

Vol. 20 No. 4

[www.mvus.org](http://www.mvus.org)

Apr / May 2006

**Club Memorial Call W8KSE 10 & 3.4 GHz Beacon, presently in Repair.**

**Meeting at the Old Country Buffet !** near SR 725 and Yankee Rd. in Centerville

April Meeting on **Fri 28 April 7:30 PM**

**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.**

### Contents

De N8ZM.....	3
Call for Papers...Call for volunteers...	3
This and That.....	4
Intelligent Charger.....	5
Battery History.....	6
Battery Packs.....	7
Oscillator Update.....	8
Antenna Patterns.....	9
Hamvention Banquet.....	10
Microwave Update 2006.....	10

### Upcoming Events!

The 2006 Microwave Spring Sprint will be held on Saturday 6 May 2006 from 0600 ET to 1300 ET. This coincides with the next Microwave Activity Day, Saturday May 6, 2006 and the following Monday May 8.

10th Annual SE VHF Society Conference April 28th and 29th, 2006 Greenville, SC

**Hamvention.....19, 20, 21 May, 2006....Booth 331 / 332**

**Microwave Update 2006, 20-22 Oct in Dayton, Ohio** (see page 10)

We have a **Silent Key** to report; David Dorion, WA1MKE, died from a heart attack, he was only 53. He was a member of our club for many years; we will have a follow up on this notice in our next newsletter.

Even though it isn't 'our' show, Hamvention still has an impact on MVUS activities. Not only are Gerd, Steve, and I seriously occupied with activities on the show committee, many of our members are also active in some capacity or another. On top of that, we have our own inside booth to set up and staff, and this year, we have added a second booth adjacent to ours to promote the upcoming Microwave Update Conference to be held here in Dayton in October. We also felt that this extra booth would provide an opportunity for other clubs which have an interest in VHF Weak Signal work to promote themselves and attract new members for their own geographic areas. We are doing this in the spirit of helping to grow the interest base of people who find our particular facet of the hobby an exciting challenge.

We aren't asking for anything in return for access to the booth, and you are welcome to bring banners and signage promoting your VHF/microwave weak signal oriented club. Hopefully, we will have the problem of more people and banners than we have space to accommodate at one time, but I believe that we can solve that cooperatively. I don't really perceive that there is a lot of competitiveness in this area anyway. Frankly, we are hoping that there will be a person or two from each club who spends a few hours in the booth over the course of the weekend promoting VHF and microwaves. If your club wants to sign up new members at the booth, great! We plan to put up a board which lists where the VHF folks can be found in the flea market, and you are welcome to list your space numbers there. And if anyone has what they think might be an eye-catching VHF related demo to have, let's do it!

If anyone would like to participate with us this year, please contact me as soon as possible so that I can organize the minimal logistics involved, and so I will know how many clubs and people to expect. My e-mail is [N8ZM@MVUS.ORG](mailto:N8ZM@MVUS.ORG). IF this works out well this year, we might be able to do it again next year as well.

We also have plans this year for the 10 GHz beacon, and others, although we are running a bit behind on our project to replace the tower on the arena roof with something a bit sturdier. The old TV tower that is there now has become a little too fragile for our taste. If we can find four sections of Rohn 25 in good shape soon, we hope to have time to get it installed before the show.

As a reminder, we generally do not have a meeting in May, as it is too soon after Hamvention, but I have been overruled on that call a few times, and am willing to acquiesce to the will of the majority.

We will have a meeting this month, on Friday the 28<sup>th</sup>, at the usual place, so I hope you will join us to see what we are up to, and help us finalize our plans for the big show. de N8ZM.

### **Call for Volunteers**

We need help for the upcoming Hamvention (19,20,21 May), and for the Microwave Update Conference which will be held in Dayton for the first time this coming October. Below you find the present list of activities and volunteers for the Microwave Update Conference (Oct 06). We are still in need of more help in particular for the Hamvention where we are going to have a double booth to promote microwaves (MVUS) and the Microwave Update Conference.

### **Call for Papers**

We invite you to submit a paper (initially just an outline or abstract will do) for the upcoming Microwave Update Conference. This can be anything related to the microwaves etc. This will be included in the "Proceedings" at a minimum and could be considered for a presentation at the conference, either to the full audience or as a posterboard session. If you have any questions or need help with the paper please contact us by mail or e-mail. (Tom, N8ZM; Gerd, WB8IFM or Bruce, Ni8E)

## This and That 4-06

- **Seven/Eleven music.** What could that be? Easy, you have seven tones and you repeat playing them eleven times!
- **Just the Wipes, Mom.** If someone were to load all the disposable wipes purchased by consumers in North America last year onto 18-wheel semis, the caravan would number 9,000 trucks and stretch for 68-miles. And it would carry 83,000 tons of these seemingly ephemeral cloths—which are anything but fleeting. [Karen Klages]
- **Pill Mentality.** Our health system fixes ailments mostly with pills instead of teaching a healthy lifestyle. Similarly, our computers are outfitted with firewalls, anti-virus and anti-spam add-ons, instead of building a computer that is “naturally” resistant to these malicious abuses. Our present “windows” operating systems are no longer worth to be called that. They don’t operate the computer; they give you unnecessary headaches.  
[WB8IFM]
- **Out of the Mouth of Babes.** Samuel Morse invented a code for telepathy.
- **Chopsticks.** 5% Tax on disposable wooden chopsticks will be charged in China under a timber-conservation law that takes effect April 1. “Why would they do that?” Because the Chinese use 45 billion pairs of those chopsticks each year. “It adds up!”  
[Numbers-Time, 3Apr 06]
- **Diplomacy.** “Do lightning rods work?” (A “loaded” question. Ed) “Lightning rods, invented by non-other than Ben Franklin, neither attract nor repel lightning bolts. They do, however, provide a safe path to the ground for the flash.”  
[Walter E. Lyons]
- **Horizon.** How far is the horizon over water or flat ground. Take the square root of the height in feet and multiply by 1.317 to obtain the horizon in miles. Thus for 10 feet the horizon is 4.16 miles away and for 100 feet it is 13.17 miles.  
[Walter E. Lyon]
- **Brain Tumors.** Researchers at the Swedish National Institute for Working Life looked at the mobile phone use of 905 people between the age of 20 and 80 who had been diagnosed with a malignant brain tumor and found a link. A total 85 of these 905 cases were so-called high users of mobile phones, that is they began early to use mobile and, or wireless telephones and used them a lot. It also showed a noticeable rise in risk is for tumors on the side of the head where the phone was said to be used. [Reuters]
- **Violent Nation.** From a full-page ad in a magazine I gleaned the following names for bright helmet mounted lights used in nighttime hunting: Assassinator, Penetrator, Terminator, Annihilator, Dominator, Eliminator, Exterminator, Blaster and Intimidator!  
[American Cooner]
- **Following the Hounds.** From the same magazine I learned that you can purchase dog collars with little transmitters and direction finding equipment for hunters to follow their dogs. A picture shows the equipment. The dipole looks a bit shorter than for 2m. Turns out the frequencies are just below 220 MHz. There are several channels so several dogs can be traced.  
[American Cooner]

Boston Marathon. **The bibs of the 22,000 will feature bar codes that allow health officials to track them using handheld scanners if they require transportation or hospitalization during the race.** [AP]

### **Intelligent Charger**

By Gerd, WB8IFM

At a recent Hamfest I picked up a dealers catalog and leafing through it I came across an interesting battery charger. Studying the description I found that it actually charges a total of four AA or AAA cells completely independently. That separate charging of individual cells in a battery is what I have advised for years. When batteries go bad it is usually just one or two cells that are bad, but that situation causes more cells to go bad until the voltage is so low the battery no longer is useful and gets thrown out!

The price for this charger, a BC-900 from LaCrosse Technology, was indicated as \$60, but I was able to buy it through the Internet for less than \$50, including shipping. Later I found I could have gotten it from Amazon.com for \$ 35. By the way, the comments on the Internet about this charger were all positive.

I've been playing with this charger for a few days and it is fascinating to watch, it reminded me, when years ago, I was charging and discharging a bunch of NiMH cells in order to make the selection for the auxiliary battery for the P3d satellite. At that time (1999) this was done semi automatic, meaning I took a lot of readings by switching the cells manually every so often. I could take long breaks but had to be there when the charging cycle ended and switch over to discharge, I was the first to be in the lab early in the morning and was also there late at night after everybody had left. That way I got in a lot of cycles.

Now this little charger did all this with microprocessor control. The only difference being that no records were being kept, but that option would not be too hard to implement also.

The charger keeps track of the cell voltages and current and elapsed time. After one cycle of charge and discharge it will calculate (they call it estimate) the capacity in mAh, which is very helpful. It also has a "Refresh" mode in which a cell is cycled up to 20 times to bring it back to performance. You see, there is something that happens especially to nicads that is poorly described as memory effect and this charger takes care of that. The newer NiMH or the lithium ion batteries seem not to have this problem. It reminds me of the x-tal "aging" effect which became less and less of a problem as the years went by. Is it possible that the manufacturing processes became more refined and better controlled?

Another recent phenomenon has been the quick charging of nicads or NiMH batteries using an inordinate amount of current. With this charger the current can be increased to a maximum of 1.8A, thus a 1.8 AH cell can be fully charged in one hour. However, you won't get a cell fully charged that way, and the charger provides a trickle charge after the "Full" indication. I observed between 15 to 25mA, have no idea how this is determined. By the way, the charging is halted when the voltage stops rising and in fact starts to drop. That's when the di/dt gets to be negative. There is also a temperature sensor that turns the charging off when the temperature gets too high.

The discharge stops when the voltage of the cell reaches .9 V/cell. The charger is small lightweight and uses a wall plug power unit that will work between 100 to 240 VAC, ideal for world travel. With this unit I would feel safe to travel with a digital camera that uses a couple of AA NiMH cells.

There are, of course, buttons to push, and you go through a learning process. And if you quit pushing buttons for a few days you have to relearn. Well that is our today's culture! Nobody that commented on this charger on the Internet seemed to mind. Kids!

The article (pg 7) on "battery packs" by PowerStream Technology illustrates the problem with NiCads and NiMH batteries real well! Interest is very high to use NiMH for **power applications like cars** and, of course, there need to be a lot of cells in those batteries. It will be interesting to see how the problems eventually will be solved!

## Battery (Ancient) History

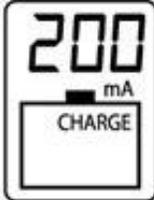
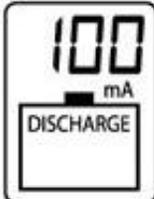
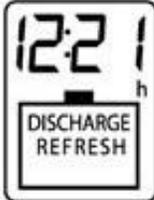
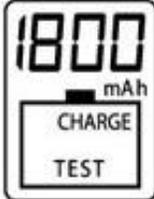
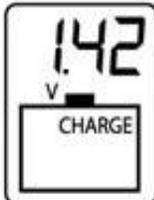
- 1800 Voltaic pile: silver zinc
- 1836 Daniell cell: copper zinc
- 1859 Planté: rechargeable lead-acid cell
- 1868 Leclanché: carbon zinc wet cell
- 1888 Gassner: carbon zinc dry cell
- 1898 Commercial flashlight, D cell
- 1899 Junger: nickel cadmium cell

## Battery History

- 1946 Neumann: sealed NiCd
- 1960s Alkaline, rechargeable NiCd
- 1970s Lithium, sealed lead acid
- 1990 Nickel metal hydride (NiMH)
- 1991 Lithium ion
- 1992 Rechargeable alkaline
- 1999 Lithium ion polymer

By Steve Garland & Kyle Jamieson (Web)

## Display of the “Intelligent Charger”

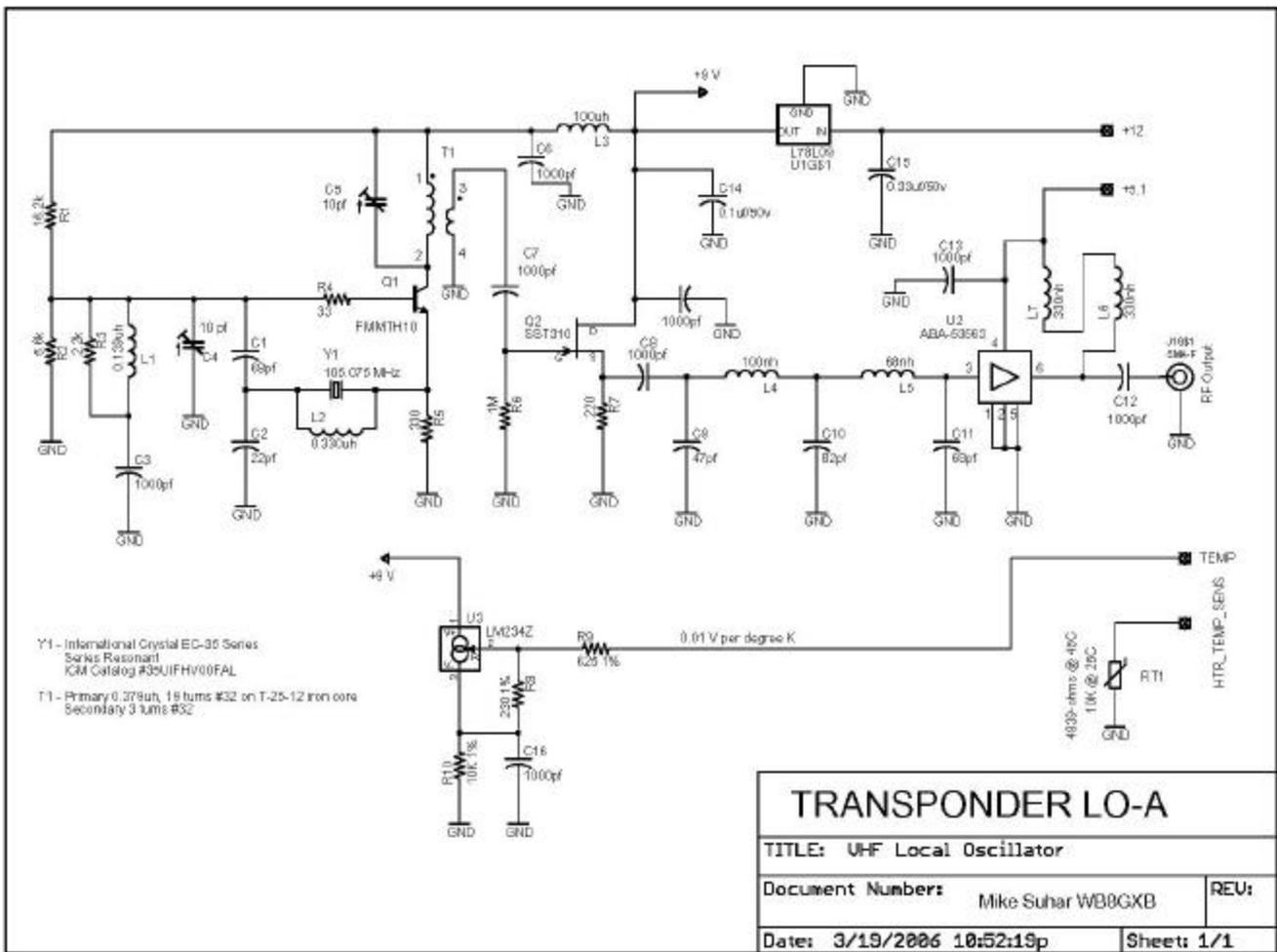
Displays & Modes		
<b>Charging Current:</b> Indicates mA charge rate		<b>A. Charge Mode</b> _____ Within 4 seconds charging automatically begins at 200mA, or select 500, 700, 1000, 1500 or 1800 mA settings for faster charging times.
<b>Discharging Current:</b> Indicates mA discharge rate		
<b>Time Elapsed:</b> Indicates charging time (hh:mm)		
<b>Accumulated Capacity:</b> Indicates battery's full capacity (mAh or Ah)		
<b>Terminal Voltage:</b> Measures battery voltage (can be displayed in any mode)		<b>D. Test Mode</b> _____ Batteries are charged to full capacity, discharged completely to measure capacity for display in mAh or Ah, then recharged to full capacity.
		
		<b>All Modes</b> Automatically switches to Trickle Charge at the end of last charging cycle.

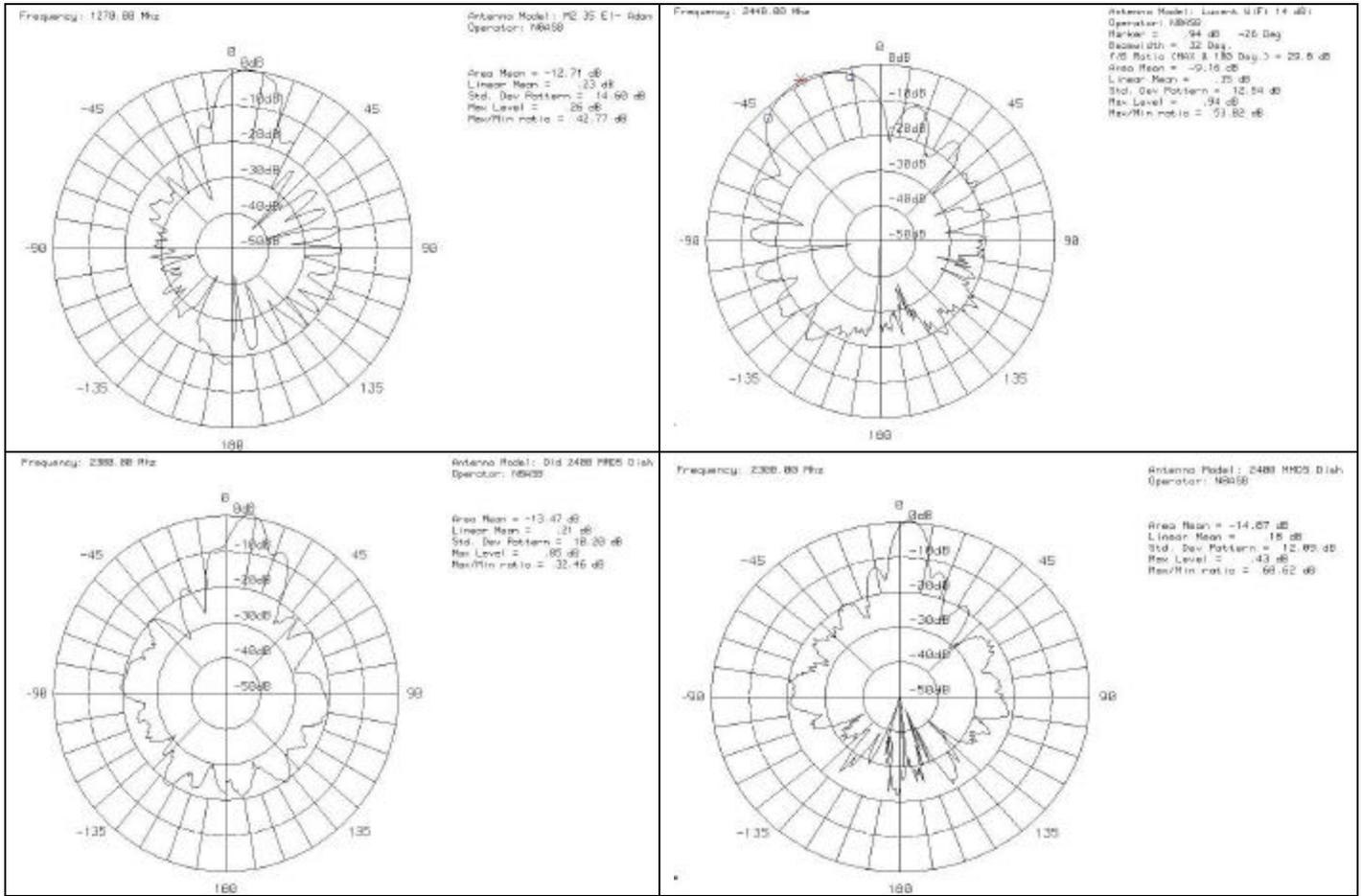
**Oscillator Update By Mike Suhar, WB8GXB**  
**(See also AP1-06, pg 6, Transponder Oscillators)**

The base oscillator has been completed. The same design will be used for both oscillator A and B. This board will also be used for other projects I have sitting on the bench so that is why I did not include any multiplication on the main board. I will customize the multiplier stage as need for the particular project. For different projects all I need to do is use the appropriate crystal. The oscillator outputs 0-DBm around 100-MHz.

The printed circuit board measures 1.75" x 1.25". The output is clean with harmonics down at least 40-DB and essentially in the noise floor above the third harmonic on my spectrum analyzer. This oscillator will be in an oven to help stabilize the frequency. For the transponder project a multiplier stage will follow.

The multiplier chain has been designed but not built. That stage will vary in design to meet the requirements of the two local oscillators for the transponder. Next month I hope to have pictures and some design information on my web page. Details to follow in an upcoming issue of the newsletter.





**Examples of Daun's, N8ASB, Antenna Pattern Measurements (8-05)**

## VHF Weak Signal Group Banquet 2006 at the Dayton Hamvention.

Tom WA8WZG, Tony WA8RJF and the VHF Weak Signal Group would like to invite all weak signal VHF, UHF and Microwave enthusiasts to the 13th Annual VHF Weak Signal Group banquet to be held on Friday evening May 19th, 2006 at the Holiday Inn Dayton North, 2301 Wagner Ford Road, Dayton OH 45415. ( Site of the October Microwave Update! See Below)

The cash bar opens at 6:15 PM with plenty of room to mix and mingle with VHFers from all over the country and around the world. The two entrée sit-down dinner will be served starting at approximately 7:15 PM and with prizes drawn at 9 PM.

Reservations are required. Cost per person is \$35.00 and includes dinner and prize ticket. Seating is limited to 125 and spouses are welcome to join us and are eligible for the prize drawing. For tickets please send \$35.00 per person and SASE to: Tony Emanuele WA8RJF, 7156 Kory Court, Concord, Ohio 44077-2221. Please include the names and calls of all attendees as well as an email address.

For more information contact Tony at [WA8RJF@ARRL.net](mailto:WA8RJF@ARRL.net) or Tom at [WA8WZG@WA8WZG.com](mailto:WA8WZG@WA8WZG.com)

### MICROWAVE UPDATE 2006, OCTOBER 19-22 in Dayton OH

**THE Midwest VHF/UHF Society** is pleased to announce that it has been chosen to host the Microwave Update 2006 conference in Dayton, Ohio on October 19-22, 2006.

The event will be held at the Holiday Inn North, located at the Wagner Ford Road exit on I-75.

Room rates are \$79 plus tax per room per night for king or double beds, maximum occupancy is 5 per room, registration at 937-278-4871 or [www.holiday-inn.com/day-north](http://www.holiday-inn.com/day-north).

On **Thursday**, the surplus shop tour will include Mendelson's, Fair Radio, and Midwest Surplus.

**Friday night** will be the traditional MUD Flea Market, and Saturday evening will close the event with a banquet including door prizes and an enlightening presentation.

In addition to the excellent technical presentations MUD is known for, there will be an **exhibit area** for vendors to show off their latest offerings, and a **hospitality suite** on Thursday and Friday evenings.

**Test equipment** will be available for checking noise figure, amplifier gain, output power, phase noise, and impedance. We hope to arrange for suitable nearby facilities early on Sunday morning so that an antenna gain and pattern test range can be set up.

To present **papers**, call Gerd Schrick at 937-253-3993 or email [wb8ifm@amsat.org](mailto:wb8ifm@amsat.org).

Of course, there will be activities for the family as well, since Dayton offers many cultural attractions and great shopping! The Museum of the United State Air force recently completed a major expansion of its indoor exhibit area, substantially increasing the number of aircraft and historical items on display.

The cost of **registration** (includes the proceedings)

before September 30: \$40, after September 30: \$ 45 and at the door: \$ 50 extra proceedings:\$ 20

The Banquet cost is \$35 per person.

For more information: [www.microwaveupdate.org](http://www.microwaveupdate.org) You can pre-register at the Dayton Hamvention at the **MVUS/MUD booths, 331-332.**

The members of MVUS are looking forward to hosting MUD 2006, and hope you will join us for a great time in Dayton.

**The MUD 2006 Committee:** Tom Holmes, N8ZM; Mike Schulsinger, N8QHV; Gerd Schrick, WB8IFM; Steve Coy, K8UD; Tony Emanuele, WA8RJF; Bob Mathews, K8TQK, and many more!

# Registration

**Microwave Update 2006 Oct. 19-22 in Dayton, OH  
Holiday Inn North Wagoner Ford Rd. and I-75**

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

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ - \_\_\_\_\_

Tel (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_ e-mail \_\_\_\_\_ @ \_\_\_\_\_

**Staying at Holiday Inn? \*\***

Yes \_\_\_ No \_\_\_

## Conference Fee (includes proceedings)

To Sept 30	\$40
After Sept 30	\$45
At the Door	\$50
Extra proceedings	\$20
<b>Donation for MUD</b>	<b>\$??</b>

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**Total     \$**

**Make Check out to The Midwest VHF/UHF Society and mail to  
Gerd Schrick, WB8IFM, 4741 Harlou Dr. Dayton Oh 45432-1618**

**More info and details as they become available at**

**[www.microwaveupdate.org](http://www.microwaveupdate.org)**

**\*\*Hotel Reservation:** Room rates are \$79 plus tax per room per night for king or double beds, maximum occupancy is 5 per room, registration at 937-278-4871 or

**[www.holiday-inn.com/day-north](http://www.holiday-inn.com/day-north)**