



The next regular meeting of the Rochester VHF Group will be Friday, Oct 10th, 2008

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

Map and directions in back

Topics:

K2DH EME Update

The Chairman Speaks! Bill Rogers, K2TER

Fellow Groupers:

Rain couldn't dampen the spirits at the September picnic/meeting. We had a great site, good food, good attendance, fun hands on presentations to kick off the year. Thanks to Larry Carter (N2MLH) for securing the Rush Fireman's field site, Tom (KV2X), Frank Pollino (K2OS) the grillmeisters who braved the rain, Andy Flowers (K0SM) for demonstrating his laser transceiver gear and Fred Miller (WO2P) for showing his elaborate 10, 24, 47, and 78 GHz portable equipment. If you missed it this time, I hope you are able to attend the next one.

October Program: "K2DH EME Update"

Dave Hallidy will present at the October 10th meeting. He will share recent updates to his EME station as well as some of the knowledge he has gained through 20 years of experience in this pursuit. I'm sure he will have many interesting anecdotes to share as he has been involved in many "firsts" related to EME.

The meeting will be back indoors this time around. Please meet us at Spencerport Wesleyan Church.

Bring a friend!

Bill

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Editor: Tom Jennings, K2VX

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Secretary Report Judy Stonehill, N2KXS

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Rochester VHF Group Meeting Minutes for September 12, 2008

The meeting, which was held at the Rush Fire Department pavilion, was convened at 1959 local by the Chairman, K2TER.

Attendees introduced themselves with their names and calls. In attendance were K2TER, K2OS, NQ2O, N2MLH, K0SM, WO2P, WB2QCJ, K6PSP, AF2K, K2DH, KV2X, and N2KXS. Also attending were Mark Hazel, K2MTH, Jean Louise Maher, N2PHB, and Betty Jennings as guests.

The new officers were announced: Chairman: Bill, K2TER, Vice-Chairman: Larry, N2MLH, Secretary/Treasurer: Judy, N2KXS, Even-year Director: Fred, WO2P, Odd-year Director: Dave, K2DH, and Technical Advisor: John, WB2BYP.

The Treasurer's report was read, accepted by WO2P, seconded by Dave, K2DH, and passed by the attendees.

OLD BUSINESS

Members are looking for potential meeting places for the Rochester VHF Group. There are possibilities but members are asked to look for additional ideas. Walter, NQ2O, said that the German Federation Building off Lyell Avenue is being considered. Fred, WO2P, said that he has called many locations but the fact that our meetings often run past 9 PM is a problem. Andy, K0SM said that, if the group is willing to pay, we may be able to get more flexibility in hours, something we may want to consider. Tom Jennings, KV2X, checked out a location in Perinton. The charge would be \$25 for the first hour, and \$10 per hour after that. It was mentioned that Gander Mountain has too much extraneous noise. In addition, we would have to be out by 9 PM.

The group came up with a list of "must-haves" for a meeting location: in Monroe County, available every second Friday of the month, AV equipment available, seats a minimum of 30 people, has secure parking, affords the ability to work on projects, has antenna range capability, would allow for a multi-year agreement, would be available year round, has air conditioning, and easy accessibility.

The Spencerport Wesleyan Church is still ok. The goal in the search is to have a decision by mid-spring. Bill and Andy will look at the German Federation Building

Dave, K2DH, gave a report on the beacon status. Last month, the beacon was up in FN12FS with 12 watts out. It drifts because of the cool temperatures but is working solidly. He hopes to have beacons on 50 MHz through 10 GHz and is looking for reports on the 1296 beacon. John Stevens bought a 10GHz rig from the DYY estate and hopes to have it up soon as a beacon.

NEW BUSINESS

In the upcoming contest, K2QO will rove – he'll want contacts on Sunday. Irv said that KA2LIM will be on 50, 144, 222, 432 MHz.

Andy will now be the Content Manager for the RVHFG web page. Tom Jennings is now the editor of the Journal. Please send articles to him for publication in the Journal. The Journal issues will be published the Friday before each meeting.

Articles from other publications could be included in the Journal, with proper credit given to the original authors

Rochester VHF Group
Treasurer's Report – October 2008

CHECKING ACCOUNT

<u>Previous Balance</u> (as of 9/1/08):	\$1,313.02
Income:	\$0.00
Expenses:	
Food for 9/12/08 meeting	127.22
<u>Current Balance</u>	\$1,185.80

SAVINGS ACCOUNT

<u>Previous Balance</u> (as of 9/1/08):	\$1,522.55
Income:	\$0.00
Expenses:	\$0.00
<u>Current Balance</u>	\$1,522.55
TOTAL	\$2,708.35

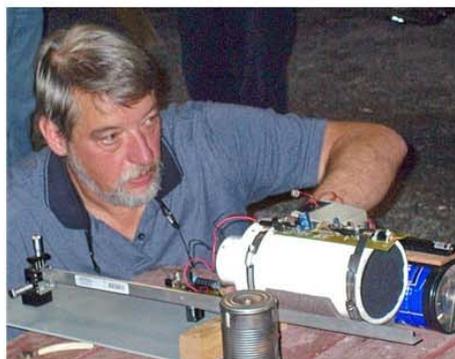
*Respectfully submitted,
Judy Stonehill, N2KXS*



Fred's Microwave Station



Fred describing the station



Fred lining up one end of Andy's Laser



Andy and Judy at the other end

Demos at the September Meeting

Photos by Alan, K6PSP



Enjoying the Food!
Photos by Alan, K6PSP

Phase Noise

By Tom Jennings, KV2X

A term that gets mentioned often is phase noise. What is it? What are some causes? What are its effects? The following answers these questions in basic terms.

Phase noise is a term used to describe short duration random frequency changes of an oscillator. If you look at the output of an ideal oscillator (a pure sine wave) on a spectrum analyzer you would see straight narrow vertical line. In reality, the spectrum analyzer would display something much wider. This additional width is the phase noise. In other words, the phase noise components are spreading out the signal to adjacent frequencies producing sidebands.

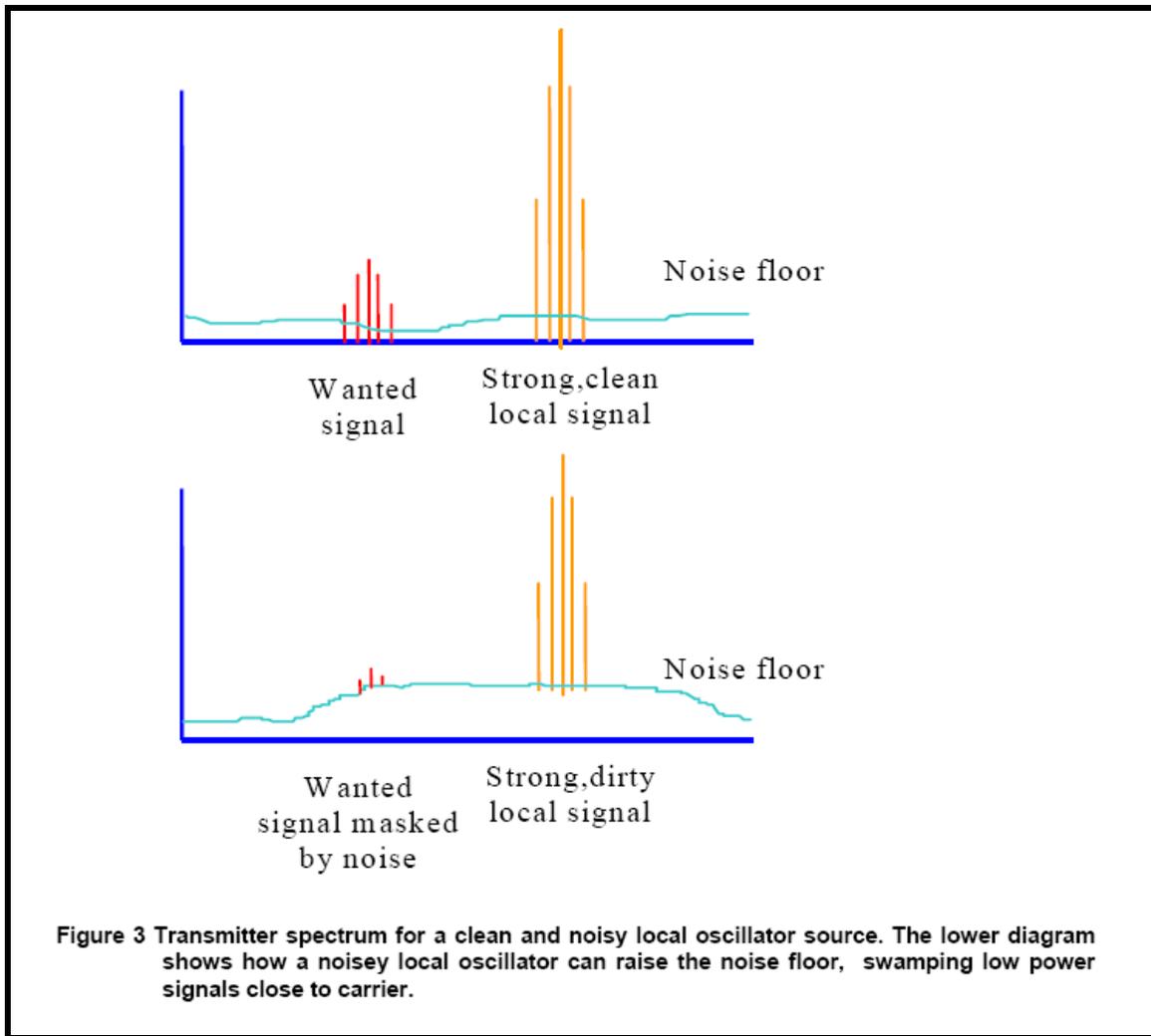
Spectral purity is how close an oscillator's output frequency comes to an ideal line of zero width.

Frequency Stability is how well an oscillator maintains the same frequency over a given time.

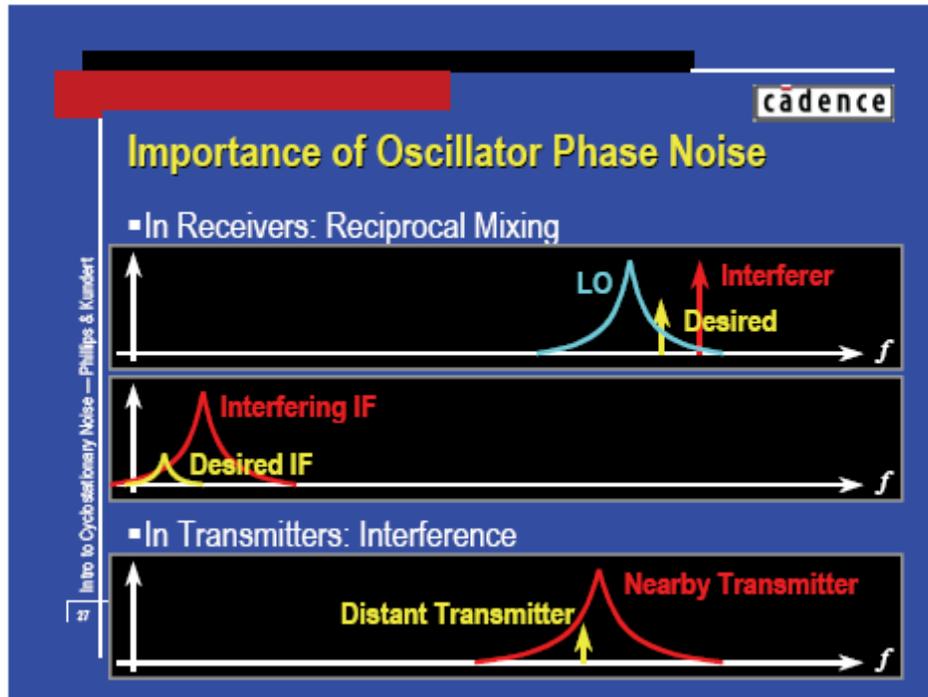
What are some of the causes of phase noise? In LC tuned oscillators any noise generated by the frequency determining components would contribute to the phase noise. This would also include diodes, transistors, tubes, power supplies, etc. With phase locked loops you have the reference source, dividers, and VCO phase noise. Other contributors would be resistors and any active components in the loop along with noise from the power supply.

What are some effects of phase noise?

A transmitter's local oscillator noise is amplified by the subsequent amplifier stages and is eventually fed to the antenna together with the wanted signal. The wanted signal is therefore surrounded by a band of noise originating from the phase noise of the transmitter's local oscillator. Therefore the noise generated can spread over several kHz masking nearby lower power stations as shown in figure 3.



Reciprocal mixing occurs in a super-heterodyne receiver when the noise sidebands of the Local Oscillator mix with strong signals that are close in frequency to the wanted signal, producing unwanted noise products at the intermediate frequency and degrading the receiver sensitivity.



As reciprocal mixing adds the unwanted signal mixed with the noise sidebands of the LO to our IF output, any phase or frequency modulation on the interfering signal is typically lost in the process, however amplitude modulation is preserved and modulates the added noise. For example, if the interferer carrier was gated on and off, the reciprocally mixed noise would appear and disappear.

References

- <http://www.telestrian.co.uk/phasenoise.html>
- <http://www.designers-guide.org/Theory/cyclo-paper.pdf>
- http://www.odysseus.nildram.co.uk/Systems_And_Devices_Files/PhaseNoise.pdf
- <http://www.radiolab.com.au/designfile/pnref/rx1.htm>
- <http://www.minicircuits.com/pages/pdfs/vco15-6.pdf>
- http://en.wikipedia.org/wiki/Phase_noise

Classified Listings

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

Wanted: Yaesu FT-1000MP Mark-V Field. Contact Tom Jennings, KV2X, at 585-425-1471 or email kv2x at arrl dot net

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.