



# N.E.W.S. LETTER



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President: WA1MBA, Tom Williams  
V P: Stan Laine, WA1ECF

CURRENT OFFICERS

Secretary: N1GJ George Jones  
Treasurer: N1DPM Fred Stefanik

## NEXT MEETING

**SATURDAY, JAN. 3RD, 2004, AT THE RADISSON HOTEL IN ENFIELD**  
**PAUL, W1GHZ, WILL GIVE A TALK ON A HANDY WIDE**  
**BAND POWER DETECTOR, SEE THIS ISSUE PAGES 4,5**

**THERE WILL BE A DUCT TAPE AUCTION!**

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## **PREZ SEZ** **DE WA1MBA**

I trust that all have had a good holiday. The warm weather and high pressure is a good bet for some VHF DX (but with my antennas still down, I wouldn't know). I suspect that we have all been busy with our families and now are turning our thoughts to repairing and improving the station for the January contest. Don't forget, your score sheet needs to indicate that you are a member of the NEWS Group in order for the club to get your score counted in the club competition. The contest is January 24, 25, 26 (some information was wrong at the league about the dates, I used <http://www.arrl.org/contests/months/jan.html> to get these dates. Even if you can only put in a small effort, your submission will help keep the bands alive, offer proof to the FCC that we use these bands (to assist the League when they need to keep our bands intact) - and every point helps the club competition too.

We are promised by Paul Wade, W1GHZ that he will be giving an interesting talk about power indicators. Also at the meeting we will be having another Duct Tape Auction - there was not much stuff at the last one, so please scour the shack (or if it's like mine, look back the next time you stumble over something) and ask yourself "Do I really need this hunk of junk?" Then find something of value that you are willing to part with and tape them together for the auction.

Meanwhile, I am working hard at getting my equipment back on the air before the Jan contest - so if I don't see you at the meeting I hope to see you on the air soon. Also my apologies for getting the NEWS Letter out so late this time - the holiday rush has made a mess of my schedule...

Tom WA1MBA, President

## **SECRETARY'S REPORT OF THE NEWS** **BOARD MEETING OF 15 NOVEMBER** **2003**

President Tom Williams, WA1MBA, called the NEWS Board Meeting to order at 11:50 AM at the Radisson Hotel in Enfield, CT. Several officers and Board members were absent. Tom had several items to be covered under Old Business and New Business.

Old Business - It was suggested that the NEWS Group could cut down budget demands by increasing our sources of income. One such idea would generate income by auctioning off door prizes at the Conference rather than including them in under the general admission ticket. The Pack Rats seem to do this with some success.

New Business -We should update our ARRL Affiliated Club

info. This would require that the Secretary contact the ARRL through their Internet site and change the info listed there, as necessary. (Note-This has been done. The information should be good through 2004). The dates of the NEWS meetings for 2004 are still up in the air and should be finalized so members can plan for the coming year. Two items concerning 903 MHz operation were brought up. Lou Collins, W1GXT, was aware of a move for channelized operation on 903 using surplus cell equipment. It was discussed that as a group we should protect our weak signal interests from channelized operation in our portion of the band. Tom, WA1MBA, suggested that we consider moving our activity band down from 903 MHz to 902 MHz. This would align East coast operating with that done on the West coast and get away from the bad cellphone interference near 903. The NEWS Group should acknowledge the support given to our club by the Annual NorthEast VHF Conference.

These and other subjects would be covered at the main meeting.

The Board Meeting was then adjourned.

## **SECRETARY'S REPORT OF THE NEWS** **MEETING OF 15 NOVEMBER 2003**

The last regular meeting of the NEWS Group for 2003 was called to order by President Tom Williams, WA1MBA, at 1:00 PM. Tom reported that the dates for the NEWS meetings in 2004 are: 3 January, 13 March, 23/24 April, 17 July, 25 Sept and a date yet to be determined in November. The April dates will be for the Annual Conference. It will be recalled that the NEWS Group decided at the 19 July 2003 meeting to move the Conference to the Spring for 2004. Among other things, we may be able to negotiate better rates from the Radisson Hotel.

Lou, W1GXT discussed protecting our interests from channelized 903 operation. Tom, WA1MBA suggested our group consider a move to relocate East coast operating on the 900 MHz band from 903 MHz to 902 MHz to get away from cellphone interference and align ourselves with the West coast. channelized operating. After the NEWS Group decides a course of action on these subjects, we need to get the word out to others, especially the ARRL.

A discussion of the Northeast VHF/UHF Society support to the NEWS Group was held.

Tom, WA1MBA, showed pictures of the 2003 Microwave Update Conference held out on the west coast this year. Some NEWS Group members actually travelled the 3000 miles to attend. Before the feature talk of the day, a duct tape auction was held. These are always fun but we need to have more duct tape items brought to our meetings.

The talk of the day was given by Tom, WA1MBA, on lightning protection. You will recall that Tom had a huge lightning strike at his QTH that destroyed some of his ham station equipment as well as some general power wiring in his house, to the tune of many thousands of dollars. We learned much from the facts presented by Tom and will take lightning protection much more seriously in the future.

The meeting was then adjourned.

## **IF YOUR ANTENNA STAYS UP IT ISN'T BIG ENOUGH.**

Well this actually isn't exactly the case at my station. It was more like, "Things are breaking faster than I can fix them so I better do something sooner rather than later".

I had planned to keep adding more and more bands until I was continuous from 50 MHz to 24 GHz, right. It has been going the other way, I have been losing bands. About two years ago the 903 looper fell off the tower, about a year later the 2304 transverter, up top, stopped transmitting, recently the wind storm made the 1296 looper come loose.

Since I have a Rohn 45 foldover tower that was no longer rigged to foldover and I am getting to old to climb the tower I figured it was time to fix it so I could fold it over again. One reason it could no longer be folded over was because of the hard line. My plan was to cut the hardline at the bottom of the tower, right where it goes in to the house, and support the hard line so that it stays straight when the tower folds over. I figured that the weight of the hard line would simply act to counterbalance the folding tower.

Another reason I have not folded it over it years is that I knew that I had put too many antennas and transverters up on top for the foldover weight limit of the tower. I had planned to strengthen the tower cantilever arm with a cable brace much like a sailboat mast but that never happened.

With the 1296 looper dangling by the coax I hastily tried to take advantage of the last warm day we had before Winter set in. I cut the hard line and extended the foldover arm to support the line but I did not strengthen the foldover arm. I thought I would get away with folding it over assuming that Rohn probably designed a 200% safety factor in the system and I was nowhere near that.

To make a long story short I folded the tower over and about 15 degrees before it was all the way over the weld broke on the cantilever arm and the tower and my antennas came crashing in to the back deck.

The damage could have been worse. The tower itself is fine,



only the cantilever arm needs to be repaired and strengthened. The mast is bent but can be straightened, the 2 meter H frame needs one vertical tube replaced and a couple of broken elements fixed. Oh yes, the back deck railing is slightly demolished, I needed a new deck anyway.

The worst thing is that my wife thinks I should give up the hobby and take down the tower and of course it is bad that I will be off the air until at least Spring. Six meters is the only



band left. I will be having a few antenna parties before everything, is back the way it should be. I will be looking for volunteers.

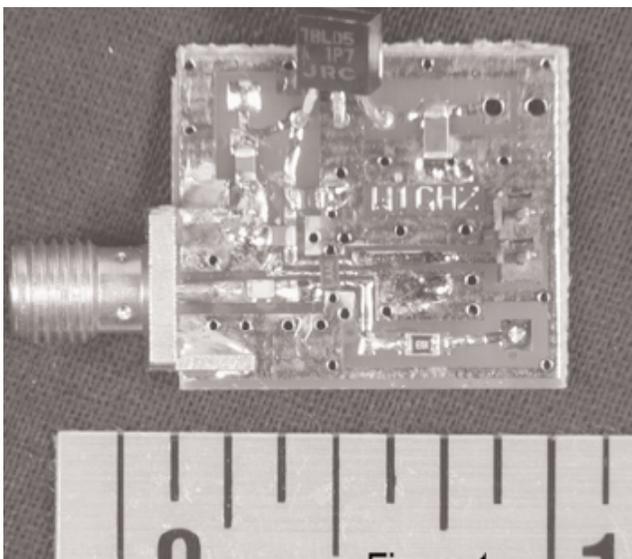
73, Del  
K1UHF

## PORTABLE RF SNIFFER PAUL WADE W1GHZ ©2003

Sooner or later, a rover station finds that no one will answer his calls. Is the equipment working? Failures are not surprising, since the gear is bounced around in the vehicle and then operated in various unpleasant conditions. So, how does a rover station check that the equipment is working? If you are lucky, there are beacons to check that the receiver can hear, but what about the transmitter? Is it generating power? Does it get to the antenna?

A couple of years ago, I put together a 10 GHz radiation indicator – a surplus horn connected to a surplus diode detector, with a waveguide attenuator between them to reduce the power. Since this was a last-minute job, I simply ty-wrapped everything to a microammeter and stuffed it into a cardboard box. Simply holding it in front of the dish did the job – when the rig was working, it pinned the meter. Later, when I got reports that my signal was weak, the meter barely moved. Fortunately, I had a backup rig and was able to keep operating.

This past summer, I went roving for the UHF contest. I took the 10 GHz indicator and checked the transmitter each time I set up at a new location. However, it didn't help on other bands, particularly 5760, where activity is lower. Making an indicator for each band is one solution, but there are enough things loose in the back of the pickup already. I needed a multiband indicator.

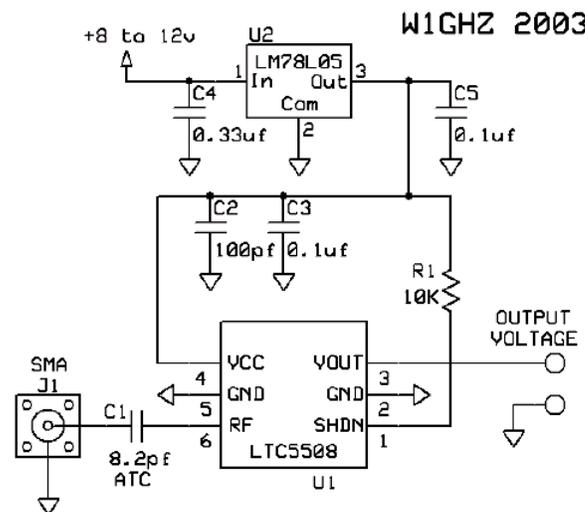


Several semiconductor companies have come out with power detector chips for wireless networking. The first of these was the Analog Devices AD8307, good to 500 MHz; W7ZOI and W7PUA used this chip to make a simple RF power meter<sup>1</sup>. New chips that work at higher frequencies have become available recently. Most are good to 2.5 GHz or so, but one, the

Linear Technology LTC5508, is rated to 7 GHz. Since Linear Tech is glad to sell them direct from their web page ([www.linear.com](http://www.linear.com)) for only \$1.75 each, I ordered a few.

The AD8307 comes in a standard DIP package, but the higher frequency ones come in tiny surface-mount packages, so a PC board was necessary. I squeezed it onto a small board and piggybacked it in the corner of another board – I try to use every millimeter of an ExpressPCB miniboard ([www.expressPCB.com](http://www.expressPCB.com)).

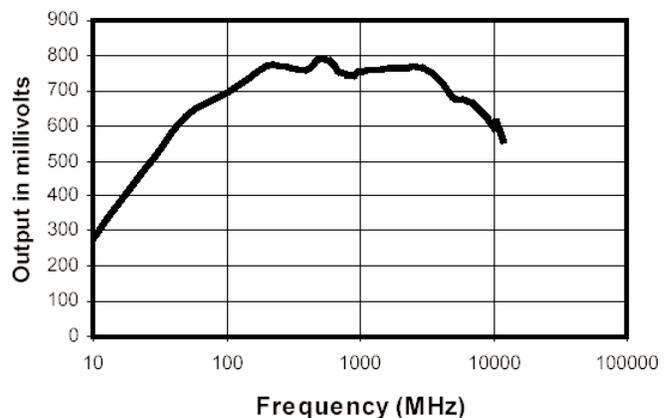
### UHF to 10 GHz Power Meter



I wanted to see how high in frequency the chip would operate, so I assembled the board with a good SMA connector with a small pin, and a quality microwave ATC capacitor. The completed board is shown in Figure 1, and the schematic in Figure 2.

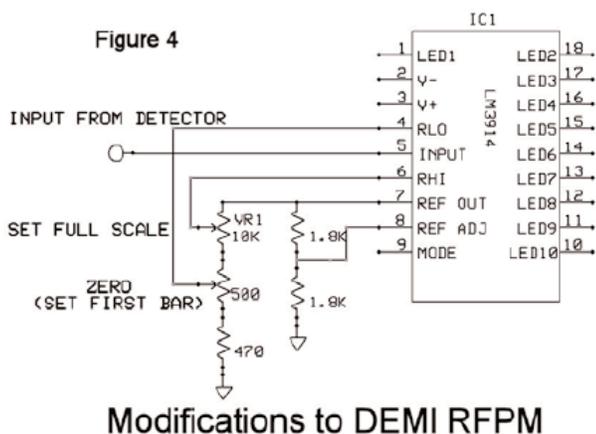
Performance is very good. The LTC5508 has a temperature compensated Schottky diode detector, so the readings are quite repeatable, and an output amplifier so it can drive a

**Figure 3: LTC5508 Power Detector**



meter directly. The sensitivity is good, with usable output for input power from -20 to +10 dBm. Frequency response was good from about 100 MHz to 5 GHz, rolling off slightly to 8 GHz, and about 5 dB down at 10.368 GHz, as shown in Figure 3. The important thing is that it still works even at 12 GHz, and covers every VHF band from 2 meters up (low frequency rolloff is due to the small 8.2 pf input capacitor).

While the frequency response is not as flat as a laboratory power meter, for instance an HP 432, it appears to be comparable in sensitivity and repeatability. The detector chip does have some advantages: very low power, requiring only a couple of milliamps at 3 to 5 volts, and fast response – fast enough to demodulate data at rates up to about 2 MHz. To compensate for the frequency response, we could make a calibration chart for each band, or even make a separate unit for each band – the chips are cheap enough.



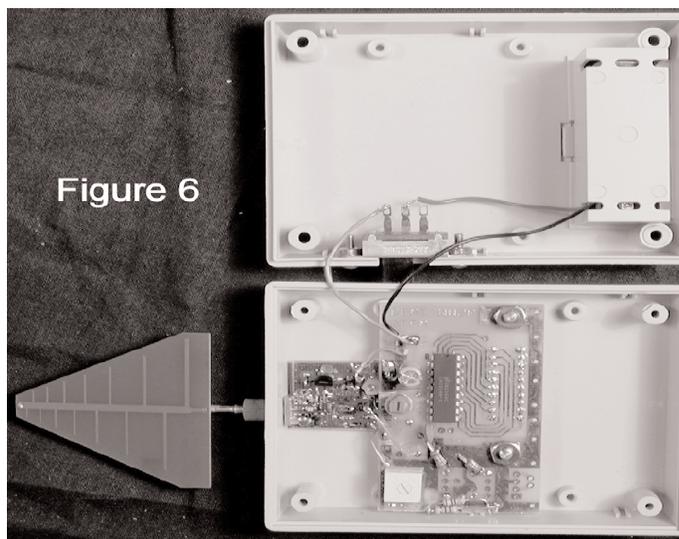
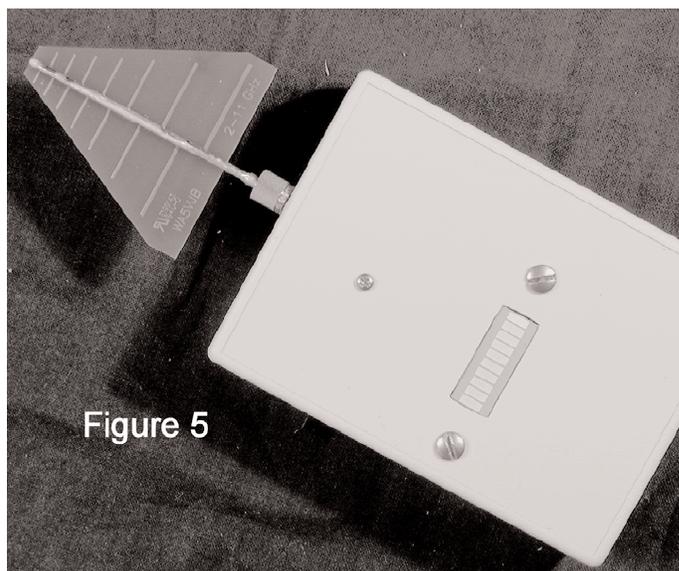
The low power required is ideal for my application, a portable power indicator. Rather than a fragile meter, I chose the RFPM LED power meter from DEMI ([www.downeastmicrowave.com](http://www.downeastmicrowave.com)), an LED bar indicator designed by WW2R. Since the LTC5508 has an offset, about 260 millivolts output with no RF input, I had to hack up the RFPM to zero the offset; three resistors and a pot were needed. The modifications are shown in Figure 4.

The detector board and the RFPM board both fit in a small plastic case with a 9-volt battery compartment (LMB 502 or Philmore PB524). I adjusted the ZERO pot so that the first LED bar is lit as a pilot light, and the full-scale pot for +10 dBm. The second bar lights at -14 dBm, so we have 24 dB of dynamic range. The final piece of the puzzle is a 2 to 11 GHz printed log-periodic antenna from WA5VJB. The complete RF sniffer is shown in Figure 4 – broadband, cheap, portable, and battery-operated. The insides are shown in Figure 5.

Next summer, if someone doesn't answer, I'll suspect their receiver.

1. Wes Hayward, W7ZOI, and Bob Larkin, W7PUA, "Simple

RF-Power Measurement," QST, June 2001, pp. 38-43.



**THE 30TH ANNUAL EASTERN  
VHF/UHF CONFERENCE WILL BE  
HELD ON APRIL 16, 17 & 18TH,  
2004**

At the Radisson Hotel in Enfield, Ct. The conference has been moved to the spring time frame to help alleviate numerous conflicts with other ham radio activities and vacation schedules in the August time period. Quest speakers, proceedings articles and overall volunteers are being solicited to help out. Prize donations are also being solicited from vendors and members alike. A WEB site link is being developed on the NEWS WEB site and will be available shortly with further information.

## FOR SALE OR SWAP

AIL Precision Attenuator Type 32 used originally with Model 75 Noise Figure Meter, 0-100dB, \$60.

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SMW LNB 1108, 11-11.7 GHz, 0.8dB NF, F in- WR-75 out. \$20.

(2) HUGHES LNA 2007045-003 WR-75 in & out, 15 mw in- 100 mw out. @ \$20

TRANSCO 11200 Y, SPDT, 28V, N(f), \$50.

TRANSCO 14201, SP3T, 28V, N(f), data sheets, \$50.

TRANSCO 14100, SP4T, 28V, N(f), data sheets, \$50. several available.

AMPHENOL 300-10099, SPDT, 28V w/ conn., \$30.

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TRANS TEL T2413D3, transfer, 28V, SMA(f), 18 GHz, \$50.

K&L TS33140, transfer, 28V, SMA(f), \$50.

(2) AMPHENOL 303-10179-4, SPDT, 48V, SMA(f), @ \$30.

(2) AMPHENOL 3033-10179-3, SPDT, 28V, SMA(f), @ 30.

(3) NOVAK 52LPH2, SPDT. 28V, SMA(f), latching, @ \$30.

DB Products 2SL2001, SPDT, 28V, SMA(f), latching, \$30.

(2) DYNATECH FSCM50667, 28V, SMA(f) indicators, \$30.

DYNATECH D1-413A3, 24V, SPDT, SMA(f), \$30.

TELEDYNE CP-33S1C-N1, 28V, SPDT, SMA(f), \$30.

AMPHENOL 303-10002-12, 20V, SPDT, SMA(f), \$30.

MICRONETICS RSM-2D-L-I, 24V, SPDT, SMA(f) indicators, \$30.

(2) TRANSCO 910C70100, 28V, SPDT, SMA(f), @ \$40.

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**NOTE NEW DATE IN THE SPRING!**

## **North East Weak Signal Group**

c/o N1DPM  
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50 Witheridge St.  
Feeding Hills, MA 01030



**Check your membership expiration date  
on the mailing label!!**