



# TMRA Amateur Radio Beacon

December 2018



## News from the President

From Rob, KV8P

I hope everyone enjoyed a great Thanksgiving and is looking forward to the rest of the Holiday Season!

A big thanks to Steve, KC8TVW, and Mike, WA8SYD, and all others that assisted with teaching another successful session of the TMRA Technician License Class in November. The follow-on test session again brought many new hams to the NW Ohio and we are all anxious and excited to get to know them all on the air and at club meetings.

The club did also hold a follow-on class on November 17<sup>th</sup> called, "I'm new to Amateur Radio, now what?". The class was again well attended, and we always get some great feedback as well for future/upcoming sessions! Most of the new licensees agreed that it gave them a good "head-start" which was what we were hoping for. *[Editor's Note: Photo, below, of class is courtesy of Bruce, AA8HS, Assistant Editor.]*

Don't forget to join us at 6:00 pm for the TMRA Christmas Party this coming month on the regular meeting night on December 12<sup>th</sup>. Bring a dish to pass and don't forget the early dinner start time. We'll start setting up starting at 4:00 pm that day and the additional setup help is welcome. Also, please bring along with you your favorite amateur radio device/gadget or something interesting that you'd like to show the rest of the club! Some of us will also be bringing along our favorite interesting received QSL card to display. Also, be sure to bring your family to this event! The evening is a lot of fun!

Also, we'll soon be releasing some additional information/specifics on our Winter Field Day and HF radio operation training session (training before the operating event). Winter field day is on January 26<sup>th</sup>, 2019 for your calendars and the operating event starts at 2:00 pm.

Lastly, my best wishes for a warm and wonderful Holiday Season and New Years from my family to yours. I'm really looking forward to our club events in 2019!

Until 2019!



## ARES News

From Skeet, KD8KXD, Lucas County EC

The next Lucas County ARES monthly meeting will be held Saturday January 26. The meeting location is at St Luke's Hospital in the basement Private Dining Room near the cafeteria. The meeting starts at 9:00am.

Please tune into the Lucas County ARES in Brief Net, Sunday nights on the 147.270 repeater at 7:30pm for the latest information.



## January General Meeting Program

From Rob, KV8P, President

The Jan 9th TMRA meeting Presentation at 7:00 pm will be by Paul English (NETCOM G3/5 CUOPS ATSO HF/LMR ) with Army MARS (Military Auxiliary Radio System). The Army MARS program is a civilian auxiliary consisting primarily of licensed amateur radio operators who are interested in assisting the military with communications on a local, national, and international basis as an adjunct to normal communications.

*[Editor's Note: The photos, below, of the November general meeting are courtesy of Bruce, AA8HS, Assistant Editor. Thanks to Chrissy (left photo) for a fine presentation on disaster response teams.]*



## Winter Field Day

Don't forget that Winter Field Day will be January 26, 2019. Set up will begin in the morning to be ready to operate by 2:00 pm. More information will follow in the January newsletter. Photos are from January, 2018.



## Technician License Classes, VE Testing, and CW Classes

From Steve, KC8TVW

Congratulations to the hams who attended the recent training classes. New Techs are KE8KXO, Jim; KE8KXP, Jerry; KE8KXQ, Bill; KE8KXR, Joe; KE8KXS, Jason; KE8KXT, Richard; KE8KXU, Peter; KN4QOI, Vern (Snowbird).

For information about the Technician License Class, VE testing or CW practice contact Steve, KC8TVW. Phone: 419-467-3734 or email: [kc8tvw@arrl.net](mailto:kc8tvw@arrl.net).

The photos, below, are from the TMRA Technician licensing class courtesy of Bruce, AA8HS, Assistant Editor.



## Mobile Fox Hunts

From Ron, N8RLH

Mobile Fox Hunts are cancelled until Spring. For more information, contact Ron, N8RLH at [n8rlh@arrl.net](mailto:n8rlh@arrl.net).

## **Tech Committee News**

**From Dan, KE8UE, Chairman**

There will be no Tech Committee meeting in December. Tech Committee News will return after the January Meeting. The photo of the November Tech Committee meeting is courtesy of Bruce, AA8HS, Assistant Editor.



## **Public Service and Business Radio Bands**

**Bruce Hammond AA8HS, Assistant Editor**

This article is part of a series which discusses aspects of radio that may be interesting to hams although not within the amateur frequency bands.

The FCC has allocated portions of the radio spectrum for use by public services such as police, fire, and medical services and this would also include schools and hospitals. These same bands are shared by businesses including confined areas such as factories, casinos, malls, zoos, or campuses.

Wide area services would include security, TARTA, taxi cabs, hauling and delivery services, and towing companies. Although unlicensed, FCC Part 95 radios such as FRS, GMRS, and MURS can be used for a smaller environment, licensed Part 90 radios often use higher power and the FCC licensing process is meant to minimize the chances of interference. Business and public service radios are generally Motorola or Kenwood types with a higher quality than you would find for the unlicensed services and repeaters are commonly used.

Do you recall seeing six to eight-foot antennas on car bodies before base loaded antennas were popular? In the days when the 30-50 MHz spectrum was extensively used, many enthusiasts enjoyed listening to police departments in other states when the bands were open. Although you can still find the base loaded types on Highway Patrol cars, MARCS (700-800 MHz) is now the preferred method of communication. While a few services still use the 30-50 band, 150-170 MHz and 450-470 MHz radios have shorter antennas and significantly less interference from human made and atmospheric noise. The shorter range also means less chance of interference from other regions of the US.

VHF signals in these bands that have the same effective radiated power (ERP) and antenna height as a UHF station in these bands will have a greater range than the UHF station. This is in accordance with the Freis equation: a shorter wavelength demands more power for the same range as a lower frequency. This is one of the reasons why I can clearly hear the Williams County public safety VHF stations but not the UHF ones. A VHF station performs better outdoors from handheld to repeater but does not penetrate buildings ( especially

buildings containing steel) nearly as well as a UHF station. In Wood County Ohio, the Wood County Sheriff, BG Police, and BGSU Police use VHF DMR radios effectively since most steel structure buildings are on campus. They were also wise to convert their old VHF frequencies to DMR rather than purchasing new duplexers and antennas.

Although the Lucas County VHF and UHF Public Safety and Business bands are not terribly crowded, the FCC must consider the adjacent counties, and, in the case of VHF, frequencies used in the Detroit area and suburbs, when allocating a frequency. One of the reasons for moving to the 800 and 900 MHz spectrum is the lack of available frequencies in the VHF and UHF regions. These frequencies do an even better job of sneaking through steel structures in buildings and reflecting off of them. In the case of a steel roof, an antenna can also be located on a tower outside. Sometimes radiax, a form of leaky coax, is used to provide signal coverage inside a warehouse. Fiat-Chrysler uses 900 MHz DMR in Toledo and the signal can be heard a few miles from their factory.

There are a variety of ways that business users can use these frequencies to their advantage. Some set up their own repeaters with a fixed cost and monthly maintenance fees. This is common at factories and some local businesses. The consideration here is the range of the system and, generally, these kinds of installations do not use towers above about 60 feet or they are placed on the roof of the factory. DMR is the most likely modality which is used is a modern installation. DMR also can include encryption which can slightly affect voice quality. The Toledo Zoo recently moved to DMR with encryption using multiple talk-groups to serve their various departments. With such as arrangement, conversations involving maintenance, for instance, are not heard by security or concessions. Their Motorola radios allow a simple change of talkgroup if needed. Although Motorola handheld DMR radios are generally priced less than \$500, many businesses, like Franklin Park Mall Security, have stayed with an analog repeater.

Other businesses choose to join a trunked service which is offered by a commercial radio company. These companies' repeaters are generally located on a tall tower and may have a thirty to fifty-mile radius. The rent that these companies are charged for tower space can vary according to the market, tower height, and other factors. Charges of several thousand dollars per month for tower rental space are not unusual and these costs are passed on to the users who lease or purchase their equipment from the commercial company. One advantage of leasing radio service from a commercial repeater owner is that the range is generally greater than an individual repeater. This would be important to a delivery or a towing service.

Because trunking allows moving the current communication to an open frequency, multiple conversations between employees can take place at the same time. I should mention that some companies like AAA Towing

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Secretary, Zack, N8ZAK;  
Treasurer, Rich, KD8WCB.

Board Members: Skeet, KD8KXD;  
Dan, KE8UE; Rich, KQ6EF, Brian,  
WD8MXR; Dave, KD8EVN.

TMRA Home Page  
[www.tmrahamradio.org](http://www.tmrahamradio.org)  
Webmaster: Zack, N8ZAK

TMRA W8HHF Repeater;  
147.270+, 224.140-, 442.850+  
(TMRA 2 meter, 220, and 440  
repeaters operate with a 103.5  
"PL", or a touch-tone access code  
of 1-2-3)

D-Star Repeater: 442.750  
APRS: 144.390

The TMRA meets at 7:30 PM on  
the second Wednesday of every  
month in  
The Electrical Industry Building,  
Lime City Rd. Rossford, Ohio.

have simply given up on FM or digital radios and use cell phones and I Pads to provide their services. This may be related not only to costs of maintaining a tower and repeater, but also the wide range coverage that is needed.

Radioreference.com (RR) remains the best source for information about analog and DMR frequencies in Lucas County and surrounding areas. After programming most of the listed analog frequencies from RR into my scanner, one thing became obvious: few of them are currently working; it is mostly the EMS, some smaller police departments and some businesses and factories that still use FM analog. Most public safety services have moved to MARCS or another P25 digital service.

Itinerant frequencies are frequencies used by handheld radios with low power, generally five watts or less and part 90 certified. These radios use frequencies in the same range as business and public safety but are reserved for these lower powered radios. Licensing is required but many people choose not to pay the fee of about \$60 per radio, although group licensing has a similar cost. Some large companies hold licenses for the entire United States and this information can be found on RR. You probably will not hear much activity with a scanner from a fixed location, but driving near commercial areas or the mall can be rewarding to listen in.

Antennas that are used on handheld units in the 160 MHz range may demonstrate an acceptable SWR on an antenna analyzer but are inefficient for a number of reasons, including the fact that they are shortened. This is less the case at 450, 800, and 900 MHz since antenna lengths correspond to 1.4 or 5/8 wavelengths and the human body forms a better ground plane at these frequencies. Therefore a few watts on a UHF handheld may do a better job of penetrating building structures and have less noise than a VHF radio.

If you look at the 150-170 and 450-470 MHz regions on an SDR such as the RTL-SDR units with SDR# software, you will see the greater level of activity in the UHF business region around Toledo. In addition, MARCS uses frequencies in the 700 and 800 MHz regions and our local Lucas County P25 uses portions of the 800 MHz band because of their 45 MHz repeater split.

The need for licensing in these bands is obvious: you cannot have a situation where essential, critical services like police, fire, and medical are threatened by interference from other users. Frequency allocations are set by the FCC to minimize the chance of interference. Before the days of digital squelch or CTCSS (PL), it was not unusual for police units to be summoned to non-existent addresses because they were hearing broadcasts from other areas. Those days are gone and DMR features such as color codes and talkgroups prevent such things from happening. I noticed on a trip to Detroit that automobile factories in that region use the same DMR frequencies as Toledo Schools but there is no possibility of interference since their color codes and talk-groups are different.

Finally, if you have a high-quality scanner such as a Whistler TRX-2, you will hear few analog services and probably hear more transmitters using DMR and P25 modes for MARCS and the Northwest Ohio Regional Public Safety System. For many business users, it has been simpler and more cost effective to use cell phones.

Reference: <https://www.radioreference.com/apps/db/?ctid=2087>

## **And a Note from Mike, WB8TNF, Assistant Editor**

My workplace is currently undertaking a complete overhaul of our radio system. We're going with the Motorola "Astro 25" radio system, which will allow us to talk not only within our site, but also to other facilities across the U.S. It also permits managers to use their cell phones to patch through to workers in the field. It reminds me of our own ham DMR repeaters that combine VHF/UHF/Internet to talk across continents.

## **Dales Tales**

**Dale Williams, WA8EFK, Director, Great Lakes Division**

Greetings, welcome to "Dale's Tales" for December 2018.

David AD8Y, the Faculty Advisor of The Case Amateur Radio Club (CARC), reports that CARC will be sponsoring the 2019 HamSCI conference in March. It will be on the campus of Case Western Reserve University and will include tours of the CARC station, W8EDU, and the CWRU ThinkBox public-access shop. There will also be an exam session. More material will be available as the date approaches. This fits well with the ARRL's new incentive for Lifelong Learning and you will hear more about that over the next few months.

**DXCC Field Card Checkers.** As you recall a few months ago I successfully lobbied for several revision to the DXCC Field Card Checker rules. Among the changes is the provision for adding more checkers, especially in areas where there are none. In the Great lakes Division, we have card checker in the following areas: Paducah, KY; Louisville, KY; Russell, KY; Gregory, MI; Marysville, MI; Bath, MI; Waterford, MI; Kalamazoo, MI; Goshen, OH; Hamilton, OH; Wooster, OH; and Hiram, OH. A quick look at the map will clearly show that the urban areas of our three Sections are well covered, but there are regions where added Card Checkers would really benefit the DXers in those areas. We need checkers in Southern Kentucky, SE Ohio, the northern Lower Peninsula and the Upper Peninsula in Michigan. If you live in any of these areas and hold DXCC, please consider becoming a card checker. Of course, we would like you to be available at regional hamfests to do some field checking just like our present Field Checkers. IF you have an interest in helping out, please let me know at [wa8efk@arrl.org](mailto:wa8efk@arrl.org).

**ARRL Board Meeting.** Your Board of Directors will hold its annual meeting January 18 and 19. Vice Director Delaney and I will be in attendance. If there are items of concern to you that you feel deserve Board action, please send them to me before mid-December. That will allow adequate time for me to discuss those concerns with my fellow Directors, and offer ample opportunity to place any specific subjects on the meeting agenda. The meeting agendas are quite full, as they include reports and discussion relating to the League's various standing Committees, such as Administration and Finance (A&F), Programs and Services (PSC) or the Executive Committee. Often consideration for suggested changes to field programs, like contests or DXCC are first reviewed by one or more of the standing committees and presented to the full Board with recommendations.

**IN OTHER NEWS:** My personal quest for making connections with inactive local hams continues, but I am thinking I might find that contacting one per month is bound to be the going rate. The initial effort with phone and e-mail has run its course and I now need to turn to letter writing due to the inaccessibility of e-mail addresses and phone numbers. We'll see how that works out over the next few weeks. More next month.

**TOM'S COMMENTS:** I like the changing seasons. But I think all of us in the three states in our Division were surprised by how quickly fall turned to winter. Hope this doesn't mean a long, snowy winter. What does this have to do with ham radio? If there are "seasons" for ham radio, it's a bit like gardening. There's always something to do, but the activities vary according to the seasons. I got most of my antenna work out of the way, so unless something falls, I don't have to worry about putting up antennas in the cold. The upcoming month of December brings lots of club parties. Nice to be able to enjoy some moments of friendship with those we share the hobby with.

For those of us a little more involved in disaster response, batteries always need to be charged, and the gear always ready. Any season can bring emergencies. Even though we tend to focus on spring storms, October's

SET in Ohio featured a winter storm scenario. Just a few years ago, hams in Central Kentucky had the real thing, and they did a great job responding.

With some exceptions, hamfests tend to happen in the spring through the fall. I usually have a list of small items, parts, etc., that I'll look for at hamfests. Hope I don't need anything too quickly. The next hamfest I plan on attending is still a few months away.

Two other things in ham radio are really without seasons. Mentoring is key to keeping the hobby going. Any time a new ham, or an old ham with a new challenge, needs help, we should all be ready to offer advice or help. How's your club doing with mentoring as a club project?

The other thing is dealing with the public. Whether you're at a winter parade or a summer bike ride, we can all promote ham radio's public service aspect. And it's a great feeling to be of help in your community. Enjoy the holiday parties coming up!

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

**HAMFESTING:** Here is the current Great Lakes Division ARRL Sanctioned Hamfest Schedule covering the next few months. These swaps have received their sanctioning approval from ARRL HQ at the time of this publication. If you plan to request ARRL Sanctioning, please be sure to do it well in advance of your Hamfest date, as this allows adequate time for QST Listings. Be sure to invite your ARRL Officials as soon as your date is set. With 52 weeks and 65+ hamfests, things do double up a little. Plan ahead for requesting your ARRL Officials to attend.

12/1/18	Fulton Co. Winterfest	Delta, OH
12/2/18	Lanse Creuse Hamfest	Madison Hts, MI
1/20/19	S.C.A.R.F. Hamfest	Nelsonville, OH
1/27/19	Hazel Park Hamfest	Madison Hts, MI
1/27/19	Tusco ARS Hamfest	Strasburg, OH
2/2/19	HARA Swap	Negaunee, MI
2/8/19	Cherryland Swap	Traverse City, MI
2/17/19	Livonia Hamfest	Livonia, MI
2/17/19	Mansfield Hamfest	Mansfield, OH

Be sure to check your Section's news pages for the latest local happenings, club and net information.

As we enter this year's Holiday season, let's all be thankful for family and friends and the wonderful blessings they have brought us during the year. Season's Greetings from Tom and Helen, Judy and me and all the best wishes for a joyous New Year.

73, Let's go light up the bands, 'tis the season!!

## Did You Know?

- The **Lucas County ARES Informational Net** is every Sunday at 7:30 pm on 147.270.
- The **TMRA Newcomers and Elmers Net** is every Sunday at 8:00 pm on 147.270.
- The **Tech Committee** meets the second Monday of each month at Maumee Fire Station #2 on Dussel Drive (in front of the water tower).
- The **Fldigi Net** meets every Tuesday night at 7:30 PM at 147.27 MHz
- The **TMRA general meeting** is the second Wednesday of each month at the Electrical Industry Building, Lime City Rd., Rossford, Ohio. **New meeting time is 7:00 PM.**
- **Six Meter Nets** meet every Wednesday and Thursday at 9:00 PM (EST). The Thursday night Net is on 50.255 USB. For more information contact Dan, KE8UE, at [dlcunn@sbcglobal.net](mailto:dlcunn@sbcglobal.net).
- The **Lucas County Siren Net** is the first Friday of each month from 10:30 to 11:30 AM on 147.270 + W/103.5 PL and 442.850 + W/103.5 PL.
- The **Lucas County Hospital Net** is the first Saturday of the even numbered months at 10:00 AM.
- The **NORC Net** is the first Saturday of each month. This net typically meets at 11:00 AM on or around +/- 7.200 MHz LSB.
- **ARES** meets the fourth Saturday of each month.
- The **TMRA Christmas Party** is December 12.
- **VE testing** is each month. Contact Steve, KC8TVW at 419-467-3734 or [kc8tvw@arrl.net](mailto:kc8tvw@arrl.net).
- Register for **CW classes** by contacting Steve, KC8TVW at 419-467-3734 or [kc8tvw@arrl.net](mailto:kc8tvw@arrl.net).
- **Ron, N8RLH**, has ham gear from the estates of silent keys. Contact: 419-345-6382 or [rlhornbeck@att.net](mailto:rlhornbeck@att.net).
- The calendar at the **TMRA website**, [www.tmrahamradio.org](http://www.tmrahamradio.org), lists numerous ham radio activities each month.
- Contact **Brad, WB8RG**, **TMRA Information Officer** at [tmrainformation@gmail.com](mailto:tmrainformation@gmail.com) to receive weekly emails about club news and activities.
- TMRA has a **Facebook** page and an **Instagram** page, which can be accessed from an icon on the TMRA website or at <https://www.instagram.com/tmrahamradio/>.
- Don't forget to select TMRA as your Organization of choice for *Kroger Cares* and *Amazon Smile*. This results in a donation to the club as a portion of your purchase.

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