

The VHF



Journal

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The next regular meeting of the Rochester VHF Group will be Friday, April 12th at 7:00 PM at the home of Bob Nezelek W2CNS, at 7272 High View Trail in Victor 14564. That's a street just off of High Street in Victor.

Map and directions on last page

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Topic: Digital EME or Moon bounce with WSJT Software.

RVHFG's Beacons	
Band	MHz
6m	50.078
2m	144.298
1.25m	222.050
70cm	432.300
23cm	1296.257

The Chairman Speaks! John Stevens WB2BYP

Groupers: Our next meeting will be on 12 April 2013, and the topic will be **Digital EME or Moon bounce with WSJT Software**. The location will be at the home of Bob Nezelek W2CNS, at 7272 High View Trail in Victor 14564. That's a street just off of High Street in Victor.

Bob has extensive experience in EME with digital modes as well as CW on 144 and 432 MHz. His station utilizes the Flex 5000 SDR Transceiver, homebrew amplifiers and an array of 4 cross-polarized yagis on 144 MHz and 6 linear yagis on 432 MHz, on an AZ/EL mount. If you are curious as to how EME is done in this mode, and how SDRs are integrated into a larger system with this software, this is the station to see. The moon should be a crescent visible in the western sky, in view of all of North America, the Pacific and rising in JA and VK regions...Continued....

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The Chairman Speaks!

Continued...



Figure 1 Image of W2CNS 144/432 Array

We will have a brief business meeting at 7PM, followed by the discussion and demonstration starting at 7:30PM. Members and non-members always welcome, so if you know someone keenly interested in the topic, bring them along.

This just in from Paul K2FX: The **RDXA/RVHFG Joint Awards Banquet** will be held on Saturday, April 20th at Lillian's Restaurant in Penfield. Lillian's is located at 2200 Penfield Rd, Penfield, NY 14526. Cocktail Hour will begin at 6PM, with dinner to follow at 7PM. Awards will be presented after dinner.

This year, it is the responsibility of RDXA to host the Banquet. It looks like we will be eating from a Buffet, but the Entrée items are not yet decided. This will be discussed at the RDXA BOD Meeting on Tuesday, April 9th. Once this decision is made, I'll begin to immediately take reservations. Lillian's will need a count prior to the event, so reservation's WILL BE required! I hope that many of you will choose to join us! (*Thanks Paul, Looking forward to it!*)

Progress report on the 6M Skimmer: We have the computer and it is being set-up with Windows 7, a wireless card, a 124 dB dynamic range sound card and the skimmer software. Difficulties we have run into include finding proper drivers for the proprietary hardware imbedded in the HP

motherboard that will allow the wireless card and the sound card to function. It is progressing though, and a few more evenings at the keyboard should put it in order.

We have the antenna now, a Par OM-50 and 120ft of fresh LMR-400. Paul K2DB has the 6M Softrock board reconfigured, and with a little troubleshooting we hope to have that tested shortly. Stay tuned to the web site and the email reflector for announcement of a work party for the installation.

There are not many examples of 6 Meter Skimmers at play around the world, so in some ways this project is quite an intriguing experiment. With the preponderances of beacons on the band, and the sporadic nature to the propagation, this tool may prove to be an interesting way to monitor and alert for band openings.

As always, look for the RVHFG on the Monday and Thursday Night 144.260/50.200 Nets at 2100 local for more info.

Thanks,
John Stevens wb2byp

For reference:

Par Electronics: <http://www.parelectronics.com/index.php>
ASUS Sound Card: http://usa.asus.com/Multimedia/Audio_Cards/Xonar_Essence_ST/
Softrock Receiver: <http://wb5rvz.com/sdr/>
Reverse Beacon Network: <http://www.reversebeacon.net/>

Secretary Report

Tom Jennings, KV2X

Rochester VHF Group Meeting Minutes for March 2013

Meeting held at MicGinny's and came to order at 7:30PM. WB2BYP asked if there was a motion to accept the minutes from the last meeting as printed in the Journal. WB2GFZ made the motion to accept and K2OS seconded. WB2BYP asked if there was a motion to accept the Treasurer's Report from the last meeting as printed in the Journal. K2OS made the motion to accept and WB2GFZ seconded.

Attending: WB2BYP, AF2K, WB2FGZ, K2OS, K2DB, K2GAB, WB2QCJ, KV2X

Old Business: MUD: John reported that RIT Inn cannot support MUD on October 16th but could on a different date. They submitted a quote.

Beacons: Are all operational and the RVHFG extends and ongoing thanks to the AWA for hosting them.

Journal material: KV2X, editor, requested all members are welcome submit material for publication in the Journal.

New business: K2DB discussed the current status of the 6 Meter Skimmer. K2DB donated the computer, WB2BYP donated the sound card. If anybody has something on the list (see March's Journal) to donate please contact WB2BYP. The goal is to have the 6m skimmer operational before this summer's E-skip season. The 6m skimmer will be a great propagation tool.

Program: K2OS discussed the linear amplifier he built from an Eimac Application Note.

**Rochester VHF Group
Treasurer's Report**

CHECKING ACCOUNT

Previous Balance (as of 3/13/2013):	\$2038.09
Income:	\$0.00
Expenses:	\$0.00
Current Balance	\$2038.09

*Respectfully submitted,
Tom Jennings, KV2X, Treasurer*

Annual Joint RDXA/RVHFG Awards Banquet

By Paul Jason Kolacki, K2FX

It's that time of year again to attend the Annual Joint RDXA/RVHFG Awards Banquet.

DETAILS

When: Saturday, April 20, 2013

Where: Lillian's Restaurant and Party House

Address: 2200 Penfield Rd, Penfield, NY 14526

Time: 6PM Cocktails & 7PM Dinner

To make things easy, Lillian's has agreed to offer you a choice of one of four (4) Main Entrees. They are Prime Rib, Chicken French, Fish (Haddock Florentine), or Pasta (Lasagna or Ravioli). Soup and Salad will be included with ALL MEALS, as well as a desert plus Coffee & Tea ****If you have any special dietary needs, please contact Lillian's directly to see what they can do for you. 585-377-1300****

Cost: \$20.00 Per Person. (Price INCLUDES tax & tip) Cash will be collected at the door.

I need to provide a final count to Lillian's by April 16th. All RSVP's should be sent to: k2fx@arrl.net. **YOU MUST INDICATE YOUR MEAL CHOICE IN THE RSVP!!** This is one of the highlight events of the year for both clubs, so I hope you will all come out to join us.

Best 73,
Paul Jason Kolacki, K2FX, RDXA Media & Banquet Coordinator

Cooled integrated circuit amplifies with record low noise¹

PRESS RELEASE: Researchers at Chalmers University of Technology, Sweden, have demonstrated an integrated amplifier with the lowest noise performance so far. The amplifier offers new possibilities for detecting the faintest electromagnetic radiation, for example from distant galaxies.

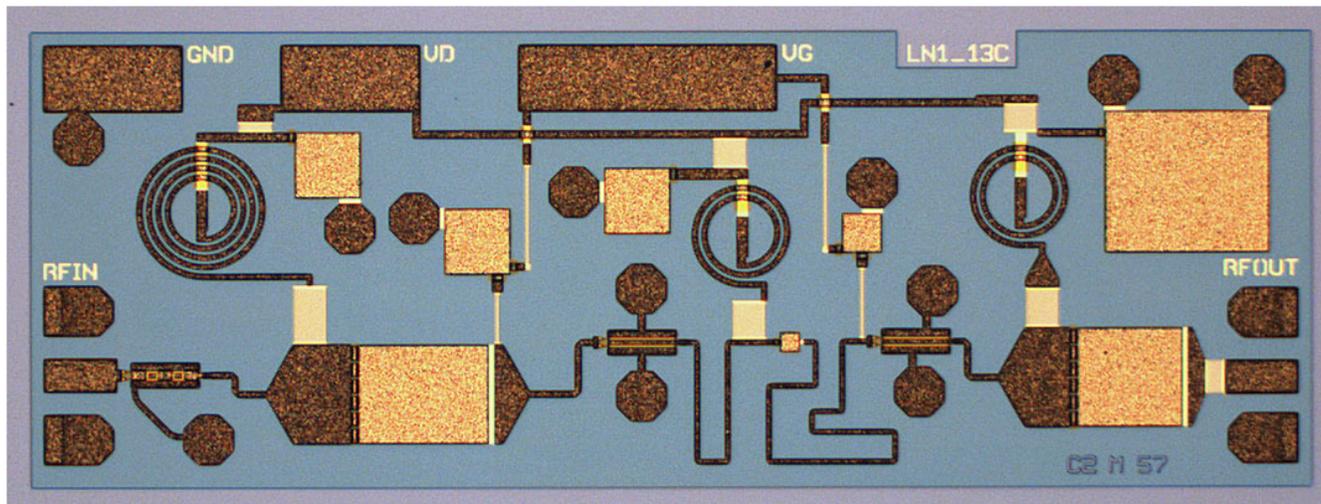


Figure 2 Integrated amplifier with the lowest noise performance

A fundamental property for the first microwave amplifier in the radio receiver is its noise figure. This is normally given in decibel (dB). A typical noise figure for low-noise amplifiers in mobile communication systems is tenths of a decibel.

Last year, Chalmers reported² a world record for a low-noise amplifier in the prestigious journal *Electron Device Letters*. The amplifier exhibited a minimum noise figure of 0.018 dB across a bandwidth of 4-8 GHz. However, since the low-noise amplifier was designed in a hybrid solution, scaling up to larger quantities turned out to be very difficult.

Chalmers has now in collaboration with a company called Low-Noise Factory published³ an article on an integrated ultra-low-noise amplifier. The scientists have developed a unique indium phosphide-based process for what is known as *high electron mobility transistors (HEMT)*. Transistors and other semiconductor components have been fabricated on a monolithic chip on an indium phosphide wafer. All parts of the design such as semiconductor layers, components, process and circuit design have been optimized for the lowest noise performance.

As a result, an integrated 2.0 x 0.75 mm amplifier with an ultra-low-noise figure of 0.045 dB was demonstrated. The amplifier had a very large bandwidth of 0.5-13 GHz and a high gain exceeding 38 dB across the frequency band. In order to show such extreme performance, the amplifier was cooled to minus 260 degrees of Celsius.

“The combination of high gain, large bandwidth and ultra-low-noise figure makes this circuit very attractive for large multi pixel arrays containing thousands of antennas,” says Jan Grahn, research group leader at Chalmers.

¹ <http://www.chalmers.se/en/news/Pages/Cooled-integrated-circuit-amplifies-with-lowest-noise-so-far.aspx>. Permission to reprint by Christian Borg, Presschef /Head of Media Relations, Chalmers University of Technology, +46-31-772 3395

² <http://publications.lib.chalmers.se/publication/158110-ultralow-power-cryogenic-inp-hemt-with-minimum-noise-temperature-of-1-k-at-6-ghz>.

³ <https://publications.lib.chalmers.se/publication/174483-cryogenic-broadband-ultra-low-noise-mmhc-lnas-for-radio-astronomy-applications>

"The integrated ultra-low-noise process enables the fabrication of thousands of amplifiers with identical performance. One potential future application is in the world's largest radio telescope *SKA (Square Kilometer Array)* that is being planned, an international project where the Onsala Space Observatory at Chalmers is one of the acting members. In huge applications such as the SKA, even a small noise-figure reduction in the first low-noise amplifier in the receiver chain may potentially bring about major savings in the final system design."

More information about the research

This research has been performed at *Gigahertz Centre*, a joint research and innovation centre in microwave technology, by Chalmers, one research institute and twelve companies. Gigahertz Centre is part of the *Vinn Excellence Program year 2007-2016* that was initiated by the Swedish Governmental Agency for Innovation Systems (Vinnova).

Read more about the SKA (Square Kilometer Array) see:

<http://www.chalmers.se/en/news/Pages/Sweden-joins-global-radio-telescope-project.aspx>

Classified Listings

From: Marshall-K5QE <k5qe@k5qe.com>
Sent: Wednesday, March 27, 2013 5:12 PM
Subject: Decommissioning two 8 band rovers....

Hello everyone interested in VHF/UHF roving. I have decided to decommission two of my 8 band rovers. This means that I will have a lot of "stuff" available for those that might be interested. I don't have a complete list of all the transverters, amps, preamps, relays, and other stuff at this time, but I will try to get that soon.

I want to start by offering for sale one of my TV vans that we used for two of the K5N grid DXpeditions. This is a TV van with the 40ft Wil-Burt pneumatic mast, the air compressor for the mast, and a 6KW Onan generator. The van is a Ford F350 with the big gasoline engine. Mileage is high, as you might expect, because the TV station did not let these go until they were "well used". We put this vehicle into the shop and "cleaned up, fixed up, and painted up" anything that needed repair. The van runs very well and the Onan does too. Currently, the Onan is 110VAC only, but can be rewired to be 240VAC if you wish. Any competent Onan shop can do this for you or you can try it yourself. In any case, there is plenty of power there.

I put new oversize Michelin truck tires on the van in 2010 and those tires have only had about 5K miles on them since new(the two DXpeditions below). We have cleaned all the TV station "junk" out of the van and built a small operating table into the cabin behind the two front captain's chairs. The cabin has 3 19" rack panels and a power distribution panel. You can put a TON of really good gear into the racks. What comes to mind are 4 rack panel Lunar-Link amps for 6M thru 432. That would be a killer rover / portable station!! We installed two Type N bulkhead feed throughs in the roof where the old TV microwave cables entered. There is also a 2M FM cable that runs to an NMO mount and 2M FM vertical on the top of the truck. I will let the 2M FM antenna go with the truck (I want everyone to know how big a sacrifice that is....HI).

On the Grid Bandits web pages(created and maintained by JD-N0IRS), there are numerous pictures of the first K5N DXpedition trying to get to DL88. We could not get there, because the road in the Big Bend National park was washed out in 3 places, so we did DL79 and DL89....but anyway follow this link== http://kcvhfgridbandits.com/kc_vhf_grid_bandits_042.htm. Then on the left hand side, click on

K5N DL79/89 2010 purple button. When that page loads, there is a bright yellow strip on the right with picture albums. The TV van is in many of those pictures.

In 2011, we took the TV van on the Great Winter DXpedition of 2011 to the DL99/DM90 grid line. If you click the blue button on the left, you will see the web pages for that expedition. Again, on the right is a bright yellow strip with three photo albums of pics from that DXpedition. There are several pictures of the van, now sporting a 2 x 6M5X antenna with full AZ / EL (you DON'T get that). There are good pictures there of the inside of the van and the operating table.

Bill-N5YA milled out a special rotor fitting that mounts on the top of the mast. That will allow you to mount a Ham 4 or TailTwister rotor. I think that he also drilled it for the M2 Orion 2800 rotor, but I am not sure about that. The special rotor mount goes with the van. It would cost you a lot of \$\$ to get this made at some local shop. You can see that in some of the pictures.

A club or a rover group could make a serious rover out of this TV van. We have proved here that elevating the antennas 40ft, makes a HUGE difference in the number of QSOs made--especially on the higher microwave bands. With the pneumatic mast, you would just arrive at a new grid, pump up the mast, run your scheds, lower the mast (try to remember this part), and drive to the next grid. Total setup time would be a minute or two to pump up the mast. This is the ultimate in rover vehicles.

Now, what is the bad news?? I want \$2500 for the TV van, with mast, air pump, and Onan. I am willing to make arrangements to deliver the van. If you want to come over here and check the unit out, that will be fine too. We can put you up here at the K5QE contest station or the N5YA contest station and save the motel bills. If you want to talk about this van, please call me and we can "cuss and discuss" it.

73 Marshall K5QE
Phone is 409-787-3830

Meeting Location and Directions

