	21	22	23	24 Breakfast
25	26	27 Net	28	29	30	

## ARRL Field Day

Field Day is always the fourth full weekend of June, beginning at 1800 UTC Saturday and ending at 2100 UTC Sunday. For 2004, it is the weekend of June 26-27.

The object is to work as many stations as possible on any and all amateur bands (excluding the 60, 30, 17, and 12-meter bands) and in doing so to learn to operate in abnormal situations in less than optimal conditions. A premium is placed on developing skills to meet the challenges of emergency preparedness as well as to acquaint the general public with the capabilities of Amateur Radio.

Field Day entries are classified according to the maximum number of simultaneously transmitted signals, followed by a designator of the nature of their individual or group participation.

A club or a non-club group with three or more persons set up specifically for Field Day is classified as Class A. Such stations must be located in places that are not regular station locations and must not use facilities installed for permanent station use, or use any structure installed permanently for Field Day use. Stations must operate under one callsign (except if a dedicated GOTA station is allowed which must be operated under a callsign as provided later), and under the control of a single licensee or trustee for the entry. All equipment (including antennas) must lie within a circle whose diameter does not exceed 300 meters (1000 feet). All contacts must be made with transmitter(s) and receiver(s) operating independent of commercial power mains.

Any Class A group whose entry classification is two or more transmitters may also operate one additional HF station without changing its base entry category, known as the GET ON THE AIR (GOTA) station. This station must operate using a different callsign from the pri-



mary Field Day station.

The maximum transmitter output power for the GOTA station is 150 watts and the station may operate on any valid Field Day band and mode. It may be operated by Novice, Technicians or generally inactive hams under their existing operating privileges, or under the direction of a Control Operator with appropriate privileges, as necessary. Non-licensed persons may participate under the direct supervision of an appropriate control operator.

Bonus points are available for operating all transmitting equipment from an Emergency Power Source, for setting up in a Public Location, for having a Public Information Table, for Media Publicity, for Message Handling and a few other activities that fall in line with the object of Field Day.

Complete rules for ARRL Field Day may be found on the ARRL Web site:

<http://www.arrl.org/contests/rules/2004/rules-fd-2004.html>

### Bothered by Power Line Noise?

The American Radio Relay League (ARRL) web site has a wide variety of QST articles that deal with this annoying interference. Articles range from building antennas and receivers to aid in locating the source of the interference to information on how to proceed once the source has been found. Here are a few references that you may find helpful:

ARRL Web Site Electrical Interference Page:

<http://www.arrl.org/tis/info/rfi-elec.html>

The ARRL RFI Book  
ARRL #6834— \$20

AC Power Interference Handbook  
ARRL #9055— \$29.95

ARRL toll free: 1-888-277-5289

Club patches are available from:

Steve Johnson, KC8RY Y  
917 Coolidge Ave  
Kingsford, MI 49802

They are 3 inches in diameter and sell for \$3.00 each. If ordering by mail, please include a SASE along with your payment.

#### Buy - Sell - Trade:

See the buy-sell-trade page on the club web site:

<http://www.qsl.net/ka1ddb>

#### Club Apparel:

Our club apparel is supplied by:

Shirt Tails  
408 S Stephenson Ave.  
Iron Mountain, MI 49801

Phone: (906)774-3370  
or  
finleyd@up.net

Prices:

Jacket with liner \$45  
(Tall add \$5, 2X or 3X add \$5,  
to add your name or call sign  
on the front is \$5)

T-Shirt - \$10  
(2X or 3X add \$1)  
Sweatshirt - \$16  
(2X or 3X add \$2)

If you wish to have the club logo printed on an item of clothing that you have purchased elsewhere, there is charge of \$6.

#### Ham101.Com:

See what other clubs are up to, visit their web sites and read their newsletters. It's all here and more . . .

<http://www.ham101.com>

Mich-A-Con Amateur Radio Club  
Membership Application/Renewal Form

Please remit dues to club treasurer:  
Steve Johnson, KC8RYY  
917 Coolidge Ave  
Kingsford, MI 49802

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City, State, Zip: \_\_\_\_\_  
Call Sign: \_\_\_\_\_  
Email Address: \_\_\_\_\_  
Phone: \_\_\_\_\_

ARRL Member? Yes \_\_\_\_\_ No \_\_\_\_\_

Single \$20 \_\_\_\_\_ \*      Family \$30 \_\_\_\_\_ \*

If family membership, please list additional names and call signs:

\_\_\_\_\_  
\_\_\_\_\_

\* The dues for NEW members are prorated - you only pay for the remainder of the year! Please remit \$1.67 per month for a Single membership or \$2.50 per month for a Family membership.

### Exam Schedule

City: Iron Mountain  
Location: Dickinson County Library  
Room: Conference Room  
Time: 9:30 AM Central Time  
Contact: Mark Lewis, N8UKD  
Telephone: (906) 774-6598

Exam Date: May 1, 2004  
Exam Date: Aug 7, 2004  
Exam Date: Nov 6, 2004  
Exam Date: Feb 5, 2005

Examinees should bring 2 pencils, a pen for the official paperwork, the originals AND copies of any previous credit that you have earned (Certificates of Successful Completion or current license), 1 photo id (usually a driver's license) and 1 other id. (usually a birth certificate or SS card), a calculator if needed (make sure your memories are cleaned out), and the test fee (2004 fee is \$12).

Mich-A-Con RF is published by the Mich-A-Con Amateur Radio Club of Iron Mountain.

Items for Mich-A-Con RF should be in the editor's hands by the 15th of the preceding month to be included in the next edition.

Our newsletter needs contributions from the membership to help keep the information presented each month new, interesting and fun to read. Please consider writing an article related to Amateur Radio to share with your fellow members.

Send to:  
mikebray@chartermi.net  
(906) 563-7020

### Repeaters

The club maintains two repeaters, which are located on Pine Mountain in Iron Mountain, with tower and facilities provided by the Wisconsin Electric Power Co.

Identifier: WA8FXQ/R IMT

Output	Offset	PL Tone
146.850 MHz	minus	—
444.850 MHz	plus	100

Both repeaters have an auto patch with a toll restriction. The auto patch on the 2-meter repeater can be used with permission. The 440 auto patch is for club use only.

A club net is held on the 2-meter repeater every Tuesday at 6:30 PM except the 2nd Tuesday of the month, which will be club meeting night beginning in May.

# Mich-A-Con RF

Mich-A-Con ARC  
c/o Michael F. Bray  
W3821 Waucedah Road  
Vulcan, MI 49892-8483

Mich-A-Con RF

## Club Meetings

The Mich-A-Con Amateur Radio Club meets on the second Wednesday of the month at 6:30 PM in the basement of the Grace United Methodist Church, 721 Norway Street in Norway, Michigan. Visitors and prospective members are always welcome!

The URL for the Mich-A-Con ARC web site is:

<http://www.qsl.net/ka1ddb/>

Previous editions of Mich-A-Con RF can be accessed by a link on the news page.

The ARRL DX Bulletin on the Upcoming Activities page is updated each Thursday and the contests section is updated on a monthly basis.

## CLUB OFFICERS

### **President:**

Tom Martin, W8JWN  
(906) 774-5463  
tmartin@chartermi.net

### **Vice President:**

Mike Boileau, N9NBN  
(715) 251-3137  
n9nbn@netnet.net

### **Secretary:**

Mike Bray, K8DDB  
(906) 563-7020  
mikebray@chartermi.net

### **Treasurer:**

Steve Johnson, KC8RYY  
(906) 776-1597  
sjohnson4@chartermi.net

## Reminders

The April 14th meeting will start at 6:30 PM and will be followed by Storm Spotter Training, which will start at 7:00 PM. Let's have a good turnout for this meeting.

Don't forget to send in your club membership application/renewal form if you haven't already done so! Dues must be paid by the April meeting to maintain your status as an active member of the club.

Volunteers are needed for a Field Day chairperson and committee to help organize the event, which will take place on the weekend of June 26-27. Contact Tom Martin or Mike Boileau.

Volunteers are needed for Jamboree On The Air the weekend of October 16 and 17 (only one of these days). Contact Tom Martin or Mike Boileau.