

Vol. 21 No. 3

www.mvus.org

March 2007

## March Meeting on Fri 23rd at the Hometown Buffet!

Near SR 725 and Yankee Rd. in Centerville

**MVUS Sunday Net at 14:30 GMT** (currently at 9:30 AM local time, EDT). The net frequencies are primarily **144.280 Mc and 28.960 Mc.**

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**Illness:** John, **W8JAQ**, was rushed to the Middletown Hospital (3-8) after collapsing in the kitchen. Extensive testing determined John had several blood clots in both lungs. Close call! Medication can dissolve the clots. As of 3-14 John, almost 84 years old, is out of the hospital and he sounds ok! He has got to go for frequent blood checks in the near future but the medication should prevent recurrence of the clots. He is still a little tired and cannot climb stairs. Unfortunately both his shack and his computer (ie e-mail) are in the basement, so he will be out of touch for a while, other than by phone. [Rod, WG9F]

### Upcoming Events

**Hamvention** 18/19/20 May, 2007

**VHF/UHF/Microwave Forum** Saturday, 1345 – 1700 Moderator: Mike Schulsinger, N8QHV  
Presentations: Gerd Schrick, WB8UFM; “Earthbound Microwave Transponder”  
Kent Britain, WA5VJB; “Using Big Antennas”  
Dave Sublette, K4TO; “Getting Started in VHF and Above”  
**Meet with friends at the MVUS Booth, 332c !**

**Central States:** see backpage!

**Microwave Update:** 18/19/20 Oct. **The Inn at Valley Forge** (nr Philadelphia) \$ 92.00  
1-866-795-1995 (Mention Microwave Update) More Info **W2PED:** Pdrexler@hotmail.com

## De N8ZM

Not many nights ago I was awakened in the wee hours of the morning, probably by a carefully aimed elbow intent on diminishing the sound power level of my snoring. Sometimes that technique is successful; other times the dog is the source of annoyance. While I was lying awake for the next hour(!), I took the time to ponder many things, including work, household projects, domestic relationships, and my various hobby activities.

Somewhere in the stream of consciousness that ultimately put me back to sleep, I arrived at the conclusion that MVUS had provided me with friends, experiences, and opportunities for growth that don't exist anywhere else. Each of you has in your own way been a part of that. I hope that your participation in MVUS has been equally valuable to you, as that is the best way I know thank each of you for being a great group to hang with.

That probably sounds like a farewell speech, but that isn't the intent. I just thought it was a good time to stop and say thanks.

The beacon antenna still needs some work, but progress is being made. I hope to have it to show at the meeting. With SWR data. Since we have to have it ready to install by March 31<sup>st</sup>, there ain't much time to get it finished.

Mike Schulsinger, N8QHV, Moderator of the VHF/microwave forum at Hamvention this year is still in need of one or two more papers, so if you have something you would like to present, please contact Mike. [N8QHV@arrl.net](mailto:N8QHV@arrl.net) should work.

If we are interested in helping a little with the work, HARA arena has agreed to install a 110 VAC outlet near the base of the tower that we use there for the Hamvention beacons. I offered for MVUS to pay for the materials, but he told me he already has them, so I ma not sure what our role would be exactly. I doubt we'd be allowed to do much of the electrical work. The run to a nearby circuit is about thirty feet, so maybe we can help run the conduit. Let's talk about it at the meeting to see what we want to do.

Plans for the Midwest transmission of the Frequency Measurement Test are proceeding, with an organizing meeting held a couple of weeks ago to discuss scheduling and look over the equipment on hand. Our currently planned date is Saturday, October 6<sup>th</sup>. We have asked ARRL to review that date for conflicts with other events that would not be compatible, but have not heard back from them yet. Look for more in the coming months.

Can't think of any more at this late hour, so see you at the next meeting to talk about whatever pops into my head then!

de N8ZM

## Re Membership List

First I'd like to thank all that wrote in with corrections, additions and the selection and contribution of membership. I am correcting and completing the list and probably in a few months we can present you with the latest version.

We had a number of calls cutoff in the first column, probably the biggest goof! We also got a few newsletters back with no forwarding address. If you know someone who moved ask him about membership. Now a clarification. Ignore the dues dates on this list, if you send in your dues, we will credit you for 2007 and if you send more for 2008 and so on. We print another form with the options and room for the info we need for the database on one of the following pages.

As you see, I got some antenna work done already, you've got to be fast when the wx gets favourable! We were running low on suitable articles this month and to boot my outgoing e-mail was not working. I hope this gets fixed (it's an "issue" as I was told by my provider) and I get to communicate with my authors.

Vy73, Gerd, WB8IFM

## This and That 3-07

**Mendelson** (Dayton's premier Surplus Store) After 42 years Sandy Mendelson retires. He is partner in the outlet store founded by his father Harry Mendelson in 1960 as an electronic surplus outlet. Present operations will be consolidated and relocated. A new site to be determined. [Dayton Daily News, 3-9-07]

**WiFi.** DK4EI, who is in the business of bringing the Internet "using wireless" to the countryside, found this neat 2.4 GHz spectrum analyzer that plugs into a PC. And the cost is reasonable at \$ 150. [See page 4]

**Software Designers.** They are the most egotistical persons on the planet! [Gentry Lee]

**Noble Goal.** I think, building a computer is a hobbyist's nightmare. Just look at the piles of boxes and bubble wrap, the colored cables and seemingly interchangeable pieces of industrial circuitry, the Medusa-headed power supply with its score of snakelike wires, the motherboard with its delicate protrusions and fine screws. [Edward Rothstein]

**Magic.** "Any sufficiently advanced technology is indistinguishable from magic." [Arthur C. Clarke]

**Business is Business.** "Thank you for flying Delta Business Express. We hope you enjoyed giving us the business as much as we enjoyed taking you for a ride." [In flight announcement]

**Geosynchronous Orbit.** At one point Clark invented the concept for communication satellites but didn't bother to patent the idea. His subsequent essay about this feat is titled: "A Short Prehistory of Comsats", or How I Lost a Billion Dollars in My Spare Time." [Book: Voices from the Sky, 1967 by Clark pg 151]

**Original Idea.** There is no such thing as a totally original idea; every scientific notion has deep roots. [Keay Davidson]

**German Calls:** <http://ans.bundesnetzagentur.de/Amateurfunk/> This is the official (like our FCC) site for German ham calls. Rufzeichen means calls. [WB2YVY]

**Wasting Food.** "It was once considered sinful not to finish what was on your plate, whereas now our preoccupation is with obesity." [Prof. Peter Hennessy]

**Bling.** "In the unlikely event that you are even farther behind the times than I am, bling is the current term for jewelry. And bling is trendy for today's man. As proof, Google "men's jewelry" and you'll find 16,600,000 references. You'll only come up with 118,000 for "chainsaws". [D.L. Stuart]

**Axis of Evil.** The true axis of evil is tobacco, alcohol and **sugar**. Nothing else does more harm. [Speak Up Column]

**Intuitive Design.** "To me it means users needn't think too much about how to use a product. That is its use is straightforward and comes naturally. Unfortunately many products used daily are nonintuitive! [Mike Hudspeth]

**Charging Faraway Batteries Through Thin Air.** This could be an early April joke, just one sentence follows. Ed...Rather than irradiate an area with electromagnetic waves, a power transmitter would fill surrounding space with a nonradiative electromagnetic field. ... [Machine Design Mag. Feb, 2007]

**Diesel Ploy.** Why are there not more Diesel cars in the US? In Europe close to half the cars are Diesels. There are plenty of trucks, pick-ups, buses, some SUVs and, of course, trains and ships that are Diesel. A Diesel gets roughly twice the mileage of gasoline-powered cars and also beat most hybrids. The Scientific American for March, 2007 suggest a reason. US Automakers were able to get a law passed that limits Nitrogen oxide emissions to **one sixth** the amount what European cars are permitted. [Gerd, WB8IFM]

# 1,000 Times, Really?

By Gerd, WB8IFM

We are all familiar with this claim, namely that NiCad batteries (or NiMHs) can be recharged a 1,000 times. However, the general experience is that the little devils never seem to last that long. It is also hard to prove. Who does keep track of his many gadgets and knows how many cycles the batteries have gone through. They get replaced when newer cells come along with higher capacities or when they start acting funny, ie going dead when you didn't expect it. So they get replaced and the old cells get the boot.

Coming home late one night, however, I found the perfect example of a NiCad life cycle test right in my own front yard. Our son had given us one of these solar powered driveway lights when they first became available years ago. It was also that last Christmas he celebrated in the US before he left for Australia, so we got a good fix on the year. And as far as I can remember this light has been out there ever since, faithfully charging the two cells, connected in series, during the day and providing light with a bright yellow LED during the night. It's usually still lit when we retire which is around 11:30, but I have seen it lit beyond 2 AM but it definitely goes out not long after that.

So we have a case where this pair of cells is charged and fully discharged on a daily basis. Counting the years from x-mas 2002\* to x-mas 2006 we arrive at  $(365 \times 4) = 1,460$  days with as many recharge cycles. Compared to the 1,000-cycle claim this is very good indeed. I have a hunch the system is very well designed: with selected two well matched cells, the Led current set to an optimum value and terminating the discharge at the right time. There is a circuit board in there with a few extra components really enticing to do reverse engineering.

Selecting matching cells is normally only done for high priced applications, like for satellites. You have to commend the manufacturer for going this extra step if that is what they did. Of course, I make the assumption here that all these lights have that long of a lifespan. I may just have been lucky!

## Recent "Ad Talk" about NiMHs

"Rapid charge up (1 hour) and long cycle life - recharge up to 1000 times --that's one full charge and use a day for 3 years. If an alkaline AA battery is \$3, then that's \$3000 per battery you save (not even taking into account the up to 300% longer life per charge!!!)"

\* My son tells me now it may have been 2001, a year earlier, which would be even more spectacular!

## MVUS Membership Form

Call: \_\_\_\_\_ Name: \_\_\_\_\_

Address: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ - \_\_\_\_\_

Telephone: ( ) - E-Mail: @

Member at Large (e-mail only) \$ 5.00 per year

Regular Member (e-mail + printed copy or printed copy only) \$ 10 per year

Check enclosed: \$ ..... No. .... Make out to Gerd Schrick  
and mail to 4741 Harlou Dr., Dayton, OH, 45432-1618

## **Rotor Problem and Tower Climbing**

By Gerd, WB8IFM

Last year my good old Ham-M hf beam rotor came apart and I decided to temporarily fasten the beam in my favorite direction (EU) with a bracket. Well, I soon found out that turning a big beam is one thing, but holding it firm in place is another. When you study the rotor specs you find that the brake power (what keeps the rotor in place) is somewhat bigger than the turning power. Some designs even use a wedge, in which case the "break" power is many times larger. So this bracket is not a trivial matter.

My first one, quickly constructed with pieces grabbed from the junk pile, only lasted over a weekend, and then it was back to the drawing board. You need a minimum of two of the muffler type U clamps, but even then the mast may slip. So, I used a shaped aluminum block on the other side of the U as it is found in antennas and rotors. And I did one better by inserting a piece of hard rubber sheet. That way the initial high force is partially absorbed leaving a more manageable force for the bracket. The mast was held fine but the bracket itself did not hold up.

I think it was after my second attempt, that John, N8VZW, offered to bend a large piece of aluminum into a 5" tall bracket. This one lasted several months until we had the big storm on 19 Dec.2006, when it broke into three pieces. You got to be careful with aluminum. The thickness was fine, the 5" was sufficient, but the material was obviously too brittle. Resolve, next bracket will be steel.

As we were close to the middle of winter, I gave up and decided to wait for spring. Did I mention the tower is 100 feet high, and for climbing you need the right "conditions" including the condition of the climber.

It was a long wait, especially February was extremely cold. January actually was quite mild, but you couldn't trust the weather. Here comes March and a perfect day is in the forecast with a temperature in the upper 50s (it got up to 62). So I got itchy to work on the beam problem.

In the morning, I rummaged through the garage and basement for suitable parts. The angle iron I found was too flimsy, but I located some strong U-channel steel with a hole pattern. The holes were too large but some washers could easily remedy this situation. The U-channel, mounted inside the tower, had exactly the right distance to the mast, so I could fasten the mast mounting plate simply to the U channel, which simplified matters.

When all was done and ready, the better part of the day had past, the xyl was busy in the kitchen as we were expecting dinner guests. Climbing and mounting was postponed. The next day, a Saturday, started cooler and with rain, but come afternoon, the rain stopped and the sun came out. I was anxious to get my contraption up there and got ready for it. I carefully picked the tools and parts I might need, like extra screws and bolts, pieces of rope, black tape and so forth. I am always afraid of dropping things when I am up there.

Before climbing I usually look up the taller trees to check on wind conditions. It can be practically calm on the ground but as you go up and pass the height of your tallest trees there is a constant stiff breeze. Later in the day this wind picks up with the sun's warming of the earth. So it is best to do your tower work early in the morning or maybe late before sundown.

All went well, climbing up took me about 15 minutes. I stopped three times to catch my breath. It gave me an excuse to check the three sets of guys. At my age you got to do things slowly. The actual work took me about 1/2 hour. Just some minor irritant: the washers were not quite large enough and I had to be careful to position them right before tightening the nuts. Climbing down was fast; it took me just 7 minutes.

Now I can take another couple of months to fix the rotor or shop for a new one. I think about a worm- gear type like the Alpha Spid. Hamvention would be a good time to get a little discount.

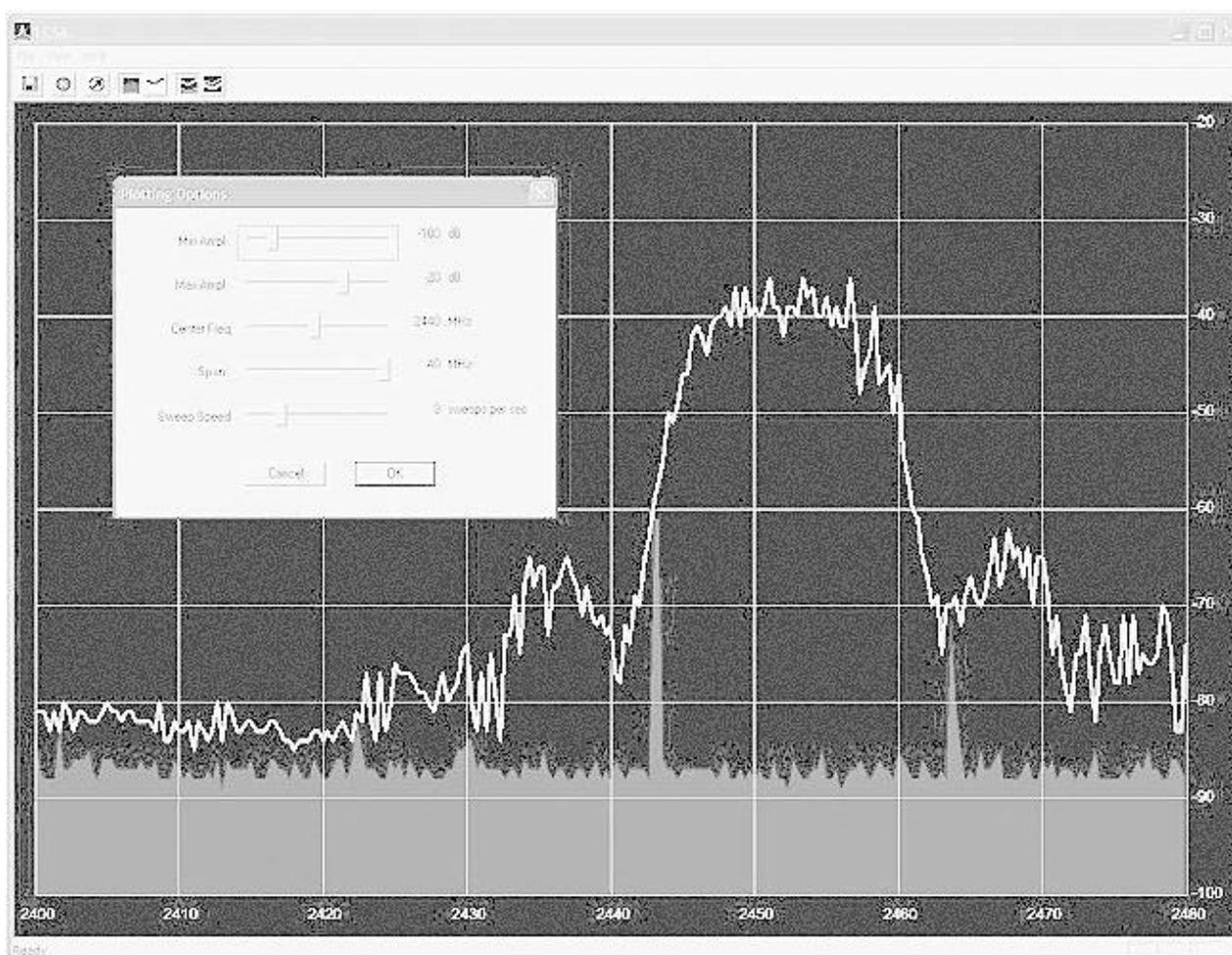
## 2.4 GHz Spectrum Analyzer Frontend Probe to feed into a PC

To facilitate easier development of wireless systems, I have created a very low cost 2.4 GHz Spectrum Analyzer. This design was featured in the [April 2006 issue of Circuit Cellar magazine](#).

The Low Cost Spectrum Analyzer is a small USB-connected device that will detect radio transmissions in the 2.40 to 2.48 GHz range. These frequencies are used by many wireless devices such as 802.11b networks, Bluetooth devices, cordless phones, security systems, ZigBee devices, and microwave ovens, among others. Although not a calibrated measurement instrument, it is a very useful tool that gives you the ability to see these transmissions in the frequency domain.

The Low Cost Spectrum Analyzer can help you resolve networking problems related to interference from other devices. It can also be useful for those designing 2.4 GHz radio systems - just place the resizable spectrum analyzer window anywhere on your PC screen and observe at a glance your transmissions as well as transmissions from the other end of your wireless link.

The Low Cost Spectrum Analyzer consists of a hardware circuit attached to a USB port and software running on a Windows PC for display of the spectrum. On the web: [www.dunehaven.com](http://www.dunehaven.com)



### Features:

- \*Small Size
- \*Low cost
- \* Sensitive receiver covers the 2.4 GHz ISM band (2.40 - 2.48 GHz)
- \*333 kHz resolution allows entire 2.4 GHz ISM band to be captured in one sweep
- \*Spectrum appears in a window on a PC
- \*Ideal for debugging wireless communications software
- \*System requirements: PC running Windows 2000/XP with spare USB port. Sorry, no Vista support yet.

## **Advancement of Digital Radio** --(from Weavers Words, KE8JE. 3-7)

**John Champa, K8OCL**, of Howell, Michigan has accepted appointment as Assistant Director for the Advancement of Digital Radio! John earned the ARRL 2003 Microwave Development Award for his work in chairing the League's High Speed Multi-Media Working Group and for his work in developing practical IEEE 802.11 Wi-Fi technology for Amateur Radio. John is an RF Systems Engineer with Rockwell-Collins.

## **Who Says Morse Is Dead** – (from Weavers Words, KE8JE. 3-7)

Mark Spencer, WA8SME who heads the ARRL Amateur Radio Education & Technology Program has been doing research related to review the "Big Project" and schools that are signed up for this. One interesting comment in his most recent report on the subject is:

"I spent a day working with a 6th grader who was on school vacation. I tried out some curriculum materials on the young man. Morse code is the content area that seemed to capture his interest the most (the old mode maintains its relevance)."

Who says youngsters are not interested in Morse code? Maybe we need to get to "them" at a **younger age** than we previously thought. Admittedly, this "poll" is far from being statistically significant, but it provides a bit of interesting insight.

## **Break-Up** (from Space Weather News, Feb. 21, 2007)

On February 19th, late-night sky watchers across Australia witnessed a bright explosion followed by a debris cloud that hung in the sky for nearly an hour. At first a mystery, the source of the blast is now understood. It was a Russian Briz-M rocket booster misplaced in orbit last year by the failed launch of an Arabsat communications satellite. The fuel tanks of the Briz-M ruptured on Feb. 19th, producing a vivid naked-eye display and more than 1000 pieces of debris. Experts are calling this a "major breakup event," comparable to or even worse than last month's Chinese anti-sat test.

Visit <http://spaceweather.com> for more information and pictures of the Briz-M breakup.

## **Sunspot Minimum or not?** (K7RA, 3-9-07)

New predictions for the solar minimum are coming frequently of late. The monthly smoothed sunspot number forecast for the rest of 2007 from the NOAA Space Environment Center has been adjusted again, the third time since the first of the year. Currently they predict a solar minimum for right now, with a smoothed sunspot number of 6 for March and April 2007, then 7, 8, 10, 11, 13, 16, 18 and 21 for the remaining eight months of this year.

## **European Mailing List "MMM on V H F" mailinglist".**

Receive first hand information about VHF-events. If the html page is not possible to update, than the mailinglist will be the right place. It will provide you with the latest event news. Peter (PA3BIY), Peter (OZ1LPR), Jani (HA5CRX) or EBW himself will try to post all updates here! It's no spam and used only by real VHF-Dxers. YOU ARE WELCOME HERE and we hope you also will provide us with YOUR news and infos!

The Mailinglist will be easy to subscribe - look here: [http://groups.yahoo.com/group/MMM\\_on\\_VHF/](http://groups.yahoo.com/group/MMM_on_VHF/)

I case you are only interested in VHF-news without being on a mailinglist, your can look it up:

<http://www.dl8ebw.de/ACTUAL/Expeditionen/expeditionen.html>

You will find:

- NEWSBOARD - a board with latest posts, miscellaneous, rumors...
- LOGS - a new place will be ready to put your log in!
- REVIEW - a new place where posting from past MMMs will be on
- DATABASE - latest news and input to the VHF DATABASE (VHF, MS, CALL3...)
- FEEDBACK - Form to send us your DX-Announcements ONLINE now...

If you see, or hear, or work yourself an expedition, which is NOT (or WRONG infos) at M M M o n V H F page, PLEASE drop me a note: [mmm\\_on\\_vhf@gmx.de](mailto:mmm_on_vhf@gmx.de)

73 de **D L 8 E B W** Guido (Guy) JO31NF Editor of the "FT-MS-SHOWER-LIST" and the "MS/EME/WSJT-VHF-DATABASEs" plus more, look at: <http://www.dl8ebw.de/Actual/actual.html>

## Latest 10GHz high power "loaner" station.

By Lloyd, NE8i

Just finished it. It replaces a 10W TWT set up that I have been using for some time, to test relays, and feed line losses. It was not portable.

Many parts are from one of Down East's early 10mW transverters, a 3W amp driving an 8W amp. 2M IF MFJ 9402. DEMI sequencer. All components are all 12V friendly, and "instant on", a major improvement. For the TWT I needed 12V, then add 28V, and wait a couple minutes. This new unit can be loaned out to rovers for contesting.

The open wood frame construction makes changes easier. It is useful for talks, demos and such, some of the design is based on Rick Campbell, KK7B's, talks on what interests people. As a loaner, it is lightweight. There is a small horn sitting on top, and a converted 18" satellite dish. The top shelf is flat, and normally empty, it could be used as a writing surface, or as a handle. On the lower left side is the CW and manual PTT; plugged in, is an old-fashioned hand key. The red button is an emergency key, and test signal button.

It is designed, so a small radio, such as a FT817 can easily and quickly be substituted for the MFJ 9402 2M IF. The meter on the center shelf is to monitor output of the 8W amp. This station operates from any 12VDC source, e.g. battery. It draws about 5A in transmit mode, 1A in receive mode.

My next project, about half done, is a similar 24 GHz set up.

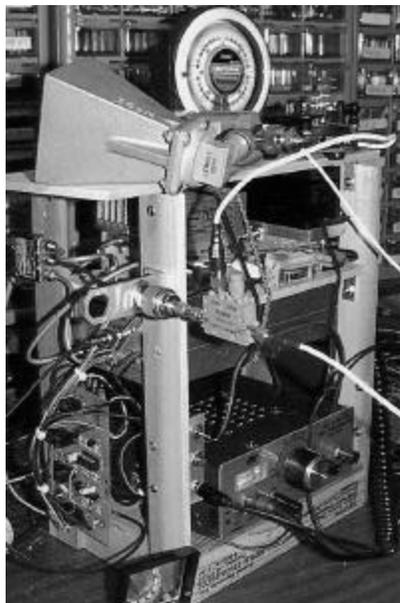
## Portable Beacon for 903, 1296, 10,368 & 24,192 MHz

Shown is my portable beacon box. Used for talks, demos, and antenna testing, and such. I have taken it to Lake Superior, Lake Michigan, Lake Huron and Lake Erie, on rover operations, and on 10 GHz contests. It has also been to Dayton. It is undergone many changes and modifications. Used for talks to clubs, to provide demo signals. All 12V friendly. It uses a WW2R Pic keyer

Current configuration:

903.06	250 mW	WA5VJB Big Wheel
1,296.3	1 W	WA5VJB Big Wheel
10,368.3	180 mW	32 Slot Waveguide W3IY
24,192.2	5 mW	16 Slot Waveguide OZ8AFC

NE8I  
Lloyd Ellsworth  
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3-12-07



Rover



Beacons

## 41st Annual CSVHFS Conference

The Roadrunners Microwave Group (RMG) invites you to attend the 41st Annual Central States VHF Society conference, July 26-29, 2007, at the Omni Hotel in San Antonio, TX.

Technical Program

"Antenna Modeling" - W5UC

"Backyard Microwave EME" + supporting construction articles - WW2R

"GPS Disciplined Oscillators + other Time/Freq. Related Things" - W5SXD

"Rovermania" (as practiced by Northern Lights Radio Society)" - W0ZQ

"Solar Cycle 24 Predictions" - KH6MIO

"Useful Javascript calculators" - ND2X

"Using SDR-IQ for EME including using JT65 for random QSOs" - KL7UW

"Why Oscillator Phase Noise is Important" - WD0ACD

More to be announced later

Getting Started on VHF+ Program

VHF/UHF Operational Expectations - To be announced

Antenna System Parameter Calculator - ND2X

Building Cheap Yagis (workshop) - WA5VJB

How to stack antennas - WA5VJB

The Simple Rover - WD0ACD/N5AC

**Antenna Range** Friday morning, we have an antenna range in the hotel parking lot at which you can have your own antennas tested against standards and determine gain. If you are driving to the conference, bring your antennas from 50 MHz through 47 GHz for testing. Even if you don't bring an antenna for testing, watching the range in operation teaches you about antenna theory, performance, and construction techniques.

**Noise Figure Testing / Pre-amp Workshop** You can learn much about Pre-amp design and performance by bringing a pre-amp for testing or tweaking. Fellow members, who are frequently engineering professionals, will assist you while you fine-tune your pre-amplifier for testing. It's fun and always increases your knowledge. Bring your pre-amps for 50 MHz through 47 GHz.

**Testing of Passive Components and Devices** We all use passive devices, including relays, directional couplers, filters, coaxial cable adapters, coax jumpers, attenuators, dummy loads and the like. Something as simple as a bad coaxial connector/adaptor can keep an otherwise viable system from working. We are offering to test your passive components through 24GHz. At this writing, a network analyzer good through 40 GHz is available, from Southwest Research Institute (SwRI), and a SwRI Engineer will be operating the equipment and making the tests. Attendees wishing to test their bits and pieces are asked to package them in lots of 12. Planned sessions are from 0800 to 1630 on Friday, and 0800 to 1500 on Saturday.

**Getting Started in VHF & UHF Weak Signal Operations** We are offering an inaugural effort to entice new operators to VHF & UHF weak signal operations. Our target is everyone from new hams such as Boy Scouts to the "old-timer" who has worked all there is to work on HF and is searching for new challenges. Operating practices unique to the higher frequencies will be featured. "Cheap Yagi" workshop to build your own yagi. Discounted conference rates are planned for "Getting Started" attendees. This program will be offered on Saturday only.

**Rover Row / Dish Bowl** All Rovers are encouraged to bring their completely outfitted Rovermobiles. It's a great way for the Rover to give a shack-tour. We will have a designated dog-pound for all Rovermobiles on Friday morning. While the Antenna Range is in operation, many attendees will come see how you conquered installation and configuration issues in your Rovermobile. Similarly, if you have a microwave dish, please bring it for show-and-tell in the dog-pound as well. By showing your handiwork, others will gain ideas and motivation to construct their own systems.

**Flea Market** Friday night from 7pm till 9pm, expect much better than you'd see at your regular hamfest. Bring things to sell--you know the interest areas of our members!

This is just the technical part. There is a lot more to Central States. Check their Website at [csvhfs.org](http://csvhfs.org)