



# MICH-A-CON

Iron Mountain,  
Dickinson County, Mich

March 2020

## Meeting Reminder: Second Wednesday of the Month

Which is **March 11, 2020 at 07:00 PM at the Dickinson Library, Iron Mountain.** Please be there and support the cause of Amateur Radio.

## From The President

Finally, March has arrived! Can warmer days be ahead? Of course, in the UP, nothing "weather wise" goes by a traditional calendar. Snow has fallen in every month except August in the Dickinson county area.

As I type these "Words", I'm working FT4 on 14.080 and listening to the ARRL DX SSB contest in the upper portion of the 20 meter band with my second radio, Conditions seem to be pretty good on 20 meters. SFI=70, A=5 and K=1.

FT4 and FT8 have become my main modes the past few months. Unless it's a contest weekend, RTTY signals are very rare now. If I want to "play" radio, the new digital modes are it.

This morning, Sunday March 8, European stations are filling my screen and answering my CQ. The best DX has been TA(Turkey). I've varied my power output from 30-80 watts. I'm using my CL-33 at 38 feet beaming SW. I can't rotate it to the NE. It is doing a fine job off the back.

I understand that a few locals worked VP8PJ, South Orkney Island, but I never heard them. I didn't need them except on 10 meters. Good luck there!

One benefit of FT4 and FT8, is that the amplifiers can take a rest. My Alpha and SB220 have been relaxing in anticipation of the BARTG RTTY contest weekend March 20-21. My third amp, the Dentron MLA-2500 is on the work bench. Details at the next meeting!

**Don't forget the holiday party on March 14 at Mike's On Main in Norway. Drinks at 5:45 and dinner at 6:30.** We will have the same buffet menu as the 50th Anniversary party.

See you at the next meeting this coming Wednesday.

73,

Tom W8JWN

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## ***MICH-A-CON AMATEUR RADIO CLUB MINUTES OF February 12th, 2020***

Vice President Scott Jarnusch called the meeting to order at 7:00 pm.

### **Secretary Report**

Minutes of the January 8th, 2020 meeting were read and approved.

### **Treasurer Report**

Balances as of February 12th, 2019:

Checking: \$37.55

Savings: \$3,081.35 (Repeater: \$1,715.66)

Cash: \$118.00

### **Repeater Report**

Bob Meyers reported that the repeater is now on the high northeast antenna and it has been working. Bob also reported that he will be taking digital operations off of the repeater as it has been locking-up. He will check to see if there is a fix for the problem.

Following discussion, a motion (Skip Caswell/Sam Holmes) to purchase another dual band Hustler antenna (with jumpers and connectors) for the repeaters was approved unanimously.

Echolink is no longer in service at Bob's QTH. It is hoped that someone else will be able to take it on.

It was noted that Rob Thomas N7SWX is setting up a repeater on Millie Hill. It will likely be digital.

### **Old Business**

Scott Jarmusch reported that President Tom Martin has not yet received the \$275 refund from the IRS.

In response to Pete Schlitt's request for assistance at the April 15th emergency drill, Bob Meyers and Terry Moriarity will go to the courthouse and check on the operating conditions.

A reminder was made that the club's belated holiday dinner will be held on March 14 at Mike's On Main, in Norway. The club will pay half of the dinner cost.

### **New Business**

Burt Armbrust reported on his attendance at a meeting of the Dickinson County Local Emergency Planning Committee. They are expecting higher water levels this spring from runoff and precipitation. They are expecting assistance from our club during the statewide emergency drill in April.

### **Adjournment**

Meeting adjourned at 7:25. (Terry Moriarity/Skip Caswell)

**For the Good of the Order**

Attendees reported on their recent activities.

**Attendees**

Scott Jarmusch	KA8TFF	Tim Miller	N8TUM
Joe Ferris	KC9TQR	Marge Meyers	KC8LRP
Burt Armbrust	WB8EBS	Sam Holmes	N8ATS
Terry Moriarity	K9TRY	Dave Thomas	KG9Y
Brian Lucas	W9BGL	Jan Schafer	Visitor
Bob Meyers	WA8FXQ	Joyce Williams	Visitor
Skip Caswell	KE9L		
Duane Lundamo	KE8GHE		
Gary Schafer	K4FMX		



News

FCC Invites Comments on 5.9 GHz Proceeding

QSTdeW1AW  
ARRL Bulletin 7 ARLB007  
From ARRL Headquarters  
Newington CT February 14, 2020  
To all radio amateurs

The FCC has invited comments on a Notice of Proposed Rule Making (NPRM) in WT Docket 19-138, which said the FCC would take "a fresh and comprehensive look" at the rules for the 5.9 GHz band. The FCC proposes to make 5.850 - 5.895 GHz available for unlicensed operations and to authorize transportation-related communication technologies to use 5.895 - 5.925 GHz.

WT Docket 19-138 files can be found online in PDF format, <https://www.fcc.gov/ecfs/filing/1217200308588>.

The FCC is not proposing to delete or otherwise amend the 5-centimeter secondary amateur radio allocation at 5.650 - 5.925 GHz, part of which includes the 75 Megahertz under consideration.

Comments are due by March 6, and reply comments are due by April 6. ARRL will be filing comments supporting no change to 5.850 - 5.925 GHz for amateurs, as included in the FCC proposal.

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Great Lakes Division Convention Upcoming

Get Ready for our Great Lakes Division Convention. It will be held in conjunction with the Toledo Mobile Radio Association's annual hamfest in Perrysburg, OH on March 14 and 15.

ARRL President Rick Roderick K5UR will be there to meet members and give keynote address. Another special attendee is Bob Heil K9EID of Heil Sound who will also be a guest speaker.

Check our web pages at: <http://www.toledoglc.org/> for the full details.

We will honor several radio amateurs in the Division for their outstanding efforts in service to ham radio and their community, based upon nominations coming from the local amateur community. We all have the opportunity to contribute to this effort. If you are aware of someone whom you feel is worthy of one of these awards, please send your nomination to the Great Lakes Div. Selection committee c/o [w8wtd@arrl.org](mailto:w8wtd@arrl.org). Please take the time to include a Brief write-up in your nomination explaining why your candidate is deserving of the award.

Here are the awards, more details on each are covered

on the Great Lakes Div. web page. <http://www.arrl-greatlakes.org/>

- GEORGE S. WILSON III W4OYI LIFETIME ACHIEVEMENT AWARD
- GREAT LAKES DIVISION AMATEUR OF THE YEAR AWARD
- TECHNICAL ACHIEVEMENT AWARD
- DX ACHIEVEMENT AWARD
- YOUNG RADIO AMATEUR OF THE YEAR AWARD

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ARRL Great Lakes Division  
Director: Dale R Williams, WA8EFK  
[wa8efk@arrl.org](mailto:wa8efk@arrl.org)  
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**GREAT LAKES DIVISION WINNER ANNOUNCEMENT**  
(Next Page)

Each time the Great Lakes Division has a convention, we take time to recognize those among us who represent amateur radio in some significant way, either over the past year or two, or throughout their time as hams.

We are pleased to announce those who will be honored this year as award winners. They are:

- \* Gary Johnston, K14LA, winner of the George S. Wilson III, W4OYI, Lifetime Achievement Award;
- \* Steve Smith, N8AR, and Larry Gauthier, K8UT, joint winners of the Technical Achievement Award;
- \* John Papay, K8YSE, winner of the DX Achievement Award;
- \* And "The Radiogram," the monthly newsletter of the Portage County Amateur Radio Service, as the winner of the Joseph J. Phillips, K8QOE, Newsletter Award.

This year we are also giving a special "Director's Award" for outstanding service to the amateur radio community to:

John Loughmiller, KB9AT, for his design work on a database for

the new Volunteer Monitoring program established at Headquarters.

Formal recognition of these people will take place at the Convention Banquet this coming Saturday evening in Perrysburg, Ohio. Our thanks to the many people who made nominations for these and other awards. The quantity and quality of the nominations was excellent this year. Our thanks also to the committee members who had the difficult task of choosing the winners from the many nominations received.

We hope to see you all at the Division Convention this weekend.

Dale Williams, WA8EFK, Director

Tom Delaney, W8WTD, Vice Director

### ARRL HF Band Planning Committee Seeks Comments on Recommendations

The ARRL HF Band Planning Committee is seeking comments and suggestions from the Amateur Radio community on its report to the ARRL Board. At the Board's January meeting, the committee presented its specific recommendations in graphical form for each HF band and each US license class, with the goal of increasing harmony on the HF bands, particularly between CW and digital users.

The recommendations can be found online in PDF format on the [arrrl.org](http://arrrl.org) web site.

"In general, the committee is of the opinion that there is justification for additional space to become available for digital modes, as well as for the operation of digital stations under automatic control," the committee told the Board. "The very changes in spectrum usage that have required our committee's resurgence indicate that digital modes of communication are already increasing in popularity, and the trend is expected to continue or even accelerate. To this end, we have tried to ensure that digital allocations are sufficient for at least a modicum of growth."

The committee also anticipates an increase in automatically controlled digital stations (ACDS). The report further points to "significant use" of modern data modes in emergency communication and said its recommendations provide significant support for the evolution and continued relevance of amateur radio. "Our failure to adapt to these needs could consign amateur radio to the technological scrap heap," the report said.

The committee was revived last summer to consider conflicts between FT and JT modes and other modes. The panel's approach has been to designate distinct assignments for CW, narrowband (NB) data 500 Hz, wideband (WB) data 2800 Hz, and ACDS. For its work, the committee presumed approval of three ARRL petitions to the FCC: RM-11708 (WT Docket WT 16-239-"symbol rate" proceeding), RM-11759 (80/75 meter allocations), and RM-11828 (enhanced Technician privileg-

es). The committee also assumed that users can agree to sharing arrangements within a given allocation-narrowband vs wideband sharing within the ACDS allocation, for example. It also took into consideration how mode usage is regulated or planned elsewhere in the world.

In terms of mode classes, the committee agreed on CW, NB data, WB data, NB with ACDS, and WB with ACDS. The committee said it considered these mode classes incompatible and that they should not have overlapping allocations, with the exception of CW, which is authorized within any amateur radio allocation. The committee's approach would maintain the existing low-end 25-kHz CW-only sub-bands for exclusive use by Amateur Extra class licensees.

The panel encouraged CW identification and a listen-before-transmitting protocol for ACDS, if feasible. It also decided that a single allocation for ACDS without regard to bandwidth would be the best approach. "We note that this will put responsibility on the digital community to hold an effective dialog on the issue and to then self-regulate the users of this segment to adhere to the eventual agreement." A need for flexibility in allocations is desirable, the committee said, and considered whether allocations might be time-of-day or time-of-week dependent, for example.

"Modern amateurs must expect to adapt to this kind of fluid assignment of spectrum to incompatible uses, using time-based sharing, rather than only a single assignment," the committee said, expressing the hope that as band plan/sharing agreements are reached that they consider the advantage of non-simultaneous sharing possibilities.

Reiterating the position ARRL has taken in recent FCC filings, the committee said it sees encryption and open-source as enforcement matters as being outside the scope of the Band Planning Committee.

The Committee would like comments by February 19. Comments may be filed online at, <http://www.arrrl.org/bandplan>.

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## ARLB032 W1AW 2020 Winter Operating Schedule

ARRL Bulletin 1 ARLB001  
From ARRL Headquarters  
Newington CT January 2, 2020  
To all radio amateurs

### Morning Schedule:

Time	Mode	Days
1400 UTC (9 AM EST)	CWs	Wed, Fri
1400 UTC (9 AM EST)	CWf	Tue, Thu

### Daily Visitor Operating Hours:

1500 UTC to 1700 UTC - (10 AM to 12 PM EST)  
1800 UTC to 2045 UTC - (1 PM to 3:45 PM EST)

(Station closed 1700 to 1800 UTC (12 PM to 1 PM EST))

### Afternoon/Evening Schedule:

2100 UTC (4 PM EST)	CWf	Mon, Wed, Fri
2100 "	CWs	Tue, Thu
2200 " (5 PM EST)	CWb	Daily
2300 " (6 PM EST)	DIGITAL	Daily
0000 " (7 PM EST)	CWs	Mon, Wed, Fri
0000 "	CWf	Tue, Thu
0100 " (8 PM EST)	CWb	Daily
0200 " (9 PM EST)	DIGITAL	Daily
0245 " (9:45 PM EST)	VOICE	Daily
0300 " (10 PM EST)	CWf	Mon, Wed, Fri
0300 "	CWs	Tue, Thu
0400 " (11 PM EST)	CWb	Daily

### Frequencies (MHz)

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CW: 1.8025 3.5815 7.0475 14.0475 18.0975 21.0675 28.0675  
50.350 147.555  
DIGITAL: - 3.5975 7.095 14.095 18.1025 21.095 28.095 50.350  
147.555  
VOICE: 1.855 3.990 7.290 14.290 18.160 21.390 28.590 50.350  
147.555

### Notes:

CWs = Morse Code practice (slow) = 5, 7.5, 10, 13 and 15 WPM  
CWf = Morse Code practice (fast) = 35, 30, 25, 20, 15, 13 and  
10 WPM  
CWb = Morse Code Bulletins = 18 WPM

CW frequencies include code practices, Qualifying Runs and CW bulletins.

DIGITAL = BAUDOT (45.45 baud), BPSK31 and MFSK16 in a revolving schedule.

Code practice texts are from QST, and the source of each practice is given at the beginning of each practice and at the beginning of alternate speeds.

On Tuesdays and Fridays at 2330 UTC (6:30 PM EST), Keplerian Elements for active amateur satellites are sent on the regular digital frequencies.

A DX bulletin replaces or is added to the regular bulletins between 0100 UTC (8 PM EST) Thursdays and 0100 UTC (8 PM EST) Fridays.

Audio from W1AW's CW code practices, CW/digital bulletins and phone bulletin is available using EchoLink via the W1AW Conference Server named "W1AWBDCT." The monthly W1AW Qualifying Runs are presented here as well. The audio is sent in real-time and runs concurrently with W1AW's regular transmission schedule.

All users who connect to the conference server are muted. Please note that any questions or comments about this server should not be sent via the "Text" window in EchoLink. Please direct any questions or comments to [w1aw@arrl.org](mailto:w1aw@arrl.org).

In a communications emergency, monitor W1AW for special bulletins as follows: Voice on the hour, Digital at 15 minutes past the hour, and CW on the half hour.

All licensed amateurs may operate the station from 1500 UTC to 1700 UTC (10 AM to 12 PM EST), and then from 1800 UTC to 2045 UTC (1 PM to 3:45 PM EST) Monday through Friday. Be sure to bring your current FCC amateur radio license or a photocopy.

The W1AW Operating Schedule may also be found on page 91 in the January 2020 issue of QST or on the web at, <http://www.arrl.org/w1aw-operating-schedule>.  
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# ARRL MICHIGAN SECTION NEWS

Greetings to all the Amateurs of Michigan,

Only in America can a groundhog be lifted to the position of meteorologist. Whether Punxsutawney Phil was correct or not, the calendar suggests we are moving quickly away from winter. I find myself already looking forward to lawn mowing.

## Michigan Section has a new Affiliated Club Coordinator

We are fortunate that Sean D. Fleming, K8KHZ has stepped up to become our new Affiliated Club Coordinator! Sean was first licensed as KC8MPQ in 1999. He is a past President of SEMDXA, a Member of MRRC, and past officer/member of HPARC.

Outside of Amateur Radio Sean is a Veteran who works in Telecom. He serves as a District Officer of The State of Michigan VFW and Secretary for AT&T Michigan Veterans

Please join me in welcoming Sean to the Section team!

## Division Conference in Toledo March 14 & 15

Get Ready for our Great Lakes Division Convention. It will be held in conjunction with the Toledo Mobile Radio Association's annual hamfest in Perrysburg, OH on March 14 and 15.

ARRL President Rick Roderick K5UR will be there to meet members and give keynote address. Another special attendee is Bob Heil K9EID of Heil Sound who will also be a guest speaker. Check the web pages at: <http://www.toledoglc.org/> for the full details.

## From Our Division Vice Director Tom Delaney

It seems that some feel we did not give enough time for nominations to be made for the Division awards which will come up in March at the 2020 Great Lakes Division Convention. So, we feel it is appropriate to extend the deadline by another week. If you would still like to nominate a ham you know for one of those awards, you have until midnight Sunday, February 23rd to get that in.

Here are the awards, along with a description of the qualities that should distinguish any potential award winners.

## First, there is the **GEORGE S. WILSON III W4OYI LIFETIME ACHIEVEMENT AWARD.**

This will be given to the Radio Amateur in the Great Lakes Division whose lifetime achievement record merits recognition for outstanding contribution to the Amateur Radio Service.

- The nominee is active on the air and in Amateur Radio organizations.
- The Wilson recipient is an all-around Amateur whose life time activities, attitudes, and achievements might serve as an example to others.
- At the time of nomination, nominees must have been licensed Radio Amateurs for at least 30 years and be at least 50 years of age.
- Emphasis is placed on service to others rather than self, diversity of Amateur Radio interests and Activities, evidence of continuing self-challenge via Amateur Radio, and outstanding contributions to Amateur Radio.
- Devotion to Amateur Radio is balanced with attention to work responsibilities and family life.
- The recipient must be a current ARRL member.

This award is presented at the discretion of the Awards Committee and the Director.

## Next, the **GREAT LAKES DIVISION AMATEUR OF THE YEAR AWARD.**

The winner will be the Radio Amateur in the Great Lakes Division whose outstanding record in the year preceding nomination merits recognition for contribution to the Amateur Radio Service.

- The Amateur of the Year, is an all-around Amateur, whose activities, attitudes and achievements may serve as a guiding example to others.
- Devotion to Amateur Radio is balanced with attention to work responsibilities and family life.
- The Amateur of the Year exemplifies the "Amateur's Code."
- In selecting the award recipient, emphasis is placed on
  - o service to others rather than self,
  - o diversity of Amateur Radio interest and activities,
  - o evidence of continuing self-challenge and outstanding contributions to Amateur Radio.
- The recipient must be a current ARRL member.

Then there is the **TECHNICAL ACHIEVEMENT AWARD**.

This may be given to the Radio Amateur(s) in the Great Lakes Division whose technical excellence exemplifies "continuation of the Amateur's proven ability to contribute to the advancement of the radio art" and whose attitude exemplifies the highest dedication to service to others and to science rather than self.

- Particular value will be placed on evidence of continuing contributions to the Amateur Radio Service.
- Groups of two or more Amateurs may be nominated for a joint award in this category.
- Technical achievement may be demonstrated through activities such as the following:
  - o publications,
  - o research and development,
  - o creativity in hardware, software and firmware systems design and implementation,
  - o technical instruction, application of advanced technology to public service communications.
- The recipient(s) must be a current ARRL member.

This award is presented at the discretion of the Awards Committee and the Director.

There is the **DX ACHIEVEMENT AWARD**, given to the radio amateur(s) in the Great Lakes Division who has dedicated time, talent and service to DXing. The award is given especially in recognition of an exemplary lifetime DX record. Recipients are

- active on the air and in DX Amateur Radio organizations.
- The DX achievement recipient is also an all-around Amateur whose lifetime, ethical DX activities, good operating practices and notable achievements of the recipient might be viewed as examples to follow by others.
- At the time of nomination, nominees must have been licensed Radio Amateurs for at least 20 years and be at least 50 years of age.
- Emphasis is placed on DX totals (Honor Roll, DXCC Challenge, etc.), DXpeditions served on, Elmering/ Mentoring other DXers plus other outstanding DX related accomplishments.
- Devotion to Amateur Radio is balanced with attention to work responsibilities, and to civic and family life.
- The recipient(s) must be a current ARRL member.

This award is presented at the discretion of the Awards Committee and the Director.

Finally, there is the **YOUNG RADIO AMATEUR OF THE YEAR AWARD**, to be presented to a young radio amateur in the Great Lakes Division, 18 years of age or younger, in recognition of a record of outstanding contributions to the Amateur Radio Service.

- This record consists of activities and achievements in Amateur Radio, which may include
  - o support of the community through Amateur Radio,

- o ability to recruit fellow students into Amateur Radio,
- o scholastic achievement and extracurricular activities.
- The Young Amateur of the Year is enthusiastic and shows potential for leadership and further achievement.

This award is presented at the discretion of the Awards Committee and the Director.

**Please note**, there is an award for newsletters, but that award will be chosen from among Section winners, and there are no individual nominations for this award.

Thanks to members of the Division who have already made nominations, we have some excellent candidates. To those who might have wanted to nominate someone and did not have enough time, now is your chance.

Please send information to [w8wtd@arrl.org](mailto:w8wtd@arrl.org). Be as thorough as you can in describing the individual you would like to nominate. Again, get your nominations in by February 23rd.

Tom Delaney, W8WTD  
Awards Chair

#### Michigan ARRL Section Staff Travel Plans

Great Lakes Division Conference Toledo, Ohio (K8JK)

#### Hospitality Thanks

HARA Swap (Negaunee, MI)  
Traverse City

#### Michigan Public Service Activities

Michigan Section Traffic/ARPSC Nets (all times local)

Please note that time adjustments may be necessary due to propagation changes. Contact your net manager for alternate frequencies and/or times.

MACS - MI Amateur Communications System 3.952 1000 Daily  
UPN – Upper Peninsula Net 3.921 1700 Daily; Noon Sun  
MIARPSC – MI Amateur Radio Public Service Corps 3.932 1700 Sun

QMN – The Michigan Net 3.563 1830 and 2200 Daily

MITN – MI Traffic Net 3.952 1900 Daily

MIDTN – MI Digital Traffic Net 3.583 (Olivia 8/500) 2000 Tu, Th, Sat

MIADS – MI ARES D-Star Net Reflector 24A Mon 2000

D8EN - District 8 Emergency Net 3.909 Wed 2000

GLETN – Great Lakes Emergency and Traffic Net 3.932 2000 Daily

MVTN – MI VHF Traffic Net IRA Link System 2100 Mon, Wed, Fri, Sun

NLEUP - Northern Lower Eastern UP Net 146.64- 18:30 Daily

SEMTN – SE MI Traffic Net 146.76- 2215 Daily

TMMTN – Thumb Mid-Michigan Traffic Net 147.30+ 2130 Mon – Sat





Michigan Amateur Radio Public Service Corps (ARPSC) Activities for January 2020

Station Activity Reports (SAR) for January 2020  
 WB8WKQ 257, N5MKY 137, K8BKM 128, K8ED 120,  
 WD8MWD 99, KD8ZCM 49, KE8KOC 49, K8RDN 40,  
 KB8RCR 39, WD8USA 26, KE8CEH 17, WB8RCR 8

Public Service Honor Roll (PSHR) for January 2020:  
 KE8BYC 248, WB8RCR 243, N5MKY 225, WD8MWD 200,  
 KC8YVF 181, KB8RCR 179, WD8USA 151, KE8KOC 145,  
 K8RDN 133, KD8ZCM 110, K8ED 100,  
 WB8WKQ 90, KE8CEH 49,

Brass Pounder's League (BPL): No reports this month  
 Net traffic for January 2020:

Michigan Amateur Communications System 86  
 The Michigan Net 70  
 Michigan Traffic Net 70  
 Michigan VHF Traffic Net 40  
 Upper Peninsula Net 38  
 Southeastern Michigan Traffic Net 29  
 Michigan Digital Traffic Net 3  
 Saginaw County ARES Net 3  
 Luce County ARES Net 2

NTS person-hour Value for January 2020: \$ 45,841  
 (NOTE NTS PERSON VALUE ONLY)  
 More information is available at <http://nts-mi.org/>.

Come join us on our traffic and public service nets.  
 A hearty thanks to the hundreds of volunteers across the State of Michigan who work hard as volunteers to hone their skills month after month to make sure they are ready for any situation that may arise. Our ARPSC and NTS programs are an integral part of AuxComm, which in turn is an integral part of the Michigan State Police Homeland Security Division.

Public service is in the DNA of Amateur Radio, one of many reasons we enjoy so many radio frequencies to utilize, experiment with, and enjoy.

Final Thoughts  
 See you at the Great Lakes Division Conference!  
 Thanks to all the radio amateurs who continue to make the hobby great! Get Active, Get Involved, and Get On The Air! See you all at a swap or club meeting soon!

73  
 Jim K8JK

## Dales Tales

Greetings, welcome to "Dale's Tales" for March, 2020.

ARRL CEO. You may have seen the formal announcement that ARRL is seeking applicants for the position of Chief Executive Officer. A detailed summary of the position is listed at <http://www.arrl.org/employment-opportunities>. The web page also lists the requirements for the position and summarizes the essential job functions. Knowing the diverse nature of the radio amateurs in the Great Lakes Division, I really feel that we do have several well qualified individuals who can easily fit into the position. I urge everyone to look at the opportunity and if you feel you might be interested, take the next step and apply!

All applications must be sent to: ARRL Attn: Monique Levesque, 225 Main Street, Newington, CT 06111, Fax: 860-594-0298  
[mlevesque@arrl.org](mailto:mlevesque@arrl.org).

**GREAT LAKES DIV. CONVENTION.** The 2020 Great Lakes Division ARRL Convention will be held in conjunction with the Toledo Mobile Radio Association's annual hamfest in Perrysburg, OH on March 14 and 15. ARRL President Rick Roderick K5UR will be there to meet members and serve as the keynote. Another special attendee is Bob Heil K9EID of Heil Sound who will be a guest speaker. Check our web pages at: <http://www.toledoglc.org/> for the full details.

Advanced registration and ticket purchase are available now on-line. Be sure to register for the Convention Banquet. Forums and the ARRL Banquet are planned for Saturday, while the Hamfest is on the Sundayagenda.

Rick K5UR will present the latest information about key events happening in ham radio and our ARRL.

Here is a sample of the current planned forum schedule:

Time	Track 1	Track 2	Track 3
0800	Registration		
0830	Event Kickoff		
0900	ARRL Forum - Rick K5UR		
1000	TAPR	Raspberry PI	ARES Tabletop
1100	CompacTenna	NBEMS	ARES Tabletop
1200	Lunch Break		
1300	Yaesu	Foxhunting	Soldering
1400	YLRL	FT8 & FT4	Clock Kit
1500	ARISS	Contesting	Clock Kit
1600	Bob Heil		
1700	Bob Heil		
1830	ARRL Banquet		
2030	Wouff Hong		

OUR GREAT LAKES DIVISION web page does carry news from some of the recent events in the Division, useful links and information as well as some neat photos supplied from around the Division. Check it out: <http://arrl-greatlakes.org/>  
Be sure to check your ARRL Section's news pages for the latest local happenings, club and net information.

**TOM'S TOME**, Comments from your ARRL Vice Director Tom W8WTD.

The event of the month for me was the ARISS event in mid-February, where we put some elementary school students in contact with the International Space Station via ham radio. This one took place in the Cincinnati area, so I was able to help in a number of ways. It takes a lot of time and effort to set up one of these contacts.

The students get so excited about it. For months, their teachers work with them on science projects designed to help them understand more about space, experiments, and other things related to the program. They are just thrilled when they hear the astronaut respond to their classmates' questions.

We try to make sure they understand how they are talking to the ISS. That this isn't just a phone call, but a ham radio contact. And they get it, in some limited way. At the end of the contact, I was asked to stand up and acknowledge the efforts of the hams, and there was good applause as I read off the names. I was told I could say a few things about ham radio, and one thing I said stood out for them. I told them that anyone can get a license, and that some kids as young as five or six have actually gotten their licenses. I wish you all could have seen the reaction. Many of them smiled and looked at each other as they realized that this was something they could do, too. Afterward, their teachers told us that some of them want to start a ham club. We hope they do, and we'll help however we can.

As I thought more about it, I wondered how we could generate some of that same enthusiasm for ham radio in young people. ARISS is a great program, but there is only one space station, and the crew is busy with lots of things. We're glad they take time for ham radio, but they can't talk to every school. What other things could we as hams do that would point out the "magic" of ham radio for students?

I've seen some of that same spirit in things like Jamboree on the Air, Kids' Day on the Radio, and of course, for those who participate, Field Day (the GOTA station is so important!) But getting them out to those events is the hard part. We haven't figured out if there is anything like an ARISS contact for the whole school, or even a classroom, that would generate the interest in ham radio as science and technology like ARISS does.

A lot of you throughout the Division are working with schools

and students in various programs. Keep up the good work. If you have any suggestions for how to get teachers and students interested through some exciting program, I'd love to hear from you.

--73, Tom W8WTD Vice Director, Great Lakes Division

**HAMFESTING:** Here is the current Great Lakes Division ARRL Sanctioned Hamfest Schedule covering the next few months. These swaps have received their sanctioning approval from ARRL HQ at the time of this publication.

3/1/20 NOARS Winter Hamfest	Elyria, OH
3/7/20 Cave City	Cave City, KY
3/14-15 GL Conv/TMRA Hamfest	Perrysburg, OH
3/21/20 Gallipolis	Gallipolis, OH
4/4/20 Lincoln Trail	Elizabethtown, KY
4/11/20 Crossroads	Kalamazoo, MI
4/11/20 Cuyahoga Falls	Cuyahoga Falls, OH
4/11/20 Letcher County	Whitesburg, KY
<b>4/18/20 Chassell Hamfest</b>	<b>Chassell, MI</b>
4/18/20 Portsmouth Hamfest	Portsmouth, OH
4/19/20 GMARC Tech EXPO	Madison Hgts, MI
4/26/20 Athens Hamfest	Athens, OH
5/2/20 Cadillac Hamfest	Cadillac, MI
5/17/20 Dayton Hamvention	Xenia, OH

If you plan to request ARRL Hamfest Sanctioning, please do so well in advance of your Hamfest date, as this allows adequate time for QST Listings. QST requires a 3 month lead time. It should be noted that there has been a change in the way ARRL contributes to your hamfest efforts. Please carefully read the e-mail from ARRL Headquarters confirming your sanctioning as IT CONTAINS IMPORTANT DETAILS REGARDING PRIZES. Be sure to invite your ARRL Officials as soon as your date is set. With 52 weeks and 70+ hamfests in the Great Lakes Division, things do requires some advanced planning.

73, Ham it up!

Dale Williams WA8EFK  
Director  
Great Lakes Division  
[wa8efk@arrl.org](mailto:wa8efk@arrl.org)

## ARRL PROPAGATION BULLETIN

QST de W1AW  
 Propagation Forecast Bulletin 10 ARLP010  
 From Tad Cook, K7RA  
 Seattle, WA March 6, 2020  
 To all radio amateurs

Last week we pointed out in Propagation Forecast Bulletin ARLP009 that the NASA STEREO images (at <https://stereo.gsfc.nasa.gov/>) showed two bright spots, magnetically complex, about to rotate over the Sun's eastern horizon and onto the visible solar disc. I was hoping these might develop into sunspots, but they both quickly faded away, so currently we have seen no sunspots in 33 days. Clearly, we are still at solar minimum. These STEREO images are always in real time, constantly updated, so they always show a live update of images. Over the past week average daily solar flux shifted from 70.5 to 70, average daily planetary A index stayed the same at 6.7, while average daily mid-latitude A index shifted slightly from 5 to 4.6.

This period of low solar flux and very stable geomagnetic indicators is great for 160 meter propagation, especially now during the winter season, when we enjoy very low atmospheric noise.

On Thursday, Spaceweather.com reported a faint coronal mass ejection detected by STEREO spacecraft on March 2. This is slow moving and expected to hit Earth on March 7, and is probably why planetary A index is predicted at 8 on March 7-8.

Predicted solar flux over the next 45 days is 70 on March 6-13 and 71 on March 14 through April 19.  
 Predicted planetary A index is 6 on March 6, 8 on March 7-8, 5 on March 9-14, then 10, 8, 10 and 8 on March 15-18, then 5, 10, 8 and 5 on March 19-22, then 8, 12, and 10 on March 23-25, 5 on March 26-30, then 20, 15 and 8 on March 31 to April 2, and 5 on April 3-19.

David Moore reports, "space weather model gives earlier warning of satellite-killing radiation storms. Two-day notice lets satellite operators take protective measures against energetic electrons:

["https://www.sciencedaily.com/releases/2020/03/200302153600.htm"](https://www.sciencedaily.com/releases/2020/03/200302153600.htm)

"A new machine-learning computer model accurately predicts damaging radiation storms caused by the Van Allen belts two days prior to the storm, the most advanced notice to date, according to the new article."

This reports a new type of solar event, and how it might be used to predict the onset of a new solar cycle:

<https://link.springer.com/article/10.1007/s11207-020-1595-3>

### NOJK comments:

"The VP8PJ DXpedition just went QRT about 0102z March 6. The group did an outstanding job being 'available' for contacts despite adverse conditions. They stayed an additional day - March 5. This was fortuitous as VP8PJ enjoyed a great 15 Meter opening to North America all afternoon. This with a SFI of just 70 and the Kp index of 1.

"As for propagation - from Kansas - VP8PJ was heard most frequently on 40, 30, and 20 meters. They had a great, consistent signal on 30 meters. I am sure even low power stations with simple antennas on 30 meters were successful working VP8PJ. Here logged with about 50 watts and a 'rain gutter' antenna. Good signal on 40 meters but more difficult to work. 20 meters was the best band to work them on SSB.

"17 meters and up were more challenging. On my fixed mobile, the 17 meter signal was very weak until March 1. Nil on 15 meters for me until March 5. Nothing on the higher bands. I noted spots by North American stations for VP8PJ on 10 Meters March 1 and 3. VOACAP did not predict any 10 Meter propagation to North America for VP8PJ to the Midwest, even for an 'expert DXer.'"

### The latest from Dr. Tamitha Skov, WX6SWW:

<https://youtu.be/mJBpFqP5b8k>

This weekend is the phone portion of the ARRL International DX Contest. Check <http://www.arrrl.org/arrl-dx> for details. If you would like to make a comment or have a tip for our readers, email the author at, [k7ra@arrrl.net](mailto:k7ra@arrrl.net).

For more information concerning radio propagation, see <http://www.arrrl.org/propagation> and the ARRL Technical Information Service web page at, <http://arrrl.org/propagation-of-rf-signals>. For an explanation of numbers used in this bulletin, see <http://arrrl.org/the-sun-the-earth-the-ionosphere>.

An archive of past propagation bulletins is at <http://arrrl.org/w1aw-bulletins-archive-propagation>. More good information and tutorials on propagation are at <http://k9la.us/>. Monthly propagation charts between four USA regions and twelve overseas locations are at <http://arrrl.org/propagation>. Instructions for starting or ending email distribution of ARRL bulletins are at <http://arrrl.org/bulletins>.

Sunspot numbers for February 27 through March 4, 2020 were 0, 0, 0, 0, 0, 0, and 0, with a mean of 0. 10.7 cm flux was 70.9, 70.6, 70.1, 69.3, 69.3, 70, and 69.8, with a mean of 70. Estimated planetary A indices were 4, 6, 11, 8, 5, 6, and 7, with a mean of 6.7. Middle latitude A index was 2, 4, 8, 6, 4, 4, and 4, with a mean of 4.6. NNNN

## ARRL DX NEWS

QST de W1AW  
DX Bulletin 10 ARLD010  
From ARRL Headquarters  
Newington CT March 5, 2020  
To all radio amateurs

This week's bulletin was made possible with information provided by JA1GZV, LU5AG, PP2BT, The Daily DX, the OPDX Bulletin, 425 DX News, DXNL, Contest Corral from QST and the ARRL Contest Calendar and WA7BNM web sites. Thanks to all.

**RODRIGUES ISLAND, 3B9.** David, F8AAN will be QRV as 3B9AN from March 9 to 18. Activity will be holiday style during his night time hours on 80 to 17 meters. QSL direct to home call.

**ZAMBIA, 9J.** A group of operators are QRV as 9J2LA until March 15. Activity is on 160 to 6 meters using CW, SSB and various digital modes. QSL via M00XO.

**KYRGYZSTAN, EX.** Yuri, R2DY, Pavel, R2DX and Eugene, RW3FB are QRV as EX0QR from the south bank of Issyk-Kul Lake until March 17. Activity is on 160 to 10 meters using CW, SSB and various digital modes. QSL via R2DX.

**NEW CALEDONIA, FK.** Moto, JA1GZV will be QRV as TX8A from Noumea, IOTA OC-032, from March 10 to 18. Activity will be on 40, 30, 20 and 17 meters. QSL direct to home call.

**ST. MARTIN, FS.** A group of operators will be QRV as T00A in the ARRL International DX SSB contest. QSL via LoTW.

**JERSEY, GJ.** A group of operators will be QRV as MH0ESP from March 8 to 20. QSL via SP1EG.

**VATICAN, HV.** Francesco, IK0FVC will be QRV as HVOA in the ARRL International DX SSB contest. QSL via IK0FVC or LoTW.

**ST. LUCIA, J6.** Steven, NY3B is QRV as J68SS until March 11. Activity is on all HF bands. This includes being a Multi/Single entry in the ARRL International DX SSB contest. QSL via LoTW.

**ARGENTINA, LU.** Members of Radio Club QRM Belgrano will be QRV as LU4AAO on March 7 and 8 to celebrate International Women's Day. Activity will be on 80, 40 and 20 meters, and VHF bands, using SSB, FM, SSTV and FT8. QSL direct to LU4AAO.

**ARUBA, P4.** John, KK9A is QRV as P40A until March 8. Activity is on 160 to 10 meters using CW and SSB. This includes being an entry in the ARRL International DX SSB contest. QSL via WD9DZV.

**FERNANDO DE NORONHA, PY0.** Stephano, PT2IC will be QRV as PY0F as a Single Op/Single Band/High Power entry in the ARRL International DX SSB contest. QSL direct to PY7RP.

**SOMALIA, T5.** Ali, EP3CQ is QRV as 6O100 from Mogadishu until March 25. Activity is on 160 to 6 meters, with an emphasis on 60 meters, using CW, SSB and FT8. QSL direct to home call.

**EAST KIRIBATI, T32.** Ken, KH6QJ is QRV as T32AZ from Christmas Island, IOTA OC-024, until March 11. Activity is on the HF bands, mainly on 80 meters, using SSB. This includes being an entry in the ARRL International DX SSB contest. QSL to home call.

**EUROPEAN RUSSIA, UA.** Special event station R100FA is QRV until March 25 to mark the 100th birthday of the Russian writer Fyodor Abramov. QSL via RN1ON.

**ANTIGUA AND BARBUDA, V2.** Flavio, IW2NEF is QRV as V26FP from Jolly Harbour, Antigua, IOTA NA-100, until March 13. Activity is on 40 to 10 meters using SSB and FT8. QSL direct to IK2DUW.

**ST. KITTS AND NEVIS, V4.** Matt, K0BBC and Paul, W6PNG are QRV as V4/home calls from St. Kitts, IOTA NA-104, until March 11. Activity is on 80 to 6 meters using SSB and FT8. This includes being active as V47P in the ARRL International DX SSB contest. QSL via LoTW and V4/K0BBC via M00XO.

**BRUNEI, V8.** Operator JO1RUR will be QRV as V85RH in the ARRL International DX SSB contest as a Single Op/All Band/High Power entry. QSL via LoTW.

**VIET NAM, XV.** Sven, HB9DXB will be QRV as XV9DXB from Nha Trang beginning March 10. QSL via EB7DX.

**CAYMAN ISLANDS, ZF.** Joel, NF3R is QRV as ZF2RJ until March 10. Activity is on the HF bands. This includes being an entry in the ARRL International DX SSB contest. QSL via LoTW.

**THIS WEEKEND ON THE RADIO.** The ARRL International DX SSB Contest, NCCC RTTY Sprint, QRP 80-Meter CW Fox Hunt, NCCC CW Sprint, Novice Rig Roundup, Wake-Up. QRP CW Sprint, SKCC Weekend CW Sprintathon, Open Ukraine RTTY Championship, UBA Spring CW Contest and the WAB 3.5 MHz Phone/CW will certainly keep contesters busy this upcoming weekend.

The 4 States QRP Group Second Sunday Sprint is scheduled for March 9. The CWops Mini-CWT Test, RSGB 80-Meter Club CW Championship, AWA John Rollins Memorial DX CW Contest,



QRP 40-Meter CW Fox Hunt and Phone Fray are all scheduled for March 11. Please see March QST, page 79, and the ARRL and WA7BNM Contest Web Sites for details.

NNNN

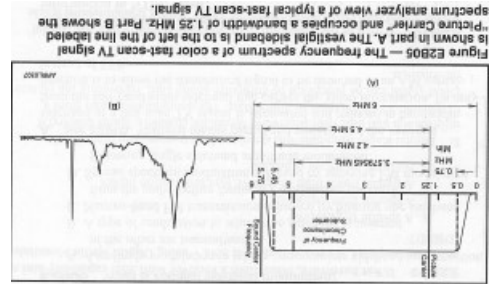
## *Review*

This section is dedicated to refreshing what qualified our Licensing. Something different will appear each month. Enjoy....

- T1B09 Why should you not set your transmit frequency to be exactly at the edge of an amateur band or sub-band?
- A. To allow for calibration error in the transmitter frequency display
  - B. So that modulation sidebands do not extend beyond the band edge
  - C. To allow for transmitter frequency drift
  - D. All of these choices are correct.
- T2B08 Which of the following applies when two stations transmitting on the same frequency interfere with each other?
- A. Common courtesy should prevail, but no one has absolute right to an amateur frequency
  - B. Whoever has the strongest signal has priority on the frequency
  - C. Whoever has been on the frequency the longest has priority on the frequency
  - D. The station that has the weakest signal has priority on the frequency
- T3B07 What property of radio waves is often used to identify the different frequency bands?
- A. The approximate wavelength
  - B. The magnetic intensity of waves
  - C. The time it takes for waves to travel one mile
  - D. The voltage standing wave ratio of waves
- G1B06 When is an amateur station permitted to transmit secret codes?
- A. During a declared communications emergency
  - B. To control a space station
  - C. Only when the information is of a routine, personal nature
  - D. Only with Special Temporary Authorization from the FCC

- G2B09 Who may be the control operator on an amateur station transmitting in RACES to assist relief operations during a disaster?
- A. Only a person holding an FCC issued amateur operator license
  - B. Only a RACES net control operator
  - C. A person holding an FCC issued amateur operator license or an appropriate government official
  - D. Any control operator when normal communication systems are operational
- G3B04 What is a reliable way to determine if the MUF is high enough to support skip propagation between your station and a distant location on frequencies between 14 and 30 MHz?
- A. Listen for signals from an international beacon in the frequency range you plan to use
  - B. Send a series of dots on the band and listen for echoes from your signal
  - C. Check the strength of TV signals from Western Europe
  - D. Check the strength of signals in the MF AM broadcast band.
- E1B06 Which of the following additional rules apply if you are installing an amateur station antenna at a site at or near a public use airport?
- A. You may have to notify the Federal Aviation Administration and register it with the FCC as required by Part 17 of FCC rules
  - B. No special rules apply if your antenna structure will be less than 300 feet in height
  - C. You must file an Environmental Impact Statement with EPA before construction begins
  - D. You must obtain a construction permit from the airport zoning authority
- E2B06 What is vestigial sideband modulation?
- A. Amplitude modulation in which one complete sideband and a portion of the other are transmitted
  - B. A type of modulation in which one sideband is inverted
  - C. Narrow-band FM transmission achieved by filtering one sideband from the audio before frequency modulating the carrier
  - D. Spread spectrum modulation achieved by applying FM modulation following single sideband amplitude modulation
- E3B03 What is the best time of the day for transequatorial propagation?
- A. Morning
  - B. Noon
  - C. Afternoon or early evening
  - D. Late at night

ANSWERS



- T1B09: D: [97.101(a), 97.301(a-e)] Amateurs are allowed to use any frequency in a band, but have to be careful when operation near the edge of the band. All of the signal must be inside the band. Since radios display the carrier frequency, remember to leave room for the signal's sidebands.
- T2B08: A: If a transmission seriously degrades, obstructs, or repeatedly interrupts the communication of a regulated service, that's considered harmful interference. Common courtesy should prevail but remember that no one has an absolute right to any frequency.
- T3B08: A: Amateur Bands are often referred to by wavelength based on waves travel at a constant speed. Thus wavelength = 300 / frequency (in MHz).
- G1B06: B: [97.113(a)(4), 97.207(f)] An amateur station may never transmit in such a manner in order to deliberately obscure the meaning of two-way communication. The use of standard abbreviations does not violate this rule, since their meaning is well known. The only exception is space telecommand operations where the commands and data may be coded. Telecommand is not two-way communication, it is one-way.
- G2B09: A: [97.407(a)] The control operator of a RACES station must have an FCC issued amateur operator license and be certified by a civil defense organization as a member.
- G3B04: A: Beacon stations transmit signals so that amateur operators can evaluate propagation conditions. For example, by listening for beacon stations from Western Europe, you will be able to determine if the MUF is high enough for 10 meter communications to that area.
- E1B06: A: [97.15(a)] Although most amateur exam questions seem to refer to Par 97, for this operation you'll also need to consult Part 17.
- E2B06: A: Vestigial means partial and used, and the vestigial sideband of a fast-scan TV signal is attenuated and reduced in bandwidth from the full-bandwidth sideband that carries the video information. Its only function is to allow the transmitted signal to be detected as an AM signal, instead of SSB.
- E3B03: C: Ionization levels that support transequatorial propagation are reached during the morning, are well established by noon and may last until after midnight. The best (peak) time is in the afternoon and early evening hours.

## LINKS AND STUFF

*Under re-construction. Watch for the orange barrels*

### Area Repeaters

Escanaba 147.15+	100.0
	145.13- No PL
Wells	444.30+ No PL
Gladstone	
IRLP 4013 147.55 Smpx	100.0
Champion	146.82- 100.0
Cooks	146.70 - 110.9
GrdMarais	147.195+ No PL
Gwinn	146.64- 100.0
Iron Mtn	146.85 — 100.0 444.85 — 100.0
Iron River	145.17- 107.2
Ishpeming	146.91- No PL
IRLP 8993	443.50+ 100.0
Manistique	146.79 - No PL
Marquette	146.97 - No PL 147.27+ 100.0 444.80+ No PL
Menominee	147.00+ 107.2
Newberry	146.61 + No PL 147.09+ 114.8
Republic	147.09+ No PL
South Republic	146.82 + 100.0
Trenary	147.03 + 100.0
Wetmore	145.41- 100.0

*Delta County Amateur Radio*  
Escanaba, MI  
[www.dcars.org](http://www.dcars.org)

*Copper Country Radio Amateur*  
Dollar Bay, MI  
[www.ccras.net](http://www.ccras.net)

### ARRL Affiliated Club Area Nets

**UP Net** 3921khz  
Daily 5pm EST  
Sunday Noon EST

**UP CW NET** 3590khz  
Sunday 7pm EST

**160 Net** 1895khz  
Everynight 0100UTC  
Dailey 0600UTC

**Midcars** 7258khz  
Daily 0730am EST  
0200pm EST

**Outhcars** Node 9614  
Saturday 0900am EST

**UP Echolink** Node 9617  
Sunday 8pm EST

**Copper County ARES**  
146.88  
Wednesday 9pm EST

**Mich-A-Con Social and  
ARES**  
146.850  
Thursday 0630pm CST  
ARES follows

ARRL WEB PAGE: <http://www.arrl.org>

ARRLMICHIGAN: <http://www.arrl-mi.org/>

US REPEATERS: <http://www.usrepeaters.com>

Tropospheric Ducting Forecasts:  
<http://www.d/infocentre.com/tropo.html>

MICH-A-CON : <http://www.qsl.net/ka1ddb>

FCC Universal Licensing System: <http://wireless.fcc.gov/uls/>

QTH Com: <http://www.qth.com/>  
QRZ <http://www.qrz.com/>  
E Ham Net <http://www.eham.net/>

UP Skywarn: <http://kcra-mi.net/skywarn/>

Band Conditons: <http://bandconditions.com/>



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Mike Boileau: 906 563 1350  
Terry Moriarity: 715 251 1670

**Activities:**

**Second Wednesday** of the month the Mich-A-Con Amateur Radio Club meets in the Dickinson Country Library at 7:00 P.M. Winter

**Visitors and prospective members are always welcome!**

**Club Repeater:**

The Club maintains two repeaters which are located on Pine Mountain (Elevation 1650 ft) in Iron Mountain with tower and facilities provided by the Wisconsin Electric Power Co. The range of the 2 meter repeater is about 40 miles. The range of the 440 MHz repeater is about 25 miles. Both are under normal conditions, depending upon terrain.

**The Repeater Specifications:**

The 146.85 repeater is a Yaesu DR 1 digital and Analog repeater Frequency. 146.85 minus offset, 100 hz PL tone encode and decode Power 50 watts. The Controller is an Arcom RC 210 . It is also System Fusion capable.

. The 440 MHz repeater is a GE Master II 444.85, plus offset, 100 hz pl tone. 35 watts output. The Controller is a Arcom 210.

The 2 meter and the 440 can be linked. The repeaters share a Diamond dual band antenna at a tower height of 125 ft.

**We're on the Web!**

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

Previous editions of the Newsletter can be accessed by a link on the **news** page

**From Your Newsletter Editor**

Thank you to those contributors and critiques.  
Welcome your articles - They make the Newsletter.

*For those not getting the Newsletter, it is because I have an incorrect email address. Please give me the correct address.*

The following is referenced from <http://www.dx-code.org>

### DX Code Of Conduct

I will listen, and listen, and then listen again before calling.

I will only call if I can copy the DX station properly.

I will not trust the DX cluster and will be sure of the DX station's call sign before calling.

I will not interfere with the DX station nor anyone calling and will never tune up on the DX frequency or in the QSX slot.

I will wait for the DX station to end a contact before I call.

I will always send my full call sign.

I will call and then listen for a reasonable interval. I will not call continuously.

I will not transmit when the DX operator calls another call sign, not mine.

I will not transmit when the DX operator queries a call sign not like mine.

I will not transmit when the DX station requests geographic areas other than mine.

When the DX operator calls me, I will not repeat my call sign unless I think he has copied it incorrectly.

I will be thankful if and when I do make a contact.

I will respect my fellow hams and conduct myself so as to earn their respect.

### SkyWarn Spotters (2018)

Steve Johnson	K8CRY	Millie Hill
Tom Martin	W8JWN	Millie Hill Overlook
Burt Armbrust	WB8EBS	Hill above Wells Fargo, along US-2
Skip Caswell	KE9L	Merriman/Granite Bluff area
Barry Perron	KC9NFT	Keyes Peak
Bob Meyers	WA8FXQ	Faithhorn area (if not in Copper Country)
Terry Moriarity	K9TRY	Niagara
Dave Thomas	KG9Y	Niagara
Bill Grabowski Debbie Grabowski	<del>KD8VTT</del> KD8VTS	Mansfield Township/Johnson Potato Farm area
Sam Holmes	N8ATS	Pike Plains, Dunbar
Joe Ferris	KC9TQR	Vicinity of CR-N, U, & C in Florence County
Scott Dolatowski	KC9ZBC	Goodman

**MEMBERSHIP**

Call Sign	Last Name	First Name	City	Phone	Email
WB8EBS	ARMBRUST	BURT	QUINNESEC	906-774-8383	<a href="mailto:wb8ebs@yahoo.com">wb8ebs@yahoo.com</a>
KC9KVP	BAKER	BETH	NIAGARA		
KB9AVX	BAKER	SCOTT	NIAGARA	715-251-1944	<a href="mailto:kb9avx@yahoo.com">kb9avx@yahoo.com</a>
KB8SBP	BERTOLDI	BILL	KINGSFORD		
K8DDA	BRAY	MIKE	VULCAN	906-201-1550	<a href="mailto:mikebray@chartermi.net">mikebray@chartermi.net</a>
KE9L	CASWELL	SKIP	IRON MOUNTAIN	906-774-3371	<a href="mailto:acaswell4238@charter.net">acaswell4238@charter.net</a>
KC8QZG	DAKE	DAVE	NEWBERRY		
KC9ZBC	DOLATOWSKI	SCOTT	GOODMAN	715-633-1006	<a href="mailto:kc9zbc@live.com">kc9zbc@live.com</a>
KC9TQR	FERRIS	JOE	FLORENCE	517-589-4386	<a href="mailto:jrferris@borderlandnet.net">jrferris@borderlandnet.net</a>
N9MBG	FRY	ED	PEMBINE	906-221-7307	<a href="mailto:efry7849@gmail.com">efry7849@gmail.com</a>
KG8NK	GEMBOLIS	LOUIS	ISHPEMING	906-485-5442	<a href="mailto:lgembolis@chartermi.net">lgembolis@chartermi.net</a>
KE8FWN	GRABOWSKI	BILLY	CRYSTAL FALLS	?	
KD8VTS	GRABOWSKI	DEBRA	CRYSTAL FALLS	906-284-2450	<a href="mailto:kd8vts@gmail.com">kd8vts@gmail.com</a>
KD8VTT	GRABOWSKI	WILLIAM	CRYSTAL FALLS		
KC8TH	HEYBOER	TOM	IRON MOUNTAIN	906-779-0481	<a href="mailto:heyboer.tom@gmail.com">heyboer.tom@gmail.com</a>
N8ATS	HOLMES	SAM	PEMBINE	906-322-8507	<a href="mailto:chopsam@centrylink.com">chopsam@centrylink.com</a>
KA8TFF	JARMUSCH	SCOTT	IRON MOUNTAIN		
KB9EMU	KNUTSON	WILLIAM	FENCE	715-336-2250	<a href="mailto:dknutson54@gmail.com">dknutson54@gmail.com</a>
KD9HQD	LaLIBERTE	BRUCE	NIAGRA, WI	?	<a href="mailto:liberte@borderlandnet.net">liberte@borderlandnet.net</a>
KD9EWZ	LIGHTNER	FR MICHAEL	NIAGRA, WI	?	?
W9BGL	LUCAS	BRIAN			<a href="mailto:bagel99@gmail.com">bagel99@gmail.com</a>
KE8GHE	LUNDAMO	DUANE	?	?	?
W8JWN	MARTIN	THOMAS	IRON MOUNTAIN	906-774-5463	<a href="mailto:tmartin@chartermi.net">tmartin@chartermi.net</a>
WA8FXQ	MEYERS	BOB	VULCAN	906-396-0119	<a href="mailto:meyersb@uplogon.com">meyersb@uplogon.com</a>
KC8LRP	MEYERS	MARGE	VULCAN	906-396-8913	<a href="mailto:mgmeyer@uplogon.com">mgmeyer@uplogon.com</a>
N8TUM	MILLER	TIMOTHY	FLORENCE	715-696-6517	<a href="mailto:timmiller.up@gmail.com">timmiller.up@gmail.com</a>
K9TRY	MORIARITY	TERRY	NIAGARA	715-251-1670	<a href="mailto:kb9zer@yahoo.com">kb9zer@yahoo.com</a>
ND8M	PAUL	JARED	NORWAY	989-660-9535	<a href="mailto:jaredpaul@me.com">jaredpaul@me.com</a>
KD8SZA	PAUL	MICHELLE	NORWAY		
KC9NFT	PERRON	BARRY	FLORENCE	715-696-6175	<a href="mailto:bperron2@netzero.com">bperron2@netzero.com</a>
KC8JRI	REED	GORDY	IRON MOUNTAIN	906-779-1254	<a href="mailto:gordyreed@charter.net">gordyreed@charter.net</a>
KE8GHH	RITTENHOUSE	DAVE	IRON MOUNTAIN	?	?
K4FMX	SCHAFFER	GARY	NIAGRA, WI	?	<a href="mailto:GARYSCHAFFER@LARGERIVER.NET">GARYSCHAFFER@LARGERIVER.NET</a>
KG9Y	THOMAS	DAVE	NIAGARA	715-251-1393	<a href="mailto:kg9y@arll.net">kg9y@arll.net</a>

BLACK: Paid Members

BROWN: Past or Unpaid Members



**MICH - A - CON**

**Please remit dues to:  
Debbie Garbowski, KD8VTS  
203 Camp 5 Road  
Crystal Falls, MI 49920**

Name: \_\_\_\_\_

Call Sign: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Email Address: \_\_\_\_\_

Phone: \_\_\_\_\_

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

Please make check payable to: **Mich-A-Con ARC**

Annual dues for Full Membership -

Single \$20 \_\_ Family \$30 \_\_ Repeater Only \$10 \_\_

If family membership, please list additional:

Names: \_\_\_\_\_

Call signs: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Annual dues are Payable January 1st.

Dues for New Members are Pro-rated. Please remit \$1.67 per month for a Single membership or \$ .50 per month for a Family membership.