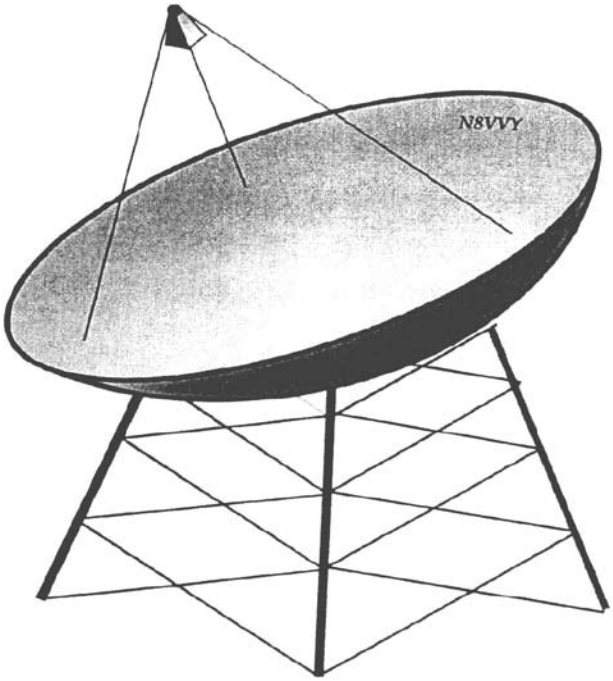
Next Mtg: Fri 6:30 Sep 23 at the MCL Cafeteria in Kettering
Meeting is always the 4th Friday of the month.

September 27, 2019.

ANOMALOUS PROPAGATION

Newsletter of the **Midwest VHF/UHF Society**

Editors: Open



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Annual membership is $12.00 newsletter by Email or $16 if newsletter by USPS.
Make checks payable to Joe Muchnij, N8QOD and mail to:1214 Cottingwood Ct. Bellbrook OH 45305

MIDWEST VHF-UHF SOCIETY

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Beacons: 1296.079 W8KSE EM79ur Dayton, OH---- 2W to Big Wheel at 800' AGL. MVUS Skimmer -. http://www.reversebeacon.net/dxsd1/dxsd1.php?f=0&c=w8kse&t=de

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De W8RKO

This months “President’ Column” comes to you by way of the vice president.

Our October meeting will be held at the normal place (MCL Cafeteria in Kettering, corner of Far Hills and David Rd) on Friday October 25th. I try to get there by 6pm, have dinner, then the meeting can start sometime after 6:30 when everyone is finished with dinner. You don’t have to buy food. You can get into the meeting room without going through the line.

My major project this fall is to get my antennas back on the tower. This is the last chance to do antenna work for the year as the temperatures are falling. Unless, of course, you like doing antenna work in Siberia. For me a severe winter is when the temperature goes below 60. I have three of the yagis up. Just need to get the Mosley 33 on the tower. The next phase is to put an new matching arrangement on the 160 meter Inverted-L. That is all ground work as the inverted-L is already on the tower. It will be serving triple duty as the 160 meter antenna, 630 meter transmit antenna, and a 5/8 vertical on 30 meters via a trap. Assuming I can make all this work of course. Are any of you doing last minute antenna work? If so, we can discuss it at the meeting. Or maybe you are waiting for January for Siberia weather. After all, they say antennas work better when put up under adverse conditions.

For those that work contests the CW and Phone sweepstakes is November 2 -4 (CW) and November 16-18 (Phone). The EME 50 – 1296 contest is November 16 -17. There are many other smaller contests in November too numerous to mention here. The ARRL frequency measuring test (FMT) is scheduled for November 8 at 02:00 UTC (that is Thursday evening EST). See the November, 2019, QST, page 90 for details.

Speaking of time don’t forget that we go back to EST on Sunday, November 3rd.

As it gets colder and darker earlier we have more inside time for projects and operating. Come to the meeting and talk about your radio plans for this winter. Anyone going to try 160 meters or 630 meters for the first time?

Mike

W8RKO

Photo is Mike installing the rotor on the tower, from article on page 10.

This and That

Improvement. There is only one corner of the universe you can be certain of improving,and that's your own self. [Aldous Huxley]

Company: "A people that elect corrupt politicians, impostors, thieves & traitors are not victims...but accomplices. [G. Orwell]

Writing: Actually, I've written on a lot of computers. I had one typewriter for 50 years, but I've bought seven computers in six years. I suppose that's why Bill Gates is rich and Underwood is out of business. [Andy Rooney]

Porcelain: Not likely we'd refer to "porcelain" by that name if Marco Polo hadn't thought its cowry-shell appearance resembled a pig's back,so called it"porcellana". [L.M. Boyed]

Belonging: Only when all people around you are all different will you belong! [Little Man Tate]

Hats: Report is half the $ 1 billion spent on hats goes for caps of the baseball variety. {unknown}

The Future... The best thing about the future is, that it comes only one day at a time. [Abraham Lincoln]

Jokes: I don't make jokes. I just watch the government and report the facts. [Will Rogers]

Paradise": America is the paradise of lawyers. [David J. Brewer]

Viewpoint: The doctor sees all the weakness of mankind; the lawyer all the wickedness, the theologian all the stupidity. [Arthur Schopenhauer]Jury

Jury: A jury consists of twelve persons chosen to decide who has the better lawyer. [Robert Frost]

A nickel: A nickel ain't worth a dime anymore. [Yogi Berra]

Good thought: Sometimes a fool makes a good suggestion. [Nicolas Boileau]

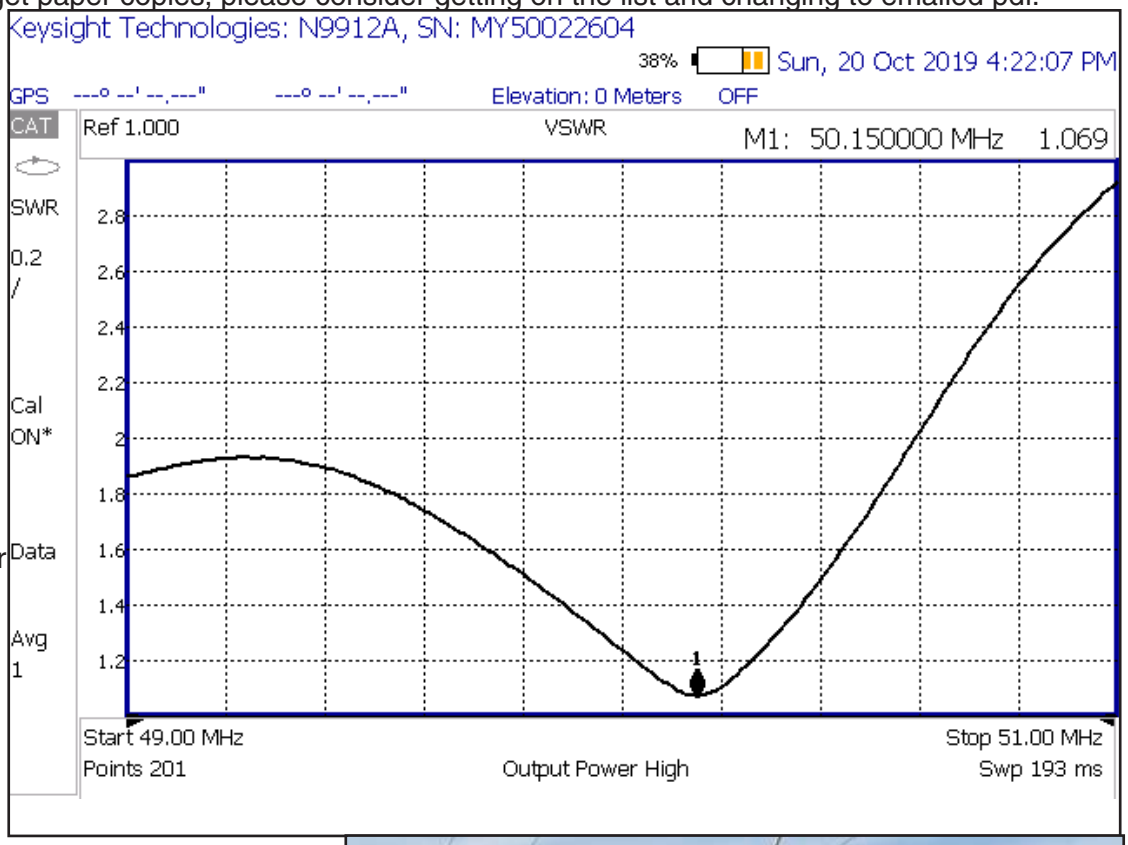
vy73, Gerd.

MVUS Email List

Little by litle I have been going through the Excell spreadsheet of members of MVUS. A number of people we do not have a valid email address for. About 27 are not on our email listserver. I would like to ask that everryone get on t he list server. At most there is no more than about 10 emails a month so it will not overload your inbox. Most of what is on it is my sending out the PDF version of the news letter or my reminding everyone about the monthly meeting at MCL. There is ocassionial things for sale or contest related items.

To get on the email list you can either send me a email asking to be added or you can go to http://lists.febo.com/mailman/listinfo/mvus-list_lists.febo.com and request to be added. My email address is j.bacher@ieee.org or wb8vsu@arrl.net .

For those of you who still get paper copies, please consider getting on the list and changing to emailed pdf. Couple reasons to consider making the change. First is $$. The next time you renew and want to stay paper newsletter your yearly dues go to $16 a year (or $1.25 a month), verse $12 (or a dollar a month). You will get the newsletter before the monthly meeting verse the tpical after for snail mail. It takes volunter time and effort for the paper copy. The small amount we are charging doest really cover all the costs.



If you did'n't know it is the 4th Friday of the month except for August. Sometimes due to Holidays it gets moved. You do not have to buy dinner to attend. In general people start arriving about 6:30 PM and the meeting typically starts when everyone is done eating.

Jim, WB8VSUI

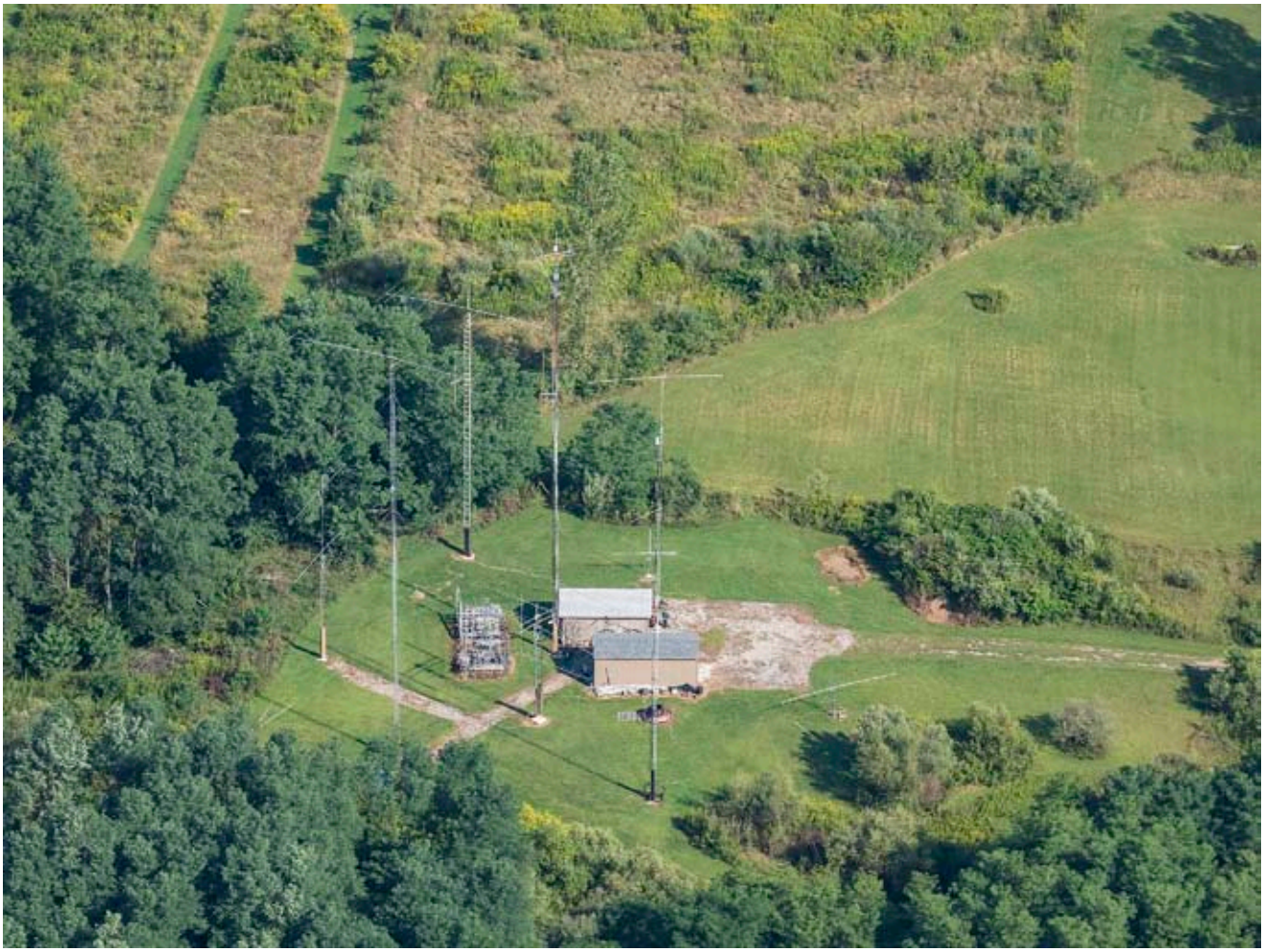
Photo's from article on page 10. The bottom photo is the 6M beam going up. The above photo is the SWR curve after it was in place

N8GA Contest Site

For awhile there has been a group of MVUS members participating as a contest group at a location referred to as the “HIll”. For a number of years it ran under the call N8ZM. Recently a decision was made to get a contest call so it did not get confused with Tom’s call, so it is now N8GA. At the moment it has capabilities from 6 Meters through 1.2 GHz. Below are arial photo’s by our Society Photographer..

More Photo’s at:

https://www.dropbox.com/sh/pke10c1q0cvcvst/AACsmQmpfTnIk-D-Iniz67Moa?dl=0



N8GA - Continued

NanoVNA

There is a group that meets for lunch that has been discussing the NanoVNA. If you didn't know about it, its a very low cost VNA. Below is snipits from that conversation.

Dana, K8YUM Yesterday (October 13, 2019) I learned of some videos talking about the amazingly-low-priced nanoVNA, and I took time to watch a couple (one of which is almost an hour in duration).

https://hackaday.com/2019/08/11/nanovna-is-a-50-vector-network-analyzer/

https://www.youtube.com/watch?v=mKi6s3WvBAM

On the strength of these I decided that this machine was perhaps worth a closer look, and so ordered one from Amazon. I picked the *Aursinc* unit despite its higher price because it got better reviews. I don't know if this difference reflects differences in the relative technical merits of the various brands, but even if it's only a matter of quality of service from different vendors, I felt it worth risking the extra few bucks.

Dana, K8YUM: It just occurred to me that one of these nano-VNA's would be the cat's meow for checking out attenuators and terms t swap meets. And, to some extent, filters, too, limited by the frequency coverage of the nano.

John N8UR: I recently got a nanoVNA. I'm not sure which manufacturer -- it was the top selected/best rated one on Amazon and I think was $79.

I've only played with it a little bit, but thought you might be interested to know that there is a Linux program called "NanoVNA-Saver" that works pretty nicely to control plots and capture S parameter files.

A few very initial observations:

1. it goes down to 50 kHz, which is cool for LF stuff

2. The sweep is a non-adjustable 101 points -- but the NanoVNA-Saver software allows you break a sweep into chunks, each of which is 101 points, so you can do e.g. 401 points by using 4 segments at the cost of increased sweep time.

3. Using the calibration routine in external software is a bit touchy. I had to do a hard reset of the nanoVNA and then a rough cal using the built-in interface, and save that in memory 0, before doing the computer-controlled calibration. I think, but am not certain, that you need to enable two channels with one set to S11 and the other to S21. I have a suspicion that the channels need to be enabled for the cal routine to be able to pull the data, but I haven't been able to verify that.

Before had a valid basic cal (ie, full sweep 50 kHz - 900 MHz) stored in SAVE0, I was getting utterly insane results trying to do a narrower-range cal in NanoVNA-Saver.

That said, for the money it's a pretty remarkable toy.

Bruce, ND8I: I wanted to pass on some of my findings about the nanoVNA

(https://www.aliexpress.com/item/4000199953315.html?spm=a2g0s.9042311.0.0.6a4c4c4diVdZHH).

Being cheap bastard that I am, I bought one from China (~$35) rather than buy from a reputable vendor and spend about twice as much ;-)

NanoVNA Continued

When mine showed up I plugged it in to a USB port and the display came up and it appeared to work. On the other hand, I couldn't actually change any parameters and my PC didn't recognize the device. I was beginning to think that I cheaped out a bit too far. Turns out that there were two problems with the unit I got from China: 1) bad firmware load and 2) cheap USB-C cable. Apparently, USB cables come in two varieties. The first provides full USB connectivity. The second only connects power (+5V/GND) and doesn't provide any USB connectivity. Well, you know which one China sent. I swapped out a good cable and still couldn't connect to the nanoVNA. Bad firmware load.

I figured at this point I have nothing to lose by upgrading the firmware. I scrambled around looking for an already-built version of the firmware - the selections on line are confusing. I finally settled on building my own from scratch. That turned out to be not that hard. I uploaded my firmware build and the nanoVNA worked as advertised (with my new USB-C cable).

In order to make this work I had to use a separate programmer (ST-Link - purple thing in the picture below) and a piece of software (STM32 ST-Link Utility - free from ST Microelectronics www.st.com

<http://www.st.com%29>) along with the firmware I compiled. I also soldered some pins to the board. The 4 connectors from the ST-Link go to the group of 5 pins and I use a jumper across the 2 pins together to put the microprocessor in programming mode. You connect the power (3.3V, GND), clock (SWCLK) and data (SWDIO) lines from the ST-Link to the nanoVNA. I had to chop the pins off somewhat and take a Dremel to case to make everything fit.

If your nanoVNA does not have a defective firmware load there's an easier way to upgrade the firmware. You use a program called DfuSeDemo (also from ST Microelectronics) to load a firmware image into the microprocessor. You upgrade the firmware over the USB-C connection. However, you still need to put a jumper across the 2 pins to put the microprocessor in programming mode and then cycle power. In lieu of soldering a jumper, you could probably just hold a wire jumper across the pads on the circuit board.

I found a firmware mod to extend the frequency range to 1.5 GHz (https://groups.io/g/nanovna-users/files/Firmware/NanoVNA%20firmware%20build%20by%20Erik). This works, although I haven't spent any time with it to get a feel for how (in)accurate it is. The author warns that the accuracy falls off at higher frequencies.

I'm impressed that the TDR portion measured by external cable (~12") as 1 ft - 1.5 in. I know that's not real accurate, but it did measure correctly within a couple of inches. I assume that measurement errors would be in the same range for longer cables.

I also found a compiled version of of the PC display software nanovna-saver (https://github.com/mihtjel/nanovna-saver/releases).

I built the firmware on Linux. I expect that all of the other software runs on Linux.

Hope some of this is useful.

73 TOB

W8RKO - Antenna Party -Cont'd

A month ago we took the antennas off of the tower. That allowed me to inspect and make a few changes to the configuration. The first change was to add 6-meters (50 MHz) (top antenna). The original 432 MHz antenna was tuned for Amateur Television (ATV) at 420 MHz. I replaced that antenna with a similar design but tuned for SSB 432.1 MHz (next antenna down). The VHF 144 MHz antenna was inspected and tested. No changes were made so it was re-installed (next antenna down). The HF antenna is a Mosley Classic 33. I enhanced it by adding the WARC band option and an overhaul the traps. I planned on adding the 40 meter kit but doing so resulted in a configuration that we could not install on this tower. I removed 40 meter kit. A new, stronger mast was also installed. The rotor was also re-installed today. Unfortunately, we ran out of time (and my energy level) so the Mosely did not make it up this go around. The Mosley will be the bottom antenna and the largest. We will need another work party to install the Mosley and finish connecting the cables.

Mike

W8RKO