



N.E.W.S. LETTER



The Publication of the North East Weak Signal Group

MAR 2004

VOLUME TWELVE

ISSUE TWO

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

CURRENT OFFICERS

Secretary: N1GJ George Jones
Treasurer: N1DPM Fred Stefanik

NEXT MEETING

SATURDAY, MARCH 13TH, 2004, AT THE RADISSON HOTEL IN ENFIELD

THE SPEAKER FOR THE MEETING WILL BE:
TOM FRENAYE, K1KI, ARRL NEW ENGLAND DIVISION DIRECTOR.
THE TOPIC WILL BE "VHF/UHF CONTESTS"

THERE WILL BE A SPRING CLEANING DUCT TAPE AUCTION!

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MEMBERSHIP in the N.E.W.S. Group is \$15 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://www.newswhf.com>

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PREZ SEZ **DE WA1MBA**

Ah, Spring is in the air - at least it is still scheduled for the end of March - and time to do that Spring cleaning and getting ready for the upcoming contests. Regarding cleaning, don't forget to bring along something you don't need and something you want to sell for the duct-tape auction. We got only a few items last meeting, but as my wife, and very likely your spouse points out "Get this cr*# outa here, or its going to the dump!" So, why not recycle? You might make enough money to pay for your gas too.

Speaking of Summertime contests, we will have a talk and discussion about proposed changes to the VHF contests rules. This has been a pretty hot topic on the reflectors, and now is your chance to talk to the league section leader on what is cooking at ARRL and how each of us think changes would affect our contesting and our hobby.

See you on the 13th. Board meeting at 11:30 - open to all. Meeting starts after lunch, and should be over by about 2:30 for the contest rules talk and discussion.

Tom

SECRETARY'S REPORT OF THE NEWS **BOARD MEETING OF 3 JANUARY** **2004.**

President Tom Williams, WA1MBA, called the NEWS Group Board Meeting to order at 11:35 AM. All members of the Board except Stan, KA1ZE, were present. Several other members of the club also attended. The first item discussed was the increase in dues from \$10 per year to \$15 per year for 2004. Our Club Treasurer Fred, N1DPM, reported that several members are still sending in checks for \$10. This may be due in part to some members not getting paper copies of the NEWS Letter (the membership expiration date is usually printed on the mailing label next to the name). Fred says we are not getting as many renewals as he would have expected. The NEWS Letter Editor will change the information usually listed at the bottom of the first page of the NEWS Letter to reflect the change in dues to \$15 per year.

New Business- January ARRL VHF Contest rules say that we (NEWS Group) define the rules for what NEWS Group member contest scores can be counted in the Club competition. Currently, the NEWS Group only requires that you be a member in good standing (your dues must be paid up) and that you live within 175 miles of Enfield, CT. Be sure when you send in your scores that you indicate clearly that you are a mem-

ber of the NEWS Group and that you want your score to be included in the Club competition.

Fred, N1DPM, reported that if anyone wants to receive the NEWS Letter via e-mail, Fred should be notified. We could save a fair amount in postage if everyone used e-mail only. It should be noted that the Club has no plans at this time, to eliminate sending out hard copies of the NEWSletter to members who request it. This would have to be discussed further. Fred says that the NEWS Treasury currently stands at \$2412.77. Fred reported that he will not be running for reelection to the post of treasurer in the July club elections. George, N1GJ, indicated that the Club will need a new secretary at that time also.

Speaking of the NEWS Letter, several comments were heard. We could save some money by not sending out, say, the January letter each year. The current Letter contains more than one page of advertising. It costs more, postage wise, if we go over about ten sides of printing per issue. Maybe we should put the meeting dates for the current year in each issue as a reminder to all members.

Stan, WA1ECF, reported several items. He suggested we revisit the rules for the Worked All Bands award, to possibly increase interest in getting this unusual award. We should consider some changes to the rules of the 10 GHz and up Contest, also to increase interest. The NEWS Group might want to hold a "LINUX DAY" or add a LINUX Session to the annual Conference, to allow members to get up to speed on using LINUX. LINRAD and other projects might get more play if LINUX was more common. And finally, Stan needs more prizes for the Northeast VHF 2004 Conference (a little known fact- NEWS is not the primary sponsor). Any ideas for sources, individual contributions, or other help would be appreciated. It's coming sooner than we think (23, 24, 25 April)!

Old Business-Does the NEWS Group want to become a Not for Profit Corporation? This has been discussed before, but it does have some benefits. We could accept more corporate donations and reduce individual liability. There are several questions that have to be answered- what is involved paper-wise and costwise-how long does it take-do we do it in MA or CT? Bob, W1COT, and Del, K1UHF, will look into these and other questions and report back at a future Board meeting.

Some final notes. When are "Microwave Activity Days" and should we push them as a way to get more activity for Club members? Does anyone know who paid the Radisson Hotel for the use of their facilities for the November 2003 NEWS Group meeting? The final meeting of the NEWS Group in 2004 will be held on 13 November.

The Board Meeting was adjourned at 12:15 PM.

SECRETARY'S REPORT OF THE NEWS GROUP MEETING OF 3 JANUARY 2004.

The regular meeting of the NEWS Group was opened by President Tom Williams, WA1MBA, at 1:13 PM in the Radisson Hotel, Enfield, CT. After a few opening remarks the President presented the meeting dates for the remainder of 2004-13 March, 23/24/25 April (the Annual Conference), 17 July, 25 September and 13 November. He also commented that the Group will need to elect a new Secretary and Treasurer at the 17 July meeting. Tom commented on the increase in Club dues for 2004-they are now \$15 per year as of 1 January 2004. Fred, N1DPM, reported that all those members who sent in renewal checks for \$10 would be credited with dues paid up through 31 August 2004 only. Fred asked the membership if anyone knew who paid the Radisson Hotel for the meeting room for the November 2003 meeting. No one had the information.

Tom, WA1MBA, and Del, K1UHF, commented on the lack of a full NEWS Letter sent out prior to the January 2004 meeting-they just didn't get it done in time. The full NEWS Letter is available on Del's website if anyone needs a copy. Mark, K1MAP, made a motion to send out the full January 2004 NEWS Letter with the March 2004 NEWS Letter. Seconded by Matt, KB1VC. Discussion included not limiting the number of pages in the January NEWS Letter-we might save some small amount in postage even so-the work of making up a separate January NEWS Letter has already been done. The motion passed.

Stan, WA1ECF, brought up the several items that he mentioned at the Board meeting. He needs donations for the prize drawing and any donations that can be auctioned off to raise money for the Club. He then suggested changes to the rules for the Worked All Bands Award, currently sponsored by the NEWS Group. It did not receive much favorable support. Stan will bring it up again at the next meeting. To get more interest in the ARRL 10 GHz and up Contest, Stan had several suggestions, such as adding a new/ different microwave band each time, add a new category for home stations or automobile stations, and adding a scale factor to compensate for the difficulty of working on bands higher than 10 or 24 GHz. The group liked some of the ideas, but we would still have to get the ARRL to change their rules, since it is their contest. The group was less than receptive to Stan's suggestion to add LINUX to either a NEWS Group meeting or a session of the next Conference. Stan also asked if anyone had any information on the status of the ARRL satellite orbit data or what was happening with the ARRL BOD committee on activity at VHF and above. No one in the group had any information on either subject.

George, N1GJ, indicated that he had the latest price and address info for anyone who wanted to subscribe to DUBUS, the European VHF/UHF/Microwave journal. Paul, W1GHZ, reported that the ARRL January VHF and above Contest was on 23/24/25 January and not 16/17/18 January as reported in January 2004 QST.

Next, the meeting turned to a duct-tape auction conducted by Tom, WA1MBA. There seemed to be many more items up for auction than last time although the prices seemed lower than usual. And as always, everyone had a good time. At the end of the auction, a break was taken so that everyone could get ready for the feature talk of the day.

After the break, Paul, W1GHZ, gave a talk on homebrew power meters. The talk covered the information in the paper by Paul that was included in the NEWS Letter of January 2004. The talk was well done and generated lots of interesting questions.

A VIEWPOINT FROM CHIP W1AIM:

Ed, N1FMP, President of a local radio club (and occasional VHF and microwaver) recently attended the New England ARRL Division Director's (Tom Frenaye, K1KI) Cabinet Meeting in Springfield, MA. The part of his unofficial recollection of that meeting pertinent to VHF, UHF and Microwave matters might be of interest to the reflector:

...In response to my request for "input from members" I was asked to bring two issues to the meeting regarding the future of VHF and above from ARRL perspective. Specifically they were the limited publication of contest scores (in QST), and the possibility of reinstatement of VHF/UHF Advisory Committee to provide structure and direction from the League for activities above 50mHz. These issues were postponed until the very end of the meeting and were brought up, as people began to leave, under the topic of, "was there anything else we missed" (even though they were put on the list of topics to be discussed in the first hour of the meeting). Others complained that the Band Plans are about a quarter century old and contain inaccuracies that need to be fixed. The issues were dismissed as being on the agenda of a study committee (that Tom chairs). I don't expect much movement on that committee if this is an example of his interest in the issues above 50mHz....

If we are to see the return of the VHF/UHF Advisory Committee and support for microwave issues perhaps a bit of lobbying with our respective Division Directors might be in order.

Chip W1AIM

30TH EASTERN VHF/UHF CONFERENCE*

RADISSON HOTEL ENFIELD, CT APRIL 16, 17 & 18, 2004

As a result of a lot of hard work by your committee, we will be having an excellent full program this year. An effort was made to improve our conference by carefully evaluating the critiques we received last year. This years' program is a result of that input.

This year, we have speakers from New England to as far south as Maryland along with our famous Bandsessions. A tremendous response for speakers was received this year and we a starting the talks one hour earlier in order to accommodate all and we have added in a special dinner speaker to enlighten and entertain us all with the highlites of roving. A special update on the "Status of VHF/UHF Contesting & Awards Programs" will be presented by Dan Henderson, N1ND of the ARRL with a open forum later in the afternoon which is open to all. We'll have Noise Figure Measurements and a Manufacturers Demos area which will be in open Saturday afternoon. We encourage you to bring a project to de-bug or tuneup with some newer type test equipment.

We'll also have Gerry Rodski, K3MKZ of SSB Electronic USA to manage the preamp noise figure measurement workshop (50MHz-10GHz); and Chris Fagas, WB2VVV to manage the antenna gain measurement range (144 & up to 10 GHz). A great opportunity to check out your preamps and antennas! This years' VHF-SHF Trivia Quiz will be hosted by Dave Upton, WB1CMG.

An ARRL published Proceedings book with the event schedule and many interesting articles is included with your registration fee and will be presented to you when you arrive. Hope to see you soon!

73,

Bruce Wood, N2LIV
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631-265-1015 Home

E-mail: bdwood@erols.com

* Sponsored by the Eastern VHF/UHF Society
* and the North East Weak Signal Group
* ARRL-Affiliated

Official Webpage: <http://newsvhf.com>
for Eastern VHF/UHF Conference latest news updates

RADISSON HOTEL (860) 741-2211
1 BRIGHT MEADOW BLVD. (OFF RT.5)
ENFIELD, CT 06082

CONFERENCE SCHEDULE

4/16/04 FRIDAY

LODGING

6:00pm 'til HOSPITALITY ROOM Socializing, Photo displays

4/17/04 SATURDAY

REGISTRATION, FORMAL TALKS, BANDSESSIONS NOISE
FIGURE MEASUREMENTS & MUCH MUCH MORE.

7:30am REGISTRATION BEGINS

8:00am TALKS BEGIN We have the following set up so far:

8:10am Status of ARRL VHF/UHF Contesting, Dan Henderson - N1ND

9:00am Software Defined Radio, Bob McGweir - N4HY, Gerald Youngblood - AC5OG & Eric Wachsmann

9:00am 6&2 BANDSESSION, Roger Amidon - K2SMN

10:00am Mentoring Microwave Rovers, Dick Frey - WA2AAU

10:00am 222 & 432 BANDSESSION, Del Schier - K1UHF

10:45am AUCTION/BREAK

11:00am 16 Years of Contesting from CT., Jeff Klein - K1TEO

11:00am 903 & 1296 BANDSESSION, Chip Taylor, W1AIM

12:00pm LUNCH (on your own)

1:00pm AUCTION

1:15pm South Mountain K3EAR Rises Up, Walt Nero - WA1HHN

1:15pm 2304 & UP BANDSESSION, Dale Clement - AF1T

2:00pm Yagis, Bigger Isn't Always Better, Fred Stefanik - N1DPM

2:00pm Open Forum - VHF/UHF Contesting, Dan Henderson - N1ND

2:30 - 5pm NF Measurements and DEMOS - Jerry Rodski - K3MKZ

3:00pm 2304 Amplifier Conversions, John Sortor - KB3XG

4:00pm NEWS MEETING - Tom Williams - WA1MBA

7:00pm BANQUET (7 PM - 8:30 PM) SPEAKER Brian the Rover-ND3F

8:20pm Tom Kirby Award Presentation

8:30pm VHF - MICROWAVE TRIVIA QUIZ - Dave Upton - WB1CMG

9:00pm DOOR PRIZE EXTRAVAGANZA - Stan Laine - WA1ECF

4/18/04 SUNDAY

8:00am-noon VHF-SHF SWAPnSELL - Mark Casey - K1MAP

8:00am-noon ANTENNA MEASURING 144 & up - Chris Fagas - WB2VVV

(bring your VHF-SHF goodies, money and antennas)

SWAP n SELL INFO: MARK CASEY, K1MAP
303 Main Street
Hampden, Mass 01036
(413) 566-2445
Email: map@map.com

FROM SPRINGFIELD, I-91 TO EXIT 49, LEFT OFF RAMP, TAKE 2ND RIGHT.
FROM HARTFORD, I-91 TO EXIT 49. RIGHT OFF RAMP, TAKE FIRST RIGHT

EACH REGULAR REGISTRANT RECEIVES A COPY OF THE PROCEEDINGS AND IS ELIGIBLE FOR DRAWINGS. OVERNIGHT RATES \$79, MENTION NEWS GROUP BY MARCH 26, 2004 CALL (860) 741-2211 for RADISSON HOTEL IN-HOUSE RESERVATIONS

30th EASTERN VHF/UHF CONFERENCE REGISTRATION
April 16, 17 & 18, 2004 Radisson Hotel, Enfield, Ct.

Please fill out & return with payment:

Name & Call: _____

Mailing Address: _____

E-Mail Address: _____

REGULAR MAIL REGISTRATION* _____ @ \$25 = _____
(Registration at the door \$30)

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SELLERS _____ @ \$10 = _____

EXTRA PROCEEDINGS BOOKS _____ @ \$20 = _____

BANQUET DINNER TICKETS **

CHICKEN MARSALA _____ @ \$26 = _____

APPLE WALNUT STUFFED CHICKENS _____ @ \$26 = _____

BAKED SCROD w/LEMON _____ @ \$26 = _____

TOTAL = _____

*Free pre-registration to all unlicensed future amateur radio operators.

**As a Thank You from the Eastern VHF/UHF Society on our 30th anniversary, the Banquet Dinner is free to all PAID attendees pre-registered by mail.

Make Checks or m.o. payable to Eastern VHF/UHF Society & mail to:

Steve Simons, KF6AJ
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(203) 732-2110
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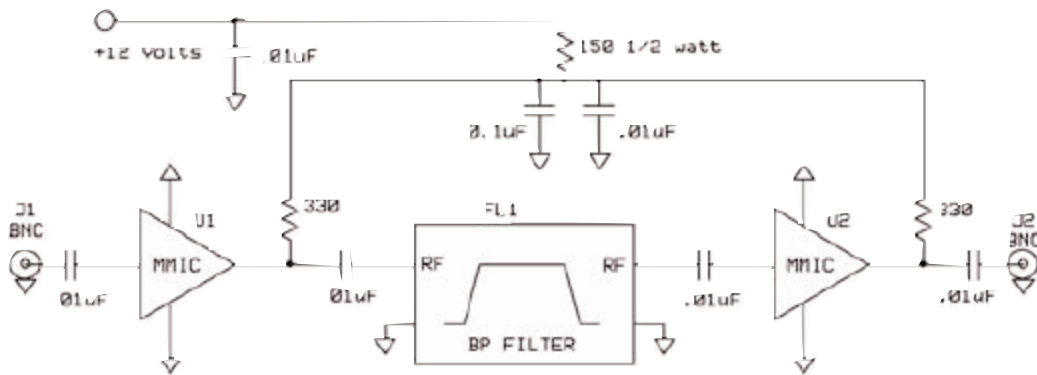
A FILTER-AMPLIFIER FOR NOISE FIGURE MEASUREMENT

PAUL WADE W1GHZ © 2004

Every VHF and up experimenter would like to be able to measure noise figure, to make sure the receiver hears well. There are two varieties of noise figure meters available: expensive new HP units, and older ones. Many of us have opted for the latter category, but few of these units are actually being used. The simple accessory described here is what most of them need.

One older noise figure meter frequently found on the surplus market is the AIL Model 75 PANFI (Precision Automatic Noise Figure Meter). With a bit of care, this is a fine instrument and can provide excellent results. Other models of the same or older vintage are very similar, so everything here should be applicable as well.

While the expensive newer units have a tunable input frequency, the older ones only operate at a single frequency, usually a 30 MHz IF (occasionally 60 MHz). The input bandwidth is fairly large, so the 28 MHz output from a converter or transverter is usually close enough in frequency. Often, however, the signal level is not high enough — the older units were designed with the expectation of significant external gain. Adding some gain between the converter and the input will often bring these units to life. The AIL 75 has a big green light on the front panel to indicate that it is seeing enough signal — the green light is the major difference between this model and previous ones.



30 MHz Filter Amplifier

The signal in question is noise. In automatic mode, the meter switches a noise source on and off several hundred times a second, then compares the difference in noise levels at the IF input. If there is not enough gain to drive the detector, then the difference will be small and indicated noise figure

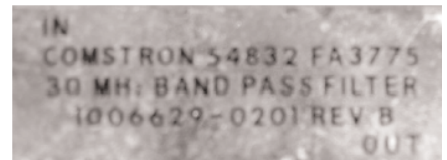
will be very high. Too much gain may saturate the detector, also reducing the difference, and also causing a high indicated noise figure. Note that both problems give pessimistic results.

The other cause of problems is birdies. We have a sensitive detector, looking for changes in noise level, and add gain in front of it. Any stray signal larger than the noise that gets into the detector will cause a constant output, masking the noise difference. Many amateur converters have some LO leakage from the IF; a good receiver rejects it, but the noise figure meter may not. A filter may be required.

So, three things are required to make a noise figure meter operational:

1. Noise source - you can buy one, or build one.
2. Gain
3. Filter

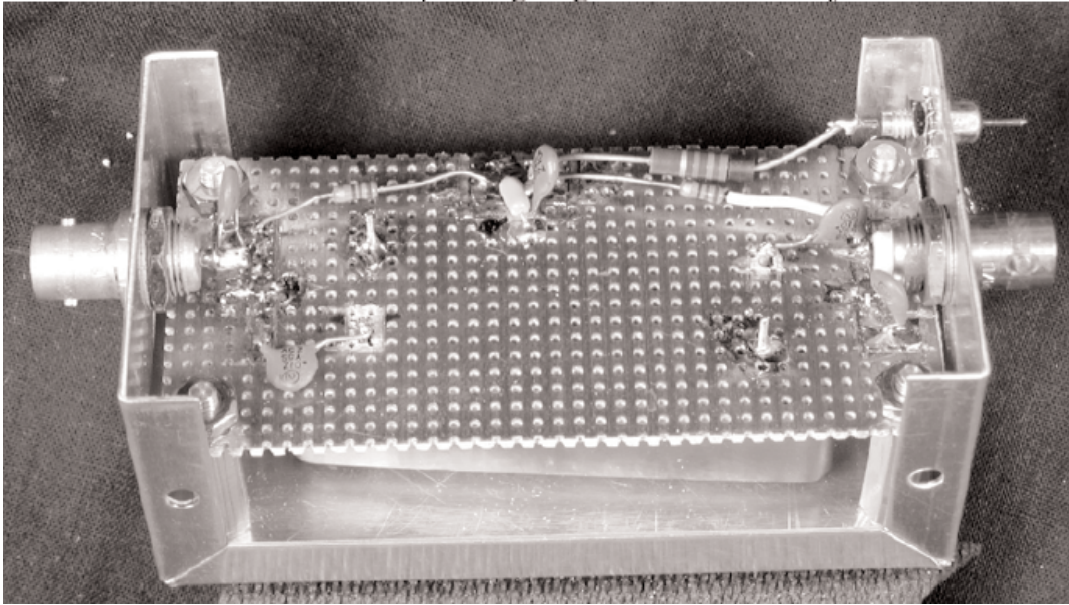
The rest will be easy for many N.E.W.S. Group members. A while back, WA1ECF was selling 30 MHz filters at NEWS meetings. They were cheap enough so that many of us bought one. Then, in 2002 at the Joint Microwave Update and Eastern V H F / U H F Conference, everyone received a strip of MMIC devices. Together, these two items can provide the needed gain and filtering with minimal effort and expense.



The schematic reveals how simple this can be: a MMIC amplifier, filter, and another MMIC. The filter is isolated from both input and output, and there is plenty of gain. The filter impedance is near 50 ohms (unusual), so no impedance matching is required, only simple blocking capacitors. The MMICs are said to be bad copies of the MAR series. I fired one up and found the output bias is about 3 volts; this is closest to a MAR-6, so I calculated the resistors to run them at roughly 20 milliamps, like a MAR-6.

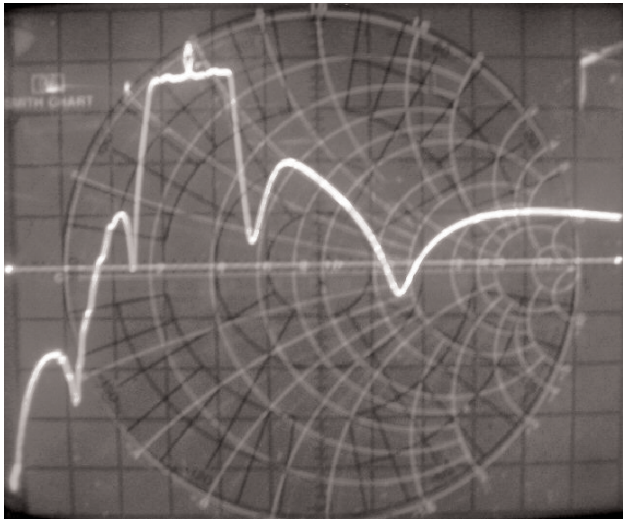
Construction is quick and dirty, as you can see in the picture. I hacked up a scrap of copper-clad board with a Dremel tool to make some pads - instant PC board - and fit it in an aluminum box. The workmanship isn't going to make W1RIL jealous!

Performance of the filter-amplifier is pretty good. Gain is about 36 dB, and the filter has about 10 MHz of bandwidth



centered at 30 MHz. The photo shows a sweep from 10 to 100 MHz, with the marker at 30 MHz. Since the filter loss is fairly low, we can infer that each MMIC has nearly 20 dB of gain. Noise figure was around 2 dB at 30 MHz.

I found that this much gain is sometimes too high for the AIL 75; the gain of different converters varies. A step attenuator in the line quickly adjusts the gain — adjust for mini-



mum noise figure. If all is working well, the minimum should include a broad range of attenuation.

Since I had found both minimum and maximum levels for the noise figure meter to operate, I wanted to measure the power levels. Most power meters are not sensitive enough, but the RF sniffer I demonstrated at the January meeting is extremely sensitive. The minimum level for the AIL 75 to operate accurately lights 3 bars on the LED display, and the maximum level lights 7 bars. The rough calibration of the

display translates to a range of -50 to -20 dBm. Thermal noise in a 1 MHz bandwidth is -114 dBm, so a good deal of gain is required.

What if you don't have a filter, and can't find someone with a spare? You could build a filter - see the ARRL Handbook - or you might find that a 30 MHz low-pass TVI filter is enough to remove LO leakage.

What else can you find to do with all those MMICs? Give it a try, and write it up for the NEWSletter.

1. Paul Wade, N1BWT, "Noise Measurement and Generation," QEX, November, 1996, pp. 3-12. also www.w1ghz.org

SPEAKER FOR THE MEETING

At the March 13 meeting we will have Tom Frenaye, K1KI the ARRL New England Division Director. The topic will be "VHF/UHF Contests" and the primary focus will be proposals and ideas for changes in the contest rules. Tom would like any written ideas or suggestions regarding the ongoing issues to be sent to him at vhf-contest-proposal@arrl.org before March 7th. It is unlikely that you will receive this NEWSletter in hard copy by that date, but we do hope to have it on-line before then. In any case, bring your concerns and thoughts to the meeting. See you there!

PHOTOS FROM THE JAN. MEETING AT

<http://www.newsvhf.com/janme04.html>

-73, Ron WZ1V

DON'T FORGET

THE NORTH EAST WEAK SIGNAL GROUP
2 METER VHF AND ABOVE NET
EVERY THURSDAY NIGHT AT 8:30 p.m. LOCAL
144.250
W1COT, WZ1V, OR K1PXE NET CONTROL

FOR SALE OR SWAP

I am looking for several items relating to 6 mtr beacon transmitters and an M2 riser tube:

1. Manual for lowband (27-50 MHz) Motorola Maxar 80 transceiver;
2. One to three Motorola Maxar or Maxar 80 Lowband transceivers (42-50MHz range);
3. Square aluminum (3/4" X 18" X .062") riser tube from M2 2 meter antenna-18XXX, 2M5WL, etc.

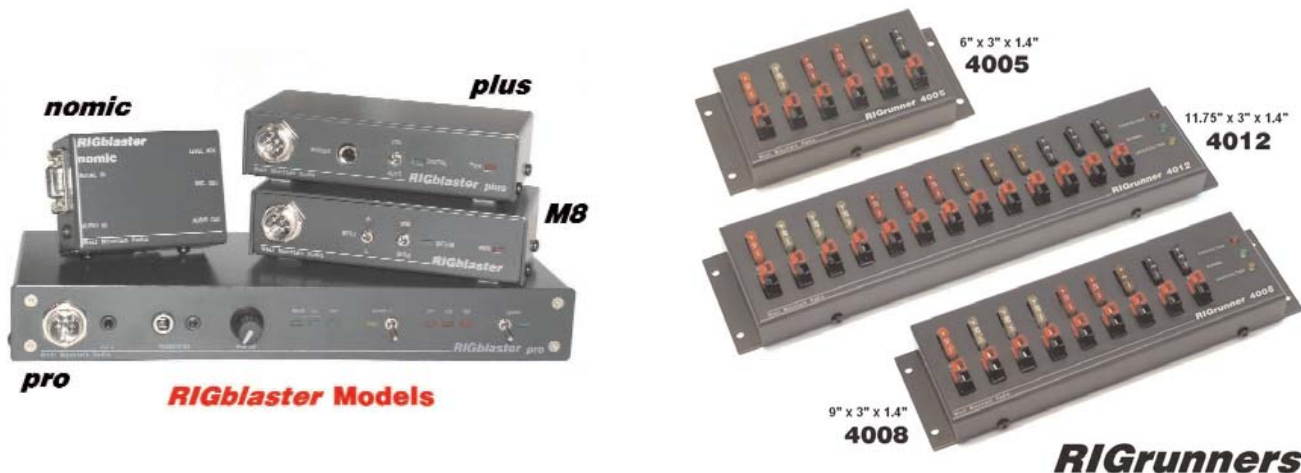
For sale:

1. M2 6M3.5WL 6 meter yagi (11 ele 70 feet long), assembled then taken apart and stored inside; with SS U bolts to replace M2 plated bolts-\$600;
2. 100' piece of Andrew 1 1/4" Heliac good condition, with 7/16" DIN connectors -\$125.
3. Four (4) KLM 144 MHz 50 ohm sleeve baluns with type N connectors. Used for DX120 eme antenna project; all in good shape. \$10.00 each;
5. Cushcraft 4 element 2 mtr yagi with CC T match. Assembled but never used \$25.00;
6. Rigblaster M8. In good shape with power supply and cables \$75.00;
7. Yaesu FT 847 with INRAD SSB and CW filters. Transmit opened up. In very good condition with all manuals. \$1000.00;

Prefer pick up on all items so you can see what you're getting. Can deliver to Timonium, MD hamfest on March 27, 2004.
73 Chris Patterson W3CMP ex WA3HMK, Wa3hmk@aol.com

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NEXT MEETING
SATURDAY, MARCH 13TH, 2004, AT THE RADISSON HOTEL IN ENFIELD

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THE 30TH ANNUAL EASTERN VHF/UHF CONFERENCE
APRIL 16, 17 & 18TH, 2004
NOTE NEW DATE IN THE SPRING!

North East Weak Signal Group

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



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on the mailing label!!**