THE SCOPE

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

VOLUME 19, ISSUE 2 | MARCH / APRIL 2019 | CENTRALMIARC.COM

Annual Ladies Night / Ziegenbein Award Banquet

In lieu of the May CMARC meeting, we will be holding our annual Ladies Night / Ziegenbein Award Banquet at Tony M's Restaurant in Lansing. It was a tough decision this year, with several candidates who deserved this year's award.

CMARC would also like to remember Leota Strobel / KD8SQD, the 2016 Ziegenbein Award winner, who passed away in September 2018. She would have been part of this year's Ziegenbein Award Committee.

Thanks to Dan Beuchert / WX8MOJ for serving one more year on the committee in Leota's absense.

Inside

CMARC ZIEGENBEIN / LADIES NIGHT BANQUET

When: 6:30 pm, Friday, May 10, 2019

Where: Tony M's Restaurant and Banquet Center
3420 S. Creyts Rd.
Lansing, MI 48917

Treasurer's Reports 2019

Daniel Beuchert / WX8MOJ- CMARC Treasurer

Bank Balances for January	
Beginning Balance	**$3,037.64**
Total Monthly Income	$420.00
Total Monthly Expenditures	($202.00)
Total Business Checking	$3,255.64
Petty Cash	$1.00
Outstanding Checks	($40.00)
Sub Total + Petty Cash	**$3,216.64**
Primary Share Accounts	
Humphrey's Fund	$383.80
Building Fund (Club Station)	$19.09
Field Day	$528.43
Total Net Worth	**$4,147.96**
Youth Fund Balance*	$254.44
* Separate from CMARC Funds	

Bank Balances for February	
Beginning Balance	**$3,255.64**
Total Monthly Income	$0.00
Total Monthly Expenditures	($40.00)
Total Business Checking	$3,215.64
Petty Cash	$1.00
Outstanding Checks	($0.00)
Sub Total + Petty Cash	**$3,216.64**
Primary Share Accounts	
Humphrey's Fund	$383.83
Building Fund (Club Station)	$19.09
Field Day	$528.47
Total Net Worth	**$4,148.03**
Youth Fund Balance*	$254.46
* Separate from CMARC Funds	

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 cmarcscope@gmail.com. Pictures should be mailed in .jpeg format, and articles in Microsoft Word or TXT format.

April Birthdays:

2nd Ben Barker / WD8OVL
7th Don Hunsaker / WB8PPB
8th Troy Creed / W8TCC
9th Erv Bates / W8ERV
10th Bob Berger / K8RDN
12th Alan Shaw / WB8YOX
14th William Smith / KD8ZFR
15th Richard Lee / KE8HMN
20th Scott Norris / KD8ZFS
22nd Dan Fuller / W8VVR
27th Sharon Waite / KD8HHK
28th Matt McCormick / KE8CRV
29th Wayne Barker / KE8GUL
30th William Rude / KE8BEN

May Birthdays:

2nd Paul Keefer / KB8YQZ
7th Gary Grabenstein / K8CKW
11th Eugene Brown / KK4DIY
14th Matt Warncke / W8MAT
17th Austin Burke / KD8OVY
19th Tom Davage / K8KUF
John Doornhaag / KD8NNQ
Shannon Ranes / WA2NVK
23rd Jen Coslor / KE8DVP
Michael Yager / KE8BIH
25th Garry Watson / KC8MAD
27th Marie Watson / KC8NOI
31st Michael Lutz / AC8TC
Bill Wing / W2PMH

April Anniversaries:

12th Stephen Binns / KD8WVG

May Anniversaries:

7th Dennis Dann / KE8ACA
15th Kim Sherman / WA8KIM
19th Don Hunsaker / WB8PPB
30th John Schuster / KD8VON
31st John / AC8ML and Shirley Strong

Upcoming Meetings:

CMARC MONTHLY MEETING

When: 7:00 pm, Friday, March 8, 2019
Where: Lansing Mason Area Ambulance Training Facility
807 Kerns Rd., Mason, MI 48854

CMARC MONTHLY MEETING

When: 7:00 pm, Friday, April 12, 2019
Where: Lansing Mason Area Ambulance Training Facility
807 Kerns Rd., Mason, MI 48854

ARPSC MONTHLY MEETING

When: 7:00 pm, Monday, March 18, 2019
Where: Lansing Fire Station 48
off Marshall Rd. South of Grand River.

ARPSC MONTHLY MEETING

When: 7:00 pm, Monday, April 15, 2019
Where: Lansing Fire Station 48
off Marshall Rd. South of Grand River.

ARPSC MONTHLY MEETING

When: 7:00 pm, Monday, May 20, 2019
Where: Lansing Fire Station 48
off Marshall Rd. South of Grand River.

LCDRA QUARTERLY MEETING

When: 7:00 pm, Thursday, April 18, 2019
Where: Lansing Fire Station 48
off Marshall Rd. South of Grand River.

ARRL Volunteer Exams

Sponsored by the "Ingham County VE Group"

To best accommodate the various schedules of those wishing to test, the Ingham County VE team meets on either a Saturday morning or Thursday evening, every other month. We test in the Community Room at Lansing Fire Station #44 located at 1435 E. Miller Rd., Lansing, MI 48911-5322.

Contact: Don McLain (KB8RAD) (517)930-7707 KB8RAD@arrl.net

Saturday, March 9, 2019

General: Nicolau Esteves (KE8LKE)

Technician: Robert Dick (KC8MSU), Michael Wetzel (KE8LSI), Skyy Pineda (KE8LSG)

Thursday, April 4, 2019

Extra: John Jackson Jr. (KE8ICN)

General: Austin Coha (KE8LYA)

Technician: Austin Coha (KE8LYA), Tiffany Wilson (KE8LXZ)

Upcoming VE Exams

Saturday, May 11 @ 11:00 AM

Thursday, June 6 @ 7:00 PM

Saturday, June 22 @ 11:00 AM located at Raynor Park, 730 E. Ash St., Mason MI 48854

Saturday, July 13 @ 11:00 AM

Thursday, August 1 @ 7:00 PM

Where did that RF go?

GREGG MULDER

WB8LZG

Have you ever wondered where all that RF energy goes after you hit the PTT button? Have you been calling CQ for hours with no replies? Do you feel as though your signal's not as strong as it should be? Well, you're not alone. These are questions that hams have been asking since they first discovered that radio signals could propagate through the ether with simple spark transmitters.

Which leads to the question, are you satisfied with the performance of your station? Do you contact other hams out there on your first call, or are you calling endlessly with no answers?

Let's examine what happens to your signal once it leaves the exciter shall we.

For simplicity let's assume that we have a modern 100-watt transceiver in the shack, with a dipole antenna, feed with 100 feet of coax or open wire feedline through an antenna tuner. We hit the key in CW mode and turn the power control up to 100 watts. Ideally, we want all 100 of those watts to travel up the feed line to the antenna and be radiated into the either.

The first link in the chain is the feedline or coax. Many stations use "open wire" feed, and many also use coaxial cable. Coax has become widely used in many stations due mainly to ease of getting the run through walls, windows and out to the antenna. Open wire feedline sometimes referred to as "ladder line" is also popular and can have much less loss than coax. The key to proper feedline operation is to keep it as short as possible. A wire has resistance and the longer the wire, the more of your signal will dissipate as heat. Heat won't radiate a radio signal. So it's desirable to get the best coax available and keep it short. Even if you are only feeding a dipole, good coax is essential if we want every speck of RF energy to make it up to the antenna.

Compare two different types of coax. At 14 MCS, open wire feed has a loss of about .1 Db per hundred feet. LMR-400 coax has a loss of about .4 Db per hundred feet. RG-58u coax has a loss of about 2db per hundred feet. RG174, about4 Db per hundred feet. A 3Db feedline loss with a 1:1 SWR, means that ½ of the power leaving the exciter is not even making it up to the antenna. Combine that with a poorly tuned antenna, and SWR of over 2:1, and you may start to see why you're not working all those DX stations. It also shows that open wire feedline does have advantages over coax.

Ok, now let's assume you have replaced that old feedline with some brand-new high-quality coax.

The next part of the system is the aerial itself. A dipole cut to resonance is a very efficient antenna. A resonate dipole radiates nearly ALL the power fed into it. However, in which direction? Several factors come into play here. The most important is height above ground. At an average height above ground of over 1 wavelength, the radiation pattern in the azimuth plane is a classic figure 8 broadside to the dipole. The elevation angle is somewhere between 10 and 20 degrees, the lower the angle, the better the DX. Many hams do not have the vertical supports to get aerials up over 50 feet.

As we lower the actual height of the antenna, the radiation angle becomes higher. Eventually, at heights below ¼ wavelength, most of the energy is being radiated straight up.

This is commonly referred to as an NVIS (near vertical incident skywave) antenna. Great for close in (several hundred miles) QSO's, but not too swift for DX work.

So if you want your radiated signal to go out to the DX, you must raise the actual height of the antenna to a height somewhere over ½ wavelength or more. Rule of thumb. The higher, the better.

Another factor in the pattern, both horizontal and vertical, are nearby objects to the antenna. Buildings, towers, trees, telephone poles, and other metal objects, all absorb or reflect radio signals. It is desirable to keep the antenna away from anything, especially metal.

See LOST RF, Page 6

■ **LOST RF**, from Page 5

EXTRA STUFF

I've noticed a trend in recent decades. It has become widely accepted to use baluns in many antenna installations. Many times they are just unnecessary. A balun installed improperly may make your signal worse, not better. Baluns are made for matching different impedances to allow for maximum power transfer in a mismatched system.

In the "Old Days" when I was a Novice, we didn't care about baluns. If we fed a dipole with 600 Ohm homebrew ladder line, you would tune out the reactance with a tuner, and all was well.

If we fed a dipole with coax, and the SWR was under 2 to 1, the exciter was happy and so were we. No worries about the few watts that were wasted in the mismatch. As long as we were making QSOs it didn't matter much. There seems to be a lot of new hams out there who seem to think they must have a 1 to 1 balun up at the antenna or their signal would somehow be skewed or radiate down the feedline. Not necessarily so. If we send 100 watts up the line to the antenna and a few watts get sent back down the line, who cares? Who will know the difference? The guy on the other end won't care either.

So here's some advice for those who want to "roll your own" aerials. Use the standard formulas to cut the lengths, attach whatever feedline you have, and get it as high in the air as you can. Try it. You may have to do a bit of "pruning" to get the SWR down a little, but don't be so concerned that it won't work, just because it isn't perfect. Few antenna systems are. If something still bothers you about your setup, then keep experimenting. Never give up trying. Antennas are the easiest piece of the station chain to improve.

I hope this gives you some encouragement to try some antenna work on your own. With a little thought and a bit of luck, you may just get a great skyhook for your efforts. ■

News Snippets from the Amateur Radio Newsline (April 5, 2019)

WASHINGTON LAWMAKERS GRILL OFFICIAL'S WIFE ABOUT HAM RADIO

NEIL/ANCHOR: A congressional panel in Washington, D.C., recently questioned the wife of a federal official about her ham radio activity. Andy Morrison K9AWM has those details.

ANDY: A recently released transcript reveals that Republican members of Congress had asked the wife of a ranking Justice Department official whether she was using her amateur radio license to communicate with Russia - specifically to monitor transmissions about Russian interests in Donald Trump's 2016 presidential bid.

Nellie Ohr, KM4UDZ, is the wife of the Justice Department's Bruce Ohr. She is a Technician class licensee. She told Republican members of the House Committee on the Judiciary she became a ham as part of her involvement as a volunteer in the local Community Emergency Response Team. She was being interviewed at the time by members of Congress in closed-door questioning Oct. 19, 2018. The transcript was recently made public in the U.S. media, including the Atlanta Journal Constitution, a daily newspaper in Georgia.

The Fairfax County, Virginia woman was quoted in the published report as saying [quote] "I saw an ad for the community emergency response training, and I thought, now is a good time for me to do it." [endquote] She said the emergency team's training was sponsored by the Department of Homeland Security and the local fire department.

When asked directly by one lawmaker whether she had ever communicated with anyone in Russia using ham radio, she indicated that the Tech license is the lowest level license and that there are few frequencies available for overseas contacts.

ANTENNA MATCHING SWR & MYTHS

A Compendium by Dave Held / N8CFM

The unscientific and erroneous view that the coax-fed antennas must be operated at its self-resonant frequency over emphasize the necessity for the antenna to be matched to the line within some arbitrary low SWR to preserve transmission efficiency, implying that efficiency means no reflected power. This viewpoint is wrong and unscientific.

The 80-meter band from 3.5 to 4 MHz antenna cut for 3.75 in middle of the band and shows 1:1 match at this frequency.

At 3.5 MHz there is 6:1 mismatch and about 5:1 at 4.0 MHz. This only adds .46 dB loss which is less than ½ an S unit at the receive end. The SWR limits while operating away from the self-resonant frequency of the antenna are determined entirely by power lost because of line attenuation. Mismatch at the line and the antenna does not prevent the radiator from absorbing all of the power available at the junction. Feed line need not be of any particular length, but a conjugate match is a necessity.

Definition of Conjugate match- A Conjugate match occurs whenever all of the available power from a source or network is being delivered to the load. There is a conjugate match if the delivery of power decreases whenever the impedance of the load is changed in either direction.

Impedance matching at the transmitter with an antenna matching unit provides a conjugate match and provides improvement in operating flexibility. The correct load impedance for the transmitter is obtained simply by adjusting the network which is conveniently located at the operating position.

Of the several types of dipoles such as the thin-wire, folded, fan, sleeve, trap or coaxial, none radiate more field than another!

Center fed dipoles are balanced antennas, meaning they are electrically symmetrical with respect to the feed point. If fed by an unbalanced coaxial line can cause undesirable radiation on the line. Most popular devise to correct this is a 1:1 balun (Balanced to Unbalanced) or ferrite beads on transmission line or common mode choke.

The simplest choke balun is formed by coiling up a few turns of feed line starting where it connects to the antenna terminals, this is not practical below 14 MHz. Better choke-balun performance can be had by placing several ferrite bead around the coaxial line at the antenna. For 1.8 to 30 MHz use 50 number 73 beads (FB73-24010) or use a W2DU Balun available at Wireman.

All available baluns on the market use trifilar transformers and therefore are voltage baluns, except the W2DU Balun which is a ferrite current Balun. All are 1:1 baluns. Tests have shown that current type baluns provide the best balance of dipole currents. (www.the wireman.com/baluns, product number 823).

Some Amateurs who employ a 1:1balun believe that one to one means it provides an impedance match between the feed line and the antenna. This is an erroneous concept, because the 1:1 only specifies the output to input impedance ratio of the Balun. The impedance at the input of the 1:1 balun will be the same impedance at the output.

With coaxial line because of skin effect, current flows on the inside of the shield and on the outside of the inner conductor and they cancel each other, so no radiation comes from the inside of the line.

The electrical length of a line of given physical length can be changed by adding lumped inductance or capacitance therefore we can have any desired electrical length without specifying any physical length. Soooo! do not worry about the length of your transmission line when you use an antenna matcher.

There is a myth that if I have 100 watts forward power and 20 watts reflected power that I am radiating only 80 watts. This is not true; the reflected power is reflected back from the input to the load and all that is lost is in the attenuation of the line.

Many believe that standing waves produced by SWR results in energy surrounding the feed line causing it to radiate as an antenna. This is not true. A voltage standing wave is simply a variation in line voltage appearing between the feed line conductors. In coaxial

See SWR & MYTHS, Page 8

■ **SWR & MYTHS**, from Page 7

line the fields produced by currents flowing through the conductors are entirely confined within the coaxial shield.

In amateur communications it can be shown mathematically and easily verified in practice the difference in power transferred through any coaxial line with at SWR of 2:1 is imperceptible compared to having a perfectly matched 1:1 termination, no matter what the length of the line. Any effort to reduce an SWR of 2:1 is time wasted from the stand point of any significant increase in power transfer. The amount of reflected power lost is dependent on the attenuation factor for the specific feed line used. (See attachment A).

The smallest reduction in power that can just barely be detected as a change in level at the receiving station with AGC disabled is 1 dB, this means a reduction in power from 100 watts to 80 watts before the receiving station sees a difference. With RG-58 about100ft this means a 7:1 SWR will just barely be seen as signal loss at the receive end.

Lower than normal SWR from what was recorded originally on an antenna is a clue to trouble in form of undesired loss resistance, poor connections, poor ground, loss in the cable due to moisture or corrosion. SWR indicators can read the SWR wherever it is located on the line. Hams should put an SWR meter between antenna matcher and antenna and record the SWR. Check periodically and if it changes there is something wrong with the antenna or line.

Best efficiency from the antenna matcher is obtained by starting with both of the capacitors set at maximum capacitance, next adjust the antenna or load capacitor and the coil to get minimum SWR, if this is not 1:1 then reduce the capacitance of the transmitter or input capacitor and try again, keep doing this until you get 1:1 or it will not go any lower. After tuning to a dummy load, you must retune to the antenna. Whatever the length of the feed line or antenna, they are always made resonant by the antenna tuner.

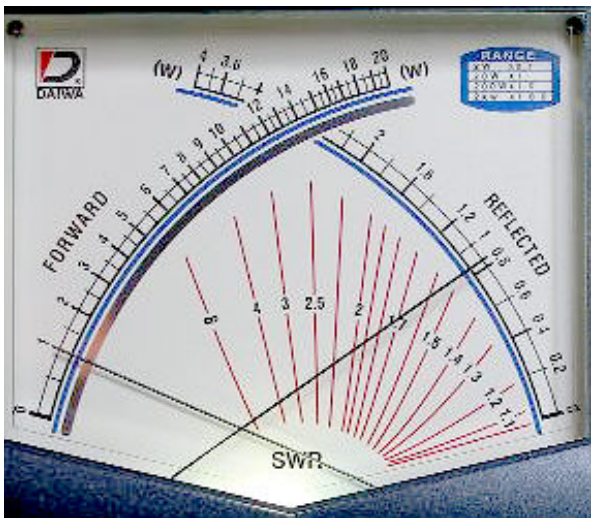
No reflected power is dissipated in the plate circuit of the transmitter because it does not reach the plate, it is reflected back to the load by the pi network. Solid state output amplifiers have no provision for working in any load other than 50 ohms, unless the unit has a built-in antenna tuner, otherwise it must use an antenna matcher to keep the radio from reducing power to protect itself. ■

BIBLIOGRAPHY

ARRL ANTENNA BOOK, 22nd Edition 2013
Page 23-4, 23-6, 23-11, 23-14, 24-1, 24-2, 24-4
24-7, 24-12, 24-38, All of chapter 27.

ARRL HANDBOOK 86th Edition 2009
Chapter 21

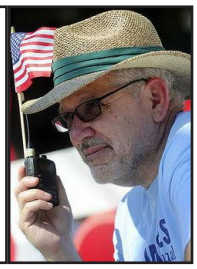
REFLECTIONS III, Transmission Lines and Antennas
by M. WALTER MAXWELL, CQ Communications Inc.
Chapter 1,2,6,7 and 21.



Can Indoor Antennas Work? Yes!

DAN ROMANCHIK

KB6NU



Recently, a reader asked:

"I am studying your No Nonsense book as I prep for the Technician test. I am also learning CW. I am going to buy a Yaesu FT 450D as my first radio, and I want to use an indoor antenna as my first antenna. What do you recommend for CW?"

I replied:

"To be honest, I've never had a lot of luck with indoor antennas. Don't let that dissuade you, though. I have worked many hams with indoor antennas. Just recently, for example, I worked a guy who was using a Buddipole (http://www.buddipole.com/) inside his apartment.

"If you have an attic, you could easily install a dipole up there. The ARRL web page on indoor antennas (http://arrl.org/indoor-antennas) notes, 'Attics are great locations for indoor antennas. For example, you can install a wire dipole in almost any attic space. Don't worry if you lack the room to run the dipole in a straight line. Bend the wires as much as necessary to make the dipole fit into the available space....Ladder-line fed dipoles are ideal for attic use—assuming that you can route the ladder line to your radio without too much metal contact. In the case of the ladder-line dipole, just make it as long as possible and stuff it into your attic any way you can. Let your antenna tuner worry about getting the best SWR out of this system.'

"There are plenty of remote tuners now, too. You could install a doublet with elements as long as you can make them, connect them directly to the remote tuner, and then run coax to your shack.

"I have also worked guys who have used Slinky antennas inside a house. The advantage of using a Slinky is that it is electrically longer than a wire of the same length.

"An attached garage might also make a good location for an indoor antenna. VE3SO, who I've worked several times, uses a magnetic loop antenna installed in his garage (https://www.kb6nu.com/magnetic-loop-antenna-at-ve3so/).

If you do a web search for "indoor amateur radio antennas," you'll get many more ideas. Here are a few that looked promising to me:

* Indoor antenna for 7 Mhz (http://www.iw5edi.com/ham-radio/37/indoor-antenna-for-7-mhz)

* An Indoor Reduced Size Rectangular Loop (http://hamuniverse.com/kl7jrindoorloop4010.html)

"Another option might be to load up your gutters! I've worked a couple of guy who use gutter antennas, including WA8KOQ (https://www.kb6nu.com/operating-notes-gutter-antenna-rac-contest-161-countries-worked/) and K3DY (https://www.kb6nu.com/operating-notes-computer-virus-club-net-gutter-antenna/)."

This blog post garnered a couple of interesting comments. K2MUN wrote, "For many years I've used an attic mounted off-center fed 40 meter dipole. With an automatic antenna tunner and a 4:1 balun I've worked lots of dx with both qrp and, more easily, 100 watts! Certainly, outdoors is much superior but an attic is a nice location in bad weather making playing with your antenna a pleasure :-).

John, KD0JPE, said, 'If you have an attic available, check out the following 6-band coax trap-based antenna: http://degood.org/coaxtrap/. I constructed one of these 9 years ago and have had great results with it.

The bottom line is that indoor antennas can definitely work. They may take more work to put up than outside antennas, but as the saying goes, "Any antenna is better than no antenna." ■

Getting loaded (antenna-wise, anyway)

DAN ROMANCHIK

KB6NU

A couple of years ago, I homebrewed a "Cobra" antenna (https://www.kb6nu.com/yet-another-new-antenna-the-cobra/). It's a doublet antenna, meaning that it consists of two elements connected to a center insulator, where it connects to a feedline. The unique thing about the Cobra antenna is that each element consists of three parallel conductors connected in series.

My antenna uses a lightweight, three-conductor rotor cable that used to be available from Radio Shack. The feedline is 450 Ω ladder line that connects to an antenna tuner to give me multi-band operation.

Connecting the conductors in this way is is supposed to provide "linear loading." Somehow, running the conductors in parallel is supposed to increase the antenna's effective length. My antenna is only 73-ft. long, but it easily tunes up on 80m.

The ARRL Antenna Book has a short section on linear loading. It says that linear loading is a "little understood" alternative to inductive loading that can be applied to almost any type of antenna. Furthermore, "... it introduces very little loos, does not degrade directivity patterns, and has low enough Q to allow reasonably good bandwidths."

As I mentioned, I've been using this antenna with good results for a little more than two years now. When I first put it up, someone mentioned the concept of linear loading to me, but not being an antenna guru, I didn't 'give it much thought. About a week ago, though, I ran across a link to the page Short Ham Antennas for HF (https://www.hamradiosecrets.com/short-ham-antennas.html). That got me thinking about the topic again.

This page describes a way to build a linearly-loaded dipole antenna with a feedpoint impedance of approximately 35 Ω. This allows you to feed it with coax instead of the ladder line that I use. The author uses 390 Ω ladder line for the elements. He says it's commonly available, but I don't think I've ever seen 390 Ω ladder line. You could probably use 450 Ω ladder line by adjusting the element lengths a little.

At that point, I started Googling. The next linear-loaded antenna design that I ran across is a design from M0PZT (http://www.m0pzt.com/40m-linear-loaded-dipole/). He built his elements from some sturdy wire and homebrewed spacers made from PVC pipe. He's used this design for the 40m elements of a fan dipole covering the 40m, 20m, 15m, and 12m bands. Only the 40m elements are linear-loaded.

I also found a design for a linear loaded vertical antenna for 40m and 80m (https://www.qsl.net/pa3hbb/ll.htm). This antenna is only 7.736m, or 25.4 ft. tall. Of course, it requires a good radial system to work well, but it will work a lot better for DX than a low doublet or dipole.

Finally, there's an eHam discussion on linear loading (https://www.eham.net/ehamforum/smf/index.php?topic=84418.0). Unlike a lot of eHam discussions, this one is quite civil. It's worth reading if you're interested in the topic.

So, if you're thinking of getting loaded, errrrr, I mean loading your antennas, here's a method for you to consider. It works! ■

GO BOX Project

Dan Dembinski / KD8YDE

Here is the material list for an easy-to-build Go Box. Pictures are to follow on the next page.

- *The box [$59.99 Harbor Freight]*
- *Two Batteries [$29.99 Harbor Freight]*
- *Radio of your choice*
- *SO-239 Connectors [One bag for $11.00]*
- *Water tight Anderson Powerpole Connectors [$14.00 on Amazon]*
- *Bag of Anderson Pole Connectors [15,30,45 $37.00 on Amazon]*
- *Assorted Wire [$29.00 Harbor Freight *Large Assortment worth the money*]*
- *Solar Panel [$15.00 at wish.com]*
- *Solar Charging controller [$7.95 at wish.com]*
- *A bag of assorted gromets [$5.95 Local hardware]*
- *Wood or Metal Decking [$11.00 size vary Home Depot]*
- *Assorted Screws [$6.00 Home Depot]*
- *Power Switch or Key switch [$6.00-19.00]*
- *Tube of black caulk [$5.00 Home Depot]*
- *Coax on hand or purchase [$13.00-? Dx Engineering]*
- *Assorted Drill bits on hand or purchased.*
- *A Piece of aluminum angle material [$5.95 Home Depot]*

Once all of the parts have been assembled, you may now begin to assemble your Go-Box. Take time to figure out what you want to use your Go-Box for and plan your layout accordingly. It is suggested that you create a drawing of your layout. This will aid in the actual building and hopefully prevent mistakes from happening.

For example, are you wanting to do Fldigi, MSSTV? If so, then you will want to be sure to leave enough room for an interface and all appropriate cables.

Once you have made your template, transfer the outline to the deck material you have chosen. Remember to measure twice and cut once, and always wear your eye and ear protection. Cut the angle material you will use to mount the deck to. Secure your batteries inside the box with the proper clearances between them. Once your deck material has been cut, clean all the edges and check for proper fit inside the box. Make any necessary adjustments.

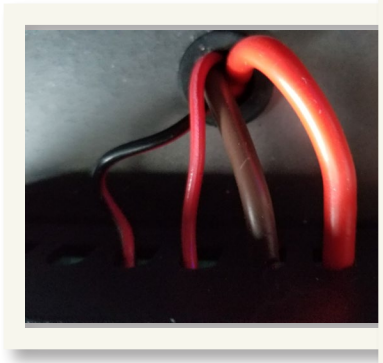
Next you want to figure where the wire connections will be made. Look for the most efficient place to mount your wire bulkheads, and then connect your wires once they are mounted securely. Be sure to leave extra length of wire for trimming, and to allow for movement when you raise the deck material to work on batteries or installing other equipment.

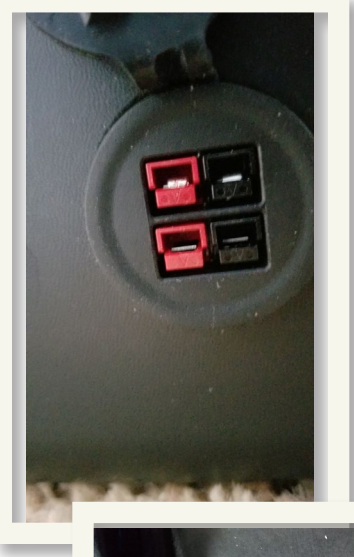
If you decide to use solar power, install the converter charging unit inside the case. Then install the power switch/toggle.

I wish you the best in the design and building of your Go-Box. Remember safety first and measure twice and cut once. Build it with a friend and have fun. ■

GO BOX Project

Dan Dembinski / KD8YDE





CENTRAL MICHIGAN AMATEUR RADIO CLUB
BOARD OF DIRECTORS
MEETING MINUTES
January 5, 2019

Attendance

Current Board Members Present: Clyde Tompkins (K8CPT), Michael Boensch (W8MKB), Chris Ranes (NS8Q), Dan Beuchert (WX8MOJ), Gregg Mulder (WB8LZG), Don McLain (KB8RAD), Tom Rocheleau (WA8WPI)

Current Board Members Absent:

Guests:

Call to Order

President Clyde Tompkins (K8CPT) called the meeting to order at 6:35 pm.

Welcome to our new Board Members

- Shannon Ranes (WA2NVK), Gordy Smith (KE8JKS), Carl Canfield (K8YHH)

Treasurer's Report

- Dan (WX8MOJ) passed out and went through a summary of the 2018 calendar year, touching on a few highlights.

ServSafe Food License

- Gordy (KE8JKS) has been in conversation with Dan (KD8YDE) about using his experience in food and obtaining his own license. Dan is willing to do the legwork to get his license and even pay the cost of the license himself.

Club Directory

- Gregg (WB8LZG) needs a copy of the membership spreadsheet from Dan (WX8MOJ) to start putting together his own spreadsheet. Gregg plans to have more sheets to fill out at the January meeting for those wishing to participate in the directory.

Open Shack Night

- The Board will work with Chris (NS8Q) to begin holding an open shack night for those members who wish to come out and operate the equipment.
- Gregg (WB8LZG) mentioned he would be willing to be here an hour before the monthly club meeting. He will also create a simple cheat sheet for those unfamiliar with operating the station, so they can adequately connect the equipment and begin to use it.
- Carl (K8YHH) volunteered to help Gregg with whatever he needs.

Charitable Gaming

- Dan (WX8MOJ) made a call to someone at Charitable Gaming about the requirements for us to continue holding our 50/50 raffle. We need to fill out paperwork to qualify us to hold the raffle, but may be exempt, and not have to pay an annual fee based on how much we actually bring in each time we hold the raffle. Dan will fill out the paperwork and send it in.

New Board Member Positions

- President - Michael Boensch (W8MKB), Vice President - Gordy Smith (KE8JKS)
- Treasurer - Dan Beuchert (WX8MOJ), Secretary - Shannon Ranes (WA2NVK)
- Director - Carl Canfield (K8YHH), Director - Gregg Mulder (WB8LZG)
- Under 22 Director - Don McLain (KB8RAD)

Bylaw Revision

- The Board has discussed the change and decided to present it at the general membership meeting, with a final vote at the February meeting.

Liaison with Kevin Ammerman

- Clyde (K8CPT) said he would remain as liaison with Kevin Ammerman for the time being.
- Dan (WX8MOJ) said he would be willing to be the liaison since he lives in Mason.

Ladies Night

- Jonathan Starr called Tom asking if we would like him to provide entertainment at this year's event.
- The Board will ask the membership at the upcoming meeting to see if anyone is interested in planning the event, and who they are thinking about for entertainment.
- Shannon (WA2NVK) will contact Russ and Kelly to see if they will plan it again this year.
- Because of the passing of Leota (KD8SQD), Dan (WX8MOJ) has agreed to serve on the Ziegenbein Committee this year. Chris (NS8Q) will serve one more time in 2020. Beginning in 2021, the Committee will revert back to its original rotation.

Adjournment

MOTION: *With no further business to discuss, Don McLain (KB8RAD) moved that we Adjourn the meeting, seconded by Dan Beuchert (WX8MOJ), approved, and the motion carried.*

The meeting was adjourned at 8:35 pm.

Respectfully submitted,

Chris Ranes

Chris Ranes (NS8Q)
CMARC Secretary

CENTRAL MICHIGAN AMATEUR RADIO CLUB

MEETING MINUTES

January 11, 2019

Attendance

Board Members Present:	Dan Beuchert (WX8MOJ), Carl Canfield (K8YHH), Don McLain (KB8RAD), Gregg Mulder (WB8LZG), Shannon Ranes (WA2NVK), Gordy Smith (KE8JKS)
Board Members Absent:	Michael Boensch (W8MKB)
General Members:	30
Visitors:	6

Call to Order

- Gordy (KE8JKS) called the meeting to order at 7:00 pm.
- Dan (WX8MOJ) held the Flag for the Pledge of Allegiance.

Sign-in Sheets

- Please make sure to sign the sign-in sheets circulating around the room at each meeting. One sheet for members and another for visitors. We use these sheets to keep track of how many people visit us each month.

Recognition of new CMARC Board Members

- Don, Gordy, Shannon, Dan, Carl, Gregg

Cards and Flowers Report:

- Michael Manning (N8EUQ) passed away - $40 donation sent to Hospice House of Lansing.

New Members / Visitors

- Ryan Grisdale (KE8KYE), Diane Clay / Wife of Tim Clay (KC8THC), Cheryl Davage (KD8QFE), Carl Woodard (KD8FQO), Clint Hannahs (KC8EHR), Russ McKenzie (KE8JFF)

Treasurer's Report

- Dan Beuchert gave a brief explanation of some expenses from the 2018 year. Began year with roughly $4,400 and ended with roughly $3,000. About $900 in profit from HamFest.

MOTION: *John Dornhaag (KD8NNQ) moved to accept the Treasurer's Report as published on the CMARC website, seconded by Don McLain (KB8RAD), approved, and the motion carried.*

Secretary's Report

MOTION: *Dan Beuchert (WX8MOJ) moved to accept the Secretary's Report as published on the CMARC website, seconded by Dan Dembinski (KD8YDE), approved, and the motion carried.*

New Licenses and Upgrades:

- Ryan Grisdale (KE8KYE)
- John Dornhaag (KD8NNQ) - Because of the government shutdown, all Technician licenses will not be processed until after the FCC reopens. If an applicant is upgrading to General or Extra, they can begin using their new privileges by signing /AG or /AE.
- VE testing tomorrow, 1/12/19 at Fire station #44 on Miller Road.

Interesting DX or other Contacts

- Josh Scheuneman (KE8KOI) - Received 10 meter rig for Christmas and contacted FL, GA, TX, KS, MS, PA, DE. Some on 6 meters.
- Gregg Mulder (WB8LZG) - HP1AC - Rick in Panama. He tried to make the contact with 1 watt but had to bump it up to 5 watts instead.
- Bob Crawford (K8ZAP) - 40 meters - Japan FT8

Old Business

- Gordy Smith (KE8JKS) and Michael Boensch (W8MKB) moved the items Fulton Electronics donated for HamFest from our storage area, back to Fulton Electronics.

New Business

- Club Directory - Gregg Mulder (WB8LZG) compiling next month.
- Bob Berger (K8RDN) has been mentioned several times in the public service honor roll in the back of QST magazine.
- Technician Class - Gordy Smith received emails regarding kids interested. Tom Rocheleau will begin maybe in mid to late March. Clint Hannahs willing to help. (School possibly interested.) Need to be sure we have the room and dates secured with Kevin.
- Electronics Class - Gordy Smith plans to begin the classes again.
- Ham License Mashup - John Winn checked the zip codes around Lansing for Ham Radio operators - 874. Even with silent keys, still 800 or so.
- Proposed Bylaw Changes - Dan Beuchert read the proposed changes.
    - **Proposed 6.1:**
        - The officers of The Corporation shall be president, vice-president, treasurer, and secretary, who shall be elected annually by the Board or Directors. All officers shall serve for one year, or until their successor is elected, and will be selected from the Board of Directors. Officers shall be elected at the first meeting of the Board of Directors, held after the annual meeting of the members of the corporation.
        - (Original 6.1: The officers of The Corporation shall be president, vice-president, treasurer, and secretary, who shall be elected annually by the Board or Directors. All officers shall serve for one year, or until their successor is elected. Officers shall be elected at the first meeting of the Board of Directors, held after the annual meeting of the members of the corporation. All officers shall be ex-officio members of the Board of Directors during their respective terms.)

- **Proposed 4.7:**
  - When absentee voting is in effect, the Corporation will select three members to be placed on an election committee and one officer to be the Chair. If an objection is made regarding one of the members selected, another member will be selected as his or her replacement until no objections are made.
  - (Original 4.7: When absentee voting is in effect, the Corporation will select three members to be placed on an election committee and one officer to be the Chair. These members will be selected by random draw at a meeting prior to any votes being casted. If an objection is made regarding one of the members selected, another member will be drawn at random as his or her replacement. Random draws will continue until no objections are made.)
- Lengthy discussion followed. We will publish the proposed changes more than 7 days prior to the meeting we vote at, and will open this to absentee voting. An e-mail will explain how to do the absentee voting. Must be 2019 CMARC member to vote.

- Gregg Mulder (WB8LZG) and possibly others will be here to open our club "shack" an hour prior to monthly meetings. Gregg will create a "cheat sheet"/instructions.
- Clint Hannahs (KC8EHR) asked about kids coming in and observing contests going on. The Boy Scout event we had tried to do this year, did not work out. Maybe this would be another option. The kids probably still need the communication badge. John Winn (KE8CYC) mentioned Michael Boensch (W8MKB) may have some insight for Boy Scouts. John Doornhaag (KD8NNQ) mentioned Russ Fitzgerald (N8FZ) may be helpful. Don McLain (KB8RAD) mentioned the Boy Scouts were at Field Day and HamFest in the past.
- John Doornhaag (KD8NNQ) will give the HamFest date to ARRL for VE, when decided.
- We lost our "serve safe" person and Dan Dembinski (KD8YDE) did some research. Since we are now a 501(c)3, a discount is available to us. For $140 they come in, check how food is handled, give ok, and give a 14-day certificate. Dan is willing to do leg work, pay for this year, and get this started if want to for one year. Discussion took place with ideas, concerns, options, etc. Dan was thanked for his leg work on this. ***Tabled until next month's meeting.***
- Dan Dembinski (KD8YDE) plans to smoke meats for Field Day.
- Dan Beuchert (WX8MOJ) showed the questionnaire for people to fill out during Break.
- Russ Fitzgerald (N8FZ) and Kelly Fitzgerald (K9FTZ) are planning Ladies Night (05/10/19).
- John Winn (KE8CYC) - ARPSC meeting 01/21/19. Public safety is important. Dan Beuchert (WX8MOJ) and Randy Williams (KD8MOK) working on ARPSC presentation for CMARC.

Adjournment

MOTION: *With no further business to discuss, John Winn (KE8CYC) moved that we adjourn the meeting, seconded by Dan Dembinski (KE8YDE), approved, and the motion carried.*

The meeting was adjourned at 8:30 pm.

Respectfully submitted,
Shannon Ranes (WA2NVK)
CMARC Secretary

CENTRAL MICHIGAN AMATEUR RADIO CLUB
BOARD OF DIRECTORS
MEETING MINUTES
February 2, 2019

Attendance

Current Board Members Present: Dan Beuchert (WX8MOJ), Michael Boensch (W8MKB), Carl Canfield (K8YHH), Don McLain (KB8RAD), Gregg Mulder (WB8LZG), Shannon Ranes (WA2NVK), Gordy Smith (KE8JKS),

President Michael Boensch (W8MKB) called the meeting to order at 6:35 pm.

- Shannon drew a calendar on the whiteboard so we can fill in dates as we discuss them tonight.
- Gregg Mulder suggested we cut the business meeting time to 30 minutes. May not keep new members if 1 ½ hours. Discussion took place. We will make sure everyone is aware. If someone has more to say, they can come to a Board meeting or talk with a Board member during Break. We'll let Speakers/Presenters know as well, that their presentation time is limited. In the past, Don would tell a presenter they have a certain amount of time. Discussion of having Speakers/Presenters before the business meeting, but decided to leave the order as-is. Possibly make a sign that says 15 mins, 5 mins, etc. to raise for speaker so they know their time is almost up.
- Michael received an email from SMRA in Cumberland, PA, looking for a website host. We suggested he be directed to Tom Rocheleau (WA8WPI).
- Talked about dates for a Technician Class - 3/16-5/4 or 5/11. (8 weeks or 9 weeks) We need to talk with John Doornhaag (KD8NNQ) about a special VE session 5/18 in Mason since the regular VE session is 5/11 at Fire Station #4.
- Gordy plans to teach classes: soldering, schematic, component id, 2 meter slot box. Gordy plans to piggyback and teach a class after Tom's class. Gordy needs to talk to Tom.
- Dan did not send out an email with by-laws. It will be presented at the March meeting.
- Dan looked at charitable gaming info. It may be free. We may need to put something in the by-laws.
- Michael and Dan need to go to MSUFCU and change names.

~Motion by Don, second by Michael, to have the person "closest to box" be the Post Office Designator for CMARC. All in favor. Motion passed.

- Dan working with Dennis Boone (KB8ZQZ) regarding the ListServ. Going through "Mail Man". The ListServ is still active.

- Don mentioned the Link for the ListServ needs to be updated to say "temporarily down" or something. Shannon asked Don to let Tom Rocheleau know. She mentioned the same thing Tom has said time and again, he needs to be told if something needs to be changed. If no one tells him of an issue, he may not be aware something needs to be updated/adjusted.
- Gordy would like to have a building cleaning day: Paint scraper, paint, rake, shovel, etc.
- Ideas for speakers for meetings: D-Star, DMR

  ~Steve Smith in February - Gordy will ask him

  ~ARPSC in March - Dan Beuchert and Randy Williams will present
- Dan has the surveys CMARC members filled out last month. He will scan and email to us.
- HamFest - Clyde Tompkins (K8CPT) is not interested in heading it up this year. We need a Chairperson.
- We need Chairpeople for events such as Field Day, HamFest, and Cleaning Day.

Adjournment

~ With no further business to discuss, Michael Boensch (W8MKB) moved that we adjourn the meeting, seconded by Dan Beuchert (WX8MOJ). All in favor. Motion passed.

The meeting was adjourned at 7:55 pm.

Respectfully submitted,

Shannon Ranes (WA2NVK)
CMARC Secretary

CENTRAL MICHIGAN AMATEUR RADIO CLUB

MEETING MINUTES

February 8, 2019

Attendance

Board Members Present:	Dan Beuchert (WX8MOJ), Carl Canfield (K8YHH), Don McLain (KB8RAD), Gregg Mulder (WB8LZG), Shannon Ranes (WA2NVK), Gordy Smith (KE8JKS)
Board Members Absent:	Michael Boensch (W8MKB)
General Members:	32
Visitors:	4

Call to Order

- Gordy Smith (KE8JKS) called the meeting to order at 7:02 pm.
- Dan Beuchert (WX8MOJ) held the Flag for the Pledge of Allegiance.

Sign-in Sheets

- Please make sure to sign the sign-in sheets circulating around the room at each meeting. One sheet for members and another for visitors. We use these sheets to keep track of how many people visit us each month.
- Gordy and Tim Clay (KC8THC) made a suggestion box.
- Limit meeting time to about 30 minutes. Ok to walk out if you need to leave. No one will think anything.

Cards and Flowers Report:

- 1/11- Matthew Taylor (KD8JIA) - Sent get well card
- 1/20 - Kerry Clay, brother of Timothy Clay (KC8THC) passed. Card + $40 to Sparrow Hospice
- Moment of silence

New Members / Visitors

- Mike Grossbauer (KE8LHA) - Holt - Tech class on January 12. License came about a week ago.
- Dave Held (N8CFM), Jolyon Vincent (KD8HZY), Diane Clay, Carl Woodard (KE8FQO)

Treasurer's Report

- Dan read figures for those who had not read the report on-line.

  MOTION: *John Winn (KE8CYC) moved to accept the Treasurer's Report as published on the CMARC website, seconded by John Tyree (KD8KCX), approved, and the motion carried.*

Secretary's Report

MOTION: *John Doornhaag (KD8NNQ) moved to accept the Secretary's Report as published on the CMARC website, seconded by Dan Dembinski (KD8YDE), approved, and the motion carried.*

New Licenses and Upgrades:

- Jeff Flint (N4ZKS) - General in December / Carl Woodard (KE8FQO) - General last January
- VE testing last night, 02/07/19 at Fire station #44 on Miller Road. 5 Tech, 4 General

Interesting DX or other Contacts

- Tim Clay - Belgium, Italy, Ecuador, France, Brazil
- Gregg Mulder - Trying to work DXCC with only 1 watt and worked the Madeira Islands
- Shannon Ranes - Last Man Standing on DMR

Old Business

- Did you fill out your questionnaire? Blank copies are available tonight. We don't know what you are interested in if you don't tell us.
- Club Directory - Gregg Mulder (WB8LZG) compiling next month. Make sure your information is on a sheet.
- Proposed Bylaw Changes - Dan Beuchert will give notice at least seven days prior to next month's meeting.
- Safe serve update - Dan Dembinski. Best bet is to do the one per year "event license". $145. They will come and make sure we are following everything correctly.

New Business

- Technician Class - Tom Rocheleau teaching. Plan to begin in March.
- Electronics Class - Gordy Smith - Hands on class after Tech class. People can stay after class or come even if not a part of Tech class. Try to make this more of a hand-on tweaking place.
- Slot box antenna - We're going to do class in a couple weeks. Cost about $22. May switch to a J-Pole instead. Carl suggested an omni-directional or directional antenna would really be the type most of our members would use.
- ListServ - Running into problems with new system and trying to work out bugs. About 150 names on the ListServ.
- Jolian Vincent (KD8HZY) - In process of getting GMRS license. Interest in club having GMRS repeater? Think of it like FRS.
- Ladies Night - May 10, 2019
- 2018 Ziegenbein Award - nominations before 3/15 to Chris Ranes.
- John Winn asked about lists for committees. Dan places them on the table for people to sign up on during food.

Tonight's Presentation

- Gordy Smith - told what was going to happen after the Break in his presentation.
- Dan Dembinski - showing his "GO" Box.

Adjournment

MOTION: *With no further business to discuss, Don McLain (KB8RAD) moved that we adjourn the meeting, seconded by Dan Dembinski (KD8YDE), approved, and the motion carried.*

The meeting was adjourned at 7:37 pm.

Respectfully submitted,

Shannon Ranes (WA2NVK)
CMARC Secretary

CLASSIFIEDS

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

$425
Elecraft K1 HF XCVR Kit
UNBUILT, new in box, 4-bands with backlight, extras

$225
Ten Tec Argonaut 509 QRP HF Transceiver
D104 Mic, Speaker, Nice Condition, and works fine!

$100
Astatic D104 "Silver Eagle" Mic
Excellant condition

$100
Vibroplex "Code Warrior" Iambic Chrome Paddle
Comes with Zebrawood finger pieces

$75
LDG 11 Auto Antenna Tuner
Covers HF and handles 200 watts

$75
MFJ 949 Manual Antenna Tuner
Covers HF and handles 300 watts

$45
American Morse Equip KK1 Kit Key
Unbuilt!

Ed Oxer / W8EO
eaoxer@gmail.com

$90 or Best Offer
Alinco DJ-V57T HT
Covers 2 meters and 70 cm. Radio includes a speaker mic and car battery charger. It runs 5 watts max and has 200 memories.

Gregg Wesley / KD8PA
(517) 614-6573

Aluminum Tubing, Masts, and other odds and ends for antenna building.

Ed Hude / WA8QJE
Cell: (517) 420-7550

$300
Icom ID-880H
Covers 2m/440 - FM/D-Star. It is brand new with programming software and cable. Excelle nt condition!

Greater Lansing Nets

The **"Central Michigan Slow Scan TV Net"** meets every Sunday evening from 7:00- 8:30pm on the 145.39 repeater (PL 100 Hz), with Net Coordinator Carl Canfield/K8YHH. EVERYONE is welcome to join in and have fun learning and using this interesting and useful mode of communication. Other digital modes will be explored from time to time. For more information, call Carl at: (517) 755 6627.

The **"Quarter Century Wireless Association Net"** also meets every Tuesday night but at 8pm and on the 146.70 repeater (PL 107.2 Hz), with Net Coordinator Don Tillitson/WB8NUS.

The **"Mid-Michigan Information & Trader's Net"** meets every Wednesday evening at 7:00pm on the 145.39 repeater (PL 100 Hz), with Net Coordinator Clyde Tompkins/K8CPT.

The **"MSUARC Friends and Info Net"** meets every Thursday evening at 7:00pm on the 145.39 repeater (PL 100 Hz), with Net Coordinator Gregg Mulder/WB8LZG. The first half of the net is time for chatting, while the second half is for Morse Code practice. If you wanted to learn Morse Code, but didn't know how to go about doing it, then please join us. The speeds are kept down to a minimum, to make it easier to learn.

ALL are welcome on these nets, so be sure to check in to show your support. And as with all Nets, 3rd party check-ins are welcome, but must have Control Operator present at check-in time.

CMARC Officers and Appointees

President
Michael Boensch, W8MKB

Vice President
Gordy Smith, KE8JKS

Treasurer
Dan Beuchert, WX8MOJ
wx8moj@arrl.net

Secretary
Shannon Ranes, WA2NVK
wa2nvk@gmail.com

Under 22 Director
Don McLain, KB8RAD
(517) 930-7707

Director
Carl Canfield, K8YHH

Director
Gregg Mulder, WB8LZG

Cards & Flowers
Jane Hosford, KC8FSK
(517) 515-7610

Club Contact
Don McLain, KB8RAD
(517) 930-7707

Club Historian
William Cote, WD8NYW

Antenna Projects Chairman
Gregg Mulder, WB8LZG

Lansing ARPSC Liaison
Jim Hannahs, KC8QWH

Scope Editor
QSL/Awards Manager
Chris Ranes, NS8Q
kc8caj@gmail.com
cmarcscope@gmail.com

Photographer
Kenneth Hazlett, N8BVV
(517) 348-5513

CMARC Calls: W8MAA & W8PLP

LCDRA Officers and Appointees

President
John Imeson, N8JI
(517) 449-1517

Vice President
Don Tillitson, WB8NUS
(517) 321-2004

Secretary
Ron Harger, WD8BCS
wd8bcs@arrl.net

Treasurer
Jeff Oberg, KB8SXK

Director
Jan Bradfield, KC8BFK
(517) 202-1779

Director
Don McLain, KB8RAD
(517) 930-7707

Director / Membership Chair
Michael Boensch, W8MKB

Repeater Trustee
Dennis Boone, KB8ZQZ

LCDRA Call: W8BCI

The Scope is a bi-monthly joint publication of The Central Michigan Amateur Radio Club and the Lansing Civil Defense Repeater Association. Please send all articles, classified ads, or other Information to the editor, Chris Ranes, NS8Q, at **cmarcscope@gmail.com**. **The deadline for each issue is midnight on the 20th of the preceding month**.

Central Michigan Amateur Radio Club
W8PLP/W8MAA
Membership Form

For <u>new</u> CMARC applicants: Please complete all sections.

For <u>existing</u> 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').

Daniel Beuchert | PO Box 27275 | Lansing, MI 48909-7275

Membership Type ☐ New ☐ Renewal

Full:	☐ Annual Dues: $20.00	*Includes voting rights and an annual subscription to The Scope.*
Associate:	☐ Annual Dues: $5.00	*Includes an annual subcription to The Scope but NO voting rights.*
New Licensee:	☐ Annual Dues: 1st Year Free	
Under 18:	☐ 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:** ☐ **Yes** ☐ **No**

Note: Email is used by club officers to communicate club business and may appear in the club directory for use by club members. <u>CMARC does not share/sell contact information to other parties.</u>

Club Communications

Newsletter Preference *(select only one option)*

☐ I will download from the web site.

☐ Please mail to my address *(Note: Direct mailing increases postage costs.)*

ARRL Affiliation ☐ I am an ARRL member

Revised 1/9/18

Lansing Civil Defense Repeater Assocation
Membership Form

For <u>new</u> LCDRA applicants: Please complete all sections.

For <u>existing</u> 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

☐ **New** ☐ **Renewal**

Full: ☐ Annual Dues: $15.00 *Includes voting rights and an annual subscription to The SCOPE.*

Family Mbrs: ☐ Annual Dues: $7.50 ea. **No. of Family Members:** _____

ARRL Affiliation ☐ I am an ARRL member **Membership Card** ☐ 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: _____

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>

Revised 10/3/18

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

STAMP

To:

Activities Calendar

Date	Time	Event	Place
3/2/2019	6:30 PM	CMARC Board Meeting	The Club Station in Mason
3/8/2019	7:00 PM	CMARC Meeting	The Club Station in Mason
3/9/2019	11:00 AM	VE Session	Lansing Fire Station #44
4/4/2019	7:00 PM	VE Session	Lansing Fire Station #44
4/6/2019	6:30 PM	CMARC Board Meeting	The Club Station in Mason
4/12/2019	7:00 PM	CMARC Meeting	The Club Station in Mason
4/13/2019	10:00 AM	SkyWarn Training	Foster Community Center in Lansing
4/15/2019	7:00 PM	ARPSC Meeting	Lansing Fire Station #48
4/18/2019	7:00 PM	LCDRA Meeting	Lansing Fire Station #48
5/4/2019	6:30 PM	CMARC Board Meeting	The Club Station in Mason
5/10/2019	6:30 PM	CMARC Ladies Night / Ziegenbein Award Banquet	Tony M's in Lansing
5/11/2019	10:00 AM	Technician License Class 8	The Club Station in Mason
5/11/2019	11:00 AM	VE Session	Lansing Fire Station #44
5/11/2019	1:30 PM	VE Session	The Club Station in Mason
6/6/2019	7:00 PM	VE Session	Lansing Fire Station #44
6/8/2019	6:30 PM	CMARC Board Meeting	The Club Station in Mason
6/14/2019	7:00 PM	CMARC Meeting	The Club Station in Mason
6/21/2019	5:00 PM	Field Day Loading	The Club Station in Mason
6/22/2019	11:00 AM	VE Session	Rayner Park in Mason
6/22/2019	2:00 PM	CMARC Field Day	Rayner Park in Mason