



W8KEA

MARC



MIDLAND AMATEUR RADIO CLUB
PO BOX 1049, MIDLAND, MICHIGAN 48641
www.w8kea.org

President	John Wolters W8QN	(989) 832-9122
Vice President	Mark Murray W8MGM	(989) 513-7174
Secretary	Linda Hodges KC8MUD	(989) 835-7746
Treasurer	Larry Macklin N8CGP	(989) 631-7748
W8KEA Station Trustee	Larry Macklin N8CGP	(989) 631-7748
Midland County EC/RO	Al Bailey, KA9WCS	
Midland County AEC	Chris Rose KB8UIH	(989) 832-7179
Newsletter Editor	Pat Mullet KC8RTW	(989) 828-6657
Newsletter Publisher	Art Peters KOACP	(989) 400-3745
ARRL Liaison	John Tallman KB8PGW	(989) 859-0364
ARRL VE Liaison	Dennis Klipa N8ERF	
Web Page Chairman	John McDonough WB8RCR	(989) 631-0178
Club Historian	Stan Rowe K6VWE	(989) 837-7252
Quartermaster	Lee Hodges KC8ITI	(989) 486-3771
Public Information Officer	Pat Mullet KC8RTW	(989) 828-6657
Field Day Committee	John Tallman KB8PGW (Ch)	(989) 859-0364
	Pat Mullet KC8RTW	(989) 828-6657
Swap Committee	Pat Russell W8PMR	(989) 832-2924
	Chuck Cribley WA8LQD	(989) 488-9409
	Keith Johnson KB8SOE	(989) 488-4337
	Pat Mullet KC8RTW	(989) 828-6657

LIFE MEMBERS

Don W8WOJ, Lee KC8ITI, Dennis N8ERF, Larry N8CGP, Denny WD8BPT, John WB8RCR

Midland County Public Service Net, Thursdays at 9 PM
W8KEA Repeater — 147.000 MHz+ PL 103.5 • W8QN Repeater — 443.325 MHz+ PL 103.5
W8KEA Digipeater — 145.090 MHz

Next ARES®/RACES Meeting — Thursday, May 4, 2017, 6:00 PM
Law Enforcement Center, 2727 Rodd St.
Midland ARC Meeting — Thursday, May 4, 2017, 7:30 PM
Salvation Army Bldg, 330 Waldo Ave.
Talk-in 147.000+

May 2017

Static Discharge

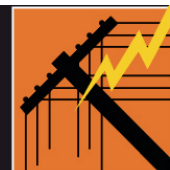
John Wolters, W8QN

Well, the April meeting has come and gone and I could be found in Missouri once again. Being the Club's President, I hate missing club activities but these family situations took priority. I will do my darnedest to make the May meeting. You would think that my travels would allow me some radio time with my mobile setup, but alas, I have recently replaced my RAV4 with a new vehicle and have not had time to transfer radio equipment. That and the XYL is frowning on some of my equipment placement, so this may take a while. If you have any suggestions on where to place radio equipment in a Toyota Highlander, send me an e-mail.

The Michigan QSO party was this past weekend (Apr 15/16) and unfortunately I was not able to participate. Sure would like to hear how you may have done if you were active.

Like other Hams in Michigan I have been watching HB 4466, a bill often referred to as a "Distracted

**When all else fails...
...Amateur Radio!**



Driving Bill” for Michigan. It has been submitted to the Transportation Committee with wording that specifically excludes amateur radio operation from a vehicle from being considered as distracted driving. We will see if that wording remains. Many other things are happening but there’s not enough room for me to touch on them.

If you would like to get a copy of the newsletter but I don’t have

your e-mail address, please send me an e-mail to w8qn@arrl.net asking me to add you and I will. You do not have to be a member of the club. I’ll send a copy of the newsletter to anyone that is interested.

We are moving into the busy part of our year with lots of opportunity to use your amateur radio skills to assist.

April 29th – MS walk. Chris Rose, KB8UIH is looking for helpers.

April/May – Jr. High and High School balloon launches and re-

covery. An excellent opportunity to practice direction finding skills (fox hunt). Contact Dennis Klipa N8ERF for details

May 20th – Dow Run. John Wolters, W8QN is looking for helpers. Let me know if you can work by sending an e-mail to w8qn@arrl.net.

Field Day June 24/25.

Take time to enjoy those around you. Hope to see you in May.

John Wolters, W8QN

MARC MEETINGS

Mark Murray, W8MGM, is in charge of special events and topics for the MARC monthly meetings. If you have any agenda items, or topics for the meetings, please contact Marc at (989) 513-7174, or via e-mail: mark.g.murray@icloud.com.

COMMUNICATIONS

Pat Mullet, KC8RTW, is in charge of communications and publicity for the club. If you have any questions or ideas regarding these areas, please contact Pat at kc8rtw@arrl.net.

EXAMINATION SCHEDULE

Saginaw - All future VE testing will be done on an appointment basis only.

Corunna - Contact Thomas Carpenter (517) 579-0599 ki8as@charter.net.

Bay City - All future VE testing will be done on an appointment basis only.

Isabella/Clare Counties - Contact Gus Glass, K8GUS at k8gus@arrl.net

With all examinations, your original license, a copy of that license, a second photo identification (drivers license, etc.) and a check or money order for \$15.00 made out to “ARRL/VEC” are required.

The address listed below gives testing sessions scheduled for Michigan. <http://www.arrl.org/arrlvec/exam-search.phtml?State=MI>

SUBMISSIONS FOR NEWSLETTER

Contact Pat Mullet, KC8RTW at kc8rtw@arrl.net if you want to submit anything for the newsletter.

I need your items by the 15th of the month. Anything received after that may not make it into the newsletter for that month.

If you prefer to download the MARC newsletter from our web site, or have trouble with delivery via USPS, contact John, W8QN at w8qn@arrl.net.

MEDIA HITS!

Have you seen or heard mention of the Midland Amateur Radio Club in the news or in the paper? If so, please forward it, or mention of it to either Pat, KC8RTW (kc8rtw@arrl.net) or John (w8qn@arrl.net)

MARC Minutes

Linda Hodges, KC8MUD

Martin, W8MGM brought the meeting to order at 7:35 pm with 27 guests and members present. A sign-in sheet was passed around and introductions were made. The Dow Run sign-up sheet was also passed around.

Please bring any corrections or additions to the minutes to the attention of the secretary Linda, KC8MUD.

- Presentation — Dennis, N8ERF — Dennis gave an interesting power point presentation all about fox hunting and the High School Club balloon launch. The launch date is set for April 29th with a rain date set for May 6th. Dennis wants members to know that the MS Walk takes priority for helpers. Dennis also gave an overview of both the High School and Middle School clubs and some of the projects they are working on.

- Transmitter—Will, K8VFO — Will explained the finer points of a VHF Digital Transmitter.

- Balloon launch—Dennis, N8ERF— Dennis continued discussion about the Balloon Launch and the assignments necessary to carry it out. He also sent a sign-up sheet around for volunteers to help with lift off and recovery. If you would like to be part of this team please contact Dennis.

- Treasurer’s Report —Larry, N8CGP—Thank you to all who have renewed their club membership.

- The Cadillac Hamfest is on Sat. May 6th. Doors open at 8:00 am at the Cadillac High School.

- ARES®/RACES — Al, KA9WCS— Al was put on standby for assistance in case of possible flooding in the Midland area.

- MS Walk – Midland’s annual MS Walk will be held on April 29th. Volunteer to help if you can.

Net Control:

April 13th Al, KA9WCS

April 20th TBA

April 27th John, W8QN

- June Activities—Dennis, N8ERF— No word on the Swap or Field Day.

- Special Event Station— John, WB8RCR— In celebration of the 100th anniversary of the Michigan State Police there will be an event station on ARES/MSP 100 on April 22nd and 23rd.

A motion to adjourn made by Larry, N8CGP and seconded by Lee, KC8ITI.

The meeting ended at 8:45 pm.

Respectfully Submitted,
Linda, KC8MUD
MARC Secretary

Amateur Radio is a Contact Sport!

My Two Cents

Pat Mullet, KC8RTW

I spent part of last Saturday dabbling in the 2017 Michigan QSO Party. I fired up my radio in the afternoon, and found that I couldn't tune my G5RV up on 20 meters. My sister and I have been doing some work in the back yard, and at one point I dislodged the electric fence-post insulator I was using to keep the 400 Ω ladder line away from the porch. My sister did me a "favor" and hooked the transmission line over a protruding screw. Thinking that this was the cause of my troubles, I reinstalled the insulator and tried again. I still couldn't tune on 20, but 40 and 80

seemed viable, even if conditions were lackluster, to put it mildly.

I spent three to four hours running up and down the bands, picking up a couple of new counties, but after 30 contacts and way too much time listening to the same stations on every sweep, I pulled the plug. As soon as I get some free time, I'll have to do a closer inspection of my feedline and do some updating of the insulators holding it away from the porch's aluminum soffit.

Hope to hear you on the air!

73, Pat, KC8RTW

March 25th VE Session Report

The Midland ARC sponsored an amateur radio licensing session on Saturday, March 25th. All eleven candidates sitting for their exams were successful in either receiving new grants or upgrading.

New Tech Class: Gerald Stackpole, KE8GPX, Essexville; David Reis, Minot, ND.

New or Upgraded General Class: Mark Li, KW8MDL, Midland ("KW8" is not a typo); Terrance Bruner, KE8EOS, Standish; Cody Wright, WA8ZZM, Midland (Grandson of Tom Fath-SK,

WA8ZZM) Ryan Collier, KE8GPV, Midland; Paul Morabito, KE8FJA, Midland; Deborah Cuthbertson, KE8EOX, Midland; Jack Robinson, K8GTG, Midland; Bruce Holden, KE8GPW, Midland; Raymond Garety III, KE8EAJ, Bay City.

New or Upgraded Extra Class: None.

Best Regards,
Dennis, N8ERF
MARC VE Liason

ARES®/RACES

Al Bailey, KA9WCS

We had a great session at our last ARES®/RACES meeting, practicing with our handheld and portable radios. We went outside and practiced changing frequencies manually on an established net. We will continue to develop and strengthen skills at our next meeting. Plan on bringing your handheld radio and come to the Law Enforcement Center May 4th at 6 pm. In the future, we will practice using some of the County emergency radio equipment. So come out with us, as we start practicing our skills in service to the com-

munity.

Special thanks to many of our members who were able to support our query on availability for flood watch. The Emergency Management coordinator told us we might be needed for some monitoring of rising river levels due to rains in early April. We were able to muster 9 people who were available if asked. Thank you! It shows how we are willing to step up if and when we are asked to help our community.

With the warmer weather comes the joy of being outside,

Upcoming Events

4/29	MS Walk
4/29	MHSECC Balloon Launch
5/20	Dow Run
6/3-4	Museum Ships Weekend
6/24-25	Field Day
7/7-8	Section Outing @ Lupton

Michigan Hamfests

4/22	Chassell
5/6	Cadillac
6/3	Hudsonville
6/4	Chelsea
6/10	Newberry
6/18	Monroe
7/22	Shelby Township
7/22	Harrison
7/29	Lansing
8/5	Escanaba
8/13	Port Huron
8/19	Alpena

Area Nets

SVARA; Mn, 147.24 MHz, 2100 ET
Gladwin; Tu, 147.18 MHz, 2000 ET
BARTS; Tu, 145.31 MHz, 2100 ET
Canadian Lks, Wed, 146.8, 2100 ET
Edmore, Th, 146.8, 2000 ET
MARC; Th, 147.00 MHz, 2100 ET
District 3 ARPSC; Su, 145.31 MHz, 1830 ET
Mi VHF Trffc Net; MWF, 145.15 MHz, 0900 ET
TMMTN; Mon-Sat, 147.30 MHz, 2130 ET
MACS; Sun-Sat, 3953 kHz 1100 ET
MIARPSC; Su, 3932 kHz, 17:00 ET
UPN; Sun-Sat, 3920 KHz, 17:00 ET
MITN; Sun-Sat, 3952 kHz, 1800 ET
QMN; Sun-Fri, 3563 kHz, 1830 & 2200 ET
WSSBN, 3932 kHz, 1900 ET
UP-ARES; Fr, 3932 kHz, 1930 ET
GLETN; Sun-Sat, 3932 kHz, 2030 ET
SEMTN; Sun-Sat, 145.33, 2215 ET
MIDTN - 1900 local Tu, Th, Sat 3.583
+waterfall, Oivia 8/500

MARC MERCHANDISE

T-Shirt	S- XL	\$10
	2X - 3X	\$12
Long-Sleeve Tee	S- XL	\$12
	2X - 3X	\$15
Crew Sweatshirt	S- XL	\$18
	2X - 3X	\$20
Hoodie	S- XL	\$24
	2X - 3X	\$26
Zipper Hoodie	S- 3X	\$30
Winter Coat	S- XL	\$42
	2X - 3X	\$45
Spring Jacket	S- XL	\$32
	2X - 3X	\$35
Hat		\$10

All garments are royal blue with white print and embroidered name and number. Extended sizes available.

Please call Bill Lee at B&C Sportswear with questions @ (989) 839-4537.

evening walks, and fun radio events. After all, who doesn't like being outside in the weather, helping with some of the many events

available? Step up and take the step of saying yes, to help when we call. You will have a great time serving and helping. In doing

this, you speak volumes about our club and the hobby at large.

73, Al

Volunteers Needed for Dow Run

The annual Dow run is scheduled again this year on the 3rd Saturday of May. (May 20th and yes I know it conflicts with Dayton).

I will again be coordinating the amateur radio operators that volunteer to help cover the race course. If you are interested in helping, please send me your information via e-mail. (w8qn@arrl.net). Your

time commitment is from 7 am in the morning until around 11 am. I you cannot give up that much time, please let me know and I will adjust to your schedule. If you do not have a handheld radio, we can provide you a loaner club radio. No experience, we can pair you with an experienced ham. And you get a free T-shirt for your time.

You do not have to be a member of the Midland Amateur Radio Club to join, just shoot me an e-mail. The more hams that volunteer the easier it is to coordinate the race. I could use 75 or more volunteers.

Please let me know your availability and hope to see you there.

John Wolters, W8QN

Contesting Calendar

Art Peters, KOACP

Sex, politics, religion, and grounding are among those topics that are sure to get everyone stirred up into a frenzy.

This month, I'd like to discuss the need and benefit of a good station ground(s). Unfortunately grounding is one of those terms that is already overloaded and carries multiple meanings which is guaranteed to confuse most everyone at some time in their ham career. The first type of grounding is the chassis ground, this is a safety ground and ensures that our radios and other shack gear are all connected to our electrical ground to protect us in case of any faulty wiring.

It is provided by that third prong of our 110v outlets and is connected via our house wiring to our main electrical ground, at least when the house is wired according to code. Everyone should have this covered. The next type of grounding is lightning protection. This usually takes the form of a "Single Point Connection" or SPC, that is at the entrance to a shack and is a place where all antenna lines are connected through a series of lightning arrestor(s) tied

to a low impedance path to a ground rod(s). (While I am not a licensed electrician, I can state that the National Electric Code (NEC) calls for this ground rod to be tied to or bonded to the same ground rod used for the houses' electrical service.) Lightning grounding provides protection from direct lightning strikes, as well as minimizes impact from Electro Magnet Pulse (EMP) associated with nearby lightning strikes. Many of the current lightning arrestors, in addition to providing protection from electrical pulses, also have large resistors that bleed static charges off of antennas. Bleeding off the static charges has two primary benefits to the ham. First, by bleeding off the build-up of static charges, antennas are less likely to be struck by lightning than unprotected antennas. Second, the bleeding of static charges reduces background noise and makes it possible to hear weaker signals. In my case, I dropped the noise level of my antenna by an average of 1.5 - 2 S-units when I installed my lightning arrestors. In fact, the first time that I noticed this

change, I thought that something had gone wrong with my transceiver as the background noise had fallen off by such a great margin.

The three big names in lightning arrestors are Polyphaser, Alpha-Delta, and Array Solutions. Within the ham community Polyphaser and Alpha-Delta are likely the leading vendors. While DX Engineering and HRO are some of the distributors for Polyphaser, Array Solutions sells their own brand of arrestors. (Array Solutions are based off of the old Industrial Communication Engineers — ICE — design which is also manufactured by Morgan manufacturing.) All of these are available off the Internet and can easily be installed in an afternoon.

Whether you have a full-blown antenna farm or an aspiring ham with a wire dipole, please be safe and install adequate lightning protection.

Till next month, 73, es God Bless,
Art/KOACP

It's Not Your Grandfather's Amateur Radio!

4

Club Log is Now a LoTW Trusted Partner

(ARRLWeb—04/03/2017) [Club Log](#) has become the first logging service to achieve Trusted Partner™ status for Logbook of the World® (LoTW), ARRL and Club Log have announced. Radio amateurs holding LoTW “[callsign certificates](#)” who have uploaded logs to Club Log now can readily cross-post them to the highly secure LoTW —world’s largest repository for confirming Amateur Radio contacts.

The Trusted Partner program defines the requirements for an online service to store user cre-

dentials with acceptable security. All LoTW users, whether or not they work through Club Log as a Trusted Partner, are responsible for ensuring the security of their credentials. Individuals who rely on a Trusted Partner site for security have met the requirement to keep LoTW their credentials secure. Users who allow their callsign certificates to be compromised or who knowingly exploit compromised credentials may lose the privilege of using LoTW and participating in ARRL-sponsored award programs.

Club Log has implemented security at the level required by the Trusted Partner program, as verified by ARRL’s Information Technology Department. Trusted Partners are re-verified periodically to remain in the program. [More information](#) on technical specifications and on current Trusted Partner program members is available on the ARRL website.

Other logging sites are invited to join the program by implementing the Trusted Partner standard.

Announcing A New Net In Town!

(ARRLWeb—4/4/2017) Beginning on Friday, April 14th at 12 noon EDT, or 1600 Z, a new net will be hitting the air waves on the W8IRA Independent Repeater Association Link system. It will be called the IRA Link System Michigan Noon-time Roundup Net.

The net will be held on Monday, Wednesday, and Friday each week, with the possibility of expanding to a five-day schedule if interest and participation are sufficient. So, find a link near

you, and please join us!

The purpose of the net is to promote activity on the IRA Link System, and also to help identify and trouble-shoot any problems that might be occurring with system repeaters.

The net also will be a great way for Michigan hams to communicate with each other during the mid-day hours while mobile, or just looking for conversations with fellow hams.

If you have any questions, or would like more information,

please contact Tom Behler: KB8TYJ, the Net Manager. He can be reached at: tombehler@gmail.com

If you would like more information on the Independent Repeater Association (IRA) Link System, go to: www.w8ira.org

We look forward to your participation in this new and exciting ham radio activity!!

Larry Camp, WB8R
ARRL Michigan Section Mngr
wb8r@arrl.org

Technical Topics and Information

(ARRL Contest Update — Mar 22, 2017) Jose, CT1BOH, has been refining a technique he's developed for super high rate two radio operation which he's calling "Two Bands, Synchronized, Interleaved, QSOs." According to Jose, 2BSIQ is a technique that derives its success by using fixed time intervals for each phase of a QSO, and controlling the relationship of one radio's stream of QSOs to the other. [His presentation on this](#)

[technique](#) explains the evolution of this technique from its roots in SO2R and multi-single operation, and how the operating stricture provides its advantage. He also offers some insights on how the technique might be able to be used from targeted locations to challenge the 2000 EA8BH SOAB record, even in this time of reduced propagation. There is an abundance of information to digest in this presentation, and the

data and strategic insights could help others improve efficiency in other entry categories.

♦ USB 3.0 devices and cables have the possibility of radiating across a wide range of frequencies from LF to beyond 7.5 GHz. [This Intel paper](#) discusses the specific case of USB 3.0 interference to 2.4 GHz band devices, but contains information on USB 3.0 radiation characteristics and potential ways to mitigate that ra-

Explore the World with Amateur Radio!

diation. (Jim, K9YC, via [RFI Mailing list](#))

♦ The [March 2017 issue of the Northern California Contest Club's The Jug](#) (PDF), provides a peek inside the high-power-capable 4O3A 80 meter bandpass filter. According to Gary, NA6O, "For \$500 you get a first-class piece of radio hardware from someone who clearly knows what he is doing and knows how to build it right."

♦ Side-mounting an antenna to an existing tower can be a way to get another antenna off the ground without adding a new tower. Last year [VE3VN published a review of various techniques](#) for side-mounting beams. [KF7P Metal-](#)

[works has a design](#) that works with many Rohn towers, and can handle up to 100 pounds. Paul, K7PN, is also [known for providing custom side mounts](#) for rotators and beams. [Texas Towers represents Rohn and WA9IIX side mount products.](#)

♦ [PwnToOwn 2017](#), sponsored by Zero Day Initiative, recently concluded in Vancouver. [PwnToOwn](#) involves teams competing to find methods to exploit web browsers or sandbox environments for escalated access to the underlying operating system. Successful exploits, if used for nefarious purposes, can enable malware installation merely by visiting a webpage. By finding exploits in

the competition, they can be mitigated by software manufacturers before malware authors can use them. This year, over \$800,000 in cash prizes was awarded for unique, impactful, or innovative exploitation methods. In several cases the individual bounty for an exploit exceeded \$100,000.

♦ Al, W6LX, has put together a [K3 AGC White Paper](#) (PDF) describing how the AGC system on the Elecraft K3 works, and how changes in various settings affect the AGC.

♦ IKEA furniture + Makers = Personalized Maker Space! An IKEA Husar cabinet is being used by one enthusiast to [contain an impressive electronics workspace.](#)

More Technical Topics and Information

(ARRL Contest Update — Apr 5, 2017) Joel, W5ZN, has published a paper comparing two vertical array antennas for receiving on 160 meters, [available at his website](#). He found the Broad Side End Fed (BSEF) 8 vertical array comparable to the HiZ-8 vertical array in performance, and prefers either array over his Beverage antennas. Joel describes the construction of his BSEF antenna in another paper co-authored with Frank, W3LPL, and Bob, N4HY, that is also available on his website.

♦ Ed, KL7UW, has been a participant with the ARRL Experimental Group as WD2XSH/45, authorized for experimental operation on 600 meters, 495-510 KHz, and also 472-478 KHz. With the 630 meter and 2200 meter amateur bands getting closer to reality, I asked him about his experiences and the kinds of antennas it takes to be reasonably successful. Ed's opinion is:

"472-479 KHz is a small band, so narrow-band modes will be desirable. There will probably be no voice or wide-band digital. 600 meters is much like 160-meter propagation but offers a lot

of interest for those interested in weak-signal work such as WSPR. I expect a lot of articles and new books to be forthcoming on "getting on 630 meters". To get a signal on 630 meters will require separate receive and transmit antennas. I suggest a Flag (rectangular loop) for receive, and top-loaded vertical for transmitting. The larger you can make them the more efficient they can be. I use a 43 foot high by 122 foot long inverted L, but a 43 foot vertical wire with four 30 foot long horizontal wires at right angles on top (a loading hat) will load the same as my inverted L. The higher the vertical wire can be, the better. Short verticals, and that means anything under 500 feet which is a quarter wavelength, need top loading (capacitance) and base loading (inductance). The simplest coil form for a base loading coil is a plastic bucket. These antennas need high voltage insulators as the RF voltages can be huge even with 100 W from the transmitter.

"If you have a tower of 40+ feet that can be loaded as a folded monopole, you can run a wire parallel to the tower spaced about

a foot away with a base coil at bottom which is fed by coax at a tap. The tower is assumed to be grounded and coax shield ties to the tower base. Top of wire is tied to top of tower with a short conducting strap (aluminum or copper). An advantage of the folded monopole is that it has a higher natural impedance (like half a folded dipole) that raises the feed impedance and in turn raises efficiency.

"Any vertical antenna will need radials, as long as you can manage. They will also be short compared to a quarter wavelength at the transmit frequency.

"My inverted L's impedance is $Z = 0.8 - j686$, so it takes a huge coil to make it resonant. My 100 W of transmit power results in an ERP (effective radiated power) of about 3 W or EIRP (effective isotropic radiated power) of 5 W.

"Your receive capability will be determined in large part by your local noise. If you do not have a 500 KHz capable receiver, you can check the noise floor on 160 meters and 80 meters. If they are quiet enough for you to copy signals then it might be fine on 630 meters. I get S-5 noise on 80

meters with my inverted V using my Elecraft K3. Noise on my inverted L using the [SDR-IQ receiver](#) is about -112 dBm to -95 dBm (equivalent to about S-5 if -73 dBm is S9). The use of a small loop for receive can help reject noise, but requires a preamplifier. Small loops are only used for receiving."

♦ An EETimes contributor [reviewed the relatively inexpensive CSI Premier soldering station](#). He even took it apart.

♦ Electrons may have stranger

behavior than most of us thought. [Elektor Magazine describes an experiment by the University of Kansas](#) that seems to show that electrons can move from the top layer of a three-material "sandwich" to the bottom layer, without traversing the layer in the middle. Theoretical physicists seem to think that this is okay.

♦ Your next homebrew QRP transceiver might want to include a CW decoding function. Here's a [CW decoder based on the ubiquitous Arduino processor](#), with

source code so you can experiment with it.

♦ [QRP Labs is offering](#) the 630 meter and 2200 meter versions of their Ultimate3S WSPR Beacon Transmitter for only \$25 each for the entire month of April. Remember, while the special offer is open to all amateurs worldwide, US amateurs are not yet authorized to transmit on these bands.

MARC Vital Statistics

KC8TQS

Memberships Expiring in April

KD8HIH

KE8DOP

AG8B

Memberships Expiring in May

KE8CTI

KE8DON

WN8QGV

Memberships Expiring in June

KB8UIH
N8KRL

NX8A
W8LSS

WA8KJR
WA8Y

WB8FYR
WD8AXR

WD8ODG

Members in Good Standing

AC8QF	KA8ORL	KC8ITI	KD8MRB	KE8EOX	N8CGP	W8PMR	WB8FYR
AG8B	KA9WCS	KC8MUD	KD8QAM	KE8FIX	N8ERF	W8QN	WB8RCR
K6VWE	KB8AWE	KC8RTW	KD8QXK	KE8FIY	N8JBW	W8WOJ	WD8AXR
K8AVJ	KB8PGW	KC8TQS	KD8QXL	KE8FIZ	N8KRL	W8ZSX	WD8BPT
K8RI	KB8SOE	KD8HID	KE8CTI	KE8FJA	N8LBF	W8ZSX	WD8ODG
K8VB	KB8UIH	KD8HIH	KE8DON	KE8FJB	N8NGT	WA8KJR	WN8QGV
K8VFO	KB8VSS	KD8IWB	KE8DOP	KE8FJD	NX8A	WA8LQD	
KA8Ezt	KC8IHB	KD8MMH	KE8EOW	KE8GEM	W8LSS	WA8Y	

Current Active Club Membership 62

Birthdays Celebrated in April/May

KC8TQS 4/9	WA8LQD 4/27	KC8KOC 5/5	KD8ULA 5/18
KC8SRT 4/11	KD8HIC 4/27	KD8QAM 5/5	KC8MUD 5/19
KB8TBI 4/14	KA8Ezt 4/28	KE8DON 5/9	K8CCE 5/20
KD8CUX 4/17	KD8MQX 4/28	KC8YHQ 5/11	WD8AXR 5/25
N8KFE 4/18	W8CVZ 4/28	KD8FSI 5/12	WD8SDX 5/27
KC8IHB 4/19	N8JBW 4/30	KD8MRC 5/12	
KD8OLC 4/20	KE8CTI 5/1	KD8MQZ 5/18	

Anniversaries Celebrated in April/May

WD8OEU and Grace 4/17	KB8QWQ and Kate 5/16
AC8RT and Julie 4/26	KD8EUR and Julie 5/17
KD8OLC and Lori 5/14	

Information is from data received 3/20/2017

Any corrections or questions contact Larry, N8CGP

Amateur Radio. . . We Do That!



Pat Mullet
Newsletter Editor
171 E. Orchard Ave.
Shepherd, MI 48883

If you desire to join the Midland Amateur Radio Club, the dues are \$20 per year for an individual membership. A family membership is available for an additional \$5 per year which covers all of the individual's family members. Family members must reside at the same address as the primary member to be eligible for the family member rate. The membership dues help to cover the operating expenses of the Club, and its radio systems. Membership includes Autopatch privileges on the W8KEA repeater (147.000+), voting privileges at MARC meetings, and a monthly newsletter. Please supply the following information:

Name: _____ Callsign: _____ License Class _____
Address _____
City _____ State _____ Zip _____
Home Phone (____) _____ Work Phone (____) _____
E-mail address _____
Spouse: _____ Callsign: _____ License Class _____
Birthday: (mm/dd) _____ Anniversary: (mm/dd) _____
Desired newsletter format: Paper copy via USPS _____ or via e-mail _____

Are you an ARRL Member? Y/N Do you want an ARES Application? Y/N

We request this information so we can communicate with you regarding MARC business, and periodically send you newsletters and congratulatory birthday & anniversary greetings. We do not sell this information nor will we knowingly publicize private information without your permission. Information that is publicly available may be distributed to Club members for various purposes, including membership lists, without prior notification.

You may give this completed form to the MARC treasurer, or you may mail it to:

MARC, PO Box 1049, Midland, MI 48641-1049