

N.E.W.S. LETTER

The Official Publication of the North East Weak Signal Group – <http://www.newsvhf.com/>

January 2016

Volume 25

Issue 1

NEXT MEETING: January 2, 2016

January 2 Meeting Program

Small Projects Show and Tell
Laboratory Test Session – Bring Your Equipment to Test

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BOARD MEETING - 11:00 AM at Lulu's, 151 Hazard Ave. Enfield, CT
Phone: (860) 763-2377 I-91 Exit 47 Rt. 190E 1 Mile on Left
<http://luluspizzeria.com>

GENERAL MEETING - STORRS LIBRARY - from 1 PM to approximately 3:45 PM.
693 Longmeadow St, Longmeadow, MA 01106
<http://longmeadowlibrary.wordpress.com>

DON'T FORGET

**The North East Weak Signal Group
2 Meter VHF and Above Net
Every Thursday at 8:30 PM local 144.250 MHz
W1COT, WZ1V or K1PXE Net Control**

MEMBERSHIP in the N.E.W.S Group is \$15 per year.
Apply to John Crawford, N2OY. E-mail: n2oy.vhf@gmail.com.
You may download an application from our web page: <http://www.newsvhf.com>

The N.E.W.S. LETTER is the publication of the North East Weak Signal Group.
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Send articles by e-mail to George Collins, KC1V at kc1v@arrl.net

President's Report

I hope everyone had a good time with family over the past few weeks. Happy New Year! Unfortunately preparing for the January 2, 2016 meeting has been difficult because it comes at the end of what is still the holiday season. After all New Year's Day is on Friday, making a nice long 3-day weekend, many might like to extend even longer. I tried to line up 2 different speakers for the meeting only to be told "sorry, I won't be back in town yet after my trip visiting family." So we won't have a long, formal presentation this meeting.

Instead, let's repeat what we did last year for the January meeting. This meeting let's have some "small project" "Show and Tell" reports... please tell us about something you have been working on in the last several months that you can describe in 5-15 minutes. More than one project is perfectly fine... the more the merrier. Please bring a couple of photos, and/or some presentation "slides" to describe what you have been working on. It doesn't need to be complicated, or high science, just tell us about what you did. Also, bring some show and tell models of the stuff so we can see the finished project if that makes sense.

Looking ahead to the club schedule, this year we will have the joint "Super Conference" in the Washington, DC area in April. There will be no separate Eastern VHF-UHF conference in the local area. Since members of the group may not want to haul equipment they want to test all the way to Washington, I suggest we repeat the testing session we tried last January again. What I have available is certainly not as impressive as the Rhode & Swartz equipment Greg often brings to our conferences, but it should give a lot of good information nevertheless.

I will bring an HP-8970B noise figure meter for testing preamps or receive converters. The noise figure meter operates up through the 1296 MHz band without a converter in front of it. It would be great if someone could bring a low-ENR noise source. IMPORTANT... If you want to test preamps on 2304 MHz or above, please bring a receive converter or transverter to facilitate testing. Almost any converter will work so long as the IF is on the 1296 MHz band or below.

I plan to bring 2 vector network analyzers for general-purpose measurements up to 3 GHz, or maybe 6 GHz if I can round up a volunteer. I know some of the guys in the NEWS Group have HP8753Bs that are capable of measurements up to 6 GHz. If you can bring yours, please send me an E-Mail. Even if not, I have an 8753B that will make measurements up to 3 GHz, and with some messing around will make limited measurements up to 6 GHz, at

least in the 3456 and 5760 MHz ham bands. I am hoping I can arrange a 10 GHz scalar network analyzer. Sorry guys, I don't know anyone who owns a 10 GHz VNA but if you have one and are willing, it would be great if you could bring it. We will also have a microwave frequency counter with a rubidium clock reference for accurate frequency measurements.

We will also have some older style power meters and spectrum analyzers on hand for trouble shooting some problems your equipment may have up through 10.5 GHz. I will have calibrated stable weak signal sources available up through the 5760 MHz band to trace signals through equipment. We will be able to accurately measure power up to 100 watts at frequencies up to 10.5 GHz.

If you want to test a transmitter with more than 10 watts output, or that runs on a voltage other than 13.8 VDC, plan to bring a power supply to run your equipment. We will have low current bench supplies available for testing small signal circuits.

Partial Test Equipment List:

- HP8753B Network Analyzer 300 kHz – 6 GHz
- HP8555A Spectrum Analyzer to 18 GHz +
- HP85046A S-Param. Test Set 300 kHz – 3 GHz
- (2) HP8640B Signal Generators One to 1100 M
- Home Made N.A Frequency Doubler Equipment
- Weak Signal Up Converters for 2G, 3G, 5G
- HP8742 Reflection Test Set 2-12 GHz
- 12 G Automatic Microwave Frequency Counter
- HP 3G Network Anal (Internal Refl. Bridge)
- Several HP432 Power Meters + Attenuators
- HP Scalar Network Analyzer
- 100 Watt Coax load good to 10 GHz
- HP8970B Noise Figure Meter & 18G noise head
- Many directional couplers

With this equipment we can measure virtually all characteristics of any RF device, assembly, or complete transmitter or receiver on frequencies up to 6 GHz. We can measure the following:

Gain, Loss, Noise Figure, Receiver Sensitivity, Frequency Response, Selectivity, Power Output, Frequency, Spectrum, Harmonic and Spurious Levels, Input and Output Match, VSWR, etc.

If you think you have something unusual to measure, please send me an e-mail at: r1fbauer@gmail.com. Maybe I can bring the right equipment to do the test you need. (cont.)

President's Report (cont.)

Finally, remember the January VHF sweepstakes will be here on January 30 – February 1 at the very end of the month this year. Please get ON THE AIR on as many bands as you can. Be prepared to tell the group what bands you will be active on, and any new bands you will be on for the first time. If you plan to do some roving, tell us about the route you might take. ETC, Etc, etc.

- R. L. Frey – WA2AAU

Secretary's Report

- NEWS Meeting 21 November 2015, Storrs Library, Longmeadow, MA
- President WA2AAU called meeting to order at 1326

TREASURERS REPORT – N2OY

- New e-mail: treasurer@newsvhf.com
- 131 paid members
- 49 memberships expire Dec. 2015
- Balance \$4923
- Possibility of renewal by PayPal
- MOTION by N2OY to accept membership renewals by PayPal – UNANIMOUS
- MOTION by N2OY to donate \$100 to Storrs Library - UNANIMOUS

OLD BUSINESS

- N1JEZ - Mt Washington 10 GHz beacon needs to be taken down. Plan to put it back in the spring.
- WZ1V – Needs Web site access for NEWSletter editor and for other updates.

NEW BUSINESS

- KA1SUN – New Western Mass Internet provider in 902-MHz band.
- “What Have You Been Doing This Month” section in newsletter suggested.
- Went around the room for “What Have You Been Doing This Month”

PRESENTATIONS

- W1GHZ – New 5760-MHz Transverter
- N1JEZ – New tower in FN44

MEETING ADJOURNED 1435 EDT

Treasurer's Report

The club's bank account and membership numbers continue to remain healthy. Since the November meeting, I've had another ten or so membership renewals come in, including a couple renewals that have been paid via PayPal. I recently sent another round of renewal reminders to those who have yet to renew, with positive results.

At the last meeting, the membership voted to allow PayPal as a form of payment of membership dues in addition to the traditional cash or check payments. If you're in need of renewing your membership, you can send payment via PayPal to:

treasurer@newsvhf.com

Or via PayPal's "PayPal Me" service at:

<https://paypal.me/NEWSVHF/15>

Please include your call sign in the payment notes so that I can properly associate your payment with your membership record.

I wish everyone a happy holiday season and happy new year. See you in 2016!

73, John N2OY

NEWS Treasurer

NEWS Buy Sell or Trade

For Sale (can bring to NEWS Meeting for pricing shown):

- M2 222-5w/ Yagi - still shiny - offered at \$145
- M2 222-5w/ Yagi - clone with M2 Driven Element asking \$75 each or both for \$195
- (2) Cushcraft 729B - 432 MHz 29-element Yagis with folded-dipole feed (using 719 feeds from CC) asking \$145 each or both for \$245
- Loop Yagi Mania: I have several 1296 Loop Yagis and a couple 903 Loop Yagis - email for photo (photo is on QTH, Eham and QRZ for sale ad):
- (2) short 903 loop yagis - \$30 longer, \$25 shorter, \$50 for both.
- (4) like new 1296 x 47 el. Directive Systems – all for \$295
- (3) well used 1296 x 47 el. Directive Systems - bundled at \$95
- (2) homebrew used 1296 x 55 element - bundled at \$75
- Bundle price \$475 for all Loop Yagis above, picked up (or Delivered to NEWS Meeting)
- FS: 6 Meter KW Amplifier - Raytrack Horizon VI-L (with 2 x 3-500z's installed) and BTI-2000 power supply (3400 vdc no load (recapped)) - 1100-1200 watts out with 90-100 watts drive (perhaps more with higher drive, newer tubes or graphite tubes). K1FO (RIP) went through it in 2009 - Steve interfaced the power supply, upgraded the tank coil (silver plated), and installed higher-voltage blocking caps. Asking \$765 or best offer (delivered to NEWS meeting or delivered within 90 miles of Hartford).

Contact Bart W9JJ - w9jj@arrl.net

Some New MMICs

Paul Wade W1GHZ ©2015

w1ghz@arrl.net

I've been trying a few new MMICs from Minicircuits with pretty good microwave performance. The first one is the GVA-123, which is claimed to be good to 12 GHz, with flat gain up to 8 GHz. It looked like a good candidate for a (so far unsuccessful) 10 GHz transverter. I tried one in a simple amplifier board, with the results shown in Figure 1. The gain is good up to 7 GHz, but above that I get less gain than the data sheet, probably because my cheap PC board doesn't work well above 7 GHz.

The next one I tried is the GVA-63, recommended by K6HLH as providing good performance in my new 5760 transverter and only costing 99 cents. A simple amplifier board provided the performance in Figure 2, with good gain up to 6 GHz.

Another MMIC is the GALI-39 – this one is specified at 2.4 dB noise figure at 2 GHz, so I thought it worth investigating. The GALI series requires an external bias resistor like the older MMICs. Simple amplifier performance is also shown in Figure 2, and is identical to the GVA-63 up to 5 GHz. Above that it has a bit more gain than the GVA-63. I haven't had a chance to look at noise figure yet.

A final interesting MMIC is the GVA-91 for higher output power. The data sheet claims +29 dBm at 900 MHz and +27 dBm at 2100 MHz. I tried to imitate the suggested 900 MHz circuit on my simple amplifier PC board, but haven't got it quite right yet – I get about 17 dB gain and the power output saturates at about +27 dBm, or ½ watt. The input return loss is not very good either. When I get it tamed, I'll provide more details.

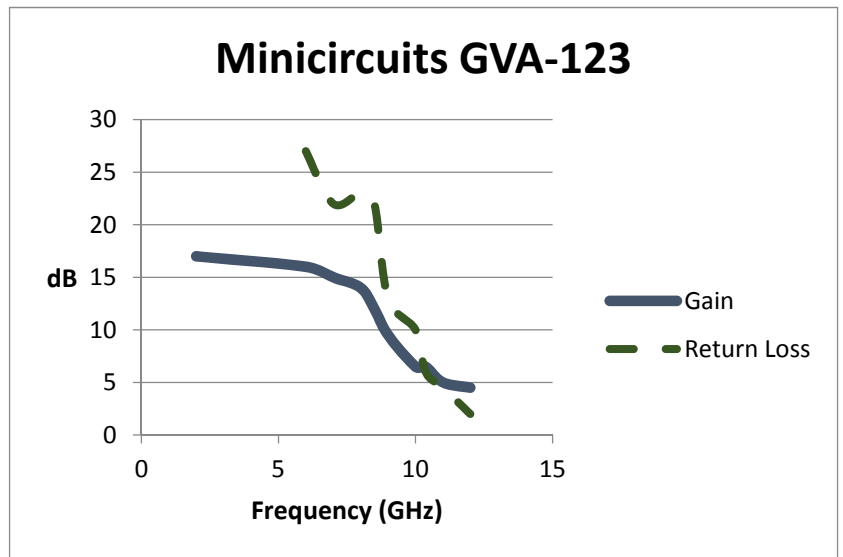


Figure 1

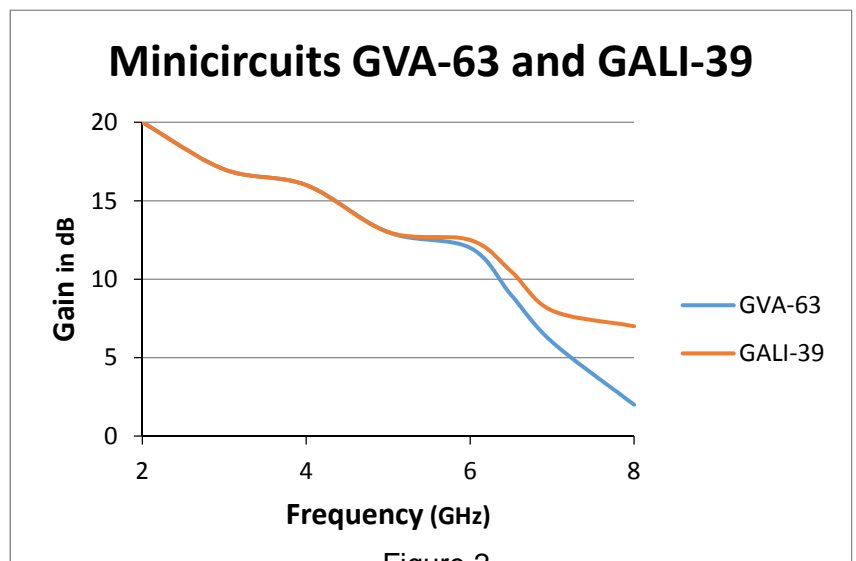


Figure 2

All of these MMICs are cheap, under \$2 except for the GVA-123 at \$5.95. The catch is that you have to buy a reel of 20, so I'll bring a few to the next NEWS meeting if anyone wants to play with one.

Calendar of Regional VHF+ Events, Contests and holidays for 2016

Jan. 2	NEWS Lunch and Board Meeting, Lulu's, Enfield, CT - 11:15 am
Jan. 2	NEWS General Meeting, Storrs Library, Longmeadow, MA - 1:00 pm
Jan. 30 – Feb. 1	ARRL VHF Contest Sat. 2:00pm – 11:00pm Sun.
Feb. 12-14	Hamcation & ARRL Nat. Convention - Central Florida Fairgrounds, Orlando, FL
Mar. 19	NEWS Lunch and Board Meeting, Lulu's, Enfield, CT - 11:30 am
Mar. 19	NEWS General Meeting, Storrs Library, Longmeadow, MA – 1:00 pm
Apr. 11	Spring Sprint - 144MHz
Apr. 14 - 17	Super VHF Conference & Eastern VHF Conference, Dulles, VA (Wash. DC west)
Apr. 14	Thurs. -- Super Conference Tour, Hospitality
Apr. 15	Fri. -- Super Conference Talks, Lunch, Hospitality
Apr. 16	Sat. -- Super Conference Talks, Lunch, Banquet
Apr. 17	Sun. -- Super Conference Parking Lot Tailgate
Apr. 19	Spring Sprint 222MHz Tues 7:00 – 11:00 pm local
Apr. 27	Fall Sprint 432MHz Weds 7:00 – 11:00 pm local
Apr. 29 – 30	Nearfest, Deerfield, NH (Fri - Sat)
May 7	Fall Sprint 902MHz and up 8:00 am – 2:00 pm
May 7 - 8	SBMS 2.3 GHz and up contest
May 14	Fall Sprint 50MHz 7:00 – 11:00pm EDT
May 20 – 22	Dayton Hamvention
May 30	Memorial Day
June 11 – 13	ARRL VHF Contest Sat. 2:00pm – 11:00pm Sun. EDT
June 25 – 26	Field Day
July 16	CQ WW VHF Contest
July 9	NEWS Picnic, K of C, Enfield, CT – 11:00 am – 3:00 pm
July 29 – 31	Central States VHF Society Conference, Rochester, MN
Aug. 6 – 7	ARRL UHF Contest Sat. 2:00 pm to 2:00 pm Sunday EDT
Aug. 20 – 21	ARRL 10 GHz and Up Contest Weekend – Sat. 8:00 am to Midnight Sun.
Sept. 10 – 12	ARRL VHF Contest Sat. 2:00 pm to 11:00 pm Sun. EDT
Sept. 17 – 18	ARRL 10 GHz and Up Contest Weekend – Sat. 8:00 am to Midnight Sun.
Sept. ?	Fall Sprint 144MHz Mon. 7:00 – 11:00 pm local
Sept. ?	Fall Sprint 222MHz Tues. 7:00 – 11:00 pm local
Sept. ?	Fall Sprint 432MHz Weds. 7:00 – 11:00 pm local
Sept. 24	NEWS Lunch & Board Meeting, Lulu's, Enfield, CT - 11:15 am
Sept. 24	NEWS General Meeting, Storrs Library, Longmeadow, MA – 1:00 pm
Oct. ?	Fall Sprint 902MHz and up
Oct. ?	Fall Sprint 50MHz
Oct. 14 – 15	Microwave Update, St. Louis, MO
Oct. ?	Nearfest, Deerfield, NH
Oct. ?	Nutmeg Hamfest and ARRL CT State Convention
Nov. 19	NEWS Lunch and Board Meeting, Lulu's, Enfield, CT - 11:30 am
Nov. 19	NEWS General Meeting, Storrs Library, Longmeadow, MA – 1:00 pm
Nov. 24	Thanksgiving

Please send any additions or corrections to Mark Casey, K1MAP (map@mapinternet.com).

N.E.W.S. GROUP OFFICERS

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3456, 5760, 10 GHz, 24 GHz.

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ACTIVE ON: 6, 2, 222, 432, 903, 1296,
10GHz (and more to come)

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ACTIVE ON: 6, 2, 432

SPECTRUM MGR:

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BOARD OF DIRECTORS:

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Home: 413-566-2445
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2304, 3456, 5760, 10 GHz, 24 GHz

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Home: 603-878-3680
w1zc @ myfairpoint.net
ACTIVE ON: 6, 2, 432, 1296

WA1MBA: Tom Williams
PO Box 28
Shutesbury, MA 01072, FN32st
Home: 413-259-1921
tomw @ wa1mba.org
ACTIVE ON: 6, 2

VHF Super Conference

**Sponsored by Southeastern VHF Society, North East Weak Signal Group
and the Mt. Airy VHF Radio Club.**

**Hosted by the Grid Pirates Contest Group and Directive Systems and
Engineering**

Attention! The Conference is looking for speakers and papers. If you are interested in contributing please contact Paul, W1GHZ (w1ghz.arrl@gmail.com) or Stephen, N2CEI (n2cei@downeastmicrowave.com)

Registration Info

The conference will be held April 15-17, 2016 at the Holiday Inn Washington-Dulles International Airport at 45425 Holiday Drive, Sterling, VA

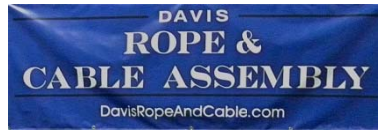
Early Bird Discount! — Sign up before March 15, 2016 and registration with lunch, all day beverages and proceeding for both days will be \$89. Sign up for the banquet before March 15, 2016 and the cost is \$39. That's a combined savings of \$20 if both events are paid for before March 15, 2016.

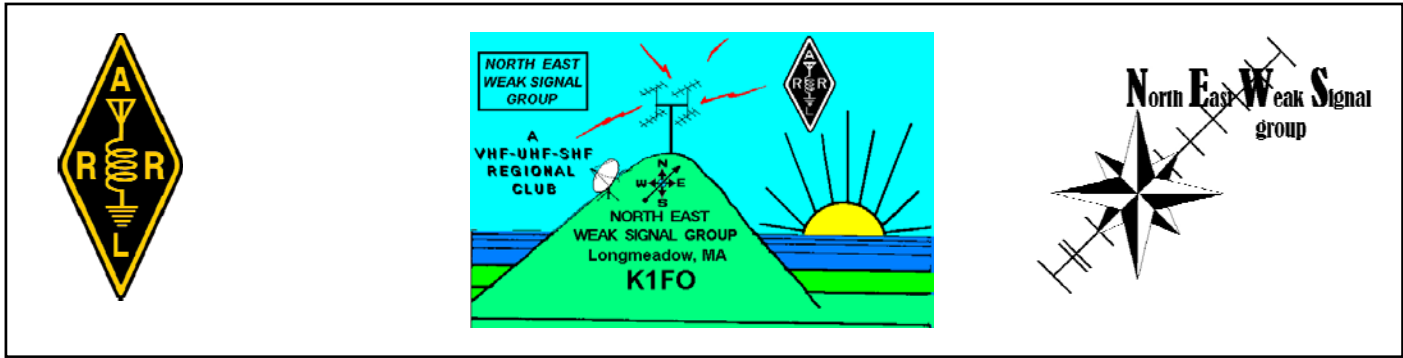
After March 15, registration cost will increase to \$99
and the banquet cost will increase to \$49.

The hotel rooms are \$89+tax for either king or double through March 15, 2016. Breakfast is included for Friday and Saturday and will be held privately in the conference room area for conference attendees only.

There will be FREE shuttle service to the Udvar-Hazy Air & Space Museum on Thursday April 14, 2016. (<http://airandspace.si.edu/visit/udvar-hazy-center/>)

N.E.W.S. Group Supporters





MEMBERSHIP APPLICATION

Name: _____

Call sign: _____ Grid: _____

Street: _____

City: _____ State: _____ Zip: _____

Phone (home) _____ Optional (work) _____

Email _____

ARRL member: Y N

Electronic Newsletter Delivery: Y N

Operational Bands (circle)	50 MHz	144 MHz	222 MHz	432 MHz	903 MHz
	1.2 GHz	2.3 GHz	3.4 GHz	5.6 GHz	10 GHz
	24 GHz	47 GHz	76 GHz	Light	Other (list)

The North East Weak Signal [N.E.W.S.] Group is being established to form a camaraderie among fellow VHF-UHF-SHF enthusiasts and support a convenient means to exchange technical information. We currently have six meetings per year, held at a centrally located facility and provide a "NEWSLETTER" that is distributed two weeks prior to each meeting. Any contributions to this publication are appreciated and can be sent to: George Collins, KC1V by e-mail to kc1v@arrl.net. Dues are \$15/year. Remember, this group is formed by VHF'ers for VHF'ers.

Mail to:

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 c/o N2OY, John Crawford
 PO Box 1112
 Latham, NY 12110

North East Weak Signal Group

c/o N2OY John Crawford, PO Box 1112, Latham, NY 12110

Check your membership
Expiration date on your mailing label!