



Vol. 19 No. 9

www.mvus.org

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Club Memorial Call W8KSE 10 GHz Beacon, presently off the air.

Meeting at the Old Country Buffet !

near SR 725 and Yankee Rd. in Centerville

Oct Meeting on **Fri 25 Nov. 7:30 PM** Topic: **Microwave Update 2006**

MVUS Sunday Net

Our Sunday MVUS net is held every **Sunday at 14:30 GMT** (we stay on GMT year-round, so currently the net is at **9:30 AM** local time). The net frequencies are primarily **144.280 Mc** and **28.960 Mc**.

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Upcoming Events!

Fort Wayne Indiana Hamfest & Computer Expo

19-20 Nov-2005

Microwave Update **2006**, 27-29 Oct in Dayton, Ohio

The MUD 2006 Committee:

Tom Holmes, N8ZM, Tholmes@who.rr.com

Mike Schulsinger, N8QHV, N8QHV@ARRL.net

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Happy Thanksgiving!

De N8ZM.

Well, another month has come and almost gone since our last meeting. Seems like time flies any more. A week in CA for work helped, too. Gerd is back from his vacation (?) in CA, and he spent a day at the MUD conference while there, gathering valuable information about the details of putting on the event. He has written up some notes about it that appear further back in this issue.

We paid a deposit to the hotel, and now need to start negotiations with them in earnest about the details. I have had several people suggest, and I agree with them, that we need to start having regular (at least monthly) meetings of the MUD crew to keep communications flowing, and progress ,uh..., progressing. We can settle on timing at the meeting, but we really should start having these sessions ASAP.

On to other business...I don't have a current report on the status of the 1296 beacon antenna, or the timing for the installation. The weather may have change enough by now that the tower workers are heading south for the Winter!! We still need to get the antenna finished and ready to go.

Whenever the tower work does get done, that will be when the antenna for the club's new UHF repeater will be installed as well. Mike, WB8GXB, and John, N8UR, are working to get those pieces in place, and should be ready to go when the time comes. AT some 900 feet above the local terrain, it should cover the SW Ohio area nicely, and hopefully will facilitate contacts on the higher bands. I also see it as a place for roundtables and nets of various sorts for MVUS members and others to chat and share ideas.

By the time you read this, the latest ARRL Frequency Measurement Test (FMT) will be history. The usual gang of suspects (N8UR, WB8GXB, N8ZM, and several others) is expected to show up. This is always an interesting challenge, as there are signals to be measured on three bands, all within a 15-minute period. And of course there are serious bragging rights for the ones who get the closest to the "right" frequency. Which is a good thing, since that and a certificate is pretty much the reward. Well, OK, don't forget the satisfaction of tackling a challenge and some good clean fun. You know, maybe we could put on a local version of this, since we have several of you interested in it. Well, enough for now. See you on the day after Thanksgiving at the buffet!

Tom, N8ZM.

Our Sunday Morning Net

By Rod, WG9F

The net is an informal gathering to exchange ideas and "rag-chew". The initial topic is usually radio related, but we often branch off into other areas of science and engineering as the whim takes us. Aviation and steam railroading have been recent favorite detours.

A second function of the net is to test equipment or run comparative testing between different antennas etc. Any participant can get signal reports or A/B comparisons from several different headings and distances, as there are usually at least four or five of us on the net, and often more, around the three-state area (OH-IN-KY). We will QSY to different bands to run tests on other bands. Most of us have HF/50/144/220/432 Mc capability, and some of us also have some microwave capability. We may use primarily the **ten-meter** band on any given Sunday, but most will also be listening on 144.280 Mc. If you only have two-meter capability, we will QSY the net to 144.280 Mc if you call in.

And as most of us run **full duplex on the ten and two meter bands** this is easily done. Also this is convenient for break-in or a more "conversational style" of operation. If an OM currently talking is forgetting himself due to his enthusiasm for a certain topic, he can be easily interrupted! A quick call on the (other) second band, and the OM will usually "yield the floor".

Finally there is another local radio society, CATT, several of whose members have an interest in V/UHF, and who join us on our Sunday net.

This and That 11-05

- **Why kHz?** Why is the k in kHz not capitalized? We do say MHz, GHz and The. Well, the capital K is used for degree Kelvin!
- **Ground Frost.** There is frost on the ground but the temperature is in the upper 30s. (During the night) the air cools only because it is next to the chilly ground. Prove it yourself! Head outside on a chilly morning with a thermometer and you may find as much as a six to eight degree difference between the air a few inches above the ground and the air five feet above the ground. (The official height to measure temperature!)
[Jamie Simpson]
- **Repair Record.** In the first three years 37% of PCs need repair and 33% of Laptops. On the low end only 7% of large ordinary TV's (30 to 36") and 5% of TVs down to 25 inches need repair.
[Consumer Reports]
- **Major League.** Baseball players are paid (at the least) hundreds of thousands of dollars in exchange for spitting, scratching and occasionally running 90 feet without a rest stop...
[D.L.Stuart, DDN]
- **Thomas Edison** and Alexander Graham Bell have to be turning over in their graves knowing what cell phones and computers have done to the morals of our country.
[Speak Up Comment]
- **Getting Lost.** Einstein made incredible discoveries, but his friends noted that he could not take a walk for fear of getting lost due to his poor sense of directions.
- **Hiding in Plain Sight.** Steganography provides a more elegant way of communicating the sensitive information in question... by disguising it as something inane and/or otherwise uninteresting. Steganography is the science of hiding one message inside another message - hiding in plain sight, so to speak. Think of steganography as the soft-spoken yet elegant sister of cryptography. [Steve Corbett]
- **Flat Screen Mania.** I saw a "flat screen" clock radio advertised by a local TV/Appliance store! What is next: a "flat screen" wristwatch?
[Gerd, WB8IFM]
- **Memory Sticks and Hard Drives.** You can now get 2 GByte memory sticks that fit in your shirt pocket or dangle on your key chain, and 300 GByte hard drives! The memory stick holds as much data as two CDs or 1400 floppies. (Remember those?)
[Gerd, WB8IFM]
- **The Meaning of Class.** "It is not the class of license the Amateur holds, but the class of the Amateur that holds the license."
[Al, K3TKJ]
- **Conversion Factors.** One bananosecond: Time between slipping on a peel and smacking the pavement. 1000,000 aches = 1 megahertz. And the ratio of an igloo's circumference to its diameter = Eskimo Pi !
- **Ultraviolet.** A LED-based device replaces lamp based lights. The first UV source of this type puts out 650 mW at wavelengths from 390 to 404 nm. Using three of those devices traditional UV lamps in almost every application can be replaced.
[Infimilux]
- **Human Heart.** It beats about 100,000 times a day. At this rate it takes 30 years to beat one billion times!
[Marjie Gilliam]
- **Microwave Temper.** TAMARAC, Fla. Oct 17-05- Things got very ugly at a Walgreens when police said one employee stabbed a co-worker over who could microwave her soup first.

More on Sporadic E

From ARLP-035 (Carl, K9LA) 8-19-05

Frank Donovan, W3LPL of Glenwood, Maryland sent in some interesting **web links** regarding six meters and sporadic-E propagation. The links are: www.uksmg.org/sporade.htm and k1six.com/eh7kw_bydate.htm. On the k1six.com link, the dates may be a bit confusing, because the title says the graph covers the period from 1995 to present, but the dates along the x-axis run from early May to the present. This graph shows cumulative activity during May through August over the past decade, so the data isn't just from this year. It illustrates when sporadic-E propagation across the Atlantic is the most common, in late June and early July.

We get reports of **TV and FM DX** during sporadic-E season, and sometimes mention them in the bulletin. Doug Allen, W0AH of Woodland Park, Colorado wrote to say that receiving FM and TV stations from over 1000 miles away via sporadic-E propagation is fairly common in the summer. He has personally logged over 3,000 FM broadcast stations via sporadic-E skip, and a few hundred of those were at 1450-1500 mile distance.

Lloyd gets around

What can I say? I get around. You are serious, or you wish you were. As a rover, it works really well. It wins contests. Stack of certificates to prove it. Not some wimpy collection of low gain inefficient vertical whips. Think this is something? Check out the parking lot say at Central States. Want impressive? Check out K6LEW rover, or ND3F rover, to name 2. Driving 50 MPH? Sorry, but I drove the posted limit not faster, like the locals do. As a result, I do not attract the attention of OSP, etc. Fame or fortune? I will take fortune, thank you. You are welcome to the fame.

Update on the 47 GHz comment in this review. **66+ miles** (>100KM) on 47 GHz.

Oct 7-05, Lloyd Ellsworth Ne8i

Turning Things Off

By Gerd, WB8IFM

Turning things off used to be so simple. Not any more. You now press a button and hope for the best. LEDs go on or off or start blinking and you have no idea what is going on. Take the PC: Turning it off you need to click (with your mouse, of course) on "Start" then you click on "Turn Off Computer", then on another "Turn Off" then the PC goes through "Logging Off" then "Saving Your Settings" and finally "Windows is Shutting Computer down". At each of these steps, which are proudly announced, the PC churns and lingers and tests your endurance of watching. I wait and wait for what seems to be an eternity, but it might only be a minute or two. Finally the PC audibly indicates it is shutting off. The fan quits running and there is no more noise. For my peace of mind I now turn the power off the old fashioned way with a normal on/off switch on my power strip. Hallelujah!

Pull the Udder One !

An Oman newspaper has reported that a cow managed to eat a mobile phone. This was discovered when the phone owner called it to try and locate it by the ringer and found the cow was ringing instead. The phone had been lost by a young woman who helped her mother feed cattle in Al-Sahm province.

There was no comment on the fate of the mobile phone - presumably nature took its usual course and the phone reappeared in a very sorry state a few days later.

[Cellphone News]

Microwave Update 2005

By Gerd, WB8IFM

Family affairs conspired to place me close to this year's Microwave Update. We had become grandparents and were visiting our daughter in Pasadena to see our grandson turn 6 weeks old. A quick check on the Internet placed the conference in Cerritos, just 25 miles or a 45-minute drive away. Shouldn't be hard to find a ride from someone in the area who was attending. I found the website of the Pasadena Radio Club with telephone numbers and made a call. I caught Phil, WA6DZS, just about when he was leaving for a club meeting. Although he was listed as the local "antenna man" and shown holding a big horn antenna in a picture, he was actually unaware of the conference coming up. He promised to ask at the meeting if anybody was going and mentioned, N6LI from Caltech as a local prospect. Phil also promised to put a note on the local bulletin board! To make a long story short, I found no ride and had my daughter drop me off Saturday morning and my son-in-law pick me up at night.

Getting to the conference hotel about 20 minutes late, I missed the introductory remarks and a small part of the first presentation. During the first 5-minute break I got a chance to look around and found a few familiar faces. But trying to locate someone you only knew by call or name was just about impossible. The writing on the nametags was too hard to read. Walking around the room, I admired the numerous portable microwave stations with the dishes and equipment on their tripods and took a lot of pictures.

The next presentation was labeled 40 m EME, with the 40m referring to the size of a dish that had become available for the xxx ham group who proposed to use it for 23 and 3 cm moon bounce. This dish is located at Owens Valley some 275 miles north of LA and owned by Caltech. There are 6 newer dishes, geared for the higher frequencies of the mm range and the older big dish is presently not in use by Caltech. One Caltech engineer lives on the premises and looks after the installation. Visiting hams can camp at the site or stay in a nearby town.

Some unused focal point cylinders were available and over a period of several months the xxxRc managed to get equipment for 1.3 and 10 GHz in one of those. Unfortunately something went wrong with the 10 GHz setup, a diode mixer is suspect, but the 23cm set up worked nicely and on one weekend 50? QSOs were conducted. The pile up was such that CW was the preferred mode, the code being easier to decipher than voice!

Jumping to the infrared range, Kerry Banke, N6IZW presented an interesting talk about bouncing signals off clouds over ranges of several miles. He also mentioned experiments by a French group who bounced signals of meadows on the side of mountains. These guys were able to bridge distances in the 50-mile range but at a very low throughput of 2 characters per minute! The equipment sure looked very simple and easy to duplicate. The receive diode costs only 25 cents and I did see Kerry sell a number of them during the next break. The transmit (lasing) diode can be had for about \$ 15.

The final three talks of the morning dealt with the problem of polarization with signals reflected back from the moon's surface. While K6HIJ, Dick Kolbly, treated the subject in a more theoretical way (he had some very good practical hints though), Kent, WA5VJB, and WA7CJO, James Vogler, had some practical experience to share. Seems like, if you are into EME, the ultimate frontier of ham radio (until it becomes Mars communication), you must experiment with polarization. Kent had an interesting comment about the reflectivity of the moon: the highest reflectivity is from the crater Tycho and the valleys and mountain ranges reflect well acting like corner reflectors.

During lunch break I walked around the building and through the parking lot where you could see some very interesting antenna spiked vehicles. Antenna measurements would take place on Sunday morning with the sources placed high on the roof of the Sheraton and measurements taking place some 600 feet away in an empty parking lot. This seems to be the preferred way to measure microwave antennas. It avoids reflections from the ground altogether.

The lecture hall was unoccupied and locked up during the lunch break, so all the displayed equipment, the audio/ visual equipment and items left behind by attendees was safe. However, in the adjacent hall, about half the size, there were several dealers, which had their wares on display and for sale. A few tables were reserved for showing historical items like old tubes including Klystrons and Magnetrons.

With components and wavelengths getting smaller the old soldering iron is getting out of style, so it is encouraging to see younger hams now getting involved in “chip and wire” bonding techniques. This was the theme of Paul’s, W2PED, and presentation. The machines required for this technique are expensive, however. You may be lucky and have an employer who’s got this capacity and lets you use the machines occasionally. One Portuguese ham, CT1DMK, put his own machine together, proving that with skill and persistence it can be done on a ham basis. Paul built a 24.6 GHz amplifier with this technology. In another presentation Paul also introduced and demonstrated free student circuit design software.

Brian Justin, W1ZMS, gave a very good overview on the good old diode. He explained in great detail the various configurations (Varistor and Varactor mode etc). He stressed the importance of the proper bias. It is amazing what small changes in bias sometimes can do for you! Michael, DB6NT, was mentioned a number of times. Apparently he is a master of this technique.

A lot of equipment is on the market operating in the microwave regions using oscillators not stable enough for our narrow band modes like SSB. Thus a Mercedes collision avoidance radar 1990 vintage operating in the 76 GHz range became available and N6IZW gave a talk on how to inject a stabilizing signal into it.

The Saturday talks ended on schedule at 4:45 and as we were clearing out, personnel already rearranged the tables getting the room ready for the banquet later in the evening. Well for me it was time to say “good by” and look for my ride home. It was a well-spent day and I left with a wealth of new impressions. A list of attendees that had preregistered showed 120. But this number was bolstered by about 60 walk-ins for a total of about 180.

Upon getting home I relaxed and after a while looked at all the various materials I had collected. I expected the proceedings to fill me in on a lot of things that I had missed. But although they contained an awful lot of material, it appeared that a committee had put the book together. By this I mean, a final look by one person that gave the whole book some coherence was missing. It turned out that some presentations were missing and others were written up but not presented. As this is to be expected some hints in the book would have helped. Additionally the program schedule, handed out when you checked in was not accurate; fortunately I had photographed the latest schedule, which was posted by the door so it could later jog my memory and alleviate the confusion.

If you didn’t take the daytrip to Goldstone (a NASA deep space ground station), you could have gone on a self-guided tour of six surplus places. Five of those were between 6 and 35 miles away but one was in San Diego some 111 miles distant. On studying the list, which included very good driving instructions and maps, I found that one store was rather close (a 30 minute walk) from my daughter’s apartment. So on our last day we visited C&H sales on E Colorado Blvd in Pasadena. The store resembled a one story “Mendelson” with mostly well-sorted surplus. I didn’t see much microwave stuff, but a huge collection of older equipment, many different power supplies and transformers. It looked like Caltech’s and JPL’s surplus winding up here to a large extent!

Next month we will print some of the many pictures I took!