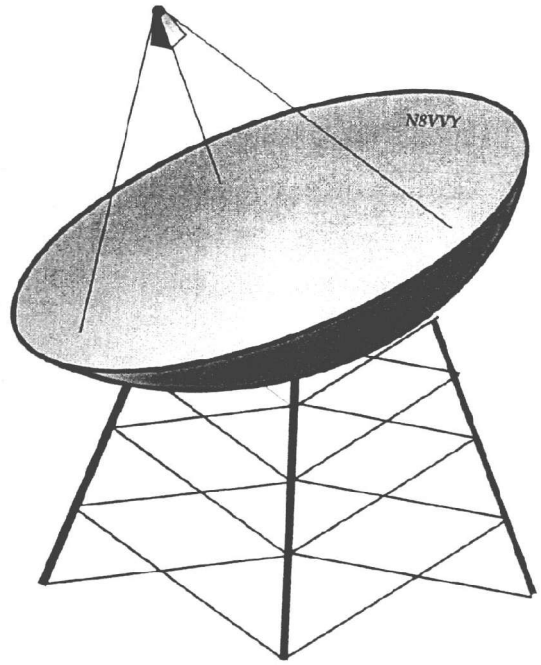
Next meeting is the Picnic in August (Sat 30 Aug.)

June/july2014

ANOMALOUS PROPAGATION

Newsletter: ***The Midwest VHF/UHF Society***



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MIDWEST VHF-UHF SOCIETY

Vol. 28 No. 5 www.mvus.org June/July 2014

Beacons: 1296.079 **W8KSE** EM79ur Dayton, OH---- 2W to Big Wheel at 800' AGL.
Listen for the **10GHz Beacon** at EM79qk, tower of **K9AYA,** 2W @ 10,368.000 MHz

***Central States VHF Society Conference – July 24–27, 2014, Austin, Texas** • Austin Marriott South I35 at HWY 71 (SE)

Contents

Pres. Tom Holmes, N8ZM Vice Pres. Bob Mathews, K8TKQ Secretary, Steve Coy, K8UD Treasurer, Gerd Schrick, WB8IFM	The next meeting is our annual picnic and measurement event on Saturday 30 August at Daun and Karen Yeagley's place near Wilmington, OH. Details will follow in the August newsletter.

Noise sources available in two frequency ranges: 50 MHz to 3 GHz, and 3 GHz to 11 GHz. Fully assembled and tested with ENR data provided. The lower frequency version $50 including shipping in the USA. The 11 GHz version is $95, but delivery is about 8 weeks ARO.

Contact N8ZM at n8zm@mvus.org for more details.

De N8ZM. Good Grief, Charlie Brown, it's been over a month since Hamvention and I still haven't found time to play with the few toys I bought. The weather has been decent for working outside so the yard has been getting some attention, and then there was the June VHF contest to run. And transportation issues for the daughter and grandson to resolve.

But I have a glimmer of hope that soon I will be getting my antennas back up higher than before as well as getting the shack remodeled so that I can actually walk in there without having to climb over assorted objects. One can always hope, I'm told.

We should soon be receiving the 2304 beacon antenna array, so the stuff to drive it has to start getting some attention. I have had a couple of suggestions for how we might implement the RF generation part and those need to be discussed and decided upon.

I also need to get with Mike, W8RKO, to finish up the 1296 RF hardware. I think it is mostly a job of system integration (that's a fancy term for how do we get it stuffed into that little box?).

Hamvention went well for MVUS this year, as the booth had many visitors and the balloon launches went very well. The large EX balloon went up by Indian Lake and came down within ¼ mile of where Bill, WB8ELK, predicted. The smaller balloons launched on Saturday took off for who knows where, as we lost track of them just west of Columbus. It was interesting that the tracking/prediction web site (spacenear.us) showed one coming down jest east of Columbus, one coming down in Ontario, and the third one headed out over Iceland. Now to be honest, that is all computer prediction; we don't have any feedback on where they really went (Zanesville?). For next year, Joe, N8QOE, and I will have to working a little harder on the telemetry collecting aspect. We did better this year but still have some improvements to make.

Question from out of the blue: Is there any interest amongst you, dear readers, for a high power bias-tee good for 50 through 500 MHz at 2 kW capability? Drop me a line yea or nay at n8zm@mvus.org.

For that matter, if you have anything else on your mind that you think I should hear about (related to MVUS, of course), then please drop me a line about that as well.

Gerd will likely have an announcement elsewhere in this issue, but the picnic is scheduled for August 30th, once again at the home of Daun, N8ASB near Wilmington. We will again provide the burgers and brats (not the kind under the age of 18 with two legs), as well as liquid refreshments, zero proof per our lawyers directive. If you feel like bringing something, snacks and desserts, as well as side dishes are welcome. I always suggest that you bring just enough for maybe a half dozen people as we always have plenty left over. On the other hand, the variety is always enjoyable.

We may or may not have a meeting in July, as it has been traditional to skip that month because many were going to the Central States VHF Conference, which is in Austin, TX this year. However, not many of us have been attending in recent years so I will plan for a July meeting unless I get out-voted.

See you guys in July (maybe) and/or at the picnic! Have a great summer! De Tom, N8ZM

PS. We would like to welcome readers, who may become members of MVUS, who got a temporary membership as part of a minor Hamvention prize!

This & That 5-14

Butlers. With the number of rich people booming worldwide, there is a growing demand for domestics to serve them. Four decades ago there were only a few hundred butlers left in Britain; today there are 10,000. The fastest growing butler market: China. [The Week, 5-30-14]

Amateurs like Garage Chemists. ...we put a lot of stuff in a test tube and hope nothing blows up. [Kristine van Ogtrop in Time/June 2-2014]

Web Wisdom. A Cell is what people often mean to say when they are talking about a battery, but the majority of the time the term battery is used to avoid confusion in customers. A cell is simply an electrochemical device that is capable of storing electrical energy and it will consist of both positive and negative plates, along with electrolyte. [Salesman talk]

Hitting the Target. "Talent hits a target no one else can hit; Genius hits a target no one else can see". [Arthur Schopenhauer,1788 – 1860]

Optimist... An optimist sees the glass half full. A pessimist sees the glass half empty. An engineer sees a glass twice as big as it has to be. [www.scnmag.comm 6/2014]

Old Computer. “An old computer is not like fine wine or cheese. It's more like old fruit: the longer it sits, the more it rots.” [Barry Cranmer]

Interesting Data. I bought the ARRL Pocket Reference Book and was expecting like a condensed Handbook with all the pertinent data a ham might need. Well, I got a lot of data, but not necessarily what a ham is looking for. So I learned the composition of a human body: here are the percentages (only to the 1% level). 65% Oxygen, 18% Carbon, 10% Hydrogen, 3% Nitrogen, 1.5% Calcium, 1% Phosphorus...The list goes on with 41 more elements; the last one being Radium with 10 exp -13 %.

[ARRL Pocket Ref. Under “General Science”]

Some Novelty. "The horse is here to stay, but the automobile is only a novelty—a fad." - Advice from the president of the Michigan Savings Bank to Henry Ford's lawyer Horace Rackham.

[Styme58, Bloggpost]

2014 Goubledegook. Here is a subtitle that's supposed to explain things: “Payette constructed a new paradigm for future biocontainment facilities”. [Laboratory of the Year/ R&D Mag.]

Eating Carrots in WW2. As children, living in The Netherlands we learned that carrots do improve eyesight because we never had seen a rabbit with glasses. This fact helped our mothers to convince us to eat our vegetables. That and WWII when we had not much to eat.

[jackvandijk June 24, 2014]

The Glonass Debacle (April 2014)
(Russia's Global Positioning System)

Nothing is 100% safe! GPS and GLONASS are wonderful tools! Sadly, we have become a bit too dependent on them and the crapp can and WILL hit the air moving device WHEN they fail! Good backups, several layers deep, are mandatory.

What can happen? Take your pick - EMP, act of war, hackers, careless programmers, bunch of asteroids; whatever. NOTHING made by man is 100% reliable. Never.

Let us hope the Russian failure is a wake-up call to intelligent folks!! Mike Gray/ WA8HNS

Faulty Software Determined Cause of GLONASS Failures

April 25, 2014 - By GPS World staff

The two April failures in Russia's GLONASS were caused by mathematical mistakes in software, according to Oleg Ostapenko, head of the Russian space agency Roscosmos.

Russian newspaper Ria Novosti reported on a press conference where Ostapenko said that programmers who had designed the satellites' new software had made several mathematical mistakes, but the problem was not major and has practically been solved. "There were some mathematical mistakes, but they have been corrected," he said.

Ostapenko said that the remaining problems would be solved by mid-May, and there is almost no chance of a similar failure happening in the future.

June 2014 NE8i Rover, Contest Report:

I operated from 7 Grids: EN74, EN73, En72, EN64, EN63, EN82, EN82. I drove a total of 1,000miles and made 30 contacts. Most contacts were across Lake Michigan.

Saturday Evening Lake Michigan was as smooth as glass. I could see Wisconsin Lights. Good signals. 6M on Saturday was poor! There were some openings on Sunday. My problem was, the 6m antenna broke and I could not fix it on the road! Then I did not have the time to prepare 222 and 902. It was hard enough to get the 2m working on receive this year and this contest.

About power, it really is so important to run higher power on 2 and 6 along with good antennas. 6m had some activity on Sunday, but 2m evaporated, so I went home early.

I worked about one in three stations that I called. I heard W1AW/0 from Mich., with a good pile-up.

I plan to be on 6 and 2 for the CQ-VHF. Where I drive will depend on band conditions.

This last Saturday (6-15) there were several rovers in the rare Michigan grids: EN85, EN86, etc. Obviously they were hoping for 6m to open up. 73, Lloyd

June 2014 MAD Rprt.

There was quite a bit of activity, mostly on 1296 and 10 GHz. K2YAZ & myself did not get on due to 2m station problems. Calls heard here: WW8M, WA8VPD, W9ZIH, K8RAY & K8JA.

I am looking forward to the July & August MAD, first Saturday of the month: 6AM to noon. Expect to be on 144.260/ Rover! 73, Lloyd, NE8i

Revealing e-mail from: Dana Whitlow (LWTG)

Sent: Tuesday, May 06, 2014 3:13 PM
To: undisclosed-recipients:
Subject: Is no place safe from QRM?

Hi Guys,

Let me tell you a sad story about QRM in the big universe. No, it's not that kind of QRM- we still haven't been QRM'dby "them". But still, this is perhaps on a larger scale
than we're accustomed to thinking about.

We have a frequent user of the 430MHz radar for ionospheric studies who, a few years ago, thought of a natural mechanism by which the moon might emit short bursts of broadband radio & microwave signals. He eventually got a grant to try this experiment, and was awarded time on the Arecibo telescope. Yesterday was the big day!

We set up a receiver and set the telescope to poise at one end of its tracking range where the moon would enter, then begin tracking. So the time came and the moon entered the beam, and lo and behold there were signals- zillions of them. Point away from the moon and they disappear, point back on the moon and the reappear in all their glory.We
eventually concluded that most of them are from military radars on the earth, which scan by the moon when it's not too far from the radars' horizons.

So our poor scientist had his grand experiment nipped in the bud.It's so sad...

Dana

DX on 902Mhz Thu Jun 12, 2014 Posted by: "Stanley M Miln" k6rmr

First North America-to-South America Contact on 902 MHz Moonbounce Reported
Some hams may not even realize that there is a ham band at 902 MHz, but Bruce Halasz, PY2BS, in Embu, Brazil, reported on the Moon-Net reflector that after months of preparation and testing, he and Al Ward, W5LUA, in Allen, Texas, completed a two-way EME (Earth-Moon- Earth) -- or moonbounce -- contact on the band on June 8.

PY2BS said the main issues he had on his end involved reception, including "an in-band noise from another service" that he could not eliminate by filtering. "Fortunately, " he said, "its bursts are spaced enough apart to allow [reception] from the moon-coming signals in between them."

W5LUA has a 5 meter solid dish and was running about 400 W at the feed point. PY2BS used a 5.1 meter mesh dish with 180 W at the feed point. Both used very low noise FET preamplifiers. W5LUA and PY2BS exchanged reports on CW (549/559) and JT65C (-17dB/-18 dB).

"We' ve found out that [the] Faraday [effect] does exist at 902; [it] just rolls kinda slow," Halasz added. He said his 902 MHz setup is temporary, but he is interested in contacting other stations. -- Thanks to Bart Jahnke, W9JJ
[Non-text portions of this message have been removed]

Are you up-to-date with clocks? By Gerd/WB8iFM

Years ago I went through the house in order to count the number of lights we have. The occasion at the time: we just had experienced some sort of a lightning strike in the neighborhood, and it knocked out a number of light bulbs.

It was early evening, around 9PM, a thunderstorm was going on. Lights were on in the house and the TV was on. Everybody was doing their thing (xyl and two teens). Suddenly it hit, a number of light went out, the TV picture shrunk to a small spot in the center, then miraculously, came back to full size. The lights however stayed out, there may have been one or two light left but most of them were gone! I went around the house and changed 5 bulbs. That number still sticks in my mind!

Anyway, the other day, must have been around the time we engage in the silly custom of setting our clocks backwards or forwards (BTW a remnant of ww2 vintage!). I scurried around the house to figure out the correct local time in Dl, so I could figure out an optimal time for a QSO.

Well, that's when I noticed all the clocks we had and a lot of different types etc

The most important room in the house is, of course, the radio shack! I counted three clocks: A large numbers 24 h LED clock that runs of a separate 115V AC , so is not direct connected to the station AC. This one shows UTC. Next there is a battery operated small clock that is controlled by radio (WWV Colorado) and shows local time (presently EDT) day of the week, date and month. Then there is another battery operated 12 hour wall clock that shows local time. So if the AC drops there are two battery operated clocks with the essentials to give us a “bearing.” The wall clock also is the only clock that uses a “local' reference, which is a quartz crystal. This x-tal can deliver an astounding accuracy and you can find it in in wrist watches and other small clocks. Of course if they are not built to precision or carefully selected they can get off proper time in days, while the real thing should not need adjustment for at least a month, mostly longer. We have one “high end clock, from Bloomingdale” its called “millenium 2000” and it still, after more than 14 years shows the proper month, date, hour, minute and seconds. At this time it runs just 45” fast. …

I just found out somewhat hidden ...there is an additional small alarm clock that runs on AC but with hands for hours, minutes and seconds. This one has the advantage, if the power goes off, to retain the settings at that time.

Now for the rest of the house: in one office/bedroom we have a battery, digital, radio operated wall clock. It shows time down to the second, further day and month and room temperature. It also has a crude (4 segment) “S-meter”. This is basically our “reference clock” which we use to “synchronize” our wrist watches.

Each bedroom, of course, has its Alarm Clock, they are all AC and controlled by the power grid frequency. Accuracy is very good and on a par with the radio signal. Of course, they do not set themselves like the radio clocks and thus, if you loose power or you accidentally unplug them they need to be reset “from scratch”.

Now how about some older types not run by the radio or power company?

I am not quite old enough for the grandfather clock, and I think at that time if anybodies grandfather still had a “grandfather clock, it was left over from his parents and only kept as a show piece! Anyway, We had a pendulum wall clock and the pendulum was approximately a foot long. Resulting in a period of 1 second….

People still have pendulum clocks, you can purchase them in the Black Forrest region of Germany: they are called cuckoo clocks. Those also are using weights to run the gears, no battery or AC. These old clocks, aside from showing time with their hands, would also indicate hours by striking a bell or a call from the cuckoo. No opening of the eyes required, you just count the number of bell strokes. Very practical. If you lived near a church, of course, you just needed to crack the window a little and you hear this bell all night. The more elaborate clocks would also indicate the quarter hours.

Other signals from the “old days” were the noontime (12h) whistles from nearby factories, as well as these whistles for beginning and quitting time. BTW, my old QRG (place of work) now plays some patriotic music when they start and stop work. I never heard their lunchtime signal yet. Maybe there is none.

Most old radio stations would pause before the full hour and for a minute or two play their pause signature signal, then there would be a time signal with a dot for each second and a dash for the begin of the new hour. That's so you could set your clock! Those were the days!

There is in the center of Munich a church showing not just the usual 4 faces of their church clock for the four directions but there is another set of 4 clocks just beneath. Invariably the strangers want to know why this is? The answer is simple, of course, this being a busy place of town it is important to have enough clocks for people to look at.

Finally, I gave up to check for more clocks, needless to say you also find some in appliances, in telephones and more unusual places!

Cable and Connector Hell Apr 18, 2014 by Lou Frenzel in Communiqué

Someone once told me that I shouldn't be fooling around with cables and connectors, that's what technicians were for. There is some truth in that as early in my career I worked as a tech and spent an inordinate amount of time screwing around with cables and connectors. But where have all the techs gone today?

If you have been an electronic engineer for a while you know that you cannot escape the nightmares of too many types of cables and connectors. There are millions of each and if you are like me you never seem to have one that you need. There are power cables and connectors, RF coax cables and connectors, TV and video cables and connectors, audio, microphone, and speaker cables, and a whole slew of test instrument cables and probes. Oh yes, fiber optic cables and connectors. How about AC power cables too including 3-phase? What did I leave out?

A typical situation for me is setting up to test a design or some piece of equipment. It needs to be "hooked up". You may need a power cable first or maybe that is just an AC cord. Great, now just be sure you have a power strip with an empty slot to plug it in. Then there are input and output cables. These are often coax. How many different kinds of coax are there? And, of course, the dozens of different kinds of coax connectors. I never seem to have just the right type of cable or connector. Or as it often turns out, not having a long enough cable. I regularly keep several types of coax connector adapters to change BNC to UHF or UHF to N-type and so on. Very useful.

One thing I have stopped doing is making my own cables, unless they are extremely simple, like a speaker cable or some hook up wire. Trying to attach a coax connector to a cable is a tedious process and fraught with potential shorts and opens. And you typically need a special crimping tool that costs more than the cable and connectors you are trying to assemble. Did you ever try to put an RJ-45 Ethernet connector on a CAT5 cable? Fun, fun, fun. Anyway, I now buy preassembled cables with connectors. They cost more but it saves time and massive aggravation.

Someone once told me that I shouldn't be fooling around with cables and connectors, that's what technicians were for. There is some truth in that as early in my career I worked as a tech and spent an inordinate amount of time screwing around with cables and connectors. But where have all the techs gone today?

Then there are the special cables that go with test instruments. Scope and analyzer cables are special cases. They need to match the instrument. Furthermore, at very high frequencies and data rates, special probes are needed to get accurate measurements. And these cables and probes are really expensive. I had to replace the probes on my old Tektronix scope not too long ago and they cost more than what the scope is probably worth today.

It was all so easy in the olden days. Hook up wire, banana jacks and plugs, alligator clips and fahnestock clips. (Whatever happened to fahnestock clips anyway?) No more. We still do have screw terminals, F-connectors, RCA "phono" connectors, punch-down blocks and DB9/DB25 connectors. Those Centronics parallel printer cables did go away.

When you are designing new equipment how do you select a connector? Thankfully most use standard types like USB, HDMI, or some coax type. But what about PCB connectors, power connectors, or inter-PCB connectors on wiring harnesses? Lots to choose from. One more thing they don't teach you in school. There needs to be course or webinar on cables and connectors. Catalogs are helpful but they don't tell you which one to choose.

I guess we all experience cable and connector hell at one time or another. It is just one of the many not-so-much-fun aspects of design and test. And by the way, what connector does one use for a JTAG port?

Lou Frenzel is the Communications Technology Editor for Electronic Design Magazine where he writes articles, columns, blogs, technology reports, and online material on the wireless, communications...

How is it going?

Metrication in the US Wikipedia

Metrication is the process of introducing the International System of Units or SI, commonly known as the metric system, to replace the traditional or customary units of measurement of a country or region. Although all U.S. customary units have been redefined in terms of SI units, the United States does not commonly mandate the use of SI. This, according to the CIA Factbook, makes the US one of the three countries that has not adopted the metric system as their official system of weights and measures. (Burma and Liberia are the other two.)[1]

Why isn't the U.S. on the metric system? (HowStuffWorks)

by William Harris

Many myths swirl around the metric system and U.S. involvement with it. Let's dispel a few. First, the relationship between the metric system and the United States dates back to the 18th century, not the 1970s. Second, all countries have either fully adopted or legally sanctioned the **International System of Units**, or **SI**, the modern form of the metric system. That includes the U.S., Liberia and Myanmar, three countries often listed as the sad-sack metric losers. Finally, a country doesn't simply "turn on" on a brand-new system of weights and measures. Even France, the brainchild behind decimal-based measuring, adopted its own metric system in fits and starts. And all countries use legacy units alongside metric ones, at least in colloquial expressions.

Despite America's long history with SI units, measuring remains a mess in the States. A football field traffics in yards while most footraces prefer meters. Mechanics measure the power of an automobile engine in horsepower (foot-pounds per second), but express the same engine's displacement in liters. Air pressure is denoted in all sorts of ways: pounds per square inch (or psi) for tire pressure, inches of mercury for surface atmospheric pressure and millibars for air pressure aloft.

And these are just a few examples. In the **U.S. Customary System**, or the inch-pound system, more than 300 different units exist to measure various physical quantities. Many of those units use the same name but have very different meanings. On the U.S. Metric Association Web site, contributor Dennis Brownridge identifies at least nine different meanings for the unit we know as a "ton": short ton, displacement ton, refrigeration ton, nuclear ton, freight ton, register ton, metric ton, assay ton and ton of coal equivalent.

Metrication in the UK Wikipedia

Metrication in the United Kingdom remains partial. Most of government, industry and commerce use metric units, but imperial units are officially used to specify journey distances, vehicle speeds and the sizes of returnable milk containers, beer and cider glasses. Imperial units are also often used informally to describe body measurements and vehicle fuel economy. At school, the use of metric units is the norm.

“All These will be LEDs”.

This is what a Japanese researcher said, maybe 25 years ago, at a symposium while pointing up to the ceiling lights. Well, we may almost be there. Even if you didn't go out and buy replacement LED bulbs yet, you have more of these diodes already around you without being too aware of them. They are in your computer and other electronic gadgets as indicator lights or to illuminate a picture. If you have an “upscale” automobile you may already have annoyed your fellow drivers with these ghastly bluish headlights. Newer LED lights already cater to the incandescent “taste” of people and offer a more pleasing color.

There are two (easy to understand great advantages for using LEDs): 1) they only require one sixth the wattage as an equivalent incandescent bulb and 2) they last a very long time. As an example a LED replacing a 60W incandescent only rewires 10 W and lasts, burning 3h a day, for 22 years. LEDs have other advantages: like they turn on or off instantaneously. They are also a very tiny light sources and close to what we call an isotropic source. So various light beams can be created. One usage I am aware of is a zoom flashlight. With this you can illuminate a large area close by or a smaller area some distance away like a search light. The available light is now contained in a narrow beam. This comes in handy for emergencies where you often have to look at a problem some distance away!

The automobile with its numerous lights, all except the headlights in a very low wattage range are a slam dunk for LEDs. We already mentioned the headlights which as I recall used to employ 35W incandescent bulbs. This now would be a 6W LED. The battery now could be made a lot smaller if it wasn't for the engine start. There, however, super capacitors might jump into the breach.

Even at the high efficiencies of LEDs there is, of course, heat being generated that needs to be dissipated and because the lighted area is so small, it is somewhat difficult. There are a number of approaches, some quite novel and easy to implement. The light fixtures are often part of the heat dissipation. That plays out with the auto headlight. I noticed some that uses a string of lights rather than a concentrated source. And there is a bulb by Phillips that employs a round (metal) band with strings of LEDS.

The old, omnipresent fluorescent (4') light tubes with their metal reflectors over them make ideal lamps for retrofit. You can purchase basically LEDs spaced a few inches apart on a roll . A suitable length is cut glued (self stick?) on the metal shield and wired to a power supply. The shield functions as a heat sink and reflector at the same time and if a diffuser shell is employed, it is rather impossible to decide whether you are looking at the original fluorescent tubes or the new LEDs. Steve, K8UD, who runs an Electronics supply, did this with a large number of his fixtures. Even thought fluorescents are quite thrifty compared to incandescents, replacing them with LEDs will cut their part of the electric bill in half!

Gerd, WB8IFM