



# N.E.W.S. LETTER



The Publication of the North East Weak Signal Group

NOVEMBER 1998

VOLUME SIX

ISSUE FIVE

President: N2MSS Hank Lopez  
Vice President: AF1T Dale Clement

## CURRENT OFFICERS

Secretary: K1MAP Mark Casey  
Treasurer: N1DPM Fred Stefanik

## NEXT MEETING

THE NEXT MEETING IS ON NOVEMBER, 7TH, 1:00 PM AT THE HARLEY INN  
ALL ARE WELCOME TO THE DIRECTORS MEETING AT 11:00 AM  
THE MEETING'S TALK IS BY DAVE OLEAN ON  
AN AURORA DETECTOR: HOW TO MONITOR THE EARTH'S MAGNETIC FIELD

## IN THIS ISSUE

FROM THE PRESIDENT'S SHACK, DE N2MSS	PAGE 2
SECRETARY'S REPORT JULY AND AUGUST, DE K1MAP	PAGE 2
SEPT VHF QSO PARTY TOTALS DE KB1VC	PAGE 3,4
1998 10 GHZ TEST LONG ISLAND STYLE DE N2LIV	PAGE 4,8
THE BIRTH OF A 10GHZ OPERATOR DE WA1HOG	PAGE 5,6
SUN NOISE MEASUREMENTS JULY 1998 DE W1GHZ	PAGE 6
REVIEW OF THE MIRAGE B-320-G DE N1DPM	PAGE 7,8
FOR SALE OR SWAP	PAGE 9

## N.E.W.S. GROUP NET EVERY THURSDAY 8:30 PM LOCAL 144.250

K1UHF NET CONTROL, WZ1V AND W1COT AS ALTERNATES  
STARTS EAST THROUGH NORTH THEN SOUTH FOR DIRECTIONAL CHECKINS  
THEN BACK AROUND AGAIN FOR COMMENTS AND GRID HUNTING

## BEST WISHES FOR A SPEEDY RECOVERY TO ZACK, W1VT

To those who are not aware, Zack suffered a minor stroke over a month ago before  
the second weekend of the 10GHz contest.  
Zack is recovering well and has been released from the hospital and hopefully will be back on the air soon.

73, Del K1UHF

MEMBERSHIP in the N.E.W.S. Group is \$10 per year. Apply to Fred Stefanik, N1DPM, 50 Witheridge St., Feeding Hills, MA 01030 (413) 786-7943 You may download an application from our web page <http://uhavax.hartford.edu/~newsvhf>

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## **FROM THE PRESIDENT'S SHACK:** **HANK LOPEZ, N2MSS**

Most amateur radio clubs slip into a quasi dormant state during the summer month activities ... NOT US! Our July meeting was the annual Show and Tell - Swap 'n' Shop outdoor meeting. Bruce, N2LIV and Paul, W1GHZ led the testing of 10 GHz rigs for system performance, and of course they also measured just how noisy that sun was with their sun noise measurements.

The 24th Annual Eastern States VHF/UHF Conference was better than ever. Turnout was great and it appears that everyone had a great time. Thanks to all who attended and participated.

On the contest front, the first weekend of the 10 GHz contest was hopping with mountain top activity throughout the North East and New England. Lili, N2RDN and I once again operated from Maine and had the best time. While I am still figuring out the intricacies of using a dish, I usually chickened out and used the trusty horn. For those of you who have never operated 10 GHz, its not just about equipment. This event really exercises your knowledge and skills across many different areas. To name a few, map and compass, operating under what potentially could be the worst weather conditions such as Mt. Washington, the ability to bring your own myriad of battery to keep the equipment going all weekend long, while having safe fun throughout.

I hope everyone had the opportunity to operate during the ARRL VHF September contest, at the very least, the League encourages to make at least 25 Q's for a pretty nice looking pin. I know that some of you use this contest to make sure that your equipment is functioning and ready for the January contest. January? But it's only November! My point exactly, once Thanksgiving rolls around and the Holiday rush is kicked off, contesting is not exactly on everyone's mind. So planning now cannot hurt. Unfortunately, since we cannot control the weather, it will once again be very difficult to predict how much rain - snow - and ICE me might have to be dealing with this January. Lastly, I do hope that we are getting on the bands other than during the contests. Fall and Mid-Winter bring some interesting VHF-UHF-Microwave conditions.

One rain storm stomps two hamfests ... If you attended the Packrats Sunday hamfest, I understand there was lots of rain. The storm continued to the Northeast to make the Rochester, NH hamfest another rainy event. (again). I spoke to a few folks who attended BOTH and they did not let a little (water) get in the way of a wet bargain. I got a great deal on a very wet 30" dish, but really hesitated on some of the electronics that were dripping with rain.

The guest speaker at our November meeting will be our very own Dave, K1WHS. If you have ever had the opportunity to attend one of Dave's talks, you will quickly realize that he is not only extremely knowledgeable, but he is also entertaining. Dave has provided a little blurb on his talk below.

An Aurora Detector: How to Monitor the Earth's Magnetic Field

Some background outlining the Earth's magnetic field and auroral

arc formation will be presented, followed by a description of earlier magnetic field detector attempts. The current magnetometer will then be described along with enough practical information so that any amateur may duplicate the results with little expense. Some actual results will be presented. Yes the thing actually works! Dave Olean, K1WHS

Also on the agenda for November is our annual elections. There are slots open for the one year terms of President, VP, Secretary, Treasurer and two of the four board members. Nominations will be accepted for new candidates or re-election of the existing ones. I have had my feelers out for candidates and have also been doing a little arm twisting to get more people involved. It has been a privilege and a pleasure to serve the N.E.W.S. group this year. I have decided to focus my efforts and energy in helping Bruce, N2LIV with the 25th Annual Eastern States VHF/UHF Conference. After observing what a great hit the picture posters that I have been creating for the past three years have been, I plan to implement even more of my ideas in this area. See you at the meeting!

73,  
Hank - N2MSS

## **SECRETARY'S REPORT OF THE NEWS** **GROUP MEETING -- JULY 18, 1998**

The annual Show n' tell/Microwave meeting was well attended by a total of 48 members and guests.

We had good weather and at least a dozen 10 Ghz & up stations at the gathering which was held in the Rear parking lot at the Harley Hotel. Sun noise measurements were also taken aa in past years. Many members either brought equipment and/or items to sell or trade. Cold soda was provided by the club and a good time was had by all.

Respectfully Submitted,  
Mark Casey, Secretary

## **SECRETARY'S REPORTS OF THE NEWS** **GROUP MEETING AT THE EASTERN VHF** **CONFERENCE -- AUGUST 22, 1998**

An abbreviated meeting was held at the VHF Conference at 4 PM on Saturday. The NEWS Group is looking for members to serve as officers for the 1999 term.

Four designs were presented in consideration for the club logo and additional designs may be considered at our Nov. Meeting.

It was suggested that we form a formal conference committee, which would meet to plan the next VHF Conference.

Stan, WA1ECF, suggested a worked NEWS members award, similar to the Pack Rats award program. It was a busy conference, and 23 members remained for this short club meeting. Next meeting Saturday, Nov. 7, at 1PM, at the Harley Hotel—See You All There!

Respectfully Submitted,  
Mark Casey, Secretary

**SEPT VHF QSO PARTY TOTALS**  
**BY KB1VC**

<u>CALL</u>	<u>GRID</u>	<u>CL</u>	<u>SCORE</u>	<u>50</u>	<u>144</u>	<u>222</u>	<u>432</u>	<u>903</u>	<u>1296</u>	<u>2304</u>	<u>3456</u>	<u>5760</u>	<u>10G</u>	<u>24G</u>	<u>LAS</u>
W2SZ	FN32	U	1636523	562/87	667/66	220/46	376/54	98/29	128/29	79/23	64/17	48/15	51/8	28/8	7/7
K8GP	FM08	U	1332045	508/118	673/103	165/70	253/86	50/31	72/39	23/16	14/12	9/8	18/9	2/1	11/2
K3MQH	FM19	U	664045	446/87	633/69	131/46	264/52	27/15	47/22	-	-	-	16/2	24/2	-
K2TXB	FN02	U	428420	371/94	370/70	73/37	117/46	26/21	41/27	10/10	-	1/1	4/4	-	-
K1WHS	FN43	U	210160	237/51	242/37	81/25	108/29	19/12	38/14	9/6	6/4	5/3	7/4	-	-
K3YTL	FN11	L	405420	491/86	507/56	151/43	220/48	-	-	-	-	-	-	-	-
NC1I	FN32	L	332454	464/78	472/49	142/35	217/39	-	-	-	-	-	-	-	-
W4IY	FM08	L	316756	305/74	429/81	96/42	163/56	-	-	-	-	-	-	-	-
WB1GQR	FN33	L	209420	356/41	435/45	115/29	197/33	-	-	-	-	-	-	-	-
N2HLT	FN12	L	198152	283/62	263/48	96/37	158/41	-	-	-	-	-	-	-	-
AA4ZZ	EM96	L	170154	285/97	261/49	53/25	85/36	-	-	-	-	-	-	-	-
N0UK	EN34	L	131847	264/104	161/55	35/23	62/31	-	-	-	-	-	-	-	-
K5CM	EM25	L	90216	332/113	78/34	23/15	24/17	-	-	-	-	-	-	-	-
K2BAR	FN21	L	85565	217/40	212/30	57/19	121/20	-	-	-	-	-	-	-	-
W9FX	EM57	L	61320	133/68	108/53	23/19	39/28	-	-	-	-	-	-	-	-
K3MJW	FN00	L	28119	67/26	130/40	-	56/25	-	-	-	-	-	-	-	-
VE2QQ	FN25	L	17538	34/20	68/25	30/18	30/16	-	-	-	-	-	-	-	-
VE3SRE	FN04	L	15820	46/22	70/23	8/6	47/19	-	-	-	-	-	-	-	-
K1TEO	FN31	S	345685	227/57	360/53	101/33	150/40	43/20	59/20	13/7	6/5	-	-	-	-
K1RZ	FM19	S	241230	189/59	274/45	72/30	106/35	37/18	48/19	12/9	-	-	-	-	-
KA1ZE	FN00	S	178672	155/49	170/48	63/30	86/38	28/15	36/18	7/6	4/4	-	-	-	-
KE8FD	EM89	S	164925	105/48	182/63	60/36	103/49	17/14	23/15	-	-	-	-	-	-
K1UHF	FN31	S	153605	123/27	309/42	76/28	106/27	13/8	32/12	10/7	-	-	5/4	-	-
K3DNE	FM19	S	145782	130/47	173/39	69/27	93/32	26/15	38/18	-	-	-	-	-	-
W3OR	FM28	S	145782	121/49	166/35	64/27	95/34	25/16	31/17	5/3	2/1	-	-	-	-
K2YAZ	EN74	S	122364	59/26	154/56	35/26	69/36	19/18	24/21	13/12	-	4/3	-	-	-
K8TQK	EM89	S	120958	148/60	142/55	53/29	88/43	14/10	-	-	-	-	-	-	-
WB2VVV	FN21	S	96472	70/22	225/30	64/21	67/20	21/11	26/10	11/5	7/3	-	2/2	-	-
WQ0P	EM19	S	85794	164/72	102/45	30/21	55/31	4/4	6/6	-	-	1/1	1/1	-	-
K5IUA	EL29	S	82984	220/88	80/22	23/13	31/16	9/8	13/9	4/4	4/4	-	-	-	-
K5TR	EM00	S	76302	287/115	100/24	17/11	25/12	-	-	-	-	-	-	-	-
WA8RJF	EN91	S	58616	45/21	103/37	41/25	54/30	8/7	19/13	2/2	-	1/1	-	-	-
N0LL	EM09	S	54662	216/89	57/31	13/11	24/17	-	5/3	-	-	-	-	-	-
W2SJ	FM29	S	50112	68/30	50/19	37/18	39/18	17/10	25/12	6/6	3/3	-	-	-	-
N8UM	EM85	S	48096	123/62	94/42	23/16	34/23	-	1/1	-	-	-	-	-	-
W1GHZ	FN42	S	46276	71/22	143/27	49/15	50/16	12/6	17/5	-	-	-	1/1	-	-
N2JMH	FN13	S	43010	76/34	98/32	44/22	56/27	-	-	-	-	-	-	-	-
K8MR	EN91	S	43008	92/34	110/33	34/20	57/25	-	-	-	-	-	-	-	-
W2FCA	FN22	S	40810	64/24	103/27	36/19	43/22	-	20/14	-	-	-	-	-	-
AA3GN	FN20	S	39494	56/26	79/23	30/13	47/18	17/9	21/9	-	-	-	-	-	-
KN4SM	FM16	S	33640	90/56	86/33	-	57/27	-	-	-	-	-	-	-	-
NG4C	FM16	S	30096	79/47	81/31	25/18	27/18	-	-	-	-	-	-	-	-
KB0VUK	EN34	S	28400	82/38	92/33	13/7	42/22	-	-	-	-	-	-	-	-
W3SE	DM03	S	27295	100/19	134/12	39/7	79/10	-	15/5	-	-	-	-	-	-
K4ZOO	FM08	S	25665	47/21	58/21	33/17	44/19	-	12/9	-	-	-	-	-	-
KC8CSD	EN81	S	22841	40/21	97/35	21/14	36/21	-	-	-	-	-	-	-	-
W9JN	EN54	S	21470	45/25	59/29	25/18	36/23	-	-	-	-	-	-	-	-
KH2CY	FM18	S	20320	47/19	65/24	32/18	39/19	-	-	-	-	-	-	-	-
K3VGX	FM19	S	19663	-	371/53	-	-	-	-	-	-	-	-	-	-
NO3I	EN90	S	19656	35/15	54/22	25/14	37/19	-	13/8	-	-	-	-	-	-
WA2HFI	EN34	S	18368	28/16	77/32	17/12	32/17	3/3	4/2	-	-	-	-	-	-
K2SIX	FN20	S	18292	133/37	70/19	-	33/12	-	-	-	-	-	-	-	-
N0KQY	DM98	S	17927	35/25	100/47	-	31/19	-	-	-	-	-	-	-	-
W1PM	FN41	S	17574	35/10	77/17	34/11	42/14	-	13/6	-	-	-	-	-	-
W3KM	FN20	S	14732	24/8	57/17	19/8	35/12	6/4	13/7	2/2	-	-	-	-	-
KQ6QW	DM04	S	13188	58/12	108/13	29/8	45/9	-	-	-	-	-	-	-	-
KC8AGW	EN90	S	12075	43/20	72/29	-	30/20	-	-	-	-	-	-	-	-
K5AM	DM54	S	11250	89/51	25/13	7/5	11/6	-	-	-	-	-	-	-	-
K1NK	FN20	S	11132	54/20	156/22	-	16/4	-	-	-	-	-	-	-	-
K1IM/5	EM12	S	9306	141/66	-	-	-	-	-	-	-	-	-	-	-
K2WKA	FN20	S	8976	20/12	141/28	-	13/8	-	-	-	-	-	-	-	-
W1COT	FN31	S	8968	17/10	41/19	17/12	21/14	-	6/4	-	-	-	-	-	-
W1TDS	FN32	S	7384	33/15	67/25	-	21/12	-	-	-	-	-	-	-	-
N0KE	DM69	S	6864	80/34	22/10	6/4	9/4	-	-	-	-	-	-	-	-

CALL	GRID	CL	SCORE	50	144	222	432	903	1296	2304	3456	5760	10G	24G	LAS
WA1ECF	FN41	S	5740	30/11	36/12	16/2	15/2	3/3	9/5	-	-	-	-	-	-
KV2X	FN13	S	5244	51/24	37/15	13/7	-	-	-	-	-	-	-	-	-
N1RWY	FN54	S	4961	9/6	66/22	20/11	3/2	-	-	-	-	-	-	-	-
WA3BZT	FM29	S	3720	-	124/30	-	-	-	-	-	-	-	-	-	-
KB8JVH	EN80	S	3280	-	82/40	-	-	-	-	-	-	-	-	-	-
VE3CWJ	EN96	S	2142	7/6	18/12	10/9	9/7	-	-	-	-	-	-	-	-
KF2XF	FN30	S	1980	-	90/22	-	-	-	-	-	-	-	-	-	-
N1RXM	FN31	S	1936	2/1	46/12	-	20/9	-	-	-	-	-	-	-	-
W9JJ	FN31	S	1770	44/21	15/9	-	-	-	-	-	-	-	-	-	-
N5KB	EM12	S	1352	31/20	13/4	-	4/2	-	-	-	-	-	-	-	-
VE2PIJ	FN35	S	780	39/20	-	-	-	-	-	-	-	-	-	-	-
N1SXL	FN41	S	686	-	49/14	-	-	-	-	-	-	-	-	-	-
KE4ULW	FM18	S	391	19/14	4/3	-	-	-	-	-	-	-	-	-	-
KC2ATB	FN12	S	325	1/1	22/11	-	1/1	-	-	-	-	-	-	-	-
AB4CR/R	EM77	R	161046	66/16	95/19	62/12	54/19	35/10	35/10	29/10	28/10	28/10	28/10	28/10	-
W3EKT/R	FN10	R	111618	153/29	218/22	82/13	124/18	42/10	48/10	-	-	-	-	-	-
N1MJD/R	R	R	76167	224/17	185/23	76/17	87/18	10/3	18/6	-	-	-	-	-	-
W9FZ/R	EN46	R	50350	48/19	119/28	45/11	67/17	15/4	18/5	9/3	1/1	-	-	-	-
WB9SNR/R	R	R	44910	13/4	76/23	32/13	50/16	20/8	22/7	8/3	8/4	7/3	6/3	1/1	-
AB5SS	R	R	43148	58/18	71/7	27/5	45/6	3/2	9/3	-	-	11/11	11/11	11/11	7/7
K3QII/R	R	R	39360	56/22	92/18	49/12	57/13	20/6	24/4	-	-	-	-	-	-
N6DN/R	DM14	R	23352	63/12	123/13	26/5	61/10	-	19/7	-	-	-	-	-	-
KB4NVD/R	R	R	21730	84/31	81/26	8/3	42/17	-	-	-	-	-	-	-	-
N2MH/R	R	R	9072	27/11	161/20	-	14/6	-	-	-	-	-	-	-	-
K4ABN/R	EM04	R	4446	2/1	57/18	-	29/14	-	-	-	-	-	-	-	-
N2GKM/R	WNY	R	4356	13/6	32/17	15/9	12/7	-	-	-	-	-	-	-	-
N9RLA/R	EM78	R	2418	30/10	37/11	-	13/1	-	-	-	-	-	-	-	-
K9PW	EN52	Q	155056	85/28	155/33	51/22	92/27	18/16	39/16	13/11	12/8	12/8	8/6	1/1	-
KQ6BS	DM03	Q	160	-	40/4	-	-	-	-	-	-	-	-	-	-

## 1998 10 GHZ TEST LONG ISLAND STYLE BY BRUCE N2LIV

High up above the streets of Garden City, Long Island. perched 5 stories or about 60 feet in the air, on one August weekend, lurked Bruce, N2LIV and Larry, NY2US poised and ready for the start of the "10 GHz Contest". Hours of work, nights and weekends spent in dark, damp and dusty basements to perfect 2 Qualcomm based rigs. Mine with a hot HEMT front end and 10 watt TWTA to a 30" prime focus dish with a 3/4" water pipe shepherds crook and chaparral feed system and NY2US's barefoot with 1 watt to a Primestar offset fed dish.

We set up and listened for Larry's beacon about 35 KM away, insite, high above New York City. Signals are easily found, but alas Larry's signals are stronger than mine, not a good sign since I have my super HEMT preamp in line. Eight o'clock arrives and not much is heard on the 2 meter liaison frequency. High VSWR on the antenna which also had problems in 1997 antenna seems a little small turns out to be a 220 MHZ beam, back to the 2 meter Halo.

Well, the lack of any real 2 meter liaison, a blown HEMT front end in my rig and hot, blazing sunshine led us to leave early on Saturday and try for only a few hours on Sunday after finally gaining access to the locked building. I amassed 7 contacts with W1RIL on Mt. Wachusett, Ma. a 243 KM as the best DX and Larry had 6 contacts with W1VT & AF1T on Mt. Greylock at 216 KM, what a bust overall.

equipment. With the help of Dick, K2RIW and some modern test equipment from his work QTH we critically analyzed each part and cable. After concluding that the preamp was dead, apparently blown by improper sequencing (or the lack of) of the TWTA. I replaced it and left the blown one for rebuilding this winter. We also cleaned up the output spectrum of the DC DC Converter.

Onto the second weekend in September with a caravan of optimistic 10 GHz amateur operators in tow. The Saturday was spent at a scenic overlook at Hither Hills State Park just 10 miles west of Montauk Point, "The End" of Long Island. I've been there for the past 2 years with successful operations. Don KK4YY has been my able bodied assistant along with a large station wagon, great for carrying all the "stuff". Next year we hope to have a rig for him also. We were joined by Mike WB2GLW and Gene K2VCV.

At 110' feet above sea level it rises "high" above the surroundings, especially to the South, South East and South West, which are all water paths. But, where's all that activity in Southern New Jersey, Maryland, Delaware and Virginia? It's from this location that Mike and Gene hoped for their first real contacts at more than 10 15 miles or so as previously worked with K2RIW, and I hoped for some working equipment. Mike used a Qualcomm based rig with an 18" prime focus dish and Gene a similar Qualcomm based rig with a 30" offset fed dish which seems to need some help, a 22 dB horn worked better. After

Back to the dark, damp, dusty basement to dust off the test

CONTINUED ON PAGE 8.....

## THE BIRTH OF A 10GHZ OPERATOR OR I CAN HEAR MICROWAVES!!!

During a QSO with Dale AF1T in late August, the upcoming 10GHZ contest was brought up. We discussed what would be needed for mountain top operation. I found that I had just about everything except the 10GHZ transverter! After I mentioned that surprising detail to Dale he offered to lend me one of his transverters.

While the possibility of me operating the 10GHZ contest sounded like fun, I have never operated 10GHZ before and operating besides the likes of Dale and Zack W1VT left me a bit apprehensive. Also, I've worked second shift for years and getting up at the crack of dawn didn't sound like fun at all. I bet that I've seen more sunrises going to bed than waking up!

Lets see.. I need to get the Dish, tripod, cable.. Oh no, this sounds like a major operation. Better make notes on what I need. I know, next time I talk to Dale I'll bring up the 10 GHZ contest and steer the conversation to equipment needed. Don't forget to take notes... Oh yea I DO need a CW key, I would of forget that! What else did dale mention, FOOD!! I would have starved. I should have recorded this... "Ok Dale.. I give up.. Lets go over what I need to bring with me for the contest." Better ask someone who's been there and make the mistakes. Chances are that I'll forget something anyway!

Now that I got a good list of what to take I got to get it all together. I hope I make the proper sacrifices to the 10GHZ gods.

Dale said he was going to Mt Greylock on Friday night and stay in the ole Bunk House so he can set up and on the air by 6:30AM and ready to start at 8AM sharp! Lets see.. I get out of work at midnight so going to Mt Greylock Friday night is out of the question. It takes hour 15 minutes to get from my work QTH in Woburn Mass to my home QTH in Rindge NH. That means that I'll get to sleep around 2AM. If I want to get to Mt Greylock, a 2 hour drive, at 8AM I'll have to get up at 5AM. Ummm 3 hours sleep.. Lets try for 10AM.. 5 hours sleep, that's more like it. Ok dale, I'll be there around 10AM. I'll talk in on 144.26 SSB when I get close in case I get lost in Adams Mass.

Lets see if I can remember how to set this alarm clock. Working second shift is like being actively retired. No need for alarm clocks! Get up when you want to and stay up late. Now if I can only figure out bypass the 8 or so hours I have to spend in Woburn.

Surprise! I cant believe it? I woke up at 6 AM.. Didn't need that alarm clock after all. Probably set it wrong anyway and will go off at 8 PM. On the road at 7AM, Not bad traffic along route 2 this early in the morning. Should make good time. Getting close to Greylock now but I'm not hearing any activity on 144.26 and it's almost 9AM. Oops.. took wrong turn down Route 8. Ok, the wife isn't here so I can stop and ask for directions. Yup.. took wrong turn. Backtrack 8 miles to North Adams. Might as well ask again at this gas station. Wow talk about luck.. The right I should take is right across the street! Ok I'm on my way now. Funny, still nothing heard on 144.26. I know, I'll start making noise on frequency. OH NO!! I can't get any output on the FT 290 IF rig! Murphy struck again. What am I going to do now. Don't panic, get to the top and check out the rig. Ah!!! I can hear activity on

.26. Yea that's Dale and he is calling me. Still no output. Well in another few minutes I can answer him with audio frequencies.

## ON THE MOUNTAIN TOP or I CANT SEE CRAP FROM HERE!!!

I'm here, lets see if I can move all of this gear from the car in the parking lot to the monument without tripping. Glad I brought this two wheeler along with me! Pile everything in the milk crates, stack em high on the two wheeler, bungee cord everything. Yea, looks like I know what I'm doing. Now where are the guys? I cant see 10 feet in front of me in this fog. Never been here before. Hope there are no cliffs around here. I did see something huge on my right as I drove up. Think I'll leave the gear here at the car and go looking for the guys. Rats. I knew I forgot something.. Bread crumbs!!! Looks like a path here from the road to that large object.. WOW its a monument and there are the guys.. Made IT!!!

There's Dale, AF1T and Sandra, Judd N2CBA and John WB2BYP. Ummm... looks like they are just setting up. What happened to the great contester who was going to be set up by 6:30 AM? "Dale I can't believe you overslept!!" Looks like I get to set up and start at the same time after all. Back to the car. Never needed the Bread crumbs after all.

Lets see, unpack everything from the milk cartons which was just packed 10 minutes ago. Lets see what Murphy did to the IF rig... Wiggle the cables.. There... right there... I got output. Lets see take out my trusty leather man, open the mic cable connector. Yup loose wire, No solder gun up here so If I just push the wires into the connector.. Yea it works.. Tighten the connector.. Ok back in business. So far I look like I know what I'm doing. "Ok Dale lets have the transverter." Oh Oh what the heck is up conversion??? Oscillator drift??? 3dB Beamwidth??? Maybe I should just give up now... Wait an minute, Dale is having problems with the up conversion xverter? Going to let me use the other spare transverter which uses down conversion. Yea, USB and up frequency is up frequency. I might be able to get through this without making a complete fool out of myself after all.

Hook up the IF rig, plug the rig into the transverter, power up YEA! I get receiver noise. Set up the tripod, install the feed horn assembly and connect the microwave cable to the transverter. So far so good. What you say Dale? I got to find Harrys 10GHZ beacon? Ok I see that you did it fairly quick. Lets see, got to set my super accurate 7 degree per hashmark compass.

How do I do that?? Ok find Harrys beacon. "Go ahead you start contesting and I'll find the beacon". Lets see, Dale pointed his dish towards the tree over there. Um nothing... Lets see what frequency am I on?? "Dale, please make noise on .100 and ill tune up 100 kHz from there." What is this!! Images up and down the band!!! which one is the right one!! Wait I got one that's 20 dB higher than the others. "Ok Dale I got you" ( I hope!!). "Go

back to contesting..". Now lets see up conversion, go up 100 kHz from 4.235 on my dial and that should be 368.2Ghz, no problem. Point the dish back to the tree, rats, no beacon. "Hey Dale, is Harrys beacon still on the air??? Yea? Ok". Lets see, the transverter probably drifted again, "Hey Dale, give me another signal to tune in, this time on 368.2." Yup it did drift a few kilohertz. Ok all set, again point to the tree..Awww... come on here!!!! Ok Dale I give up.. "HELP!!!!" Lets check this out together. Yup looks like everythings ok... "I should be able to hear it!" "What's that John, you want me to check what? DOE!!!! Yea, your right, it might work better if I change the feed horn to horizontal polarity!"

Ok one more time, check frequency, point towards the tree YEA YEA beacon!!!!

The rest of my 12 hour stay was busy working stations and getting use to operating on 10GHZ. During my 12 hour stay on Mt Greylock I managed to have 43 QSO's, 18 stations and a total of 6 grids. The plan was to leave at noon Sunday but you know how plans work. We finally packed up and arrived at Pack Monadnock around 4PM. No mistakes this time but why can I hear Harrys beacon at 10 points on the compass?? During our 40 minute stay there I managed to work 5 grids in 40 minutes, Fianlly a mad dash to Mt Kersarge for our last location. We arrived at 7:26 in time to see Harry WA1VVH and Frank N1DGQ leaving. I was kind of wondering if we were going to make it at all. As it turned out I'm glad we did. No problem setting up at all this time. Don't tell Dale but I beat him setting up our stations and tuning in the beacon! I managed to work 8 stations and my best DX of 269km with Del K1UHF.

**TRIZZLE TRAZZELL TROZZEL TROME or  
THERES NO PLACE LIKE HOME**

I decided to stay at home in FN42as during the second weekend of the contest to see if it would be worth my time and effort to place a 10GHz system on the tower. Actually thats what I told everyone but by staying home I was able to sleep till 7:30 and worked the contest in my bathrobe!

In order for me to work the contest from home I installed a 18 inch DSS offset dish with a homebrew 10Ghz horn on the tower the weekend before the contest, ran the IF, power lines and control lines down to the shack. Boy I hope this works.. I dont want to be climbing the tower Friday before work. Again Dale offered to lent me one of his transverters, this time, the dreaded unconverter unit!!

I got the transverter up on the tower the day before the contest. Talk about cutting it close! Lets see if I remembered how to find the beacon. Power applied... Yup, noise from the transverter! So far So good, the control lines and power lines work!. With the xverter warmed up I tuned around for Harrys beacon GOT IT!!! Ok now lets tune down 100kHz for Dale. Opps... wait, this is up conversion. That means I got to go down.. Oh Oh... go back to the beacon and tune it in with LSB!! Funny, the beacon signal sounds kind of ratty but cant worry about that right now. Good, I got an S-7 signal level from the beacon, it looks like I won't have

to climb the tower to correct the elevation angle of the dish just yet. Better get out a pencil and paper and do all of the frequency calculations before the contest starts.

On noon on Friday I was ready for my first 10Ghz QSO from my QTH in Rindge NH. I gave Dale a call on 146.52 and said I was ready as Ill ever be. Let me make noise on 368.1 and you tune me in. You got me already! Good! Let me tune you in now. This is too easy, 59 signal at S-7 and thats with Crotched Mountain in the path!

**MURPHY STRIKES AGAIN or DAG NAB IT!!**

Funny Dale, but I cant seem to tune you in on SSB. Yea I got it in LSB. I can copy CW ok but as soon as you go to SSB its really distorted. I can tell it's you and make you out only because your loud and I know your call. It might be the FT290 but it worked fine before. Lets hook up IF to my IC746. Yea its still distorted. Looks like Ill be using CW this weekend. No way I'm climbig the tower again!

By the end of the second weekend I managed to work 47 stations (23

callsigns) with a dx best of 194km with Bruce N2LIV. I also had no problems working Dale and Chip W1AIM from the Vinyard. I did find that the receiver problem was caused by the -18VDC power to the Brick Oscillator. The noisy -18 VDC iutput would cause the Brick to oscillate while in the receive mode.

It looks like a permanate 10Ghz station from my QTH is in the works.

I wish to thank Dale AF1T for all of his help in allowing me to enjoy 10Ghz operation.

I enjoyed the challenge of 10Ghz. I hope to catch you all again during the next contest.

73 Dennis WA1HOG

**SUN NOISE MEASUREMENTS FROM  
N.E.W.S. MEETING ON 18 JULY 1998.**

We had hoped to measure transverters, but lots of difficulty. Equipment was flakey, and gain balance wasn't right - more gain is needed at 10 GHz to get good sun noise, but would be too much for operating. So, I'll list the results, but don't take the numbers as accurate. Higher Sun numbers are better, and a couple of previously measured noise figures are listed for comparison. Noise figures are too high to attempt to estimate dish efficiency.

CALL	SUN/GROUND	CALC	NF	SUN/SKY
K2CBA	1.4	5.6	0.6	
W1GHZ	0.6	8.5	0.3	NF ~ 3 to 4 dB
N1EKV	0.85	7.1	0.6	
W1AIM	1.1	6.1	1.1	
WB1FKF	1.8	4.3	1.1	NF ~ 1 to 1.5 dB
KA1OTP	0.2	13.1*	0.1	
W1RIL	1.2	5.8	1.1	
AF1T	0.7	7.9	0.6	blue xvtr
AF1T	0.7	7.9	0.6	green xvtr

I won't list the output powers since we weren't able to couple well to some. The basic technique is to use two identical feedhorns face-to-face, one on the dish and one attached to a power meter; loss is typically under one dB and so power can be measured coming out of the feedhorn. However, I didn't have matching horns for some of the feeds, so we weren't able to get good coupling.

The good news is that all the transverters work, and work well. Almost all have better noise figure than mine (the one exception, marked \*, has an odd IF that probably gave erroneous readings). Since the goal of this meeting was for folks to make sure their equipment is ready for the 10 GHz contest, I think it was very successful in spite of the problems.

See you on 10 GHz.

Paul. W1GHZ

# REVIEW OF THE MIRAGE B-320-G

## 2 METER AMPLIFIER

### BY FRED STEFANIK, N1DPM

I recently was given the opportunity to test out the new Mirage B-320-G 2 meter amplifier. This new amplifier has a couple of features that seem kind of nice. These are an integrated cooling fan, and a high/low drive switch that will allow the amplifier to be driven with a power level anywhere in the range of .25 to 10 watts in the low range, and 10 to 50 watts in the high range. The claimed RF output power is 200 watts typical. It also has a built-in GaAs FET preamplifier with a claimed gain of 15dB and no claimed noise figure spec. The amplifier comes complete with a mobile mounting bracket, and a coaxial jumper cable for connection to your radio. The front panel sports 3 switches for FM/SSB, Preamp On/Off, and Amplifier On/Off. Each of these has a LED indicator associated with them. Along with the switches are 2 sets of indicators, a bar graph power output indicator, and the other is a SWR trip indicator. The mode switch, FM/SSB on this amplifier changes the delay that the RF sensed keying circuit uses allowing the relays to "hang" in the SSB mode for a second to avoid relay chatter.

#### **The things I liked:**

1. The SWR trip circuit works well and protects the output transistors by removing the amplifier from service. This is a necessity if the transistors are being run to their limits and are not the type that are guaranteed to withstand operation at full power into a poor match.
2. The implementation of the High/Low power drive switch is done in what I feel is the proper manner. It "removes" the driver stage from the circuit allowing you to directly drive the finals. This is a good way to do this as each added stage will add to the distortion on the signal. In other words unless you are running an amplifier in the class A mode and staying away from any gain compression, it will produce distortion. Therefore, to get to the desired power level it is best to use the least number of stages to get there. This will keep the distortion low.
3. It looks nice on the outside. The finish quality with the heatsink and front panel being black anodized looks like a professionally produced product.

#### **The things I didn't like:**

1. The first thing I did was to connect the unit to the trusty HP8970A noise figure meter, with a 346A noise source, to check out the preamp. I was kind of baffled at the readings I was getting and that the readings were unstable depending upon where I touched, including the power leads. So I proceeded to take a set of readings before I tried to "calm it down". I stabilized the measurements by placing ferrite beads on the power wires up close to the amplifier chassis itself. Two large beads were required to calm it down. The readings that were obtained are listed in the table below. It seems that the preamp in this particular amplifier was tuned high in frequency as the gain peak and minimum noise figure occurred at about 150 to 151 MHz. Even at that a 2.36dB noise figure is not that great on 2 meters considering most modern transverters are below 1dB by themselves. I feel that a preamp option, especially a GaAs FET in today's world should be better than a 1dB noise figure to make it worth using.
2. Next was to try it in the transmit mode. The first test was to see if it simply was able to produce 200 watts output. With the input power switch in the high position the output power topped out at 165 watts with 28 watts of drive. This is where the power output stopped

increasing even if the drive was increased to the 50 watt maximum input level. I was never able to get the 200 watts rated output from this amplifier. At the 165 watt output point the amplifier had a current draw of 30 amps from the power supply. That's 414 watts DC input for 165 watts RF output with an efficiency of 41%. Next I looked at the spectral output. The second harmonic was at -44dB from the fundamental at the 165 watt level, not the greatest. So now for a "real" test, the trusty ol power in vs. power out linearity test. The basic small signal stage gain

FREQUENCY	GAIN w/o FERRITE	N.F. w/o FERRITE	GAIN w/ FERRITE	N.F. w/ FERRITE
144	14.2	5.22	14.4	3.82
145	14.7	4.38	14.8	3.32
146	15.0	4.10	15.1	3.15
147	15.3	3.92	15.3	3.03
148	15.8	3.64	15.5	2.76
151	15.9	3.23	15.9	2.36

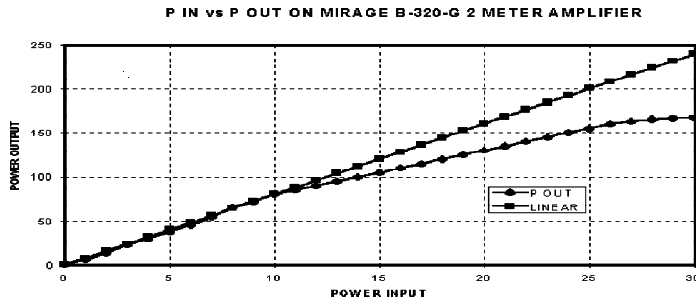
in the high drive configuration is 9dB. The graph shown below shows the curve of the amplifier along with a linear line at 9 dB to show the deviation. As shown by the graph the amplifier is linear to approximately 80 watts output. Then the first thing happens. This is where the bias on the transistors starts to lose regulation. With very little drive the base to collector voltage was measured at .694 volts. At the 80 watt level it measured .640 volts, and at the 165 watt level it was now at .575 volts. What does all of this mean? First, the bias supply in these high power amplifiers needs to be a very low impedance as the base/emitter junction of high power bipolar transistors draws current when driven forward. Also very slight changes in voltage equate to large changes in the transfer curve of the transistor. In other words at .694 volts base to emitter the transistors "idle" at 500 ma to 1 amp each. At .64 volts the idle will drop to around 100 to 200 ma, and at .575 volts the transistors will have no idle current. No idle current equates to class B operation and not AB "linear" operation. So at the 80 watt level you can clearly see a "second curve take over from the 9dB linear curve that was OK at lower powers. This curve continues up to approximately the 155 watt level. At this point this is where the transistors themselves in the RF matched circuit they're in "run out of steam". This is the true non linear compression point of this amplifier.

The most important point of this is that any time the amplifiers operation deviates from the linear straight line, this is where distortion comes from. So the bias needs to be "stiffer" to improve this performance. Also the Output Power bar graph display reads full scale at only 80 watts out. This doesn't appear to be an accurate indicator of full power output.

3. Next I tried the "low" input position. What a disaster! The first thing that happened was the RF sensed keying would not allow operation below the 80 watt output level. Second the RF feedback into the keying circuit caused the relays to chatter uncontrollably. This amplifier needs the addition of a "hard keying" circuit and a way to disable the RF sense circuit. Anyway, as far as my bias discussion goes the driver stage is terrible. When I could get the amplifier to "behave" in the low drive mode the bias voltage sagged away to zero and then went negative from the RF rectification of the driver transistors base / emitter junction. This stage was horribly non-linear. I did not even attempt, as the unit wouldn't let me, to do a linearity curve in the low drive mode.
4. The cooling fan that is located on the bottom of the amplifier could do a nice job of cooling the component surfaces except for the fact that the intake is only approximately 1/4" from the surface that the amplifier sits on, pretty much blocking the airflow. Also, the critical components are actually heatsunk and this fan does nothing for cooling the heatsink.

### On the air tests:

I tried this unit out with John, N1MUW. With the unit in the High



position my exciter only was +/-3 khz wide at John's with a signal level of S9+20dB. When the amplifier was inserted John saw approximately a 10dB increase in signal strength. So we then tweaked the antenna positions to get back to the S9+20dB level with the amplifier on. My signal was now +/-12 khz wide. This is with the amplifier operating at the 160 watt level. This bandwidth increase is primarily due to the bias shift at the 80 watt level. I then attenuated my driver output to 1 watt. We lined up the antennas and now my signal was S9+10dB. I switched the Hi/Lo drive switch to low and tried the amplifier. After readjusting the antenna positions for a S9+10 signal strength, John took a listen to the signal. He commented on how my audio quality was now "raspy". He then looked at the signal bandwidth. My signal was now +/- 50+ khz wide! The non-linear driver was really showing its stuff. Keep in mind that when I normally run my 2 meter station, I run a 8877 final at 1200 watts out and at that level my bandwidth at John's is only +/- 6 to 7 khz. So I don't believe receiver performance to be a factor in this evaluation.

Fred, N1DPM

a few minor problems, low car battery voltage which necessitated running the engine, I was off and running banging out contacts mostly on SSB, 29 contacts in 6 states at 366 KM maximum DX to K1LPS & KE1AC on Mt. Washington. Mike and Gene managed to work 3 contacts each at 207 KM maximum DX. Both need some more work in the dark, damp and dusty basements and also on the hot, sunny sun noise range. Signals were down for both on receive and transmit. Larry NY2US, Del K1UHF (ex KD1DU) and Doug WA2SAY all headed for Ice Cave Mountain, FN21ti at over 2100'. After several hours of driving they arrived only to learn that the top of the mountain had been purchased by an environmental group and all the roads were gated and locked off. So much for the wide open vistas for 360 degrees and visiting a site prior to operation. They were forced to move about 10 miles away into the trees with not a contact to be made. Future planning is now required to gain access to Ice Cave Mountain well next year!

Sunday brought another caravan to Horton's Point Light House on the North fork of Long Island in the town of Southold. I've operated here for the past 2 years with Don KK4YY, once again as my assistant. Mike, WB2GLW a sucker for more punishment and Doug, WA2SAY just doesn't give up after a 3 hour futile trip the day before to Ice Cave Mountain joined both of us. Perched high above (50') Long Island Sound with Connecticut clearly in site. Love those Long Island mountains, I guess Texas is worse. This location only affords a Northeast to Northwest shot clear to the horizon with tree blockage to the west New Jersey and Pennsylvania.

Conditions were strange with terrific enhancement in some directions and water paths to Point Judith, Rhode Island (KA1OTP OTO) and Martha's Vineyard, Ma. (AF1T & W1AIM) apparently moving as time went on. Beam headings were as much as 45 degrees off to the north. These conditions allowed me to work W3RJW (241 KM) and AA2UK (248 KM) and heard K2TXB (238 KM). These paths were impossible in previous years with local contacts of 84 KM with K2RIW to the west only marginal at best. Mike with his rig limping along managed 5 contacts with N2LIV, K1UHF (95 KM), W1AIM (149 KM), WB1FKF & K1LPS (both 261 KM). Doug, with what looked like his portable HP lab seemed to be minus any power out of his TWTA. Well at least we weren't in the dark, damp, dusty basement. Plenty of sunshine and shade trees to be had. I managed 27 contacts with 261 KM being the futherst and several new stations including K1TR (214 KM) and WA1HOG (189 KM) both home stations.

Well, it's great when the equipment works and mother nature cooperates a little. As most of us, I'm already tinkering with the rig to make it better, hope it works next time. Thanks to all the New Englanders who went jumping around both weekends.

Final Stats: 63 QSOs, 32 Call signs, 366 KM Best DX for 14,911 points.

Bruce, N2LIV

## KD1DU NOW K1UHF

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See it firsthand at our August 21-22-23 Eastern VHF-UHF Conference. Then listen to KA1ZE/R smoke the East Coast in September from Blue Knob FN00 and elsewhere on all bands.

73, Ron WZ1V

## ARTICLE ON SIGHT IT! TERRAIN ANALYSIS SOFTWARE FOR AMATEUR BY STEVE, N2CKH

Details found at <http://www.QTH.com/n2ckh.bytesie.org>

I have been beta testing this software for some time and it makes quite amazing maps and terrain plots. Lots of fun but I haven't really found a practical use for it. It requires a lot of disk space and a powerful computer as the map of most of Connecticut requires 20Mb of space,

Del, K1UHF



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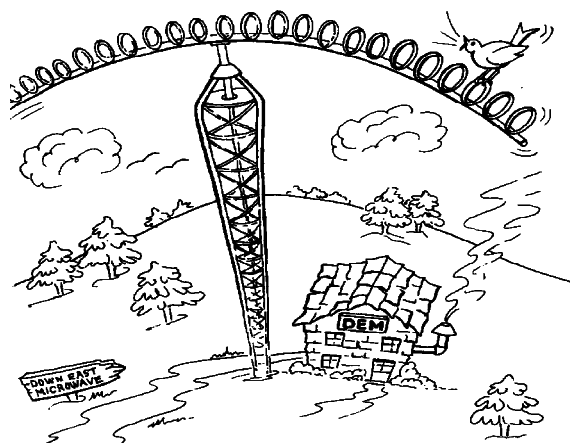
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