

The Maury Amateur Radio Club

November 2023

The Maury Amateur Radio Club BOX 1871 Columbia, TN 38402 w4ggm@qsl.net

Don't forget the club meeting next Tuesday. People start gathering around 5:30 to visit and finish their meal before the meeting which starts at 7 PM. It looks like we have another great presentation this month after last months presentation by John WW3B about Traffic Handling.

This month we have Bob K4HRK and Bill W4WRR to talk about Bob's latest mods to his Antenna Launcher. He has come out with a great design!



For you guys into digital stuff on VHF/UHF we have a great article from Jonathon who has been working on a High Power Hotspot.

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The November 25th FOX HUNT will take place. Andreas KJ4JEK said the Fox will be out 10AM-2PM. Let the hunt begin!



The club Breakfast was a bust last month so not sure if it's on for November or not. I'd suggest you listen to the Club Net on Thursday evening to get the latest news on club events.

October Meeting

October 2023 MARC Meeting Minutes

Meeting held at La Fuente Restaurant on October 10, 2023.

Attendance: 21 in-person, 5 on Zoom.

Meeting called to order at 7:00PM by Travis, KO4HUO

Motion to accept the minutes from the Sept. 2023 Meeting

Made by Jonathan KQ4ATG

2nd by Keith KQ4FXD

Motion passed

Motion to accept the Financial Report (printed in the Oct. Newsletter)

Made by Everett WA2BHS

2nd by Jay KK4FHS

Motion Passed

Announcements:

Antenna Party to be held Saturday Oct 14th at 9AM.

Volunteer Examiner testing to be held Oct. 21st starting at 9AM.

Fox Hunt confirmed for Oct. 28th at 10AM.

Keith KQ4FXD was announced as our new Club Photographer.

Bob K4HRK to make a presentation at the November club meeting.

New Business:

Bill W4WRR discussed the possibility of having in-person weather classes for the club at the Maury Emergency Management building.

Paula KK4WVO made a motion that we should go through the club's social media (Facebook, Groups.io) accounts and restrict membership to licensed amateurs. Also we should adopt a Code of Conduct for these accounts.

Motion 2nd by Justin, K4LEN

Motion Passed

Motion made to dismiss the business portion of the meeting by Eric N4GLA

2nd by Jonathan K4ATG

Motion Passed

Scott N4BBB introduced our guest speaker John WW3B to speak about traffic handling.

Meeting Adjourned at 8:02PM

Respectfully submitted by Joe, N4JW





Volunteer Examiner Report

The Maury Amateur Radio Club Volunteer Examiner test session for October 2023 was held Saturday, October 21st in the training room at Columbia Power & Water.

VEs in attendance were: N4JW, W4EWJ, KK4PTE, KN4JGH, N5AAA, KJ4JEK, and KQ4FRW. There was a total of five test candidates.

Congratulations to the following candidates:

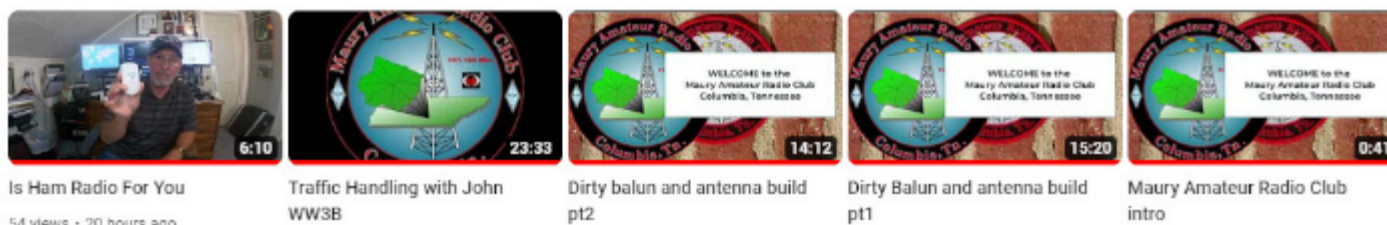
Clayton Leddin KQ4MBT
William (Bill) Ferrell KQ4MCK
Brace McCoy KQ4MDR
Michael Taylor KQ4ILA
George Haun KQ4IKI

Passed Technician
Passed Technician
Passed Technician and General
Upgraded to General
Upgraded to Extra

The next MARC VE Test Session is scheduled for January 20, 2024. For more information, please go to <https://w4ggm.org/testing>.

Respectfully submitted by Joe N4JW

The Maury Amateur Radio Club is now on YouTube



A BIG Thanks to Keith KQ4FXD who set up a YouTube channel for the club. His videos will be a great asset for those who miss or can't attend club events. When you visit the channel at the link below, be sure to hit the Subscribe button so you won't miss any future videos.

https://www.youtube.com/@MARC_learning

I'm not a writer... How do I submit an article for the newsletter?

Don't worry about what your story or article will look like. Just send the text anyway you can. I prefer plain text but I can use your text anyway you send it. You can even just type it into an e-mail if you like. Pictures really add a lot to any story. You can send them right in an e-mail or attach the files. If you like, I will send you a copy of what I've done with your info. Send it to k4bx@hotmail.com





November

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Send your shack picture for the December calendar to k4bx@hotmail.com				1 Club NET 8 PM	2 Club NET 8 PM	3 Club NET 8 PM
5 ARES NET 8:30 PM	6 MTEARS NET 8PM	7 Newbie Net 8 PM	8 Club NET 8 PM	9 Club NET 8 PM	10 Club NET 8 PM	11 Club NET 8 PM
12 ARES NET 8:30 PM	13 MTEARS NET 8PM	14 Club Meeting 7PM Newbie Net 8 PM	15 Club NET 8 PM	16 Club NET 8 PM	17 Club NET 8 PM	18 Club NET 8 PM
19 ARES NET 8:30 PM	20 MTEARS NET 8PM	21 Newbie Net 8 PM	22 Club NET 8 PM	23 Club NET 8 PM	24 Club NET 8 PM	25 FOX HUNT 10AM-2PM
26 ARES NET 8:30 PM	27 MTEARS NET 8PM	28 Newbie Net 8 PM	29 Club NET 8 PM	30 Club NET 8 PM		



MARC members Exploring D-Star Functionality

from George KQ4IKI



MARC Members Exploring D-Star Functionality

D-Star is a digital voice and data function incorporated into many ICOM and Kenwood transceivers plus FlexRadio (per Wikipedia). Since many MARC members own D-Star capable equipment, several in the club have been experimenting with it both to make local, over the air contacts and global contacts via hotspots.

The simplest way to utilize the capability is to make a local simplex communication. On an ICOM transceiver this simply means programming your call sign into the unit, touching the DR function button. Selecting one of the preprogrammed digital simplex frequencies and transmitting. The **advantages** of this mode are: 1) direct radio-radio communication and 2) incredibly high quality audio. The **disadvantages** are: 1) range is limited to the capabilities of the frequencies used, and 2) contacts must be pre-arranged because virtually nobody is monitoring those frequencies for D-Star traffic. In [this video](#), KQ4FXD, KQ4FWR and the author test the capability across Maury County from Culleoka to Spring Hill. Without blocking terrain, this distance is easily within range. In a max possible range test, I hit a D-Star repeater south of Huntsville, AL (70 miles from my station) and got a return signal albeit not good enough for voice communication.



A more popular way the club utilizes D-Star capabilities is via internet hotspots which can be accessed locally via radio signal or via Wi-Fi from a computer or mobile phone app on the same network. The most popular is the Open Spot 4 Pro which provides easy setup, portability, and onboard cross mode functionality with 8 protocols (D-Star, DMR, Fusion, NXDN, 25, POCSAG, APRS, Shark RF). Most of these protocols (including D-Star) require registration with the network before use. **Advantages:** 1) Crystal clear audio contacts anywhere in the world, 2) access to local digital voice repeaters around the world, 3) access to hundreds of reflectors (which aggregate users) around the world, and 4) auto connects to any wifi network available that you program (including mobile phone hotspot). **Disadvantages:** 1) Signal mostly travels through the internet, and 2) hotspots can be pricey.



One topic conspicuously absent from the discussion above is digital voice capable repeaters. This is because there are no D-Star and few reachable for other networks from most of Maury County. The closest digital repeater on any network is located in Franklin. As another option, our own Jonathan KQ4ATG has been experimenting with a short-range hotspot for DMR.

In summary, digital functionality that comes with many modern transceivers can be interesting and rewarding to pursue. There are several club members engaged in this which are happy to work with anyone else interested.

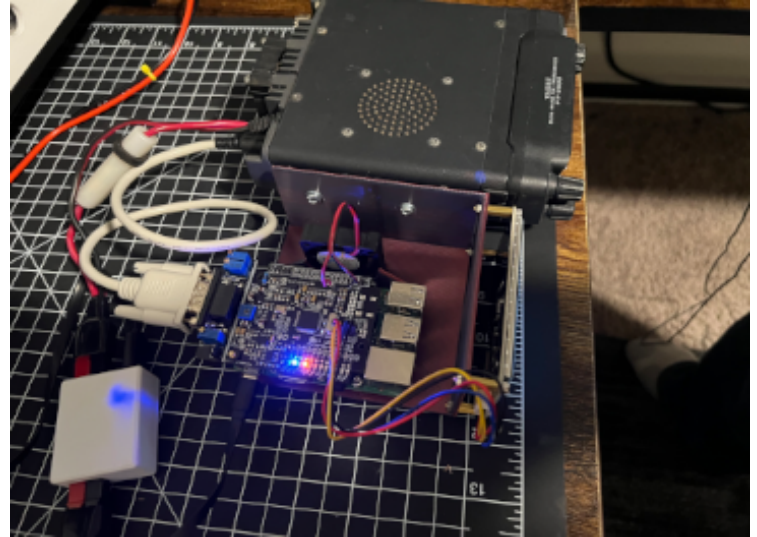
Building a High Power Hotspot for digital modes

from Jonathon KQ4ATG



Building a small hotspot tied to cell phone wifi was probably the more practical option, but not nearly as interesting. After doing some reading on how to setup a high power hotspot I decided on using a repeater-builder.com mmdvm board attached to the top of a raspberry pi 3 running Pi-Star and a regular mobile radio. At first I tried to use a Yaseu FT-1500m, a 2 meter only mobile rig, but wasn't able to match it to the mmdvm board. Ultimately I went with a Yaseu FT-7800. Both of the radios were purchased on ebay. I tried both of those radios because they have the data port needed. Most of the build wasn't very different from setting up a mobile radio as a base station, but tuning the mmdvm board to match the radio was a new experience.

Tuning the board to match the radio involved setting up the radio on a dummy load, since we were going to be transmitting test tones, and a SDR. Pi-Star has a built in command line tool called mmdvm-cal that will allow us to transmit a test tone at a specific frequency and then we can monitor the tone on the SDR (with the SDR's antenna near the dummy load). The idea is to tune the volume pots of the mmdvm board and the software audio levels so that the radio is properly transmitting the correct information but not the carrier. This required zooming way in on the waveform in the SDR software and turning the adjustment pots on the board until the center bump on the waveform was as low as I could get it. I had spent several hours with the FT-1500m but was never able to actually get a match to the radio. I swapped over to the FT-7800 because I had found a forum post where another ham had success with that model and I was able to find it on ebay. Once swapped over I was able to tune the radio in about 20 minutes. I was initially tuning for 2 meter but given that 70 cm seems to see less use decided that would be the better band to use for the hotspot and re-tuned the radio and mmdvm board for 434.600. I had gotten pretty good at turning the board by this point and it only took a few minutes.



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Tuning the receive side of the mmdvm board is pretty easy, it has a little red led on it for when the audio is clipping. Tune the radio to a active signal and turn the pot until the light just starts to come on and back off about a quarter turn.

After I had the whole setup working I designed and 3d printed a simple bracket to hold the raspberry pi and board, and added a lcd screen to show the hotspot's activity on the front on the whole unit. The system is ready to go, I've ran it at my house but it turns out that I don't have the best antenna to cover the area (HOA keeping things interesting). I'm working with a few club members now to see where we can locate and run the hotspot - hopefully gettin it going soon. Since it's running Pi-Star it can support any digital mode that software package does, I've been focusing on DMR but there's no reason we can't turn on support for the other modes.

73 Jonathon KQ4ATG

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192.168.1.101 - PUTTY
root@pi-starhipow(ro):~# pistar-mmdvmcal
Stopping Pi-Star Services...
Killing any remaining MMDVMHost processes...
MMDVMHost: no process found
MMDVMHost_NoOLEd: no process found
MMDVMHost_Adafruit: no process found
Starting Calibration...
Version: 1, description: MMDVM 20190130 (D-Star/DMR/System Fusion/P25/NXDN/POCSA
G) 12.0000 MHz GitID #ff7a9fd
The commands are:
H/h Display help
Q/q Quit
W/w Enable/disable modem debug messages
I Toggle transmit inversion
i Toggle receive inversion
O Increase TX DC offset level
o Decrease TX DC offset level
C Increase RX DC offset level
c Decrease RX DC offset level
P/p Toggle PTT inversion
R Increase receive level
r Decrease receive level
T Increase transmit level
t Decrease transmit level
d D-Star Mode
f FM Deviation Mode (Adjust for correct Deviation)
D DMR Deviation Mode (Adjust for 2.75kHz Deviation)
L/l DMR Low Frequency Mode (80 Hz square wave)
A DMR Duplex 1031 Hz Test Pattern (TS2 CC1 ID1 TG9)
M/m DMR Simplex 1031 Hz Test Pattern (CC1 ID1 TG9)
a P25 1011 Hz Test Pattern (NAC293 ID1 TGI)
N NXDN 1031 Hz Test Pattern (RAN1 ID1 TGI)
K/k BER Test Mode (FEC) for D-Star
b BER Test Mode (FEC) for DMR Simplex (CC1)
B BER Test Mode (1031 Hz Test Pattern) for DMR Simplex (CC1 ID1 TG9)
J BER Test Mode (FEC) for YSF

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Gigaparts to open new Superstore



With over 55,000 square feet, the new GigaParts store in Huntsville, Alabama will be one of the largest technology stores in the southeast. The site for this new store is located just 4 miles from the US Space and Rocket Center, at the entrance to the second largest research park in the US, and adjacent to Huntsville's new MidCity shopping and entertainment district. This location will serve as a prototype for future stores being added across the United States as early as 2025.

Renovations to the building began earlier this year and the new GigaParts should be ready to open in the first quarter of 2024, at which time the existing store at Paramount Drive will close. GigaParts has served Huntsville for over 25 years, selling and servicing ham radio gear, computers and networking equipment. This new, larger location allows GigaParts to not only showcase more of the products they currently sell, but also provides space to expand their existing product lines and add new product categories including photography, astronomy, general aviation, and makers components.

For those of you that wonder what its like to be on a Dxpedition check out the YouTube video of the K1N operation.

<https://www.youtube.com/watch?v=07Zftre0Wpl>



QSL card of the month. I've heard of POTA and SOTA but didn't know there was a NOTA!

NASA on the Air

Ramblings from the editor...Bill K4BX

Since nobody wanted to send in their story of what they've done on the radio this past month, I guess I'll have to write about myself again! It's amazing how hams can be so private and keep to themselves. You would think that ham radio would be a social hobby. I'll be honest with you... if things don't change I'm not going to be doing the newsletter much longer. Don't get me wrong, I love doing creative things like the newsletter but I need something to work with. I hate trying to find interesting things to fill empty pages. First of all, what I find interesting may not be interesting to you. What you do on the bands is no doubt different from what I do. The important thing here is that telling about what you are having fun with or trying may stimulate others to try something new. If nothing else, think about the following statement: No one reads a newsletter for the minutes and financial report.

I have to say I'm optimistic with some of our newer members. As an example, Kudos to Coz and Scott's Antenna Party which was a great event and I'm looking forward to their next project. Then we have Keith doing videos and photos for the club which is fantastic for people that can't or don't attend meetings and other club activities. Let's not forget Andreas doing the Fox Hunt. Things are looking up.

Back to what I've been up to. Since fall is here and winter is coming, I always think about 160 meters which is just about the AM broadcasts. The band is very noisy most of the year but really quiets down during the winter. I try not to miss the ARRL 160 contest in December and the CQ 160 contest in January. I didn't have an antenna that would work on 160 so I got online and order some supplies from the Wireman for a new antenna. The 160 band is usually out of the question for most people due to its size. Did you notice that the lower in frequency, the bigger the antenna? I'm in a subdivision but am lucky to have an acre lot that allows me to put up a 260 foot doublet that I fed with ladder line. I usually only have one antenna and I try using it on all bands. It's been working good on all the bands although my autotuner has a hard time finding a match on some bands.

Last month was my 59th anniversary hamming. I got my license in October 1964. I can't say that I've been active all those years but I was never without a station set up except when in the military. I operated CW only for most of those

years. There was a period when PSK31 really went viral and I got into that. I hung around with Jerry N4EO who was always interested in QRP (low power). He had one of the early Elecraft K2 rigs and told me to take it home and play with it. I remember getting on 30 meters running 5 watts and working DX. I was so inspired I sold my FT-920 Yaesu and ordered a K2 and operated QRP for about 10 years. When the QRP activity seemed to really slow down I once again got a 100 watt rig.

Later on Jerry was telling me about a new mode called JT65. Although Jerry didn't do the digital modes I finally looked into it and fun with that. And of course, that led to FT8 which is mostly what I do these days (while watching YouTube). My best contact of the month was working Iraq on 20 meter FT8. What was interesting about that contact was that I was watching TV when Buford W4HVV called from Texas telling me that he worked Iraq. I went up and fired up the computer and Iraq was still there and I worked him. I then texted Paul WB0CJB and he worked him also. That's what I call networking!

My FT8 operating has really slowed down due to FT4. When they first came out with FT4 I tried it a few times and didn't think much of it. They said it wasn't as good as FT8 so I ignored it. About a week ago I was kinda bored with FT8 and checked out FT4. I got on 12 meters when the band was really hot and think I worked 40 countries in one setting. Now I do FT4 unless there isn't any action. FT4 is not busy at compared to FT8.

I still do some CW but I have to admit I've gotten lazy and do too much digital stuff. On weekdays I have a CW sked with a friend in Ohio on 30 meters to get a CW fix. I also check CW for POTA guys from time to time. I've worked over 300 parks and that's mostly on FT8. I swear, I think the POTA group are keeping the bands alive! They are very active. Anyone else in the club do POTA besides Justin K4LEN?

Talking about CW, I just finished the ARRL CW Sweepstakes doing 200 contacts. Paul WB0CJB did 212 worked 46 states. To top that off my friend in Ohio worked all the states and 82 of the 85 sections! Anybody else in the club play CW?

73 and a HAPPY THANKSGIVING to all... Bill K4BX