

The next regular meeting of the Rochester VHF Group will be Friday, Nov 14th, 2008 at 7:30pm

**Spencerport
Wesleyan Church
2653 Nichols St.,
Spencerport**

Map and directions in back

In this issue:

Secretary Report
Treasurer's Report
KA2LIM Contest Report
Computer Logging
'Noiseless' Amplifier
Call for Papers
Noise Figure
2 M Net
Yard Bag Holder
Classified Listings

Topics:

The Chairman Speaks! Bill Rogers, K2TER

Fellow Groupers: First of all I have to convey a special note of thanks to Dave Hallidy (K2DH) for preparing and delivering a fine presentation on the practical side of EME at the October 10th meeting, especially on short notice. We all got a glimpse of what it takes to get on the moon and will benefit from the lessons learned and best practices presented.

November Program : Andy Flowers (K0SM) will give a talk on meteor scatter propagation – and potentially other forms of scatter - at the November 14th meeting. This is certainly going to be a great opportunity to understand some of the theory behind these modes we take advantage of regularly.

Rochester VHF Challenge – We will be discussing the details of the first – hopefully annual - local contest we are sponsoring to run during the January VHF QSO Party. Details will be in the December Journal and will be sent to other clubs to encourage participation. We need your help in getting the message out!

Up coming events: Don't forget about the December meeting. We will conduct our annual tune up clinic as usual and plan to have a presentation on phase by John Stevens.

Please meet us at Spencerport Wesleyan Church – 2653 Nichols Street (Hwy 31) Directions on last page. **Bring a friend!**

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Editor: Tom Jennings, K2VX*

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Secretary Report **Judy Stonehill, N2KXS**

Rochester VHF Group Meeting Minutes for October 10, 2008

The meeting, which was held at the Spencerport Wesleyan Church, was convened at 1938 local by the Chairman, K2TER.

Attendees introduced themselves with their names and calls. In attendance were N2MLH, W2CNS, WB2BYP, WO2P, KV2X, WB2QCJ, K2DH, W2UAD, K2DB, NQ2O, N2KXS, K2OS, W3OAB, and K2TER. Also attending were Mark Hazel, K2MTH, and Jean Louise Maher, N2PHB, as guests.

OLD BUSINESS

Ken, K2DB, said that RDXA is making plans for Field Day 2009. They would like to know if there are five CW operators who haven't been active for at least one year who would be interested in working CW for RDXA during Field Day.

Walter, NQ2O, reported that VE3SMA, VE3BMF, and VE3DSS are part of a group that would like to have closer ties with the Rochester VHF Group.

John, WB2BYP, moved to approve the Secretary's report as written. The motion was seconded by Larry, N2MLH, and approved by the attendees.

Dave, K2DH, moved that the Treasurer's report be approved as written. The motion was seconded by Larry, N2MLH, and approved by the attendees.

John, WB2BYP has all the necessary parts from Russ Schroeder's station to make a 1 watt 10 GHz beacon. At this time, he just needs the appropriate crystal. He also volunteered to work on a 1.2 GHz beacon.

Bill, K2TER, has an 1152 filter which could be used on a beacon. Dave, K2DH, offered to put a network analyzer on the filter to check it out.

NEW BUSINESS

Bill, K2TER, talked about the Rochester Challenge which is being considered by the Rochester VHF Group. The group hopes that the Challenge would encourage less experienced hams to get on the air during the January VHF Sweepstakes. It would be run on an individual basis rather than on a club basis as was the case with the Rochester Cup in past years. A simple way of scoring which encourages contacts with RVHFG members needs to be implemented. For example, a participant's score could be the total of that person's contest score times the number of contacts with RVHFG members. Dean, WB2QCJ, suggested that the awards could be quadrant-based with the dividing lines running along Route 31 and the Genesee River. Another approach to setting up the quadrants could be a latitude and a longitude line. Rovers would give their home quadrant as their location. RVHFG members will work on refining the rules. A plaque could be awarded for the 1st and 2nd highest scores, with certificates for 3rd through 5th places. Information about this challenge needs to get out to the RDXA and RaRa as soon as possible. At the November meeting of RaRa, Bill, K2TER, will be giving a presentation on roving and will announce the Challenge at that time. Also, a letter will be sent out to hams by the end of this month. Dean will talk to the RRRRA about the Challenge.

Dean, WB2QCJ, said that RVHFG will be accepting responsibility for the W2UTH/B beacon and that the service of Al Goss, K2ERG, and Bob Young, W2RTB (SK), in maintaining it to this point should be recognized. Bill, K2TER, said that Al and Bob provided this service to the community for a long time under less

Rochester VHF Group
Treasurer's Report – November 2008

CHECKING ACCOUNT

<u>Previous Balance</u> (as of 10/1/08):	\$1,185.80
Income:	
Membership dues	\$10.00
Expenses:	
One year PO Box rental	\$42.00
Two months RVHFG Journal postage	\$18.44
<u>Current Balance</u>	\$1,135.36

SAVINGS ACCOUNT

<u>Previous Balance</u> (as of 10/1/08):	\$1,522.55
Income:	
Interest	\$0.31
Expenses:	\$0.00
<u>Current Balance</u>	\$1,522.86
TOTAL	\$2,658.22

*Respectfully submitted,
Judy Stonehill, N2KXS*

W2UTH Beacon Operational Status

The RVHFG 1296 beacon is has been raised to 34 feet and seems to be a lot stronger, signal reports would be appreciated and sent to the RVHFG email reflector or n2mlh@yahoo.com
Larry, N2MLH

KA2LIM (Multi-Limited) September VHF Contest Report

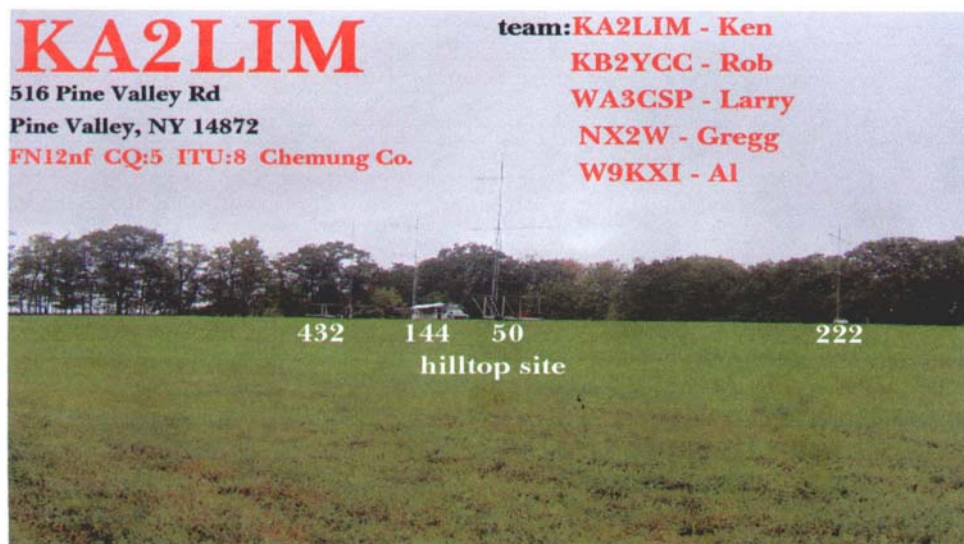
By Ken, KA2LIM

The September VHF contest started for us on Wednesday as being setup day and continued on thru Friday. On Friday everything was finished with the installation of a new antenna system for 432. They arrived on Thursday so I spent all afternoon assembling and tuning until 8:30 pm. Finished on Friday morning and put the antenna's up between rain showers on Friday afternoon.

Friday evening I fired up the generator and made a few contacts on the bands to ensure everything was ready to go. Saturday everyone was at the site by 12:30 pm. The kitchen was setup and everything was ready at contest start time.

Conditions were pretty flat throughout the entire contest, which makes for a pretty level playing field, unless you live near large cities with high ham populations that produce more contacts. So it all came down to sitting at the positions calling CQ Contest and trying to dig out those weak stations.

We only had one break-down, the relays on the 432 amp quit so we had to use our backup amp and that dropped us to 100 watts output. We wound up with 615 Q's and 133 Multipliers for a final score of 97775. We continue with our number 1 rule: Have a good time; lots of good food to eat, a few pints of home-brew beer, and lots of laughter. Hope to work you in the Jan 09 contest.



KA2LIM's Sep 08 VHF QSL Card



The "Limo"



In the picture on the left look between the shelves in right rear and you will see Larry-WA3CSP at the 6M station, Al-W9KXI has back to camera at the 222 station, left front is Gregg-NX2W at 432 station, and left rear is Rob-KB2YCC at 2M station. In the picture on the right you see Ken-KA2LIM at the 6 m station.

Computer Logging Software Survey

By Tom Jennings, KV2X

What computer logging software are you using for VHF contesting in a Rover or Fixed station?
What do you like and dislike about the logging software?

Here is what some users think of their favorite logging software.

"**RoverLog**, for sure while roving and **N1MM** in the shack. As for RoverLog, what is not to like? The best feature is that it keeps the previous guy in the log so that all you have to do is use keystrokes to change bands and log." says Mark, K2QO. Check <http://www.2ub.org/roverlog/> for details.

Ken, KA2LIM, uses **VHF Contest Logs** by N3FJP <http://www.n3fjp.com/>
Because: "SIMPLICITY. V2.3 is for a single operator with one computer. V2.8 is for networking. We use V2.8 for contesting in the Limo. Each position has it's own input for that particular band but lets you see the overall score and log as it is updated every 30 seconds from the server (main computer). Easy to change mode input with the click of the mouse button. Can change to see a grid map w/ worked grids in a different color, click on a grid and it gives you a beam heading. You can interface CW and voice files for automatic calling (we do not use this feature)(we use stand-alone units for this). Writes Cabrillo file, writes a back-up file (automatically) writes a file in (.adif) format for transfer to your main logging program. "VHF Contest Logs is available for a very reasonable price. See N3FJP's website for details.

Duane, K2SI, uses **N1MM** in a fixed station for both VHF and HF contest. He says, "All bands are connected to the computer and I only have to learn one program." The N1MM Logger is a freeware program designed to do contest logging and some general logging. It is not a general logging program with award tracking etc. but is mainly a contest logging program. See the N1MM website (<http://pages.cthome.net/n1mm/>) for details.

At a recent Monday Night 2 Meter Net, Net Control, Larry, N2MLH, shamelessly asked what software everyone uses for contest logging. He recorded the following:

- 1 self written software soon to be released (prior to Jan 09 contest)
- 3 pencil & paper
- a couple of none
- 1 that switches between vhfctest, w2fu, and roverlog

KV2X uses **W3KM's GenLog** for most of my contest logging at home. It is an easy to use freeware program which supports over 300 contest. The feature I take advantage of is "no mouse logging" feature. Just hit return for the cursor to advance to the next field. For additional information see the website:

<http://mysite.verizon.net/dmascaro1/>

In the K2TER Rover, the current logging software is **RoverLog**. As Mark pointed out above, running the bands is easy as the previous guy stays in the log so with a couple key strokes you can change bands and enter the time.

I have used EXCEL a couple times when I knew there would not be too many contacts to log.

This should shed some light on logging software and give potential user some clue as to what is available. Thanks to Mark, Ken, Duane, Larry and the Monday Night 2 Meter Net for their input.

'Noiseless' Amplifier

By Tom Jennings, KV2X

Researchers at the National Institute of Standards and Technology (NIST) and JILA, a joint institute of NIST and the University of Colorado (CU) at Boulder, lead by Konrad Lehnert, have made the first tunable “noiseless” amplifier. Noiseless amplifiers have been reported before but Lehnert says that this amplifier offers better performance and is the first to be tunable, operating between 4 and 8 gigahertz. This amplifier has enough gain to overcome noise added further down the signal path. This new amplifier is a 5-millimeter-long niobium cavity lined with 480 SQUIDs. (A SQUID is a magnetic sensors called superconducting quantum interference device.) Microwave signals bounce off the walls of the squids and is tuned by manipulating magnetic fields and injecting an intense signal at a particular frequency.

To get more details check out my references below:

National Institute of Standards and Technology (2008, October 20). First Tunable, 'Noiseless' Amplifier May Boost Quantum Computing, Communications. Science Daily. Retrieved October 21, 2008, from <http://www.sciencedaily.com/releases/2008/10/081015183506.htm>

You can read the abstract of the journal paper at

<http://www.nature.com/nphys/journal/vaop/ncurrent/abs/nphys1090.html>

Call For Papers

By Dave Halliday, K2DH

This is a call for papers and presentations for the Southeastern VHF Society 2009 conference on April 24th and 25th in Charlotte NC. Steve, N2CEI has volunteered to be the program chairman again this year and will be accepting papers for the proceedings with a cutoff date of March 2nd 2009. All papers will be submitted to Steve at svhfs2009@downeastmicrowave.com. All papers should be weak signal VHF/UHF or Microwave related. If you have a question about a topic please do not hesitate to ask. If you wish to make a presentation (with a published paper or not) please e-mail Steve at the above address. Information about the conference will soon be found at <http://www.svhfs.org>. Hope to see you in Charlotte at the conference!

Noise Figure

By Tom Jennings, KV2X

Ham radio receiving systems frequently process very weak signals and we all know that noise added by the receiver's components make those signals difficult if not impossible to copy. Noise figure is one of the parameters use to characterize the ability of a receiver to process those weak signals. Noise figure is suitable not only for characterizing the entire system but also components used in the system such as

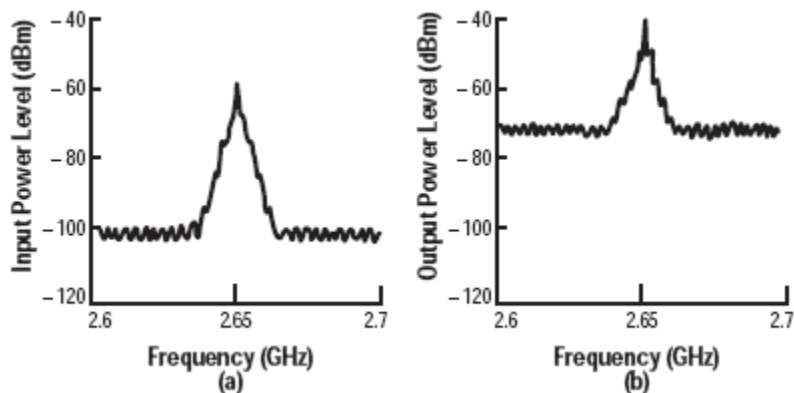
the pre-amps, mixers, and IF amps. Noise figure is a key parameter used to differentiate amplifiers.

Noise figure F of a network is defined as the ratio of the signal-to-noise power ratio at the input to the signal-to-noise power ratio at the output. Thus the formula would be

$$F = \frac{S_i/N_i}{S_o/N_o}$$

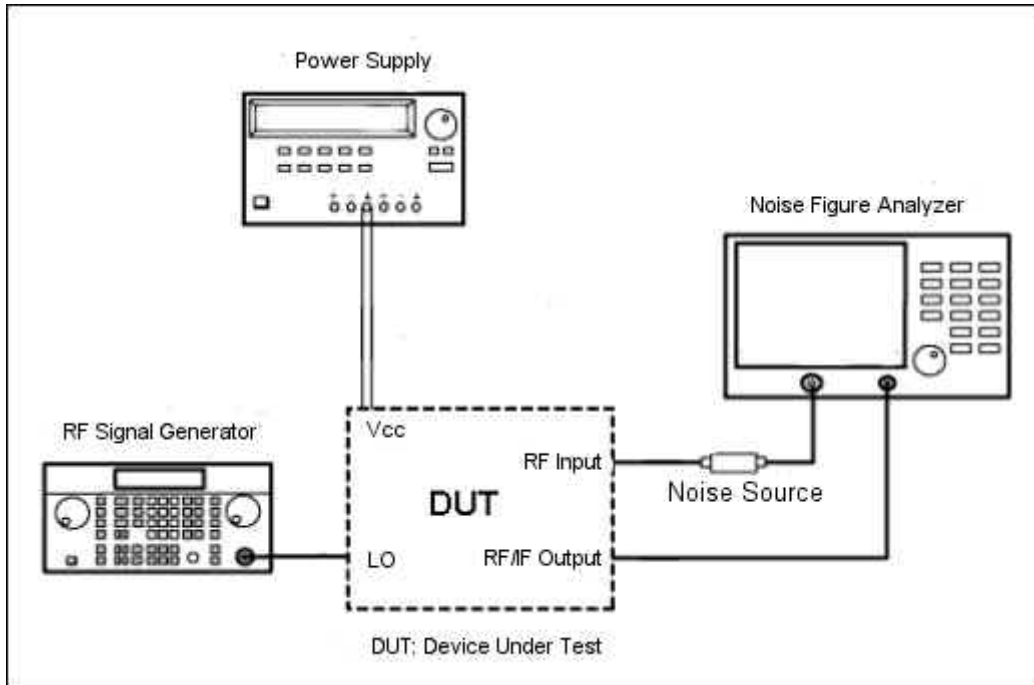
A perfect amplifier would amplify the noise at its input along with the signal, maintaining the same signal-to-noise ratio at its input and output. In reality, amplifiers add noise to the signal thereby degrading the signal to noise ratio. A low noise figure means that little noise is added by the amplifier.

Figure 1-2(a) shows an example situation at the input of an amplifier. The depicted signal is 40 dB above the noise floor: Figure 1-2(b) shows the situation at the amplifier output. The amplifier's gain has boosted the signal by 20 dB. It also boosted the input noise level by 20 dB and then added its own noise. The output signal is now only 30 dB above the noise floor. Since the degradation in signal-to-noise ratio is 10 dB, the amplifier has a 10 dB noise figure.



Keep in mind that noise figure does not characterize. It has nothing to do with modulation or demodulation. Noise figure is separate from gain.

Now that we have an idea of what noise figure is, how do we measure it? There are at least two ways of measuring noise figure. First is by using a Noise Figure Meter. The advantages of using this method are simplicity, accurate for small noise figures, and measured across a wide range of frequencies.



The above figure shows the equipment needed and setup to do noise figure measurement using a noise figure meter.

A second method of noise figure measurement is the gain method. The following formulas are used:

$$F = \frac{GN_{in} + N_{dut}}{GN_{in}}$$

$$= 1 + \frac{N_{dut}}{GN_{in}}$$

$$\text{Or } 10\log F = 10\log N_{dut} - 10\log N_{in}$$

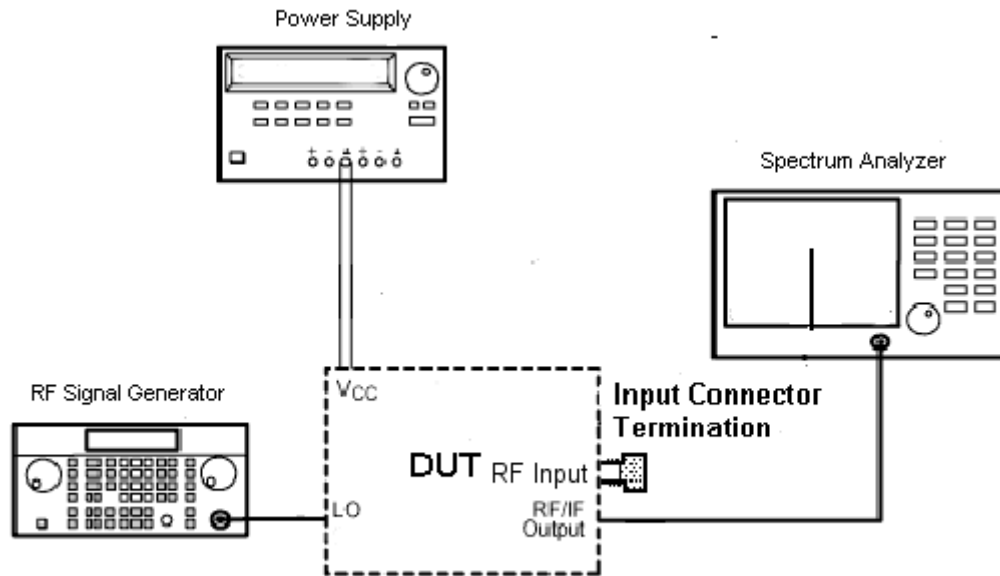
$$= 10\log N_{dut} - 10\log(KT_0 DfG)$$

If you consider per Hertz (normalized) bandwidth,

$$= 10\log N_{dut} - 10\log KT_0 - 10\log G$$

$$= [10\log N_{dut} - 174 - 10\log G] \text{ db/Hz}$$

We know the constant KT_0 , which is equal to 174 dBm/Hz. Therefore, we can compute the NF in dB by measuring N_{dut} .



The above figure shows the equipment needed and setup to do noise figure measurement using the gain method.

This method is useful for high values of noise figures, more intuitive, the spectrum analyzer is useful for other measurements, and is recommended at frequencies less than 10 MHz. Disadvantages include expensive spectrum analyzer, DUT gain must be known, and the accuracy of the measurement depends on the accuracy of the DUT's gain.

Reading the references will give more details and additional insights to noise figure.

References

Noise Figure Measurement – Practical Approach

<http://www.tutorialsworld.com/rf-measurements/noise-figure/noise-figure-measurement.htm>

Agilent

Fundamentals of RF and Microwave

Noise Figure Measurements

Application Note 57-1

<http://cp.literature.agilent.com/litweb/pdf/5952-8255E.pdf>

2 Meter Net Check-ins								
Date	Calls							
13-Oct	KB2BLS	K2MPE	WB2BYP	NQ20	KC2MCC	W2EV		
20-Oct	KB2BLS	W2EV	WB2SQS	WA2SOK	W2UAD	NQ20	KC2MCC	
27-Oct	KB2BLS	K2MPE	KC2HZM	KC2QZR	N2YEM	KA2EKI	W2NVZ	KC2PCD
3-Nov	KB2BLS	K2MPE	KA2EKI	K2DH	KC2JKV			

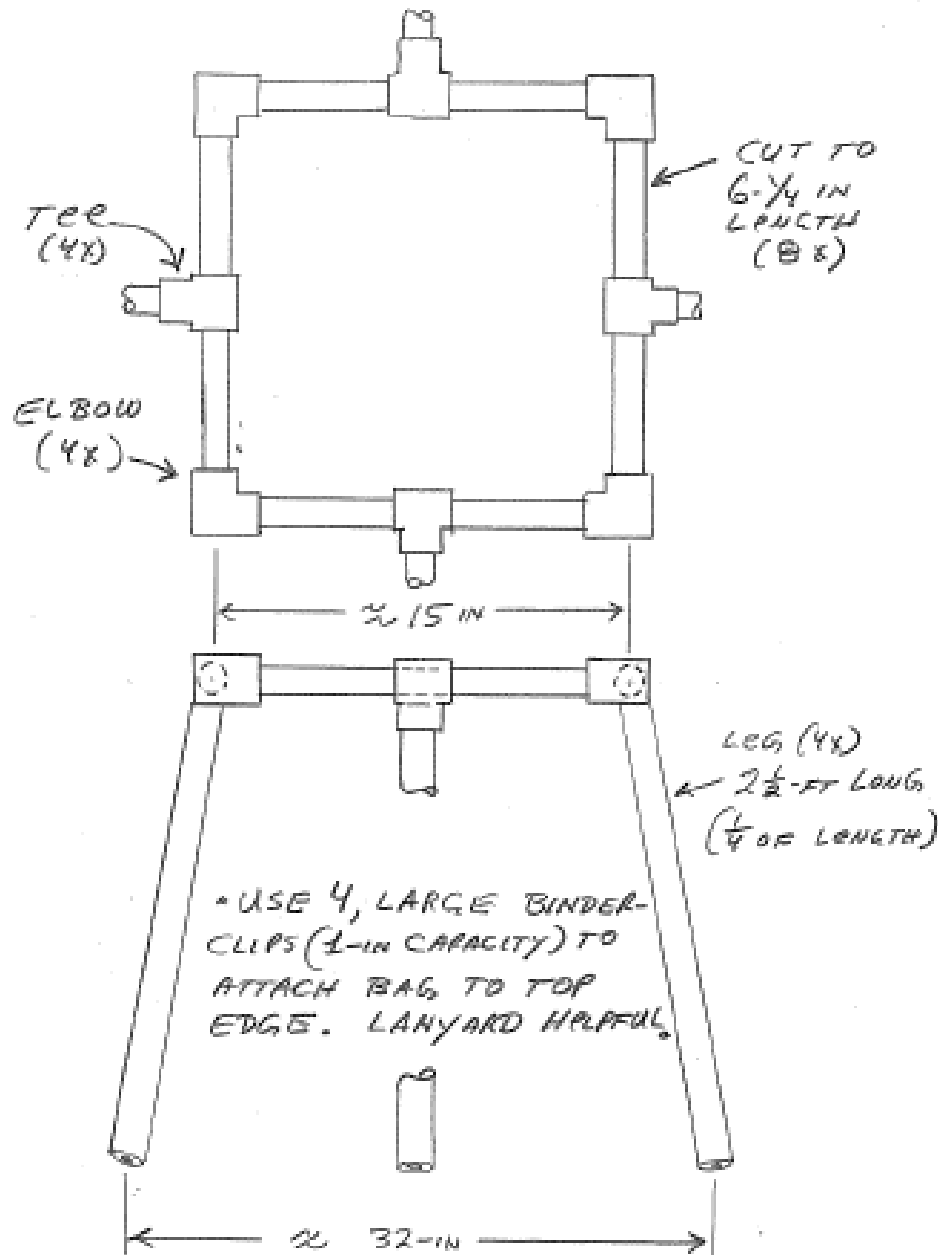
Thanks to Net Control, Larry, N2MLH, for providing the check in list.

Yard Bag Holder By Dean Keyser, WB2QCJ

This is the season where this yard bag holder will come in handy. Thanks Dean!

YARD-BAG HOLDER, 39-GAL. Keyser WB2QCJ

- ALL PVC PIPE AND FITTINGS ARE $\frac{1}{2}$ -IN, SCH 40.
- BURNISH MATING SURFACES BEFORE GLUING.



Classified Listings

Wanted: I'd like to find a 2.4G looper, either a 6' or 12'. My rover is in need. Contact me at: k2qo@mac.com

Thanks, Mark K2QO.

For sale- excess to my needs:

N6CA single 7289/2C39 water-cooled amplifier for 1296 MHz. Completely built and functional, including chassis with cavity, filament, bias supplies, T/R switching (using 2 Transco "Y" relays), and separate HV supply. This unit will (and does) provide 150-180W output all day in CW/SSB service, with 10-12W drive. Included are numerous good tubes with water jackets, water pump. I use this amp as my primary EME amplifier, although it was planned to be just the driver (see below). \$400, plus shipping.

OE9PMJ-type single TH328 water-cooled amplifier for 1296 MHz. The N6CA amp was to be the driver for this one, to produce 400-500W output for EME or BIG tropo, with 30-40W drive (can use TH308, TH328, TH338, YU129, etc). Cavity and RF deck is complete, tested, and working. I have a "wimpy" power supply for it which is complete, but the good one is under construction- both are included. Also included are three guaranteed good TH328's- tested by HB9BBD (one has 10dB gain, one has 12dB, the third has 13dB gain- all produce full power). They need water jackets attached (included, easy job). Also included is the pump. \$1200, plus shipping for cavity and both supplies. If you want me to finish building the good supply, let's talk.

I'll also sell both the N6CA and the OE9PMJ together for \$1500, plus shipping.

If interested, please contact me directly.

k2dh@frontiernet.net or
585-395-0571

For Sale: 2, 3, and 5 Gig Station

2 and 3 G in one box with common TWT(WA2MOP's rover station) All Down East components. \$500. PS for TWT.

5G Ca. Microwave LO, Down East mixer and preamp. Solid state amp with power supply. Low voltage PS for relays and LO. 8-10 watts out all bands \$250.

Free 18" dish with tri-band feed with purchase of complete station.

Contact: Howard Clark k2an at localnet dot com

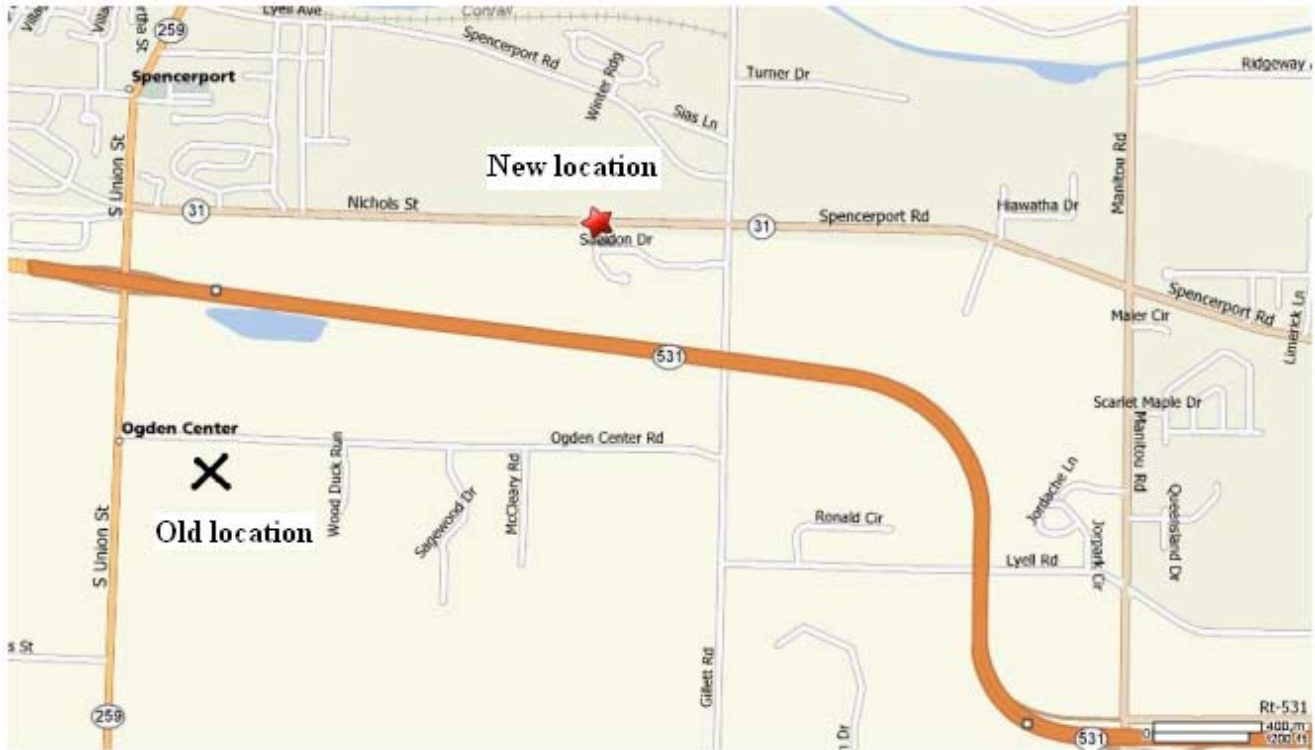
Submitting email to the RVHF Group's Reflector.

Have you ever wanted to submit something to the RVHF Group's Reflector but was unsure how to go about it? Well it is quite simple! All you need to do is send an email to:

rvhfg_general@yahoogroups.com

The email will be distributed to everybody on the reflector's list.

Meeting Location and Directions



Spencerport Wesleyan Church on 2653 Nichols St. (actually Hwy. 31).

Directions from Rochester:

531W exit RT. to 259N

259N turn Rt. on 31E (first Rt. at traffic light)

Look for Spencerport Schools Bus Garage on left

Take first Rt. on Sheldon at A-framed church, park in rear lot.

Enter gray metal door under fire escape.