

The VHF JOURNAL



December 1998-- Volume 50 Number 2

Dedicated to the Radio Experimenters, Contesters and Operators above 50 MHZ, along America's North Coast

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Membership in THE ROCHESTER VHF GROUP is by application. Dues are \$10 (Ten Dollars U.S. - \$15 U.S. for Canadian Members) per year. Make Checks payable to "The Rochester VHF Group". Membership expires on May 31st.

The Club meets on the second Friday of each Month, September through June, at the Monroe County Social Services building at 111 Westfall Road. Commercial advertising prices are \$20 (twenty dollars U.S.) per year per space and must be arranged through The Advertising Manager. Non-commercial "For Sale" or "Wanted" ads are free.

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<http://VHFGroupers.greeceny.com>

This Months Meeting...

Place:	111 Westfall Road
Time:	7:30 PM Friday Dec. 11, 1998 Please be on time!!!
Program:	Shhh! It's a Surprise
Presenter:	RVHFG
Dead Line for Journal:	Dec. 30, 1998

Contest Corner

By Mark, N2YB

So I arrive at the normal meeting place last Friday (10/13) early, (7:05), but not too early only to find the auditorium empty. Wait around until 7:25 and go home thinking I have the wrong night. No sooner do I get home and read the newsletter that has just arrived to find I was in the wrong place. I needed to only drive around the corner. I guess I am spoiled, all this technology.

I had a short presentation planned, I did not want to delay the tune-up effort, only to talk about the contest in general, the awards structure, contest committee volunteers, that sort of thing. In any event I can make a text presentation here and now.

In the past the contest committee has made adjustments to the structure to make the most of the award funds while maintaining recognition of "Significant contest effort". We will

continue to make changes, additions / deletions, based on the effort and activity of the group.

If you would like to sponsor and award, existing or a new idea, let me know. If it is for an existing award, I will put you name on a list and let you know what awards become available. Current sponsors are given first choice of their last year sponsorship or changing. If it is for something new, all the core awards (above) must be sponsored, and your idea needs to be approved by the Board of Directors. These are two small hurdles so please lets hear your ideas.

Rochester VHF Group Jan Sweepstakes	
Awards:	
Unlimited Multiop:	1 st , 2 nd
Limited Multiop:	1 st , 2 nd
Unlimited SingleOp	1 st , 2 nd , 3 rd , 4 th , 5 th
Medium SingleOP	1 st , 2 nd , 3 rd , 4 th , 5 th
QRP Single	1 st
ROVER	1 st , 2 nd , 3 rd , 4 th , 5 th
Single Band	50MHz, 144MHz, 222MHz, 432MHz, 903/1296MHz, 2304-5760MHZ.
FM Only	1 st
Most Improved	1 st

This is the time of the year when I would like to have a couple of volunteers for the contest committee. I am interested in assembling a small group to discuss ideas involving contest activity. I vision this job as a few of us communicating ideas and work electronically, perhaps some personal meetings. I won't ask anyone to do a presentation, unless they want to, I have too much fun with that anyway. The work is not hard and if you want to be more closely involved in the contest activities of the group, here is your chance.

Recap of 1998 ARRL UHF

Contest

By Dave Hallidy, K2DH

LATE (but better late than never) RECAP OF THE 1998 ARRL UHF CONTEST

Well, if you haven't heard by now, it appears that once again the K2DH team has beaten the W2SZ/1 Mount Greylock Expeditionary Force (aka MGEF). The official results will be posted in QST very soon, but we ended up with a fine score of 649,740 points! This represents the second highest UHF contest score ever.

It was a HUGE effort by all involved, especially since just two weeks before the contest, plans were still to use the N2PA contest site, moving most of my microwave station down there and setting up a lot of temporary equipment and towers. Murphy took care of that! On July 20, my home was struck by lightning while we were away on vacation. Most of my ham equipment was damaged or destroyed (especially the microwave gear) and it really looked bleak for a contest operation.

However, my good friend Wayne N2WK came through and offered the use of his station. We quickly accepted and got a temporary tower up in his yard (thanks, guys for the loan of the tower and antennas) on which we put a pair of FO-25's for 432. We arranged a good group of rovers to go out, concentrating on sites to the north since we knew we had a great shot in that direction. The list of rovers included: W2FU, N2YB, NJ2L, KA2CKI, KB3PW, N2HKD, KC2DQR, N2KG, W3OAB, N2KXS, and WO2P. At Wayne's house, we had: N2WK (of course), KA2RDO, AA2 WV, K2DB, WA2TMC, KD2KQ, K2DH, and most important of all Helen King- Wayne's XYL, who always does the cooking, has a smile for us and puts up with our BS.

Contest conditions were, for the most part, flat. I noticed no significant enhancement the whole period, but saying that, I found a lot of stations we tried with on the microwave bands really hung in there with us and eventually we made the QSO's. The band scores are pretty good, considering the flat conditions. The breakdown is as shown in the Box.

A huge THANKS from the team and me to everyone who took the time to work us in the contest. We have plans to do it again next year, but from a different location. One last thing:

1998 ARRL UHF Contest			
Band	QSO's	QSO pts	Mults
222	111	333	35
432	139	417	36
903	77	462	27
1296	81	486	29
2304	59	708	21
3456	40	480	12
5760	17	204	9
10Gig	28	336	9
24Gig	10	120	2
Light	2	24	2
TOTAL	564	3579	182
Grand Total	649740		

there was a comment made by a station (not part of the team, but part of the RVHFG) to the effect that one of the Rovers wouldn't work him on some bands, and a few disparaging remarks were made about "elitist group" and "captive Rovers". This is so out of line, it hurts. Nobody on the team would intentionally exclude *ANYBODY* from a QSO on *ANY* band! If a Rover didn't work you, it may have been because of confusion, being tired and sleepy (remember they were up all night for us), being pressured by the K2DH station, or maybe, just maybe, they couldn't hear you! I am sorry to those who think we tried to keep the Rovers from working everybody- the sad fact is, it just isn't true! The K2DH team stood by to let others work our Rovers whenever we could. I won't mention any names or calls regarding this incident, you know who you are- I just hope you can understand what I've said here and take it in the spirit in which I've said it. If you still are angry with us/me, please call me and we'll discuss it further, one on one. The bottom line is, I don't want anybody upset

by the actions of the team- this a hobby, for crying out loud- if we aren't having fun, we shouldn't be doing it! 'Nuff said- thanks again to all who helped the team rise to another great victory!

CQ all new call signs

By N2hkd, Editor

If you have changed your call sign or know if anyone else, who has done so, I am creating a database for the call sign updates. This may be helpful to many of you who have not updated your contest software with the new call signs. How many of you still have n2odk listed instead of err, give me a minute, oh yes n2odk, no N2KG, that's it. I will publish the database JIT (just in time) for the January Sweepstakes. Please submit these to this email account:

braun @ netacc.net

Old call:kb2ywu New call:n2jmh
 Grid:fnl3af Email:n2jmh@ibm.net
 Active: 50,144,222,432 (1296 by Jan contest)

For Sale **December 98**

HB, 5 el. 2 m. beam, new, 5 boom.
 50.00
 Realistic H'1'X-202, & 30w PA, 2 m. mobile
 150.00
 Icom, IC-740, Ham band, 160/ 10,ssb/cw/fm,w/AC,100w
 450.00 Icom, IC-275, 2 m. multi mode base,
 600.00
 Yaesu FC-301, antenna tuner,500w,160/10
 150.00

WA2ZNC Len 229-5470

144MHZ
FAA AMP 5-8W IN 400-450 OUT PLUG/PLAY
\$300.00 PU OR U-SHIP
KLM 160W AMP (FM ONLY)
100.00

222MHZ
DEN XVERTER 20-25W OUT
\$210.00
ARR GASFET PREAMP IN LINE
75.00
FAA AMP 5-7W IN 400-450 OUT PLUG/PLAY
\$300.00 PU OR U-SHIP
MIRAGE C1012 AMP LOW IN 120W OUT
210.00

432MHZ
DEN XVERTER LOW OUT
\$250.00
ARR GASFET PREAMP IN LINE
75.00
DiOLO AMP LOW IN 100W OUT
225.00
AZDEN PCS 4300 LOW FM
150.00

902MHZ
SSB ELECTRONICS XVERTER 18w OUT
\$395.00
SSB PREAMP
75.00

1296MHZ
SSB ELECTRONICS XVERTER LOW OUT
\$395.00
SSB PREAMP
75.00

23 04MHZ
DEN XVERTER 1W OUT
\$250.00
DEN PREAMP
85.00
LMW LNA PREAMP
50.00
LUA PREAMP
50.00
6W BRICK AMP
100.00

3G,5G,10G XVERTERS W/TWT'S IN SMALL
RACK W/RELAYS, METERING, SEQUENCING
AND BAND
SWITCHING. YOU ADD 2M IF AND 12/28V.
\$1095.00
THIS IS A GREAT DEAL!

2M IF RIG AVAILABLE
250.00

902/1296/2304 MHZ
HI-SPEC AMPS 3 DECKS PLUS PS (air cooled)
(EACH DECK HAS PAIR OF 7289's) \$1100.00
15w in 150w/902
low IN 100W 1296 +} 10DB EA BAND 5W IN 50W
OUT 2304
system can be water cooled. Great Deal!

BIRD WATT METER
\$125.00
MIRAGE MP2 WATT METER
85.00
ASTRON PS (35A)
95.00
DRAKE UV-3 144/220/440 FM (LOW)
275.00
HP-431C W/PWR HEAD AND CABLE
75.00
HP-432A W/PWR HEAD AND CABLE
100.00

FORSALE, PLUS SHIPPING ON ALL ITEMS

Wayne, N2WK, <wfking@worldnet.att.net>

November 98

2 Meter EME Antenna Array: 4xCushcraft 17b2
w/4-way power divider and U-bolt
junctions(for 4" pipe - pipe not included. All for
\$500

432MHz Kilowatt Amplifier: Never on the air.
3cx800. Specs say 30 watts drive give 800 watts
output. RE Deck and Power Supply. Needs LIV
cable to attach power supply to RE Deck. \$1000 obo

Ev Tupis 716.638-8269
West of Rochester

AEA, PK-88, INTERNAL MODEM,W/
MANUALS, 50.00
5 EL. 2 M. BEAM,NEW, 50.00
ICOM IC-740,ALL BAND,ALL MODE, 160/10,
400.00

30' TRIAX,(3 SECT.),TOWER,ROTOR,BEAM
 100.00
 YAESU,FC-301 TUNER, 500w. 160/10
 200.00
 PRESICION OSCOPE (OLD) 5-55 20.00
 HP OSCOPE (OLD) HP-130 25.00

WA2ZNC, LEN, 229-5470

From the Treasurer...

By Len WA2ZNC

Treasurer Report 12/98

Receipts:

Membership dues \$ 117.00

Expenses:

Bounced check 20.00

Post office box 40.00

 Total \$ 60.00

Balance on hand:

Saving acct. \$ 1,431.65

Checking acct. 688.46

 Total \$2,120.11

Treasurer 89/90

WA2ZNC, Len

From the Far Side...

By Jean, N2MXG

Hi Gang!

Greetings from Prescott Arizona!

For those of you that haven't gotten the message Karen and I moved last February to Prescott. We wanted to get away from the "cloudy" weather, high taxes, and all of that "white" stuff!!!

Well, for the first month we accomplished a couple of the above, but we encountered a lot of the "white" stuff down here. It doesn't stay long,

but each time Karen got up in the morning, all she saw was snow!!! We had the most snow in 24 years!!!

As a joke, she called the Real Estate agent and asked for her money back!!! He wasn't amused...Oh well!

We are located in what is know as a "high" desert. Which means we have 4 mild seasons. Spring and Summer were great (some hot days, but cool nights), and the Fall is great! We don't have all of the Fall colors that you do, but we do have some.

I didn't really know what a "high" desert means until I decided to put up my re is a height limit. Visiting my local government, I found out the height limit is 35'.. ..hrmmm Well, seeing that the elevation at my house is 5709 ft. who cares I can live with that!

Well, to my surprise I found out that the mountains behind me (West) are only 8500 ft., and the ones to the East are 9000 ft . I soon decided that I couldn't put up a tower tall enough to see over the mountains So, I settled on using the one I had back in Fairport. It works fine.

"High" desert = a plateau surrounded by higher mountains!!!!

I have only found a couple of "hams" up here that are interested in the upper bands, but we will survive. There are a lot more down in Phoenix, but that is at the bottom of a very long "hill". I'm sure we will get hooked up with them at a later time.

I received a call from EV last spring. He wanted to try and set a new long distance record for 5.7 Gig. What he didn't realize is that the snow doesn't leave our mountain

tops until May....or ...June!!! Loooooong after he made his visit!!!

If one of the Repeaters goes out up here it doesn't get fixed until summer

I hope this letter finds all of you in good health.

We sure miss all of the friends we made while in Rochester, but not the weather!!! Sure is nice to look out each day and see the SUN, not a picture painted on the wall Just teasing!

Anyway, Good Luck in the Contest! I wish we were able to add in our scores, but we are just a little more than the 125 mile limit!!! 2,262 miles to be exact!! Give the Pack Rats some competition this year!!!!

GO GROUPERS!!!

All our Best,

Jean (N2MXG)

Results of the 1998 RVHFG Preamp/Converter Tune-up Clinic

By Dave Hallidy, K2DH

As has been the case for a couple of years now, there was a further decline in the number of preamps and converters brought in for evaluation. But again, as has been the case for a couple of years, there were less non-functional units- I think there was only one, actually

In the associated box is the listing of preamps and converters I tested at the clinic- if yours wasn't there to be evaluated and compared to the others, why not?

Equipment used was graciously loaned by MDS- THANK YOU for the use of it and the facility. We used an HP8970B and Low ENR noise head. As well, we had the use of an HP 26.5 GHz spectrum analyzer, microwave signal generator, and microwave power meter.

Special thanks also go to my colleagues Lance Lascari WS2B, John Barenys KE4IBF, and Greg Mills N2ZVI for hanging around and helping out where needed.

Noise By Mark, N2YB

Everyone has heard the term "can't work them if you can't hear them". Kind of a silly statement, but have you ever been sure about your own receiver performance? Even the performance of that expensive new transceiver? Are you hearing all that you should? Should I buy a transmitter power amp or a receiver preamp? Do you want to be sure? I have a friend who claims he can 'feel' his system is working. I claim that if you want to be sure your where your system is, "Measure it".

I have always been uncomfortable when I feel my receiver is not performing as well as it could or should. The bands seem so quiet and I can hear others working stations I cannot hear. Somewhat frustrating. It is from this experience and a financial one that I feel the best approach to station improvement is to first optimize your receiver, then transmitter. The antenna system is also very important but that improves both TX and RX and is another discussion.

Receiver performance boils down to one basic topic, Noise Power, an obscure name that gives

the impression that it is only measured with expensive high tech equipment. Noise Power is the absolute level of noise generated by the receiver, measured within the receiver bandpass, in dBm. Simply put, the amount of noise generated by your receiver at the frequency that

With any luck the power is on or near the frequency we think. Deeper analysis is made to determine how clean our signals are (also very important, having a 'dirty' transmitter is like talking loud in a library of people trying to study). Receivers on the other hand require a

Results of the 1998 RVHFG Preamp/Converter Tune-up Clinic					
BAND	OWNER	C(only) P(reamp)	H(omebrew) C(ommerical)	NF (dB)	GAIN (dB)
50	NS9E KA2RDO	C	C (MM 50-28)	16.7	7.7
		C	C (SSB LT6)	1.11	21.46
144	N2OPWP		C (Mirage B1016) 1.78	13.63	21.8
	NS9E	C	H (RVHFG)	5.3	
	W2ONPC		C (MM 144-28) 2.4	27.3	
222	KA2RDO NS9E	C	C (MM 222-28) 2.8		17.0
		C	C (MM 222-28) 3.5		20.51
432	WA2BPE	P	H (MGF1302)	0.87	14.59 15.00
	KA2RDO	C	C (MM 432-28) 7.9		30.77
	NS9E	C	C (MM 432-28) 2.83		
	K2OS	P	H (ATF10135)	0.48	28.10
902	KA2CKI NS9E	C	H (DEMI)	3.2	11.00
		C	H (DEMI)	0.85	21.8
1296	K2DH	C	H (DEMD)	1.00	23.20
	NS9E	C	H (DEMI)	1.08	27.06
	KA2CKI	C	H (DEMI)	3.00	10.00
2304	K2DH NS9E	C	H	1.66	24.80
		P	H (ATF101 35)	2.60	8.4
3456	K2DH NS9E	C	H	1.32	19.3 20.00
		P	H(2xATF10135) 1.48		

it is designed to receive at while the power is on. Now I don't want you to get the impression that I think your receiver has to be broken to generate noise, the fact is that even the quietest receivers generate noise. A careful design will balance stage gain and stage noise figure. Noise figure, another obscure title, is the amount of noise contributed by an individual stage of gain.

Receiver systems are a bit harder to understand than transmitters, most of us just look at the wattmeter to know if we are making any power.

slightly different understanding. In order to understand how Noise Power effects receiver performance, you can perform a small experiment. In this experiment your ears will be the receiver and the signals will be audio. You will need two radios, any two as long as both can be heard at the same time, and they both have volume adjustments. You only need one radio if you have a dual band or some kind of dual receiver. Tune in a station on one radio and adjust the volume to a normal listening level, turn on the second and tune to no signal,

just noise. (This experiment is best performed with both audio feed to both sides of a headset.) The noise receiver represents the noise power generated by the receiver and the signal receiver is the desired station. The volume of the signal receiver can be thought of as the strength of the station, as you adjust the volume of the noise, the copy of the signal improves or deteriorates, Signal to noise ratio. Notice that the combined volume of the signals does not matter, only the relative volume between the two. The desired station is easiest to copy when the noise is completely off. Unfortunately Mother nature and physics does not allow this in the real world. RF technology has reduced the noise power of receiver systems to the point of being able to listen to noise generated by the earth (suppose to be ground). At this point it does little good to improve the noise power of a receiver because the ambient thermal noise of the earth becomes the limiting factor. In the audio experiment above, this earth noise would be a third audio source generating noise without a volume control.

Many of us refer to receiver sensitivity, an easy to understand term that describes how small a signal a receiver can hear, minimum discernible signal. While this measurement is valid, it can vary a great deal depending on the person performing the test. In order to standardize, some measurement out of the system must be made to make comparisons to other systems. Measuring noise power is simple. Establishing a calibrated generator source is not so simple but can be handled in a number of ways. Noise power can be measured by connecting an audio power or voltmeter to the speaker terminals. With no input signal adjust the static noise for a midrange deflection on the meter and take note of the reading. Now apply an input signal (CW) and tune to the carrier using SSB or CW. The input signal should cause the audio meter to increase. Adjust the input signal until the audio voltage at the speaker terminals is 3dB higher than without a signal. (3dB on an audio power meter or twice the voltage on an AC voltmeter) The RF power from the generator is now equal

to the noise power of the receiver.

This test can be performed on the receiver along, and then with all the system components in place. The signal can even be applied by means of radiation to the antenna but will add some complications to the measurement. With some creativity this test can be performed with even a handheld and some attenuators. The lower the power of the original source the better. Even if the test you set up is rather crude, remember, this measurement can be done to give you a relative or baseline idea of how your receiver or system is performing. A good starting point to weed out problems in system components such as brick amps and relays. Also you will know if improvements actually made a difference.

I perform this exercise routinely on my own equipment and at the N2PA station. I have been amazed at the subtle problems that have been isolated and solved with this technique. It is nice to know when the clock strikes 19:00 that the receivers are working.

Notes: By Curtis. N2HKD

The December 432 EME Newsletter is at:

<http://www.nitehawk.com/rasmit/em70cm.htm>

Northern Lights Radio Society Winter Sprint:

The Sprint will run from 7-10 pm (local time) on Monday, December 7th. Stations located near a timezone change may shift their operating time one hour for activity.

From: Barry Mishkind barry@broadcast.net
Emergency Alert System (EAS) compliance summary:

<http://www.fcc.gov/cib/NewsReleases/easenf.html>