



W8KEA

MARC



MIDLAND AMATEUR RADIO CLUB
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	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 February 5, 2015, 6:00 PM

Law Enforcement Center, 2727 Rodd St.

Next CLUB Meeting — Thursday February 5, 2015, 7:30 PM

Salvation Army Building, 330 Waldo.

Talk-in 147.000+

February 2015

Static Discharge

Kevin Martin, KD8QAM

Keeping warm and inside is a priority in these cold months. I hope everyone is finding time to get on the air. I have been working on a few small projects out in the garage, but my fingers end up going numb before I can finish. See you at the next meeting.

Kevin KD8QAM

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



"Another year over. And a new one just begun..."—Happy Christmas (War is Over), John Lennon

I know it sounds cliché and trite, but where does the time go? Last year seemed so busy. We had the ARRL Centennial QSO Party and the Points Challenge, our own public service events, the MARC

MARC MEETINGS

Mark Rodgers KC8GRQ, 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 Mark at (517 672-1060), or via e-mail: kc8grq@yahoo.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@arrrl.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@arrrl.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.arrrl.org/arrrlvec/exam-search.phtml?State=MI>

SUBMISSIONS FOR NEWSLETTER

Contact Pat Mullet, KC8RTW at kc8rtw@arrrl.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@arrrl.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@arrrl.net) or Kevin (cherryredirocz@sbcglobal.net)

Hamfest and of course, Field Day—it seemed as if there was something going on every week of the year.

For various reasons, I missed out on the Hamfest last year, and ended up participating in Field Day from my home QTH. While operating from home may be more comfortable than "roughing it" with everyone else, it also doesn't bring out the excitement, the fun, or the competition to make as many contacts as possible. And I have to confess, I miss being there. I'll have to see how things shake out this year.

I pretty much blew off the first month or so of the ARRL QSO party, figuring I'd only operate when the chance came up to fill a few holes in my log in an effort to earn my 5BWAS award. Once I got started though, I was hooked. I was elated when I worked W1AW/KH6 just before Christmas to earn my Centennial WAS along with endorsements for W1AW/3, Washington, DC; W1AW/KH2, Guam; W1AW/KP2, US Virgin Islands and W1AW/KP4, Puerto Rico. I missed out on American Samoa and Guantanamo Bay. I was surprised that I managed to work myself into the second tier on the Centennial Points Challenge, even though I really wasn't making an effort there.

Another high point in December came when Michigan Senate Bill 0493, the bill that wrote the FCC's PRB-1 exemption into Michigan Law was passed by both Houses and made it onto Gov. Snyder's desk. The governor signed the bill into law January 15th, bringing the long effort put forth by the Michigan Section PRB-1 Committee to a successful close. You can read more about the bill elsewhere in the newsletter, but I'd like to thank the other committee members for their efforts, and am proud that my efforts played a small part in getting the measure passed.

When I look back on it, a lot of exciting things happened in 2014. I caught myself thinking the other day that maybe now I could take a few weeks off to rest, but then I got an email from Section Manager Larry Camp, WB8R, reminding us that we have a Section Staff Meeting in March. Oh, yeah, the rules for Field Day 2015 will be out the first part of February, the Michigan QSO Party and the MS walk are coming up in April, planning for the Hamfest should be starting soon....

Did someone say *rest*?

73, Pat KC8RTW

Tips for Public Service Communicators

(ARES® E-Letter—Dec. 17, 2014) Here is a great set of tips from the St. Louis (Missouri) Metro ARES®/RACES Group, with the permission and courtesy of EC Steve Wooten, KC0QMU, and AEC for Operations Gary Hoffman, KB0H.

• **Things to avoid saying on the air, Number 1**

"Okay, I'll do it. But it's not

actually my job. The guy who's supposed to do that is always away from the table doing something else." The other operator doesn't want to hear any of that and it ties up the frequency. Make a note of your complaints in your log and bring them up at the debriefing, but keep them off the air.
-- Gary Ross Hoffman, KB0H

• **The value of tactical call**

Amateur Radio is a Contact Sport!

signs

Tactical call signs such as "Shelter 5", "Net Control", and "EOC" are descriptive and give immediate information. They can be very useful during planned events and during emergencies. Do not, however, forget to include your FCC call sign at ten minutes intervals and at the end of each contact.

• Never alter a message

Do not alter a message, even to correct a typographical error. What you think is right may actually be wrong. Moreover, any change you make might subtly alter the meaning of the message. Send or write it exactly as you receive it.

• Do not use VOX

VOX stands for voice activated transmitter. VOX devices are handy gadgets, but should not be used in an emergency setting. Ambient noise might activate the transmitter and tie up the frequency. Also, you do not want your casual comments to go out over the air.

• You are your own safety officer

When setting up or operating a station of any size, the very first thing on your mind should be, is it safe? Am I going to irradiate anyone with RF energy? Could my battery spill acid? Can it fall on anyone's foot? Have I created an electrical hazard? Could anyone trip over my feedline or get poked in the eye by my antenna? The safety of your station is your responsibility. Make sure that it cannot harm you or anyone else. -- *KBOH*

• Every piece of equipment can break, including you

We all have limits. Don't overtax yourself during a deployment. Watch for signs of fatigue, stress, adverse reactions to the environment and so forth. Stop and take a break if you need one. It is better to have a silent radio than a fresh casualty. -- *KBOH*

• Listen to the Net Controller's instructions

One of the most common mistakes on regular nets is that operators assume that they know what the Net Controller is going to say. They miss the Net Controller's instructions and wind up giving inappropriate responses. This can be calamitous in an

emergency situation. One way to develop the habit of paying attention is to write down the key elements of what the Net Controller is saying. You might be surprised to find that it's not always the same thing. -- *KBOH*

• Keep it brief

Air time is precious, especially when there are numerous operators on the same frequency. Refrain from over-explaining things, engaging in personal greetings and chats, and anything else that might prevent important traffic from getting through. -- *KBOH*

• Are you following procedures?

Operating procedures are developed from many hours of examining what went wrong during disasters. Familiarize yourself with the procedures and practice them in exercises. Arriving at a disaster scene and trying to freestyle it will only cause problems. -- *KBOH*

• Check the transceiver for overheating

Digital modes are great for sending forms, long lists, images and so forth. They also use a lot more duty cycles of your transceiver than ordinary voice communications. Check to make sure that your rig is not overheating. Reduce the transmit power level if your unit feels hot. -- *KBOH*

• Have fuses handy

Much of your equipment has one or more fuses. Check each item, make a list of the fuses you might need, then put together a small fuse kit. Be sure to replace any fuses you wind up using. -- *KBOH*

• Yes, you are ready to participate

Caution is good, but don't let it prevent you from participating and volunteering. Everyone makes mistakes on their first try, or first dozen tries, and everyone survives them. You will find that most other hams will be sympathetic and supportive of your efforts. -- *KBOH*

• Don't avoid the exercises

It's a mistake to ignore an exercise because you are already familiar with what it is about. There are always surprises, new elements, and things that you've forgotten. Your presence will also help those participants who are less familiar with the exercise's concepts. -- *KBOH*

Upcoming Events

4/18	Mi QSO Party
4/25	MS Walk
5/16	Dow Run
5/17	GLB Marathon
6/27-28	Field Day

Michigan Hamfests

2/7	Negaunee
2/14	Traverse City
2/15	Livonia
3/14	Kalamazoo
5/2	Cadillac
5/9	Chassell
6/7	Chelsea
6/20	Midland*
8/1	Escanaba
10/17	Muskegon

* Denotes date based on 2014 event

Area Nets

SVARA; Mn, 147.24 MHz, 2100 ET
Gladwin; Tu, 147.18 MHz, 2000 ET
BAARC; Tu, 145.31 MHz, 2100 ET
Isabella Co EOC 146.72 Mhz, 1900 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.

- **Keep learning**

Everything is dynamic, including emergency communications. Procedures and techniques that were standard ten years ago are out of date today. Never sit back and feel that you've learned everything you'll need to know. -- *KBOH*

- **You brought your radio to the emergency, but will you be able to power it?**

Antenna connectors are fairly generic, but what about power connections? ARES groups around the country use Anderson Powerpoles as the standard power connector on their equipment.

- **Push THEN Talk**

Pause for a second after keying up your transmitter. It may be slower to react than you realize. -- *John Weis, NOUFB*

- **Maintain a fire extinguisher near your battery charging station**

This applies primarily to larger batteries, but every battery is a chemical device and you will be pumping energy into it. Having a fire extinguisher handy is a reasonable precaution. -- *Jim Conley, NOOBG*

- **Mark your equipment**

Be sure that every piece of your

equipment is marked with at least your name and call sign. After the emergency, you'll want any property you left behind to find its way back to you.

- **It's going to be noisy, so have a set of headphones**

It's always a good idea to have a set of headphones around, but it may be an absolute necessity in an emergency. You may be placed in an area where other operators are working on different bands, you may be out in the open, or you may even be in the middle of a noisy shelter. A headset should be a vital part your equipment. You can't communicate if you can't hear.

- **Outdoors isn't indoors**

Even in an urban or suburban setting, working outdoors isn't like working indoors. You may have taken your equipment into consideration, but don't forget yourself. Think about your allergies, the sun, heat, cold, bugs and everything else that might affect you. Treat your outside deployment or exercise as if it were a camping trip and prepare for it accordingly. -- *KBOH*

- **Think about next time**

During every deployment or exercise, think about the next time. You will always find that something is missing, broken, doesn't work as expected, wasn't planned for and so forth. Keep a mental record, or better still a written one of everything that is wrong. Be sure to look it over carefully after the event so you will be better prepared next time. -- *KBOH*

- **Eat**

Do not skip meals just because things are busy. You may not think that you need to eat anything, but volunteers have suddenly fainted without feeling any early symptoms that something was wrong. At the very least, consume an energy bar or a quick snack. --*KBOH*

- **Is no one responding on the secondary frequency?**

If you have a transceiver capable of handling two frequencies simultaneously and no one is responding on that second channel, the problem may be as simple as the volume has been turned down. -- *KBOH*

See the complete list of excellent tips on the [St. Louis Metro ARES /RACES website](http://www.stlouismetroares.com/RACESwebsite).

ARRL Centennial QSO Party Awards, W1AW/p QSL Cards in Process

(ARRL Letter—Jan. 15, 2015) Certificates and plaques for stations that participated in the ARRL Centennial QSO Party are being processed. At this point, point totals are being calculated and confirmed. Participation exceeded expectations, with nearly 16,000 stations achieving at least 1000 points in the Centennial QSO Points Challenge. Approximately 2500 stations reached the Top Level of 15,000 points. W1AW portable operations completed nearly 3.5 million contacts during 2014, and W100AW logged some 70,000 contacts. Most Centennial QSO Party participants entered their contact information into the ARRL's Logbook of The World (LoTW) program.

"The W1AW WAS certificate and plaque designs are complete, as is the design for the Centennial Points Challenge certificate," said

ARRL Field Services and Radiosport Manager Dave Patton, NN1N. "Once the web and software processes are ready to go, we will be able to start fulfilling awards." Patton said order forms will be available on the Centennial QSO Party web page for those who do not use LoTW or online ordering tools.

Deadline Extended

The ARRL has extended the deadline to submit Centennial QSO Party logs to LoTW to January 22, at 2359 UTC. The new deadline will have no effect on awards. Participants will be able to apply for Centennial awards indefinitely, once the process is under way. Accounts for US stations that changed call signs during 2014, will be automatically combined for Centennial award purposes, although

any duplicate contacts (ie, stations worked with both the old and new call signs) will be removed. Stations outside the US that changed call signs during 2014 should notify ARRL.

Patton said that in late January, the entire database of 2014 logs submitted to LoTW will be rerun through the Centennial QSO Party software in order to pick up any late changes to the database and produce more accurate scores. "Most participants will see their points total climb a bit higher," he said.

Designs for QSL cards for W1AW portable operations are under consideration, and cards likely will go out via the QSL Bureau and directly to stations in a few months. US stations who prefer to receive W1AW QSLs via a QSL Bureau account may sign up via the web form. "You must have a current,

funded account with your district QSL Bureau," Patton noted. Stations outside the US will receive cards via their bureaus as they normally do.

Patton said the number of QSLs

from W1AW will be limited to one per each weekly operation and per each territorial operation (KH2, KH8, etc), with each card confirming about 10 contacts chosen from the

W1AW logs. Printed cards will not be able to confirm counties or grid squares, but the LoTW system will do this.

Michigan Section News

Greetings to the Hams of Michigan:

PRB-1 Update

I have some very exciting news to share with you: Michigan now has a PRB-1 law! On the afternoon of January 15, 2015, Governor Snyder signed Senate Bill 0493 into law. It has been designated as Public Act 556.

Today's actions come as the culmination of 3 years work on behalf of the current PRB-1 team, which consists of Ed Hude, WA8QJE, State Government Liaison; Butch Hedges, KD8NKJ, Local Government Liaison; Hal Thomas, N8HAL, Local Government Liaison; Raoul Revord, W8RDR, Legal Advisor; Jay Nugent, WB8TKL, Webmaster; Pat Mullet, KC8RTW, Public Information Coordinator; Dale Williams, WA8EFK, Advisor, and Larry Camp, WB8R, Michigan Section Manager.

At this point, I would like to recognize and thank the group of indi-

viduals who have worked on this project in the past, going back approximately 10 years, who laid the groundwork for the successful completion of this effort.

I want to thank the hundreds of hams in Michigan who responded to the many calls to action over the past months as our effort gained momentum. The response was nothing short of tremendous. Each time we asked for emails to be sent or phone calls to be made, the response was outstanding. The feedback that we received about the Michigan hams communicating with various state offices was excellent! We received many positive comments about the polite, succinct response of the hams of Michigan.

Hams of Michigan, you have faithfully represented the very best of amateur radio in rising to the occasion for the benefit of your fellow amateurs. You have my sincere appreciation.

News From Around the Section

The 2014 ARRL Centennial event is now in the record books. The last day for LoTW log uploads has been extended to January 22. The logs of all the W1AW portable stations will be run through the system again and the numbers will be crunched again and scores adjusted as necessary before the final tallies are made. Keep your eyes on the Centennial QSO Party website to check for your final scores and watch the main ARRL website as well for updates.

The Worked All States (WAS) certificates have been designed and are pretty spiffy looking. The QSL cards from your contacts with the W1AW/portable stations are in the works as well. More information is available on the ARRL website.

Until next time,

73,
Larry Camp, WB8R
ARRL Michigan Section Manager
wb8r@arrl.org

Michigan Passes, Governor Signs Antenna Accommodation Legislation

(ARRLWeb—01/16/2015) Ten years of work within the ARRL Michigan Section have culminated in an Amateur Radio antenna bill that mirrors the "reasonable accommodation" provisions of the PRB-1 federal pre-emption policy. Michigan Gov Rick Snyder signed the measure, Senate Bill 0493, into law on January 15, creating Public Act 556. Senator Rick Jones sponsored the bill. ARRL Michigan Section Manager Larry Camp, WB8R, said Michigan is the 31st state to have a PRB-1 bill on its books.

"The current PRB-1 Team has been working for 3 years to get this accomplished," he said. "Our bill en-

dured four votes on its way to becoming law — Senate and House committees and the Senate and House floors. Each vote was unanimous."

The most pertinent language in the new Michigan law, which comes directly from §97.15 of the FCC Amateur Service rules, states:

An Amateur Radio Service station antenna structure may be erected at heights and dimensions sufficient to accommodate Amateur Radio Service communications. Regulation of an Amateur Radio Service station antenna structure by a local unit of government must not preclude Amateur Radio Service communi-

cations. Rather, it must reasonably accommodate those communications and must constitute the minimum practicable regulation to accomplish the local unit of government's legitimate purpose.

The new law also provides for an advisory committee that may be established jointly by the Michigan Section and other state organizations, such as the Michigan Municipal League and the Michigan Township Association. Camp said the advisory board could become involved at the request of the amateur, the community, zoning board, or representative associations as required. "The purpose of having the Michigan Sec-

tion and the ARRL named specifically," Camp said, "is to ensure that the technical information that the advisory committee receives is accurate and pertinent to the questions at hand."

"The Michigan Section of the ARRL will be available to provide information and training as an ongoing educational effort for communities and their representative organizations," Camp added.

Camp said the PRB-1 Team believes the advisory committee will be an important tool in situations when

community officials know little or nothing about Amateur Radio. "We will be able to provide accurate information and support from the ARRL, as required," he said. "This committee will help explain the reasons why radio amateurs need to have antennas in the air in order to communicate in an emergency."

The new law also echoes federal requirements that owners of certain Amateur Radio antenna structures extending more than 200 feet above ground level at the site or that are located near or at an airport must no-

tify the Federal Aviation Administration and register with the FCC.

In addition to Camp and ARRL Great Lakes Director Dale Williams, WA8EFK — who served as an advisor — Michigan PRB-1 Team members included State Government Liaison Ed Hude, WA8QJE; Local Government Liaisons Butch Hedges, KD8NKJ, and Hal Thomas, N8HAL; Webmaster Jay Nugent, WB8TKL; Legal Advisor Raoul Revord, W8RDR, and Public Information Coordinator Pat Mullet, KC8RTW.

Technical Topics and Information

(ARRL Contest Update—Dec. 31, 2014) The sophistication of RF instrumentation available to the amateur continues to increase at an amazing pace, such as this "[Poor Ham's Scalar Network Analyzer](#)" based on an Arduino processor and a pair of Analog Devices ICs. (the AD9850 DDS module and AD8307 RF power detector) Work is progressing on a hand-held version. (Thanks, Jim N5IB)

♦ When getting ready to pour concrete for a tower base, it's important that the rebar not sit directly on the dirt where it will get wet and rust away. Skip KJ6Y relayed the recommended solution, [dobie blocks](#). He also cautions against using regular bricks that will absorb moisture that causes the rebar to rust. Dobie blocks are available where you buy the rebar or concrete.

♦ In addition to Amateur Ra-

dio, Les N1LF has recently gotten involved in model railroading. "While looking for specialty tools for these tiny machines, I came across a company called [Micro-Mark](#) of Berkeley Heights, NJ. Their website and wonderful catalog contain not only tools of great use to modelers, but anyone who works with small components. There is a wealth of products ranging from hand tools, jigs of all kinds, magnifiers, 3-D printers, small lathes, and so much more."

♦ Steve WA7DUH has put together this PowerPoint slide deck covering the [basics of baluns](#). Once familiar with the technology, this paper from DX Engineering will help you [choose the right type of balun](#) for your particular needs. (Thanks, Don KD8NNU)

♦ Visualizing the pattern of antennas is often challenging and that's where some software can be

a huge help. Bob KA5MCO suggests taking a look at the website of [Paul Falstad](#). If your web browser can run Java applets, Paul's various electromagnetic simulations can help you imagine what's going on with various antennas. (The antenna applet is in the Electrodynamics section.) Not only that, you can change the parameters of the antenna and see the effects in real time! There are quite a number of other useful simulations, as well.

Technical Web Site of the Week - Here in the middle of low-band season and with CQ WW 160 coming up, "Beverage On Ground (BOG)" antennas have been discussed lately. Bruce K1FZ has put together a [web page](#) discussing this variation of the Beverage design, answering some questions about how well it works, terminating the antenna, and other common questions.

More Technical Topics and Information

(ARRL Contest Update—Jan. 14, 2015) Have you been watching NOAA's new [five-graph solar weather chart](#)? Mike WØBTU is a big fan, "I'm beginning to realize that chart was a real stroke of genius...you have to watch and study it for a few weeks and you'll see what I mean. When that "fuzz" (all those dots) turned into almost a straight line the other

day, the conditions on 80 meters really improved! Same for 20 meters." Mike also recommends the [Space Weather Enthusiasts](#) page which includes radio blackout information. Victor US5WE notes that a similar [site](#) from Russia is available, too. We should tip our caps to pages by [NW7US](#) and [CT1BOH](#) which have supplied similar material to hams for quite

some time.

♦ Just the right thing for your portable toolkit and a use for that finger-friendly old mechanical pencil, too - a [solder-filled dispensing pen](#)!

♦ Note this important precaution from Roger K8RI about working on metal with rotating tools: When the shavings start peeling off never, ever try to

brush them away by hand. They are sharp and if the bit (or whatever) grabs them at the same time you do, those shavings can remove finger(s) so quickly and cleanly you won't know it happened at the moment. Grant KZ1W provides a related warning: NEVER wear gloves! Glove material can catch on the drill bit, lathe chuck, mill chuck etc. The glove finger then grips the finger too tightly to get out of quickly and the resulting injury can be quite serious. The chips and swarf in drilling, milling, and turning operations should be managed with a chip hook about 12 to 18" long, coolant flushing, or air blast. Better yet, "peck drill" so that short chips are made.

♦ An interesting resolution for the New Year would be to cobble together a transmitter from a design published the year you were born. (Thanks to the [QRP-L](#)

[community](#) for the idea)

♦ For many years a treadmill in Don WD8DSB's house caused strong interference on 160 meters when it was in use but he has been able to completely eliminate the RFI using a combination of two different filters (a commercial line filter that provides both common-mode and differential-mode filtering, and 14 turns of the power cord on a 2.4" OD Fair-Rite #31 mix toroid core. You can [review](#) his tests and filters for your own problem RFI solutions, too.

♦ A good source of practical information on how to select a station site can be found in NBS Technical Note 139, [Siting Criteria for HF Communication Centers](#) by William Utlat. Dating from 1962, it's still quite useful today. (Thanks, Sinisa, YT1NT/VE3EA)

♦ From the *EDN* "Design Ideas" column - the professional EE equivalent of *Hints and Kinks*

- comes this useful op-amp design for a [notch filter](#). While you're looking at those miraculous triangles of gain, do you know how they achieve it? Similar to the kit showing how the 555 timer chip's internal electronics do what they do, the [XL741 kit](#) does the same for the venerable 741 op-amp.

Technical Web Site of the Week - This fascinating [video](#) shows the *SBSpectrum* software capturing the shifts in frequency for a signal propagating through the ionosphere. The time-lapse video compresses hours of recording time into a few minutes. You can see the ionosphere's individual layers come and go, rise and fall, and do all sorts of interesting things to the signal. This is a big part of why HF digital communication is so hard! (Thanks, Dennis N6KI and Bob W6VR)

MARC Vital Statistics

Memberships Expiring in January

K0ACP
KD0JHX

K8RI
N8JBW

KD8OLC

Memberships Expiring in February

W8PMR

KD8IWB

W8QN

Memberships Expiring in March

K8VB
W8NON

Current Active Club Membership 47

Birthdays Celebrated in January/February

WA8KJR 1/2
KA8HQW 1/13
W8PMR 1/20
N8KRL 1/24
W8ZSX 1/28
KD8HID 1/29

KB8QWQ 1/29
KC8ITI 2/2
AA8EJ 2/3
K0ACP 2/7
W8NON 2/14

Anniversaries Celebrated in January/February

KA8Ezt and Linda 1/2
KD8ZKG and Belinda 2/12

KC8TQS and Julia 2/14

Information is from data received 1/15/2015

Any corrections or questions contact John, W8QN

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