



Radio Amateur News & Views

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ANTENNA BASICS

The February 8th RANV Meeting

You buy the antenna, mount it on the car or house, hook up the feedline and merrily transmit away. But how many of you *really understand* how an antenna actually works? Would you know how to design an antenna or make one better? Would you know when a piece of antenna advertising is telling the truth or a tall tale?

Coming to you live at our February RANV meeting is famed teacher and antenna tinkerer Mitch W1SJ. He has been hanging wires out of trees for some 30+ years and has amassed a bunch of knowledge about antennas. Some of it just might be useful to you! This will not be the boring college lecture with a lot of math, but instead a rambling story about how to understand some of the black magic and some of his off-the-cuff rules for antenna design. We'll also learn about some of his famous antennas throughout the years, including the *Sewerpipe*, the *Training Dipole* and the dreaded *Rusty wire*.

Activities get underway at 6 with Snax at Zax on Williston Road, followed by the meeting at 7. The meeting will be Tuesday, February 8th at the O'Brien Civic Center, 113 Patchen Road, South Burlington.

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MILTON HAMFEST 2005

The 23rd annual Milton Hamfest and ARRL Vermont State Convention will be Saturday, February 26th, at Milton High School.

Vermont's greatest ham radio show and also the "best little hamfest in the world" has everything the amateur operator, electronic hobbyist and computer hacker would want: Priceless goodies, forums on the latest and greatest, and demonstrations of the latest technology. If you are not into playing with the goodies, you can have one helluva QSO Party with 500 like-minded hamsters.

Milton offers a few thousand square feet of indoor flea market area and scores of tables, which will be filled with all sorts of flea market goodies. Yes, you can buy stuff on E-bay, but you won't get the bargains you will find at Milton. So, come on down and buy something. Nothing beats getting out on the floor and fondling the merchandise. Don't need anything? Then come out and look over the stuff. It is always worth a good laugh!

Demonstrations have been expanded this year, and you will have your pick of several things to look at. The **Demonstration Station**, located in the front lobby, will feature a working demo of a fully remote-controlled HF station. Say that you live in a place where good antennas are an impossibility, but you have access to a station location with great antenna potential. Using computers and the Internet, you can actually operate the distant station from the cozy confines of your home. Our expert technical crew will be there to show you how it's done and to answer your questions. We will also bring back the IRLP and Echolink station on the repeater. Drop by and talk all over the world on a simple 2-meter radio. And the PSK-31 station will also be set up in demo mode for you to try out. Over in the back of the school, near Room 3, we will have a demonstration of satellite contacts on the the new AO-51 "Echo" satellite. Make sure you get to this 10:00 demonstration on time!

Milton... continued on Page 4

OUR LAST RANV MEETING

by Carl ABIDD, Sec'y

The January 11th meeting was called to order at 7:00 by president Brian N1BQ. There were 24 members and guests in attendance.

The Milton Hamfest is coming. Mitch W1SJ talked a little about the forums to be presented. They include QRP, Satellites, Kit Building, and Emergency Equipment, to name a few. Check out the RANV web site for the latest. Help is also needed on Friday night for setup, and there are job openings on Saturday. Contact Mitch if you want to help.

An increase in meeting room donation was announced.

A motion to buy an ad in the new Vermont Ham Directory for \$60 was made by Don N1QKH and was seconded by Dave W1DEC. The motion passed unanimously.

Upcoming contests include the NA QSO Party, VHF Sweepstakes, CQ 160 Meter CW Contest, Vermont QSO Party, and NA Sprint. Mitch will open his station on the 5th and 6th of February for new and experienced operators to operate and learn.

Paul AA1SU and Dave W1DEC gave a short talk on PRB-1 legislation that was just introduced in Montpelier. They recommended that you contact your Representative around the 1st of March.

There was some talk of having a Sunday morning brunch, and it was decided that more input was needed. Watch for future announcements.

Bob W4YFJ will bring the refreshments for the February meeting.

Zack K1ZK presented the main topic for this meeting. It was a talk about RFI mitigation in the National Radio Quiet Zone. This was a very informative and interesting presentation. There were a lot of things that you wouldn't think about that would cause noise, and you would be surprised how much noise can be produced. For example, a drive motor had to be filtered to drop the

THE PREZ SEZ

by Brian N1BQ, President

A couple of times in the past I have spoken about the RANV Internet Reflector. It is still one of our most underused resources. Last I knew, barely 20% of the club membership is taking advantage of it. It is easy enough to get signed up. Just go to the RANV web page at www.ranv.org and scroll down to the club officers listing and just below it are the addresses for subscribing and posting to the list. This is not a high volume list. It is not going to come near to overflowing your in-box. The benefits are bidirectional; to the individual members, it's a forum to give and get information to your fellow club member hams. It's a quick and efficient quick way to find a piece of equipment, tools or able bodied help (*can you spell tower party?*). In the other direction, we, the club officers would have a much easier job of being able to communicate in a timely fashion if, at the very least, almost all of the local club members were subscribed to the list. I would like to hear from the membership on this matter, pro or con. You can contact me at n1bq@wulfden.org.

The hamfest is coming up on the last Saturday in February at Milton High School. Contact Mitch W1SJ if you can spare some time before, during, and/or after to help setup, sell tickets at the door, or takedown. We run a good hamfest. It has been long running for good reason, because we keep working at it. But the job cannot be done by a handful of us alone. At the risk of repeating my

noise level to a level that wouldn't cause a problem.

The meeting was finished and refreshments were served around 8:30.

No one answered the trivia question last month, so the prize will be doubled this month. The answer was: a Christmas tree, a Kwansa knife, and a Menorah. This month's trivia question: How big is the NRQZ? (*K1ZK not eligible*).

admonition from past times, we need to support local hamfests, even if it only means coming for an hour or two. Vendors, whether they be hobbieists or commercial, like to see faces of potential customers. New hams want to see that veteran hams show up. It is a small price to pay both in time and money to see that the hamfest keeps running. Those who say, "I have nothing I want to get," seem to forget that a hamfest is more than a shopping trip. Maybe you have forgotten that. Over the years we have developed quite an extensive array of forums and presentations, you may be pleasantly surprised.

Somewhat off topic, an interesting notice came to my attention the other day. There is a very active model rocket club in the Champlain Valley. They are having a rocket launch on the ice at the Sandbar on Feb 12-13th. They will be launching model rockets and high power rockets. The website with lots of info is www.crmrc.org.

That's all for this month. See you at the Hamfest!

Contacting RANV

In Person: Meeting, Feb 9, 7pm,
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By Mail: PO Box 9392,
So. Burlington, VT 05403

By Radio: 145.15 repeater

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Please send submissions for the newsletter to the editor, W1SJ.

WHAT'S NEW AT THE NEW NIUR QTH?

by Ed NIUR

Some of you are no doubt aware of the project that I undertook this past year in building a home and competitive contesting station in Barre town. I thought that I would take the time to update the club on what it is I've been doing.

A couple of years ago I started looking for land to build a house on that would be a good contest location and convenient to my company, SB Electronics, and I-89 (*with all of that Montreal and Boston travel that I do*). To be competitive as a contest location in the New England area, a location needs to have:

Low Noise. Can't work 'em if you can't hear 'em.

Enough land for antennas and beverage wire receiving antennas.

Unobstructed radiation angles to important areas of the world (*Europe, Caribbean, South America, and Africa for DX contests and the States for Domestic Contests*). Asia and Oceania are "nice to have" clean shots for DX contests but the winners of DX contests from New England will typically only have 10% of their contacts from that part of the world and usually 75 - 80% from Europe

Friendly tower environment. This is absolutely necessary!

The location that I found in Barre (*off of I-89 exit 6*) isn't perfect, but it's pretty darn good, as we shall see.

Low Noise. I have an S1-S2 noise floor on 80 meters with a 70-foot high inverted vee and internal radio noise floor limited on 10 and 15 meters. It's as low a noise location as I have ever operated from (*and I've been at some good ones*).

Enough land. 27 Acres - way more than needed. I was hoping for 10 and would have settled on 5 if it was otherwise perfect.

Unobstructed radiation angles. The location of the towers is at the top of an eastern facing ridge with a 110-foot drop off within 300 feet of the base of the towers. The drop off starts literally at the edge of the guy anchors (*60 feet from the tower*). Due north is flat, the ridge drop starts at 20 degrees through about 160 degrees and then it is flat until about 200 degrees. We will discuss what

this "ridge effect" does to an HF signal at my talk at an upcoming RANV meeting. In the direction of Oceania and Asia, the land is gently sloping upward about 200 feet elevation over 2 miles. This hurts the signal into that part of the world but doesn't kill it and has little effect on the U.S. You'll see why at the talk.

Friendly tower environment. On this, I wasn't sure, but I was able to get the seller to agree to a contingency of sale on the tower permits. I've got 'em so, I went ahead.

I'll dispense with the house construction details other than to say that I am now living there, the house is 80% done, I am still having some finish carpentry done and doing all the painting myself. It should be 100% complete by summer.

The plan was to have 2 towers, both 70 feet tall with 10 feet of usable mast extension. Both towers are heavy duty with lots of stacked yagis and supporting various wire antennas. Beverage listening antennas would hug the ground in a variety of directions. The 2 towers will be fed with extremely low loss hard line and switched remotely to save on the runs of hardline into the shack.

It is a 360-foot run of coax from the top beam to the back of the radio in the shack. RG-213 would allow a 10 meter signal to drop from 100 to 50 watts before even hitting the driven element. I would need 3 dB of gain from a beam on 10 meters just to get my effective radiated power back to 100 watts with that coax. I opted for LDF5-50A ⁷/₈ inch Andrews hardline to the base of the tower and LMR-400 (*heavy shield RG-8 sized cable*) for the antenna runs. With these feedlines, the same 10 meter antenna would see almost 90 watts from my 100 watt transmitter. The same 3 dB of gain now produces 180 watts effective radiated power instead of 100 watts. The LDF5-50A hardline is \$4 a foot stuff at retail but I was able to find all of what I needed on line and at ham fests in very good condition for an average of \$0.85 a foot.

I poured foundations (*thanks Paul AAISU*) for both towers this sum-

mer even though I probably won't build the second tower for a couple more years. Once you have a big machine digging and the concrete truck pouring, it is best to get all of it done once. After letting the concrete sit for 3 weeks, I started putting a section up one at a time using a gin pole and a pick-up truck to hoist it. After 40 feet, I added the first set of guy wires. I then used large ropes as temporary guys at each section up until 70 feet, where I added the second set of guys. Then came the task of bringing up the 24-foot long 110-pound steel mast. It was some trick to thread that over the top and into the tower. Using a tram line technique to the top of the mast I raised a 2 element 40 meter beam on top, a 15 meter 3 element beam below, and a 4 element 20 meter beam below that. The final step was to place a rotor at the 60-foot level of the tower and slip the mast in.

Additionally, I added 10 meter antennas fixed to the tower facing West, East, and South, and 15 and 20 meter antennas facing Northeast (*Europe*). Finally, a couple of 80 and 160 meter inverted vees were added. With all of those antennas, the final step was getting a bunch of control relays in place to switch everything from the shack (*thanks Neal NIZRA*).

What does this buy you? Great running rates into Europe using 100 watts of power and the ability to actually win a contest in the low power category, if everything works out for station, operator, and conditions into Vermont. The maiden voyage was the CQ Worldwide SSB contest in October. The house had just had the heat turned on 2 days before the contest and there were sheetrock walls, without plaster, around the folding table that I used for the radios. Everything worked without a hitch, and I proceeded to end up with the 3rd highest score ever recorded in the US for a low power SSB effort in CQ WW (at least from the online unofficial submissions).

I am looking forward to discussing what terrain can do to help you, or hurt you, on HF, in my upcoming talk.

Milton... continued from page 1

For its size, Milton offers the best forums program anywhere. Amazingly, we've added even more this year. Look at the schedule carefully and plan your attack. Forums start early at 8:30 and run all day. The day will go fast!

Steve Ford, WB8IMY, editor of QST will be our guest this year. He will be giving a 2-part forum on *HF Digital Modes* starting at 8:30. The first part will be a survey of the many, many different digital modes out there. In the second part, he will focus in on some of the more popular modes and how to get on the air. At 10:30, The *ARRL Forum* will look at what is happening at the ARRL and efforts to pass a PRB-1 antenna bill in Vermont. At 11:30 the *Contest Forum* will showcase a couple of interesting topics on contest operating.

Next door, in Room 2, Brian N1BQ things get underway at 8:30 with the QRP Forum, followed at 9:30 by Emergency HF Communications and the HF Pack. John VE2EQL will show off his HF Pack station which can be used to communicate quickly in an emergency. At 10:30 Brian returns with a talk on the *Automatic Position Reporting System (APRS)* and at 11:30 John returns with a talk on What's New in Kit Building. Hey, if you can't buy it, build it!

In Room 3, at 9, Mike N1JEZ gives us the lowdown on our newest satellite, AO-51 and future ham radio satellite plans. Following the forum, at 10, listen and watch contacts being made on this satellite.

Ever wonder what to do with those family members who are not interesting in looking at radio carcasses or hearing about DXing? Bring them over to our newest forum, *Why Get a Ham License?* RANV's master showman and master of disaster Mitch W1SJ will entertain them, teach them a little radio and promises that some of them will be converted to hamsters in a few weeks!

The **Volunteer Exam Session** will be offered at 12 noon in Room 3. Candidates are reminded to bring a copy of their license, CSCE, pen, pencil and \$14 (*cash only*) exam fee. Commercial exams will also be offered in the afternoon session. Contact Mitch W1SJ for details on the commercial exams.

Milton is a great place to take care of business. Go to the RANV table to join or renew. Pick up a copy of the new *Vermont Amateur Radio Directory* or perhaps a back newsletter. We'll also have an assortment of license manuals for the prospective ham.

Also, be sure to take the opportunity to meet the many members of the Vermont ARRL Field Organization. Most will be on hand. Many of the forum speakers will be around all day for questions.

Finally, and most importantly, we need two types of help! Volunteers are needed to staff the entrance doorways, to staff the club information table and to help set up on Friday night. You don't get paid, you don't get free admission and you don't get a free lunch. But, volunteering is fun! Secondly, we needed EVERYONE (this means you) to come to the hamfest and to coax, cajole, badger and support everyone else to come, too. We've heard all the good reasons in the past such as, "I go to the dump then," or "the weatherman has forecast that a snowflake might fall," or "I have relatives from out of town," or "I must attend the kids soccer game or violin recital," or "I'll be lying on a warm beach (*only acceptable excuse...*). Deal with it and come anyway. Hey, they got 100 million visitors to Mecca last month and they didn't even have a good flea market!

AMATEUR ANTENNA SUPPORT STRUCTURE BILL

by Dave WIDEC, State Gov Liaison

Bill H.12 has now been introduced into the Vermont Legislature and was referred to the *House Government Operations Committee* for hearing and recommendation in early January. It is identical to the H.602 Bill that died in the House last year.

If you are concerned about amateur radio communications in Vermont, you are encouraged to contact your Vermont Representatives and Senators and express your interest and support for H.12. Please ask him/her to vote in favor of the Bill. The best way is by E-mail. The State of Vermont Legislative web page is <http://www.leg.state.vt.us>. Once you enter the site, scroll down to the Legislative Directories heading and therein you will see amongst other databases, one that says Representatives by *district*. Click on that and you'll be able to determine who your Representatives are. Further down in the directories heading you'll find E-mail addresses. You can also click on the Senate directory and send an E-mail to your Senator asking for a vote in support of the Bill.

The Bill needs to get out of the House Government Operations Committee to move on. It is important that we contact members of this committee to voice our support for this important bill. Members of this committee in our area:

Rep. Kenneth Atkins, Winooski,
catkins@leg.state.vt.us or kwa138@aol.com

Rep. Debbie Evans, Essex,
ekavans@aol.com

Rep. Hutchinson, Randolph,
jhutchinson@leg.state.vt.us

Rep. Doran Metzger, Milton

Timing for a bill is critical. Please do this as soon as possible so that the Vermont amateur community can know that it has made itself heard in the Vermont Legislature.

VT QSO PARTY

Don't forget: The Vermont QSO Party starts this Friday, February 4th at 7 PM and runs 48 hours until Sunday night. Make contacts from home or at the WB1GQR multiop. Details at www.ranv.org.

NORTHERN VERMONT WINTER HAMFEST

ARRL VERMONT STATE CONVENTION

MILTON, VERMONT

SATURDAY, FEBRUARY 26, 2005

NOW IN ITS 23RD GREAT YEAR!
NEW ENGLAND'S BEST AND BIGGEST WINTER HAM RADIO SHOW!

FLEA MARKET

Tables & tables of Goodies!
New and Used Radio Sales
VT Amateur Radio Directory
Connectors, radios, computers
Tables FREE while they last

FORUMS

The latest in technology
– conducted by the experts!

8:30 Digital Communications
8:30 QRP Forum
9:30 Emergency Equipment
10:30 Why Become a Ham?
10:30 APRS Forum
10:30 ARRL Forum
11:30 Kit Building Forum
11:30 Contest Forum

ACTIVITIES

RANV Information Table
Demo: Station Remote Control
Demo: Satellite Contacts
ARRL QSL Field Checking
Coffee, Donuts and Sandwiches
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ADMISSION \$5 UNDER 18 FREE

TALK-IN:
WB1GQR 145.15- Rptr
W1NVT 146.67 Beacon

DIRECTIONS:
MILTON HIGH SCHOOL, ROUTE 7
I-89 Exit 17, Route 7 NORTH 4 Miles
I-89 Exit 18, Route 7 SOUTH 5 Miles

FOR MORE INFO:
Mitch: (802) 879-6589
w1sj@arrl.net
<http://www.ranv.org>

HAM CLASSES

by Mitch WISJ

The next Weekend Amateur Radio Class will be on Saturday, March 19th in Essex Junction. This is a ONE-day class to earn the Technician Class license. Upon pre-enrollment (*required*), you receive a course book, and workbook. Specific readings and exercises get you ready for the one-day class. The class is 8:30 until 6. Exams are given at the end of class.

For students just wanting to get a taste of amateur radio without jumping in totally, the **Technician Class** on March 19th is just the right ticket! But for students who really want to jump in and go right to **General Class**, take the Technician on Saturday, followed by the Gen-

eral on Sunday, March 20th. Then, they spend a few weeks learning the code and they have the valuable General license. Pre-enrollment is required for all courses and a package of the appropriate study material is sent out prior to class. For those who cannot make it to class, an **On-Line** version is also available!

It is OUR JOB to recruit new amateurs. By sharing our excitement and love of amateur radio, others will be excited about it. Get your friends interested and have them consider taking the class, or getting study material.

For information on the weekend class, contact Mitch at w1sj@arrl.net or at 879-6589 or go to www.ranv.org

**NEXT MEETING:
“Antenna Basics”
Tuesday, February 8th, 7 PM
O’Brien Civic Center**

**MILTON HAMFEST
ARRL VERMONT STATION CONVENTION
Saturday, February 26th, 8 AM**

RANV

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