

Vol. 19 No. 5

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Club Memorial Call W8KSE

10 GHZ Beacon, presently off the air.

Meetings at the Old Country Buffet !

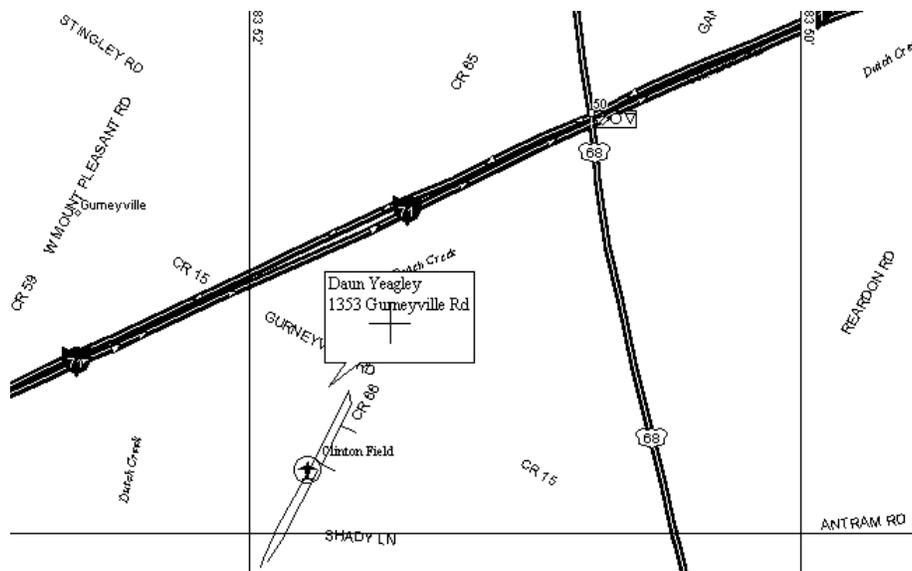
Our **June Meeting** is on **Fri. the 24th** at 7:30 PM Topics: Beacons and other MVUS Plans
 Location: at the Old Country Buffet near SR 725 and Yankee Rd. in Centerville

Contents

De N8ZM.....	3
Dancing Electrons.....	3
This and That.....	4
Update on Dish Projects.....	5
Summer 6-m Activity.....	7
UHF TV Antennas.....	8
B&B Hamvention report.....	9
MVUS Projects.....	10

Central States Conference 28 – 30 July 2005 in Colorado Springs
 At the Sheraton Hotel ...\$ 94 per room (800) 325-3535

The Annual Picnic and Antenna Measurement Session has been scheduled for Aug 27th below a Map provided by Daun, N8ASB to find his place! More to come!



De N8ZM

Gee, as you read this, Hamvention was over a month ago! And the work on next year is already starting. And MVUS played several roles at the show, including our booth and the beacons on the roof. Thanks to all of you who helped out with getting the pieces to fall into place...that's the kind of support it takes to make MVUS successful at what it does.

We certainly missed Ed Garner's (WR8A) help this year, as he was fighting a battle with pneumonia, but I hear he is recovering nicely, and I'm sure that we all wish for him to get well quickly. Ed is one of those people who brings a lot of enthusiasm, curiosity, knowledge, and wisdom to our group, and can be counted on to have something technically enlightening to share with the rest of us. Which makes him very typical of most MVUS members; a happy condition that makes this such a great bunch to hang with!

The next meeting will soon be upon us, on June 24th at 7:30 at the Olde Country Buffet near I-675 and SR 725. Plan to talk about Hamvention exploits (I want to hear from those of you who actually got to see the show!), contests, Microwave Update 2006, and all of our other projects and activities. And very important, the annual picnic cum antenna test and tune up session at the home of Daun and Karen Yeagley, N8ASB and N8CXS.

This year, we have picked Saturday, August 27th for our gala event, which is the Saturday after the 4th Friday, our normal meeting night. This choice suggests that therefore we would NOT have a meeting on the 26th. I would propose instead that we consider having a meeting in July, on the 22nd. We usually skip July due to the Central States VHF Conference, but I have observed that only one or two of us routinely go to it. It would give us a good opportunity to discuss plans for the picnic, and many other things as well. What do you think? We can settle it at the June meeting.

For this meeting, bring some goody, gadget, or gorfensnorkle(?) that you picked up at Hamvention and tell us why you bought it and your plans for it. The best story just might win a prize! Also we are going to pick 5 winners (for a one year renewal or new membership) from the 35 raffle entries we gathered at the Hamvention

See you there! Tom, N8ZM

Dancing Electrons

By Dan Schultz , N8FGV (1996)

I still contend that amateurs, without the commercial pressure to shave pennies from the design in order to show a profit, can build no-compromise radios that perform BETTER than commercial gear. Most of the VHF conferences have preamp noise figure contests, and homebrew preamps always beat out commercial preamps in these contests. If you don't want to build a complicated multiband radio then just try to build a very good single band radio, one for each band.

Computers are an appliance. Radio is pure magic, and I for one enjoy being one of the very few in this society who understands the magic, at least on an elementary level. Radio defies common sense, which tells me that it should not be possible for a bunch of electrons bouncing up and down in a wire in New Zealand to cause a smaller but still measurable bunch of electrons to bounce up and down in an antenna in Maryland. It should not be possible to bring back pictures from Neptune with less power than a refrigerator light bulb uses. I could spend my whole lifetime getting deeper and deeper into the technology and the physics, and in the end, it will still be magic. The rest of you guys just don't know how to have fun...

We still have our niche. But yes, in areas like digital voice and spread spectrum we are behind the curve and ought to get off our duffs and get up to speed.

This and That 6-05

- **A Real Bargain.** “If it is 50% off and you buy it, you save 50%. But if you don’t buy it, you save 100%. [Mr. Goldsmith]
- **Manhattan Project.** “Here at great expense the government has assembled the world’s largest collection of crackpots. Take good care of them.” [General Groves to Oppenheimer, leader of the project]
- **Microsoft and the Law.** Microsoft is a one-trick mule that will never stop leveraging its products until it is brought to its senses by a judicial two-by-four. [Andrew Glass]
- **Installation CD.** That installation CD you get when you sign up for the Internet? Use it for a frisby! [Dr Emilio Bombay]
- **Checking E-mail.** Nearly half of Americans check their e-mail after they get up in the morning. A third said they keep checking their cellphones on average every 5 minutes during the workday. And some 15% said they used handheld devices to check for messages in the bathroom. [Reachon.com & Laurent Belsie]
- **Progress.** Progress with zero risk is a contradiction in terms. [Matt Bille]
- **Ultimate PC Fix.** “When my computer doesn’t work and I can’t figure out why, I make a backup copy of all the information on it and then reinstall windows. I look at it as the equivalent of dropping a hydrogen bomb. It’s a drastic step but a powerful one!” [Bill Husted]
- **The Number of Jerks.** “Every tenth person is a jerk.” [Dale Dauten]
- **Hardware Hacker.** “In my experience, it’s easier to hack a piece of hardware you have around the house than to hack a software application on your PC. Why? When you have a piece of hardware, like a toaster, you can open it to see what’s inside and how it works. With most commercial software, you are stuck with only the executable file and no source code that shows the inner workings.” [Scott Fullam]
- **Learning Process.** “Tell me and I’ll forget. Show me and I may remember. Involve me and I’ll understand.” [American Indian saying]
- **Testing, Testing.** But constant testing (in school) will no more address the problems with our education system than constantly putting an overweight person on the scale will cure obesity. [Anna Quindlen]
- **Nairobi to Mombasa Train.** “I love overnight trips by train, but this was like trying to sleep through an earthquake....The experience would not have been a great deal different if they had put us all in a large barrel and rolled us to Mombasa.” [Bill Bryson in African Diary]
- **Books.** Buying books would be a good thing if one could also buy the time to read them. [Schopenhauer]
- **Swissbit.** You can now buy a swiss army knife which has as one of its attachments a computer memory stick. That’s why they call it **swissbit**. The one I saw advertised sells for a \$100 and will give you ½MByte or 4 Gigabits to play with. That’s a 4 followed by 9 zeros! It will handle anybody’s Swiss bank account with no problem at all. [Gerd, WB8IFM]
- **Wonderbar.** “Broadcasters can transmit up to five SDTV programs (standard TV) simultaneously instead of just one HDTV program. This is multicasting. Multicasting is an attractive feature because stations can receive additional revenue from the additional advertising these extra programs provide. With today’s analog television system, only one program at a time can be transmitted.” [Internet]

Update on Dish Projects (4-18-05)

By Mike, KB8ABR

C-SPAN 14 Ft. Dish on a Trailer:

Not much has happened on the pursuit of this portable dish antenna since the autumn of '04. I sent an e-mail to the contact at C-SPAN back in February reminding him of our interest, but I received no reply. My initial plans included moving the trailer a short distance to a friend's place in Virginia where I could perform some maintenance on the trailer running gear and replace the tires. Due to changes forced upon my friend, this option may not be available in the near future. Another friend operates an automotive repair shop not far from Alexandria, Virginia, and we could possibly use his services to get the trailer in shape for the trip to Ohio.

Part of the delay in pursuing the C-SPAN dish resulted from some personal trouble I encountered late last year but those problems should be past now. Soon, I will be replacing my tow vehicle with something much newer and more capable. I am also buying a much larger trailer and it may now be possible to load the C-SPAN trailer onto my new trailer and bring it to Ohio without requiring expensive and time consuming maintenance in Virginia.

I will probably try to get in touch with the contact at C-SPAN before finishing the letter asking the government to donate the dish to the MVUS. Future plans will be developed around the answer I get from that contact and how things go with my new vehicles and my schedule of activities this summer.

The dish assembly can be configured for both C and Ku Band TVRO reception, and the mount is set up to track the Clark belt. All-sky positioning will require modification, but degenerate alt-azimuth and polar mounts are useful without modification. Both axes are driven on this system and older feedback devices are installed as well.

30 Ft. PBS Downlink Dish near Yellow Springs:

I have been in contact with P&R Communications and Tom, WA8WZG regarding this antenna and I have received permission to go onto the property and look at the situation. WA8WZG was going to remove this dish about five years ago but he has

since lost interest and does not mind if we take the dish.

The 30 Ft. PBS antennas are rather large and heavy, and the mount used in TV downlink service will require modification to use it for pointing in directions other than along the Clark belt. The reflector assembly weighs five tons, but it can be handled in pieces.

This antenna will require a crew for disassembly, and some real estate for storage. Some engineering and development will be required before such an antenna can be used for ham or radio astronomy purposes due to the mount modifications required.

Now that Daylight Savings Time has started, I should be able to go over to the P&R site and take a look at the antenna. Removing this antenna and getting it set up again will be a big project, but if pointed accurately the performance on the UHF and SHF bands should be excellent.

Reception of the signals from the AMSAT-DL Mars probe (Phase 5A) and the engineering tests performed with P3E (AMSAT-DL's Phase Three Express) may require antennas of this size for useful demodulation. EME and reception of Mars probes can be accomplished without the need for a mount with all-sky pointing capability, as planets and the Moon appear near the celestial equator, as does the Clark belt for geo-stationary satellites.

25 Ft. Ku Band Dish at VOA:

Recently I have been working with the West Chester Amateur Radio Association to prepare the 25 Ft. dish antenna at the Bethany Relay site for use on EME, radio astronomy and TVRO. The antenna is pointed by a degenerate altitude-azimuth type mount that can not cover the entire sky. Installed in 1990, the antenna and mounting system was used for reception of signals from geo-stationary satellites before the station was shut down in '95. The antenna is moved by large jack screws in both planes of motion, but VOA removed the drive motors and gearboxes for use as spares at other transmitter sites that remain on the air.

Another member of the West Chester club has built some adapter plates to use alternate motors and

gearboxes to move the dish, but recent tests proved that the new equipment was not adequate. Other options are now being pursued, but the motors will be regular induction types powered by variable frequency drives to control angular rates.

Plans for this dish include EME on several bands, radio astronomy and possibly TVRO reception of NASA missions such as Shuttle launches for public viewing inside the transmitter building at VOA. SETI is another possible application for a large antenna such as this example at WLWO.

The VOA dish is equipped with a Cassegrain optical system and a Ku-band feed. Initial testing will involve reception of signals from satellites on those frequencies, but we may try 3 cm EME while the secondary reflector is in position. Lower frequency EME (23 cm, 13 cm, etc.) will require removal of the secondary and construction of a prime focus feed support.

The West Chester club has obtained permission from the township and the park board to remove the secondary reflector as long as the hardware is retained and stored properly for re-installation. Expenses so far have been borne by several of the radio club members and therefore this project is not a burden on the budget of the park board or township.

Currently, work on this project is centered on cleaning and weatherproofing the equipment hut near the dish, as well as restoring power and heat/air conditioning inside the hut. Different motors and/or gearbox arrangements will be procured to allow powered slewing of the dish. Optical encoders and PC based code will be used to drive the axes of the antenna mount via the variable frequency drives...

Scientific Atlanta 15 Ft. Dish Antennas:

Two 15 Ft. Scientific Atlanta C-band antennas from the very early 1980's are available in Cincinnati. One is very prominent now as it sits along I-75 just south of the interchange with I-275. The other is along I-75 as well, but located near downtown. Both were used to receive C-band TVRO signals for the private cable system available in hotel rooms.

I have been in contact with the hotel management regarding the fate of both antennas, and the man I talked to was interested in getting rid of them. I have not pursued these two antennas lately due to the problems mentioned earlier, but I do monitor the situation around the two antennas for signs of change. With improvements in conditions including the weather, I will talk to the hotel manager again to renew interest in removing the antennas.

Neither antenna is equipped with the COMSAT actuator that was available on this type of set-up, so they both are fixed-pointed and can not move along the Clark belt automatically. Being another version of a degenerate alt-azimuth mount, they will need modification before all-sky positioning is possible.

This type of antenna assembly can be broken down into fairly small components, but they are rather heavy due to the all steel construction favored by Scientific Atlanta when they were built.

There are currently no plans to use these dish antennas, but since they are available and easily accessible it may be best to save them from being scrapped. Large TVRO dish antennas are disappearing, and it will not be long before they will be hard to find. Built for long life outside in the weather, this type of commercial antenna can be stored outside for many years with little degradation.

We need more Commercials Digital TV Argument

Because a compressed SDTV digital signal is smaller than a compressed HDTV signal, broadcasters can transmit up to five SDTV programs simultaneously instead of just one HDTV program. This is multicasting. Multicasting is an attractive feature because television stations can receive additional revenue from the additional advertising these extra programs provide.

With today's analog television system, only one program at a time can be transmitted."

Summer 6 m Activity (2005)

From the ARLP023 & 024 Propagation Report by Tad Cook, K7RA

There have been many nice 6-meter openings recently, mostly via the sporadic -E layer skip that is common this time of year. Larry Lilly, N3CR of Jim Thorpe, Pennsylvania (grid FN20) wrote in with 6-meter news. Thursday, May 26 there was a big opening on 6-meters, and Larry found openings in both the morning and the evening, with stronger signals in the later period. He worked stations in Michigan and Wisconsin, and the band stayed open until 10:30 PM EDT (0230z). Larry runs low power, and with 10 watts on May 30 he aimed his 2 element quad to southeast and worked VP9/N0JK in Bermuda on the first call. Larry's antenna is mounted 20 feet high. Larry is enjoying 6-meters, getting on "after a 10-year absence battling 49 MHz baby monitors."

Dave Greer, N4KZ of Frankfort, Kentucky was hearing 6-meter beacons last Saturday (May 28) "from all over North America, but very few live stations." Within a few minutes of each other Dave copied beacons or live stations from W1, C6, Arizona, North Dakota, Florida and Wisconsin. He worked stations on 6-meters in New Mexico, Wyoming and North Dakota.

Eric Christensen, KF4OTN in Greenville, North Carolina (FM15) worked VA2LGQ (FN15) in Ottawa, Ontario on 6-meters on May 26. Eric was mobile using 100 watts on 50.125 MHz USB.

Al Olcott, K7ICW in Las Vegas on May 27 worked several Salt Lake City area stations on 6-meters, with Utah stations running 10-20 watts into vertical whip antennas and coming in very strong. He wrote, "This is not too unusual where there are dense E clouds. We were also simultaneously hearing New Mexico stations at 500 miles."

Al also says that several Salt Lake stations (410-450 miles from him) attempted 2-meter contacts, "but all that was recognized was very weak tropospheric mode." He also wrote, "It is typical that 350-450 mile 6M paths are accompanied by 2M Es openings, but at a distance beyond what is heard on 6M, and the same general direction."

Woody Ebersold, KC0THS of Joplin, Missouri heard plenty of 6-meter activity on May 29 and said WJ0F in Arizona was so strong, "he dominated 50.135 MHz for over a half hour." The day before, May 28, Woody was on 2-meter FM and using a vertical he worked several stations on simplex as far away as Flagstaff, Arizona.

Frank Fascione, KB1LKB of Manchester, Connecticut sent in a report for June 5. He reports an all day opening to the Caribbean on 6-meters, as well as Georgia, Florida and Alabama. Among stations heard but not worked were FG5FR, FM5JC, FM5AD, 9Y4AT, YU4DDK, and PZ5RA. Frank contacted several new ones for him, including FJ5DX, YV4DYJ, PJ2BVU, HK4SAN and J69EN.

Doug, CO8DM uses 100 watts to a 2 element quad at 65 feet on 6meters. He reports that around the first of the month he copied European stations, including Italy and Sicily, and on CW, Malta. The next morning he heard M0BJL in the UK.

Regarding the urging above to get on 6-meters, Eric Hall, K9GY wrote, "... please mention for people to get on with their radios that can work VHF and be active in the ARRL VHF contest. It doesn't take a lot of stuff to make QSOs!" Eric made his first 6-meter QSO on June 5 with an FT-817 and a 6-meter Hamstick whip antenna. He was in FM18 and he worked N4OX in EM60 on 50.130 MHz SSB. Then he worked KA4DPF in EM81 about 20 minutes later. People like me who are unfamiliar with grid squares can look on the map mentioned above to see where FM18, EM60 and EM81 are.

Bill VanAlstyne, W5WVO in DM65 seemed almost giddy about the opening on Tuesday, May 31. He says it was "one of the most incredible 6M Es openings I've ever been part of since moving to New Mexico a few years ago. 6M was open from before 7 AM local time until nearly midnight, with only a couple hours of rest around mid-day. I think we're all still catching our collective breath from this one!"

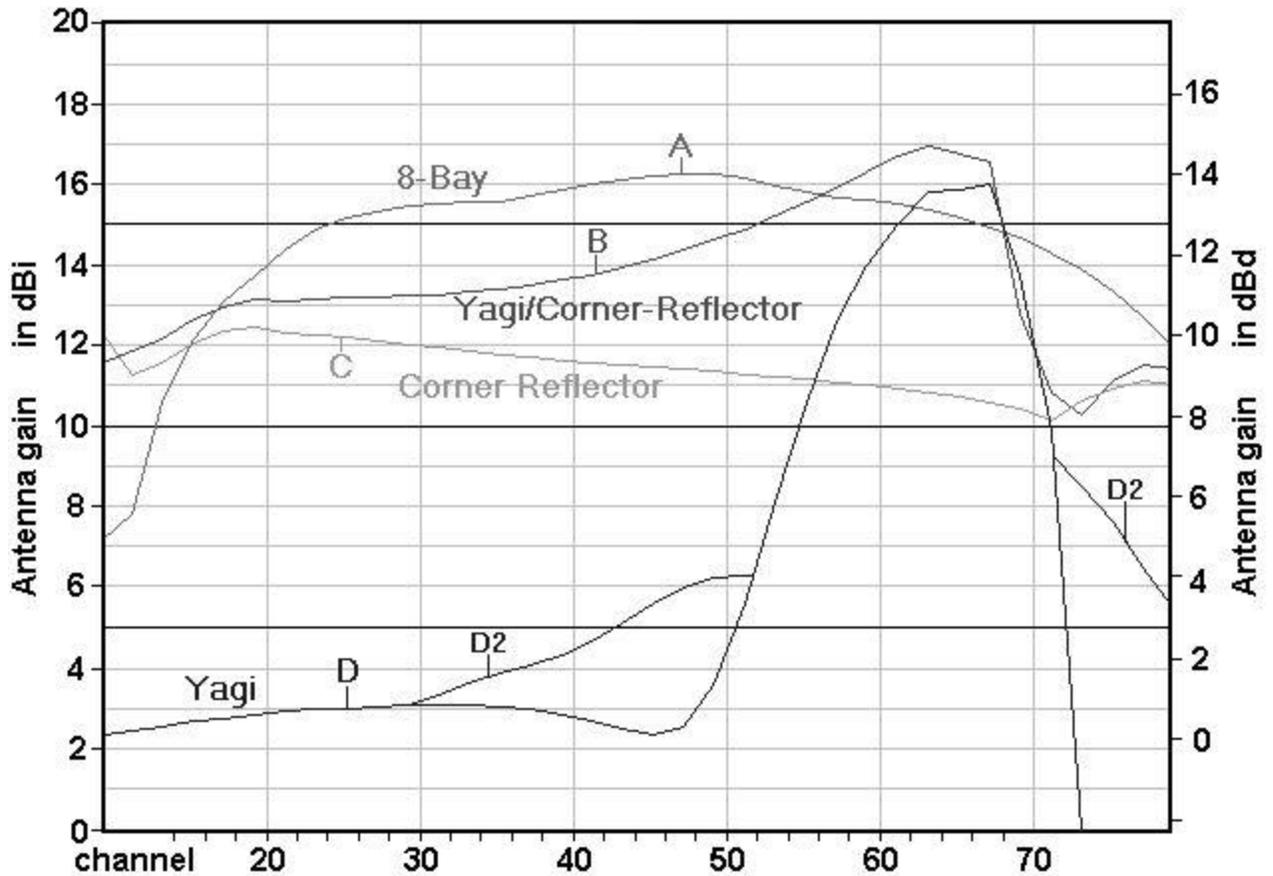
Bill runs 100 watts to an 18 foot 5 element Yagi up 25 feet. He made over 75 contacts and worked 13 new grids to boost his total above 300. He says he "ran pile-ups of calling stations for an hour at a time like I was a DX station. Unbelievable! During the hottest stretches, even QRP signals exceeded S9 +20 dB and were coming in from all over the country at the same time, with path lengths all the way from quite short (450 miles) to quite long (1800 miles)."

He continues, "No so-called 'double hop' here -- these east-coast signals were as strong as those coming from half or a quarter of the distance away. There were obviously a number of rather interesting propagation modalities going on here. If only we really understood this stuff!"

Bill has been a ham since 1962, and says "I don't think there is ANYTHING more exciting than this kind of Es opening on 6M. It's almost a transcendent experience!"

Nice to hear such enthusiasm. Maybe that's why 6-meter enthusiasts call it "**the Magic Band.**"

**(Ultra Wide Band) UHF TV Antennas Compared
[Channelmaster]**



The graph above shows the gain functions for four TV antennas:

- Plot A is the Channel Master 4228 8-Bay, a stacked dipole reflector antenna.
- Plot B is the Channel Master 4248, a Yagi/Corner-Reflector.
- Plot C is the 4248 with all of its directors removed, making it a pure corner reflector antenna.
- Plot D is the 4248 with a single reflector element, making it a standard Yagi.
- Plot D2 shows the backward gain where this exceeds the forward gain.

The point of this graph is that a Yagi/Corner-Reflector performs like a Yagi for the high numbered channels and a corner reflector for the low numbered channels.

For the middle channels it outperforms the sum of the two types.

- TV channels 14-20: 470 - 512 MHz 7 ch @ 7 MHz ea >> 42 MHz total
- TV channels 21-69: 512 - 806 MHz 48 ch @ 7 MHz ea >> 336 MHz total

Center Frequency 659 MHz Total BW 378 MHz (57%)

B & B Hamvention Report

By John, N8VZW

You might wonder about the B&B in the headline! Well, it stands for “booth” and “beacons”, the two attractions of our Midwest VHF / UHF Society’s Hamvention activities.

Our inside booth (no. 332 - same as last year) was a place to meet friends and a stop to get information. Beacons for 5 bands (see list below) had been mounted on the roof and if you didn’t bring your receiver, Lloyd, NE8I, was set up in the flea market and was gladly demonstrating reception, some with a bare minimum of antenna (like an open waveguide).

MVUS members helping out at the booth included: Joe, N8QOD, Brad, K4EFD, and Mike, N8QHV, and Harold, KB8VSX; we missed Ed, WR8A, who suffered from pneumonia, he is ok now! We had 10 members renew, and picked up two new members.

We had a large jar to deposit entries for a raffle and had a few prizes lined up but never got around to hold a drawing. There would not have been many around and the items in question were of the kind that were difficult to ship, so we decided to issue 5 renewals or new memberships as the case might require! Next meeting.

The following beacons were provided and mounted on top of Hara Arena EM79ut and were active during the Hamvention (Call W8KSE)

	Band	Frequency	Provided by
23 cm	1296.304 MHz	MVUS (built by KA8EDE)	
12 cm	2304.285 MHz	MVUS (built by KA8EDE)	
6 cm	5760.168 MHz	K9AYA	
3 cm	10368.27 MHz	KA4EFD	
1.5 cm	24192.70 MHz	KA4EFD	

After picking up MVUS’s beacons from Mike, WB8GBX, I arranged to meet with Brad, K4EFD, and Bill, K9AYA, at noon on Thursday!

I had things ready: power supply, beacons, wire, keyer, and battery for backup, ropes, pulley and belt. The morning was clear, sun a shining but at 10AM clouds began to move in and the wind was picking up, so I decided not to wait till noon but to get out there and everything up on the roof to the base of tower ready to be mounted. I got the pulley to the top of the tower and pulled up the 10GHz beacon when I noticed some lightning in the distance. Just as I tightened the last nut on the u-bolts a drop of rain hit me, as I was climbing down a few more drops. I secured everything and climbed off the roof and down the building stairs, then all hell broke loose, not to mention the rain.

For the next 2 hours no let up was in sight. Brad called and said he would be over as soon as there was a break in the rain. At 2PM Brad, Bill, Joe and myself made it up to the wet roof and were pulling up and mounting the remaining beacons, and by 3:30 everything was ready, wired and running.

We had many comments at the booth about the beacons, mostly about the 10 GHz, “it could be picked up anywhere” was the comment. But all were heard and several stopped at the booth and tuned in the 1296 on there HT’s. By 11AM Sunday everything was taken down and back to their owners.



MVUS

Projects

Big Dish / Microwave Ground Station

EME, Mars Mission / P5A, Other

Mike, KB8ABR Mike, WB8GXB

Super Range 1.2 GHz Beacon

John, N8UR Mike, KB8ABR

Microwave Ground Transponder

FM-Repeater Replacement / Satellite Operation Training

Michael Kuhne, DB6NT Gerd, WB8IFM

Microwave Update 2006

Tom, N8ZM Mike N8QHV