



THE SCOPE



The Central Michigan Amateur Radio Club and Lansing Civil Defense Repeater Association

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JUNE 2020

CENTRALMIARC.COM

2020 CMARC Field Day Update

By Daniel Beuchert, WX8MOJ

After much deliberation and consideration, we have decided to not hold Field Day in person for 2020, but rather to encourage and support individual stations to operate this Field Day and claim CMARC. These are exceptional times, and this decision was not taken lightly. We decided not having a traditional Field Day operation was the best in light of the ongoing pandemic, the requirements outlined in the most recent Executive Order, and most importantly for club member safety.



While we will not be operating in the field as a club this year, that does not mean that we cannot work together to operate together, at a distance, during Field Day. In light of the current situation, the ARRL has relaxed two rules for 2020. First, Class D stations (home stations with commercial power) are allowed to contact other Class D stations for points (this is not normally allowed for points). Second, participants in Field Day 2020 (FD2020) can include a single club name with their submitted results and be included in an aggregate club score. This means that any of you can operate FD2020 from a location and setup that you are comfortable with and include **“Central Michigan ARC”**. This adds your individual score to an aggregate score for CMARC! From the ARRL: “The most important thing is to make sure all your members use the same club name for tallying the club aggregate scores,” so be sure to include **“Central Michigan ARC”** when submitting scores (without the quotes). There should be a spot on the form to put this when you’re submitting.

Though this is not the Field Day setup that we had been hoping for, this temporary flexibility allows for many more stations to operate. Each of you could operate your own station, with different numbers of operators and transmitters, and still claim CMARC. Because we would all be using our own stations, we can all work each other during the contest for points while adding to the aggregate CMARC club score! There is an excellent video of another group that is doing the same thing, and I recommend you watch it here: <https://youtu.be/A2LRCvabjuA>. It’s just under 8 minutes in length and answers about all of the questions I had.

There is also lots of information at the ARRL Field Day pages. I recommend that everyone check out the ARRL resources, including the rules (even if you’re not a glutton for punishment like me and would rather not read the 49 pages in the packet!).

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The Scope is a bi-monthly joint publication of the Central Michigan Amateur Radio Club and the Lansing Civil Defense Repeater Association.

Please send any articles, classified ads, or other items to the Editor, Chris Ranes, NS8Q at cmarscope@gmail.com. Pictures should be mailed in .jpeg format, and articles in Microsoft Word or TXT format.

The views and opinions expressed by our contributing authors do not necessarily reflect the views of the Central Michigan Amateur Radio Club or the Lansing Civil Defense Repeater Association.

Treasurer's Report 2020

Shannon Ranes / WA2NVK- CMARC Treasurer

Bank Balances for May	
Beginning Balance	\$3,376.69
Total Monthly Income	\$300.00
Total Monthly Expenditures	(\$200.00)
Total Business Checking	\$3,476.69
Petty Cash	\$1.00
Outstanding Checks	(\$80.00)
Sub Total + Petty Cash	\$3,397.69
Primary Share Accounts	
Humphrey's Fund	\$384.28
Building Fund (Club Station)	\$19.09
Field Day	\$178.83
Total Net Worth	\$3,979.89
Youth Fund Balance*	\$254.76
* Separate from CMARC Funds	

May 2020 Summary:

- ~ We deposited \$300 in dues.
- ~ We paid \$200 for yearly liability insurance.
- ~ A \$40 memorial check (written in January) has not been cashed. A second \$40 memorial check (written in May) has not been cashed.

Until further notice, VE Sessions have been canceled due to COVID-19. Stay tuned for further details.

■ FIELD DAY, from Page 1

ARRL Field Day Page: <http://www.arrl.org/field-day>

ARRL Field Day Rules: <http://www.arrl.org/field-day-rules>

ARRL Field Day Packet (49 pages): <http://www.arrl.org/files/file/Field-Day/2020/2020%20Field%20Day%20Packet%20Rev%20a.pdf>

Hopefully we can all look to see how we can improvise and operate this Field Day. Even at a distance we can still work together as CMARC. This may mean that many of you will be attempting Field Day at home, or with just your equipment, for the first time. We hope to help support you as well as we can and field any questions that you might have as we all prepare for the best Field Day 2020 that we can!

Hope to hear you on the air! If you have any questions, please let me know at WX8MOJ@arrl.net and I'll work to find an answer, or find someone who has it!

I'll be in touch about the text that should be used to claim CMARC and anything else that comes up before Field Day 2020. ■

Stay tuned for details on our "End-of-Summer" gathering to encompass Ladies Night/ Ziegenbein Award and our annual Club Picnic.

A Zoom planning meeting is Friday, June 26th at 7 pm.

Zoom details were provided in a ListServ email on June 16th.

Letter from the President

By Gordy Smith, KE8JKS

It has been a pleasure serving as President of our club. We are experiencing unprecedented times lately, which have affected us in different ways. The “new normal” we hear so much about does not seem so normal to most of us and is sometimes downright hard to get used to. Some of us have lost jobs, businesses, have friends or family who have gotten sick or, in my case, knew someone who died. To keep our members and guests safe, we canceled many of our events and suspended our monthly club meetings. All of us have had to learn and adopt new phrases like “social distancing” into our vocabulary. This “new normal” will affect us for quite some time to come.

As many of you know, before the meetings stopped at the club, we were faced with the prospect of eventually losing our club building as the owner was putting the building up for sale. Although moving out is not imminent, we are still not able to access the building due to liability reasons from the owner’s insurance company. For this reason, I have asked your Board of Directors to start a building fund. I am happy to report that we have decided to move forward with this proposal and start setting aside some money to use in the case we lose our club building. Although this will be a long-term effort, I urge members to contribute to this fund. Even a dollar or two, spare change, or your donation of cans or bottles you may have built up over the “stay home, stay safe” period. I have a large contractor bag of pop cans I will be returning and donating the proceeds to the club. I would be willing to meet up with anyone willing to give returnable cans or bottles and take them back for the deposit and donate the proceeds to this new venture.

One good thing that came out of the whole pandemic was the Zoom teleconferencing application. Zoom has taken our country by storm, with many different organizations, schools, and even businesses using the platform to hold meetings or conduct classroom instruction. Zoom worked out very well for us as we were able to hold our Board and Business meetings this month. We had, in my opinion, a pretty good turn out with seventeen members checking into our monthly Business meeting. I have asked the Board to consider the use of the Zoom

platform moving into the future. If and when we are able to meet again in person, Zoom will offer an alternative for members and guests who are unable to attend due to health and transportation issues, to feel included in meetings.

Field Day this year will look a lot different as well. The City of Mason closed Rayner Park to the public during the pandemic and will remain closed into the fall. The owner of our building will not allow us to hold Field Day there because of insurance liability reasons relating to COVID-19. We are encouraging our members to operate Field Day from their homes, or in tiny groups adhering to CDC guidelines. We have posted information on the website, Facebook, the ListServ, and elsewhere in this publication, so please review those sources to keep abreast of the changes to the rules and to the ARRL categories.

I want to share with you that I left a message with the Okemos Conference Center to check on the status of our Hamfest we scheduled for this coming September. Unfortunately, they had to lay off most of their staff, and I’m not sure if I will get a return phone call any time soon. We are hopeful because we scheduled late in the year, and may still be able to proceed with some modifications. A lot of it will depend on our vendors and what people will feel safe doing when the time rolls around. As soon as more information is available, we will be sure to update you.

Most importantly, I urge you to be friendly, kind, and understanding of one another. These are challenging times, and many people are experiencing a wide range of emotions. So many changes have happened in such a short amount of time, that it is difficult to wrap our minds around them. Just remember, in the spirit of HAM radio, continue to promote the hobby and be an Elmer to a new person if you can. ■

Sincerely,

Gordy Smith (KE8JKS)
President, CMARC

Let's get creative this year on Field Day

By Dan Romanchik, KB6NU

Since many of us are still hunkering down, and that doesn't look like it's going to change much by the end of June, Field Day is going to be a lot different this year. Our club has cancelled our club event, and I'm really going to miss helping newcomers operate the GOTA station, the food, and all the camaraderie. That doesn't mean that Field Day can't still be fun, though. Let's get creative!

First, note that the ARRL has modified the Field Day rules for this year. The biggest change is that Class D stations, that is home stations using commercial power, can now work other Class D stations for points. Previously, this wasn't allowed.

The second change is that the ARRL will publish aggregate club scores this year. In previous years, this was only done for Class A and Class F entries. Remember, though, Field Day isn't a contest (yeah, right!).

Personally, I plan to operate 1B-Battery. I'm going to set up my KX3 on the front deck and power it with a LiFePo battery charged by a recently acquired solar panel to get the 100 point bonus for alternate power. For an antenna, I plan to set up my 20m/40m fan inverted-V "GOTA antenna" in the front yard.

I'm going to shoot for other bonus points, too:

- Copy the bulletin -- no brainer
- Promote my location on social media -- I am going to get on NextDoor and invite neighbors over to watch from an acceptable "social distance."
- Put some literature down at the bottom of the hill near the street and claim a public information table.
- Send a press release to the local onlnie paper and claim a media publicity credit.
- Perhaps get someone under 20 to come and operate while I coach from an acceptable "social distance."

If Class B isn't your cup of tea, check out the presentation, "Field Day and Social Distancing," (https://docs.google.com/presentation/d/e/2PACX-ivSWypTtJ_Ros-UmysOEhQWwJwBIMrOavXqfs5AvigQzad8Zic3JFn9TMI5ewxc8VVIIX-2g6bOTpUFD/pub?start=false&loop=false&delayms=3000&slide=id.g774df1657a_o_39) by Anthony, K8ZT. It has a lot of great ideas, including ideas on how to operate mobile (Class C).

Field Day doesn't have to be a downer this year. Get creative and have some fun. ■

Dan Romanchik, KB6NU, is the author of the KB6NU amateur radio blog (KB6NU.Com), the "No Nonsense" amateur radio license study guides (KB6NU.Com/study-guides/), and often appears on the ICQPodcast (icqpodcast.com). When he's not thinking up new ways to enjoy Field Day, he likes to build stuff and operate CW on the HF bands.



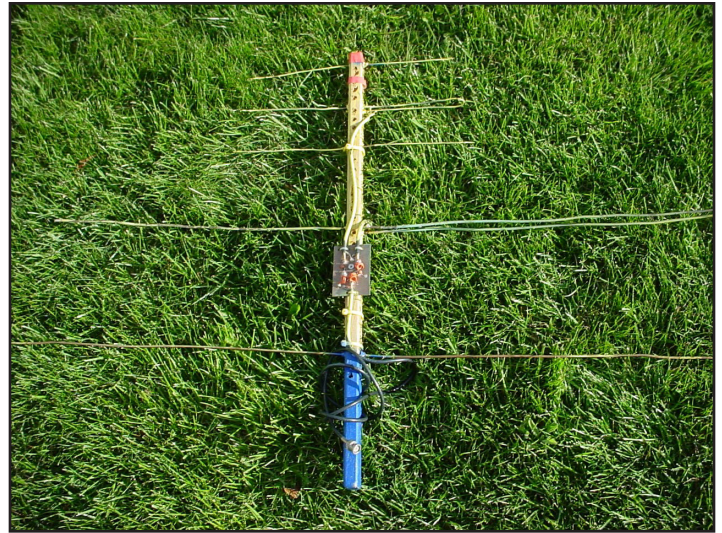
Satellite operations for next to nothing redo

By Gregg Mulder, WB8LZG

A couple of years ago, I got involved with the amateur OSCAR satellites. It was one of the few things I hadn't yet tried in the wide variety of modes n such popular with hams. Not wanting to spend much money, I built one of WA5VJB's Cheap sat antennas from a Sept. 2006 CQ magazine article. I made my first one out of an old broken hockey stick and a few coat hangers. Total investment was zero. Fun and easy to build, plus it worked. I had a blast working other hams through the "birds." I was sold on the simplicity and reproducible design. I've built 3 of them so far. Trying to improve something on each one as I went along. We even had a group build project at the CMARC clubhouse where several others built Sat antennas as well. When my favorite satellite, AO51 quit working, (2010 ish), I lost interest and went back to 100% CW.

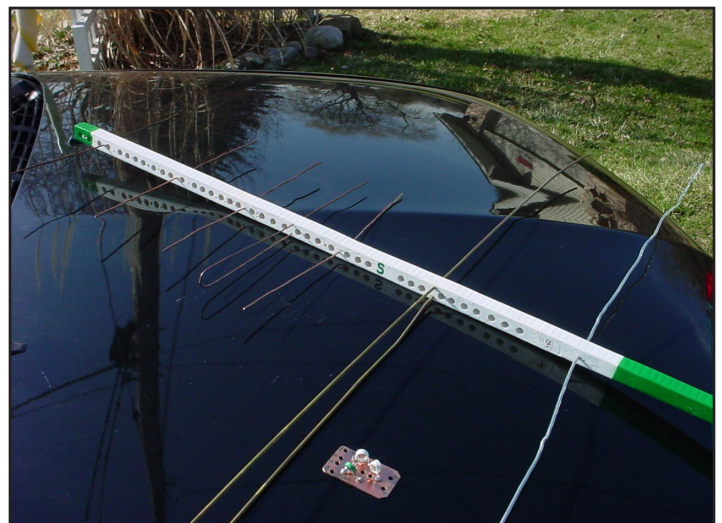
Let's fast forward ten years to the current pandemic crisis of spring 2020.

During the lockdown, I began to look into the OSCAR's again. I was pleasantly surprised to find that there are even more "little LEO's" up there for us ham to access and enjoy. There are 3 of them with FM transponders, and a 4th on the way. There are also many "birds" with linear transponders for those who enjoy CW and SSB. Most hams who own a dual-band handheld already have the expensive part. Well, I loaded up the trusty Yaesu FT-817 with the necessary frequencies and offsets. Then it was a trip out to the boathouse to dig up the old forgotten homebrew sat sticks. I found 2 of the old Sat antennas in fair condition and decided to give them another try. With the original Hockey stick antenna, I had several good QSOs through AO-91. However, this one only had two elements on 145mhz and three elements on 432mhz. I gave it a U of M paint job to make it visible. Because of the Hockey Stick wood, it was a bit heavy to hold for a long pass. So another one was on the bench.



Here's the 1st version with Wolverine colors.

In the 2nd version, I used spruce wood for lighter weight and drilled out excess wood to shave even more weight off. I used a 3-foot boom, which allowed for more elements and better gain. All while keeping it lighter than the 1st prototype. It also worked very well, and it added two more elements on 435mhz. It still only had two elements on 144mhz, but this seemed to work ok. I gave it an MSU Spartan green and white paint job. It's always ready to use at the W8SH shack on campus.

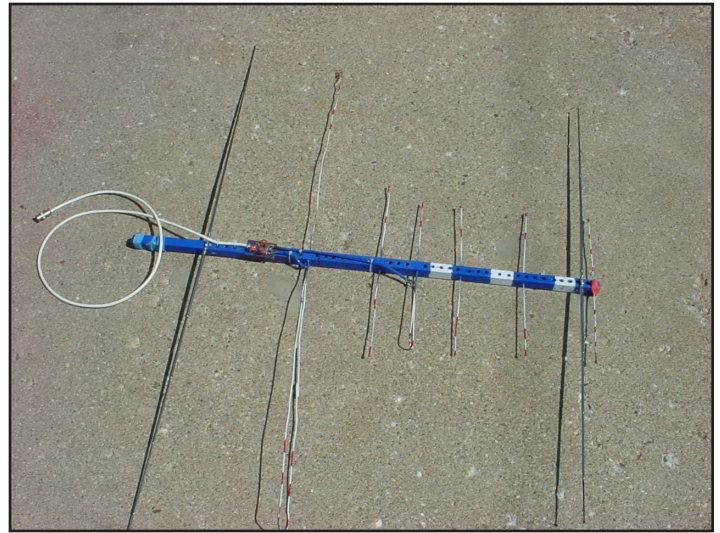


Here's the 2nd version with Spartan colors, more elements, and the duplexer board next to it, before mounting to boom.

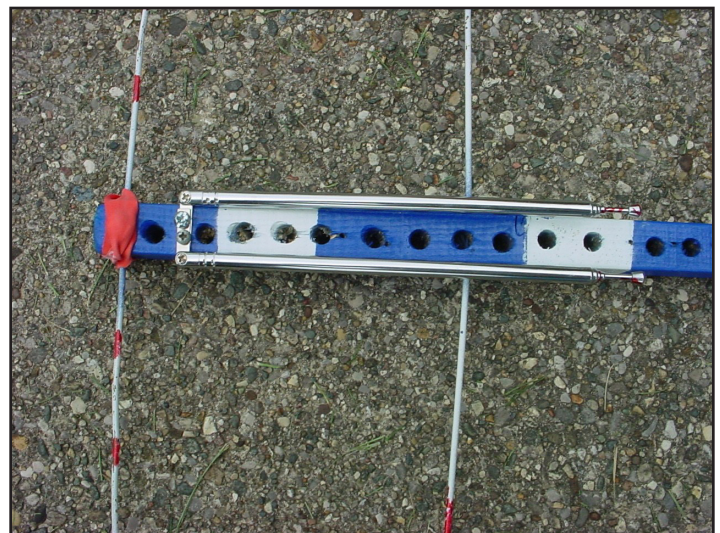
See SATELLITES, Page 7

They say “the 3rd times a charm”. So version #3 was initially built very similar to the 2nd one, but with a smaller duplexer board, and more “holes” drilled out of the boom to shave more ounces off. It worked ok in that state, but I wanted to add a 3rd element for 144mhz to give it a bit more oomph. Then I thought of other ways the antenna could be improved. I never liked the length of the elements when carrying it around or storage. A quick trip to the junk box provided some possibilities. I had saved a bunch of old transistor radio telescopic antennas way too long (40 yrs), never knowing what I was going to use them for. I extended a few.... PERFECT! They would extend to the needed length for operation, and collapse and fold up for transport or storage. 1st I tried it on the very tip of the stick as a 144mhz director. It seemed to make a noticeable difference in the signal strength.

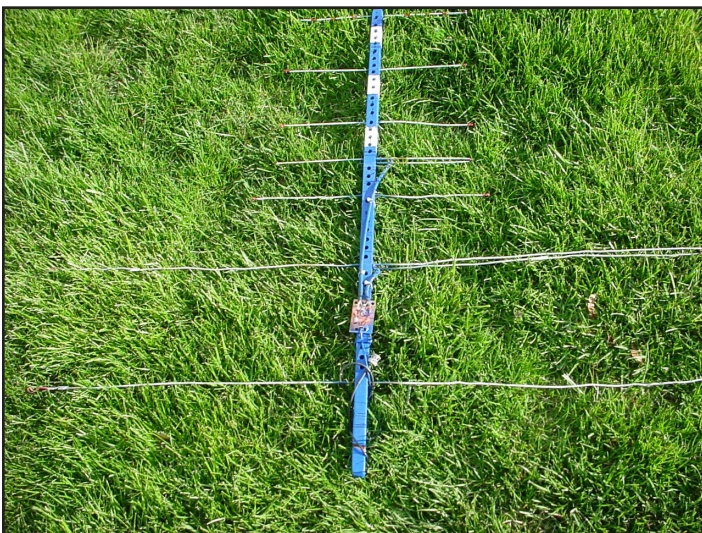
I liked the idea of the telescoping elements so much that I removed the reflector element and replaced it with the same setup. It worked beautifully. Many Satellite QSO's are in the log and QSL cards coming in too! In the folded position, it's much easier to maneuver the thing without “poking your eye out.” I also tried to see how it would perform as an “emergency” handheld radio extension antenna. From Holt High School, I was able to get into the Jackson, Howell, Charlotte, Portland, MSU, and all the Lansing repeaters with ease. Yes, it would do in a pinch to get that signal a boost well beyond the “rubber ducky” range.



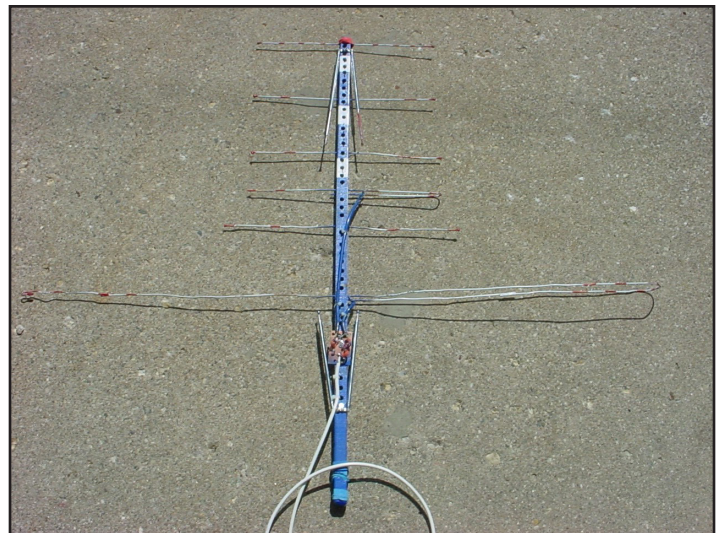
Here's a picture of the completed project to date.



Close up views of the telescoping radio antennas folded up.



Here's what it looked like before modifications.

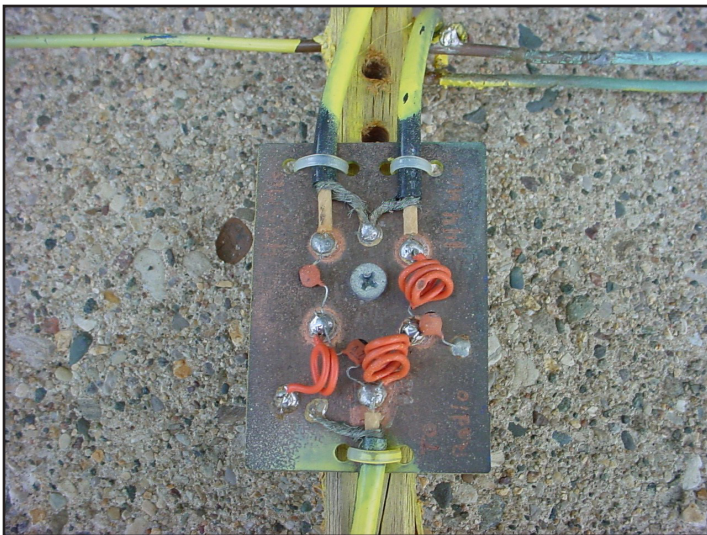


All folded up and ready for transport in the truck.

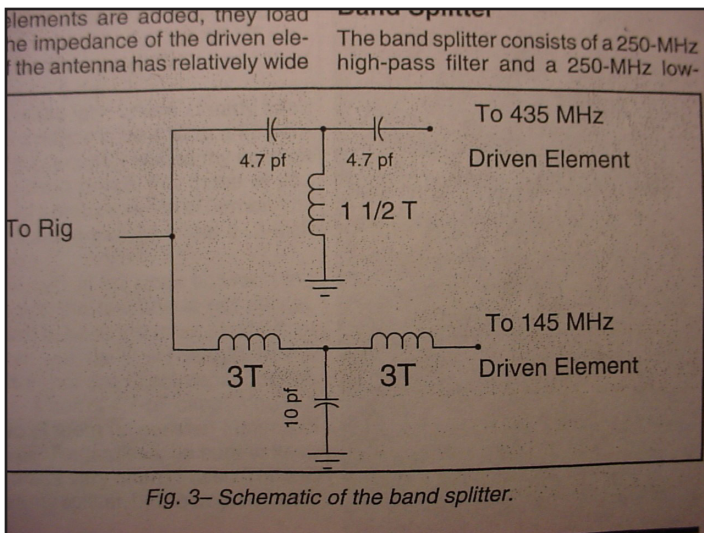
See **SATELLITES**, Page 8

The future considerations will be some new driven element that also collapses and folds up. Or perhaps a quickly removable element similar to the “Arrow” TM antenna, a popular commercial product.

I would urge all of you who have thought about Sat operation to give it a try. With a hand full of coat hangers, a few caps, and an old stick, you can have a handy antenna. The only tools required are a drill, set of diagonal cutters, tape measure, and a soldering iron.



Close up view of the homebrew duplexer circuit board.



Schematic of the duplexer circuit.

I hope this gives some of you the inspiration to try building one of these simple antennas for yourself and start enjoying satellite operations. Who knows it may just be your favorite mode of ham fun. ■

Headlines from Amateur Radio Newslines

Report #2225 for Friday, June 19, 2020

Used with permission by Radio Newslines, Inc.

SPEEDWAY SPECIAL EVENT STARTS ITS ENGINES

Back home on Earth, hams are starting their engines in connection with some high-profile motor racing.

Members of the W9IMS Special Event Station at the Indianapolis Motor Speedway are gearing up for their traditional race week special event. With the COVID-19 virus threat looming over the world, IMS track officials postponed the May running of the Indianapolis 500-mile race until August this year.

As race schedules changed so did the W9IMS special event crew. Here is the new lineup: Monday, June 29, W9IMS kicks off their 2020 special event station. This first event will be a doubleheader combining the IndyCar Grand Prix and the NASCAR Brickyard 400. The Grand Prix will run on Saturday, July 4th and the Brickyard will run Sunday, July 5th.

W9IMS will be on the air for the entire week prior to the double header taking check-ins. Look for them on 80 through 6 meters.

According to Bill Kennedy, WY9T, each contact will receive a QSL card for that race and be eligible for a special certificate commemorating all three races this year.

Check the W9IMS QRZ page for more information.

VIRTUAL HAM EXPO SET FOR AUGUST

It's time to pack your virtual suitcase and prepare for a virtual journey that will take you to the first QSO Today Virtual Ham Expo this summer. The venue may be virtual but the hams and the expertise and support they are offering are very real. The QSO Today podcast, hosted by Eric Guth 4Z1UG, has already lined up such well-known speakers as Glen Johnson W0GJ, to discuss DXpeditions, Ward Silver N0AX, to talk about grounding and bonding and John Portune W6NBC to explain building slot antennas in an HOA environment.

This free 48-hour event on August 8th and 9th is a first for the popular QSO Today podcast Eric hosts weekly. The virtual platform allows attendees to interact with exhibitors via chat, video and audio and, true to the ham expo experience, it will also feature an exhibit hall with booths as well as an auditorium for speakers.

Although the expo will be live for 48 hours during the 8th and 9th, it will also be accessible for another 30 days as an on-demand event.

For additional details visit qsotodayhamexpo.com - and then make sure your smartphones, tablets and laptops will be charged up as you are likely to be there for some time.

Does a resonant antenna work better than a non-resonant antenna?

By Dan Romanchik, KB6NU

Every once in a while, I answer amateur radio questions on Quora, and sometimes I get requests to answer them. Well, a request popped up in my inbox this morning, and I just clicked on the link. I got a real chuckle from the two replies (see below)....Dan

Does a resonant antenna work better than a non-resonant antenna?

Reply #1 from “Retired EE with aerospace and biomedical experience & 8 patents.”

“Yes a resonant antenna properly matched to the transmitter or receiver will work better a non-resonant antenna. Any antenna discussion MUST include the frequency or frequency band in order to be more detailed.”

Reply #2 from “Physicist, Electronic Engineer, Musician (1968-present)”

“No. It may be easier to match a feedline to it, but once a current distribution is achieved in it, it radiates just as well as a non-resonant dipole.”

So, antenna gurus, which one do you think is right?

UPDATE 6/14/20

A third fellow replied:

In order to avoid confusion, I offer a definition of a resonant antenna. (First of all, I am assuming you are not referring to an uncommon antenna type that has no resonance, no standing wave.) Irrespective of the feedline characteristics (assuming there is a feedline—could be fed directly by equipment), at its feed point, an antenna presents a certain impedance value as a function of frequency. The frequency for which this impedance is resistive (contains no reactive component) is the resonant frequency.

The objective when feeding an antenna is to transfer as much power as possible to it. As with any type of load, this is accomplished when the source and load impedance values are “matched”. Following from the previous paragraph, a resonant antenna needs to be fed with source having a resistive impedance equal to that presented by the antenna.

At all frequencies other than its resonant frequency the antenna presents a reactive impedance component (inductive or capacitive) that adds to the resistive component. If the source impedance is still resistive, it is no longer matched to that of the antenna, so the power delivered to it is reduced. In other words, any series reactance of the antenna adds to the resistive (called radiation resistance) component to reduce the amount of current flow; so the antenna does not work as well.

This does not mean, however, that a non-resonant antenna cannot work as well. If the source impedance is adjusted to add reactance that is equal and opposite to that presented by the non-resonant antenna, the power delivered to it will equal that of the antenna's resonant frequency. A properly impedance “matched” non-resonant antenna works (radiates) just as well as a properly matched resonant antenna.

The equipment used to maintain this impedance “match” over a relatively wide frequency range is called an Antenna Tuner. Inasmuch as mounting and adjusting an antenna tuner attached/connected directly to the antenna feed point is normally frightfully awkward, it is normally at the radio equipment end of the feedline. In this configuration, the feedline and antenna are automatically tuned simultaneously. There are implications for the most desirable type of feedline to use, but that is another discussion.

(Note: As the frequency is changed, the resistive portion of antenna feed point impedance varies as well, but this change is relatively minor and is also compensated for by the antenna tuner.)”

I like this answer. ■

ARRL Michigan Section Report (May 2020)

By Jim Kvochick, K8JK

Greetings to all the Amateurs of Michigan,

I am hopeful like many of you that we are nearing the end of sheltering in place. This will still not bring everything back in line to “BC” (Before COVID), and we will all still need to exercise a great deal of caution as we venture out.

Field Day 2020

Field Day has long been considered “amateur radios open house”, a chance to display a little of the spirit of hams everywhere. While not necessarily a contest, we as amateurs have participated in assembling stations in or near public venues, inviting folks who may be interested in learning more about our hobby, and in general being “social”.

This year will feel a little different. The general guidelines for Field Day operations have not been modified to fit the current situations we need to comply with within Michigan. Despite the potential for technology to make it relatively easy to “operate virtually”, scoring will not embrace anything other than the guidelines already established.

I have talked with many groups who will approach this year as an opportunity to test new ideas and will probably simply submit check logs without aggregate scoring results. Others will be encouraging their club members to operate from their home locations, and there are a few groups who are intending to try their hand at limited “social distance approved” field day setup.

Whatever your teams choose to do, please stay safe.

Tell Me Anything Good

The guidelines of social distancing rule out most radio club meetings. Most groups who do breakfast and lunch will also put those activities on hold. Amateur radio testing has been pretty much put on hold. In face of all of this, hams are being inventive.

I know there are several clubs holding virtual breakfasts and meetings. Now that the weather is becoming a bit more pleasant, so folks are meeting in parks or other open spaces.

I’d love to hear from more of you. Tell us all what’s working well for you, and even some of the things you’ve tried that may need more thought.

It’s easy for me to attend a virtual meeting, and I’m most happy to do so. Mind reading is not a skill that I possess, however. You’ll need to let me know what your thoughts are.

John McDonough WB8RCR SK

We lost a great leader within the Michigan Section this month with the unexpected passing of our Section Emergency Coordinator, John McDonough, WB8RCR. John has shaped the emergency response organization within the state into a group that is highly respected among the served agencies that amateur radio is ready to assist. Please keep John’s family in your positive thoughts and prayers. John’s team has done an outstanding job of continuing his efforts. ■

CLASSIFIEDS

Gregg Mulder / WB8LZG
(517) 646-6257 after 3pm

\$425

Elecraft K1 HF XCVR Kit

UNBUILT, new in box, 4-bands with backlight, extras

\$200

Ten Tec Argonaut 509 QRP HF Transceiver

D104 Mic, Speaker, Nice Condition, and works fine!

\$25

Little Bugger Keyer

Very tiny. 9v operation.

\$5 Each

Books

RSGB VHF-UHF Manual

Books by Bill Orr

VHF Handbook

Beam Antenna Handbook

Ed Hude / WA8QJE

Cell: (517) 420-7550

ebhude@yahoo.com

\$100

Radio Shack HTX-10

25-watt, SSB/FM Transceiver. Like new in sealed unopened box.



From the Estate of W8LKE

**Thomas Romanowski
(NonSmoker)**

Ed Hude / WA8QJE

Cell: (517) 420-7550

ebhude@yahoo.com

No trades on Estate radios

\$900

Yaesu FT-950

HF -50 Mhz rig, Yaesu FP1030A power supply, Yaesu SP2000 speaker with 2 filters and Yaesu MD100ASX desk microphone. All items are like new, and in matching boxes. (Will not separate)



\$330

Yaesu FT-8900R

Quad-band rig (10, 6, 2, 440) like new in box with instruction manual and Nifty operating guide. Comes with like new Diamond CR-8900A quad-band mobile antenna and K600s trunk lid mount. Used inside the mobile home. Like new with box. (Will not separate)



Central Michigan Amateur Radio Club

W8PLP/W8MAA

Membership Form



For new CMARC applicants: Please complete all sections.

For existing CMARC members: Please include your Name and Call Sign along with only the information you would like changed.

Mail completed form to Membership Chairman (see address below) or take to Club meeting for processing. Please include payment if applicable. (Checks or Money Orders should be made payable to 'CMARC').

John Doornhaag | 1165 South Ainger Rd | Charlotte, MI 48813-9540

Membership Type		<input type="checkbox"/> New	<input type="checkbox"/> Renewal
Full:	<input type="checkbox"/> Annual Dues: \$20.00 <i>Includes voting rights and an annual subscription to The Scope.</i>		
Associate:	<input type="checkbox"/> Annual Dues: \$5.00 <i>Includes an annual subscription to The Scope but NO voting rights.</i>		
New Licensee:	<input type="checkbox"/> Annual Dues: 1st Year Free		
Under 18:	<input type="checkbox"/> Annual Dues: Free		

Contact Information	
First Name: _____	Last Name: _____
Call Sign: _____	License Class: _____ Phone #: _____
Address: _____	Apt/Unit: _____
City: _____	State: _____ Zip Code: _____
Birthday: _____	Anniversary: _____
Email: _____	Sign up for the List Serv: <input type="checkbox"/> Yes <input type="checkbox"/> No
<small>Note: Email is used by club officers to communicate club business and may appear in the club directory for use by club members. CMARC does not share/sell contact information to other parties.</small>	

Club Communications	
Newsletter Preference <i>(select only one option)</i>	<input type="checkbox"/> I will download from the web site.
	<input type="checkbox"/> Please mail to my address <i>(Note: Direct mailing increases postage costs.)</i>
ARRL Affiliation	<input type="checkbox"/> I am an ARRL member



Lansing Civil Defense Repeater Association

Membership Form

For new LCDRA applicants: Please complete all sections.

For existing LCDRA members: Please include your Name and Call Sign along with only the information you would like changed.

LCDRA oversees the operation and maintenance of all Lansing Area repeaters. Use of the repeaters does NOT require LCDRA or CMARC membership, but your support is welcome and appreciated.

Mail completed form to Membership Chairman (see address below) or take to a meeting for processing. Please include payment if applicable. (Checks or Money Orders should be made payable to 'LCDRA').

Michael Boensch | 1897 Sunnymede Ln | Lansing, MI 48906-1356

**If you would like a membership card mailed to you,
please include an SASE with your payment. Thank you.**

Membership Type		<input type="checkbox"/> New	<input type="checkbox"/> Renewal
Full:	<input type="checkbox"/> Annual Dues: \$15.00 <i>Includes voting rights and an annual subscription to The SCOPE.</i>		
Family Mbrs:	<input type="checkbox"/> Annual Dues: \$7.50 ea. No. of Family Members: _____		
ARRL Affiliation	<input type="checkbox"/> I am an ARRL member Membership Card <input type="checkbox"/> Yes (Please see above)		

Contact Information	
First Name: _____	Last Name: _____
Call Sign: _____	License Class: _____ Phone #: _____
Address: _____	Apt/Unit: _____
City: _____	State: _____ Zip Code: _____
Birthday: _____	Anniversary: _____
Email: _____	
<i>Note: Email is used by club officers to communicate club business and may appear in the club directory for use by club members. <u>LCDRA does not share/sell contact information to other parties.</u></i>	

Central Michigan Amateur Radio
P.O. Box 54
Mason, MI 48854-0054

STAMP

To: