

# N.E.W.S. LETTER

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

March 2016

Volume 25

Issue 2

## NEXT MEETING: March 19, 2016

### March Meeting Topics

Getting Ready for the VHF Super-Conference in April

### Presentation Topic

Portable Moonbounce Contest Operation with a “Small” Antenna  
(2-Meter Moonbounce System at the W2SZ VHF Contest Station)  
By Jeff Millar – WA1HCO of the MGEF Contest Team

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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 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](mailto: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.  
Articles may be reprinted with proper credit given to the author and the N.E.W.S. LETTER.  
Send articles by e-mail to George Collins, KC1V at [kc1v@arrl.net](mailto:kc1v@arrl.net)

## President's Report

The last 2 years at about this time, the northeast had an overabundance of snow. This year it is more like the winter that wasn't. The ski areas are really hurting this year and so are some of the skiers who have gone skiing only to fall on the ice. Ouch! Not Good. But real spring will be here before we know it. April is just a month away! I hope the weather holds off during our meeting date, March 19 and doesn't decide to slam us with a late winter blast.

Speaking of better weather, the joint VHF Super Conference is scheduled for April. Have you made your reservations yet? If not, please do it NOW at <http://vhfsuperconference.com/hotel/>. The Cut-Off Date is Monday, March 28, 2016. Please make your reservations by this date according to the conference web site. I have heard the allotted block of rooms is filling up fast. Also, don't forget to register for the conference itself, too. See the Super Conference web site.

The conference committee has been hard at work getting ready for the April conference. We should recognize and thank the committee members: K1MAP, N1JFU, W1GHZ and WZ1V for their hard work on the conference. If you can help out, you can contact Mark Casey, one of the 2016 VHF Conference Co-Chairs at 413-566-8118 or 413-566-2445. I'm sure he can suggest something for you to do to help out. Paul, W1GHZ is always looking for papers and presentation topics. Please call Paul if you can think of something interesting to talk about.

Like the last several years, in early February, I attended the Orlando "Hamcation" hamfest in Florida. This is usually a nice break from the cold winter weather in the northeast. Last year I had to return a day early to avoid an ice storm in North Carolina. This year I had to return a day late to avoid a snow/ice storm in Virginia and Maryland. Oh Well, weather will be weather whether we like it or not. This year Hamcation opened for a full day on Friday, as it was also the ARRL National Convention. Weather was really great: Sunny, in the high 60s and low 70s with no rain! NICE! A wonderful respite while the NE was shivering in a serious below-zero cold snap.

I did manage to pick up some very nice "fleas" in the flea market. The highlight was probably a VERY high power relay good to 500 MHz and rated to handle 1500 watts continuously at 432 MHz. If you have a chance to go, this is a nice Hamfest to consider.

Our primary topic during the March meeting will be discussing the VHF Super Conference coming up in April. In addition, I have asked Jeffery Millar – WA1HCO to give a talk on the portable Moonbounce station at the W2SZ

contest station on Mount Greylock. There is a lot of neat technology in use there, and Jeff is planning to bring a few nice show-and-tell objects for us to look at, including a legal-limit water-cooled solid state power amplifier designed and built by Brain – WA1ZMS. It really is cool to look at, AND cool to the touch even when running full tilt.

Remember; please E-mail me about specific topics or speakers you would like to hear give a presentation at some upcoming NEWS meeting... Even better, if you have a topic YOU would like to speak about, please let me know. More ideas are always better than not enough. Please keep them coming. My E-mail is: [rifbauer@gmail.com](mailto:rifbauer@gmail.com) Thanks in advance for your help.

- R. L. Frey – WA2AAU

## Secretary's Report

- NEWS Meeting 2 January 2016, Storrs Library, Longmeadow, MA
- President WA2AAU called meeting to order at 1305
- Meeting was facilitated by Vice-President N1JFU while WA2AAU set up test equipment for measurement session

### TREASURERS REPORT – N2OY

- 15 renewals received
- 4 renewals paid by PayPal
- Balance \$5022

### ANNOUNCEMENTS

- VHF Contest Jan 30 - Feb 1.
- New Facebook page: North East Weak Signal Group.

### BUSINESS MEETING ADJOURNED 1318 EDT

### SHOW & TELL

- W1FKF  
Handheld 10-GHZ transverter with YIG LO  
Dual band 10/24 transverter  
Cheap microwave frequency marker  
24 GHZ wideband source  
Distance & bearing spreadsheet by KC1SJ
- N1JEZ  
FM transmitter pallet conversion  
2304 MHZ amplifier  
New Tower in FN44  
VE2FUT beacon 10368.380 FN25RQ
- KA1SUN  
Handheld DMR radio - contest coordination?

### MEASUREMENT SESSION

- Measurements equipment run by WA2AAU, KI2L, N2OY. Photos to follow

## Treasurer's Report

It's been a relatively quiet past couple of months for the treasury. We've had a few more renewals trickle in, as well as two new members – welcome to Sean, WA1TE and Bill, K1EV. Our treasury remains in good health, though there are still a number of members who have yet to renew for 2016. I'll be sending one more round of reminders in the coming days to those who have yet to renew for this year. If you have any questions about when your membership expires, you can e-mail me at [treasurer@newsvhf.com](mailto:treasurer@newsvhf.com) or catch me at the March meeting.

Just a reminder that you can now pay your membership dues via PayPal in addition to cash or check. Send payment to [treasurer@newsvhf.com](mailto:treasurer@newsvhf.com) or use PayPal's "PayPal Me" service via the web at <https://paypal.me/NEWSVHF/15> to send your annual dues. I'll also have a PayPal Here card reader with me at the March meeting if you'd like to pay your dues via credit card in person.

The VHF Super Conference is quickly approaching! Don't forget to register by March 15 to take advantage of the early registration discount. Hope to see NEWS represented well at the conference!

73,  
John, N2OY  
Treasurer

## NEWS Buy Sell or Trade

**For Sale** (Can deliver to the VHF Super Conference.):  
- 6 Meter KW Amplifier -Raytrack Horizon VI-L (with two 3-500Z's installed) - not a beauty queen but works. \$675.  
- Four, like new, 1296 x 45 element Directive Systems Loop Yagis - \$295 **Contact** [w9jj@arrl.net](mailto:w9jj@arrl.net)

**For Sale** (can deliver to NEWS Group meeting):  
- HP 608F VHF Signal Generator, 10-455MHZ  
- Measurements Model 80 Signal Generator, 2-400MHZ  
Both in vy good cond, \$25 each. **Contact** [kc1v@arrl.net](mailto:kc1v@arrl.net)

## Up Coming Events

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, 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	Spring Sprint 432MHz Weds 7:00 – 11:00 pm local
Apr. 29 – 30	Nearfest, Deerfield, NH (Fri - Sat)
May 7	Spring Sprint 902MHz and up 8:00 am – 2:00 pm
May 7 - 8	SBMS 2.3 GHz and up contest
May 14	Spring 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

# Quick and Cheap Omni Antenna for 1296 MHz

Paul Wade, W1GHZ  
w1ghz@arrl.net

Recently, I was browsing through the latest *IEEE Antennas and Propagation Magazine*, where they publish papers without enough divergences, curls, or triple integrals for the regular *Transactions*. In one article on Crossed Dipole Antennas<sup>1</sup>, I came across a sketch of an antenna simple enough that it could be easily built. Details were limited, since it was taken from another paper<sup>2</sup> in a journal to which I don't have access, but I could build one and try it. I left the magazine on my bench, open to that page, and it occasionally re-emerged as a reminder until I finally decided to build one.

The antenna, shown in the sketch in Figure 1, has two crossed dipoles of unequal length. The longer one, shown in blue, is specified as  $\sim 0.527\lambda$  long, while the shorter one, shown in red, is  $\sim 0.42\lambda$  long. They are fed by coax, with a  $\frac{1}{4}\lambda$  balun shown in green. The idea is that the longer dipole has an inductive reactance, while the shorter one has a capacitive reactance to compensate. The antenna is claimed to radiate circular polarization in the boresight direction.

The sketch in the article has dimensions for 1.7 GHz and uses 0.086 inch semi-rigid coax. I scaled the dimensions to 1296 MHz and found a piece of 0.141 inch semi-rigid coax with an SMA connector on one end. The wire size was the first spool found on the workbench, and the whole thing was soldered together in a few minutes, resulting in the precision assembly shown in Figure 2.

I then plugged the SMA connector into my *miniVNA Tiny* (miniradiosolutions.com) to sweep the Return Loss. With the initial dimensions, best return loss was at 1.14 GHz, so I pruned the dipoles proportionally to move it up to 1296 MHz. As can be seen in Figure 3, I trimmed a bit too much, so it ended up tuned to 1340, but the Return Loss is still a very good 22 dB at 1296 MHz. I couldn't find my tool for putting stuff back on, so I figured this is good enough.

The dimensions for 1296 are 55mm for each side of the long dipole, 45mm for each side of the short dipole, and 57.5mm for the length of the balun – but leave a little extra on the dipoles for trimming. (cont.)

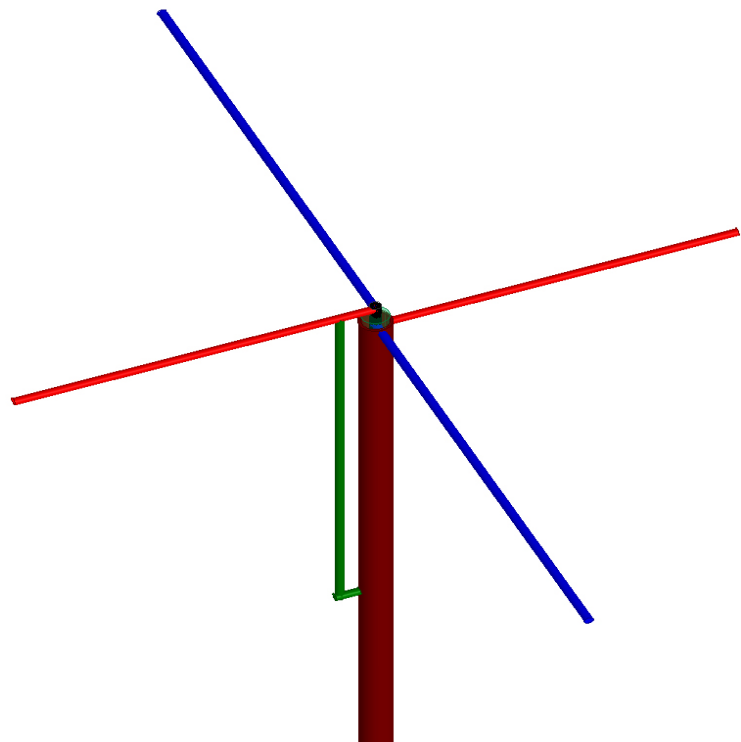
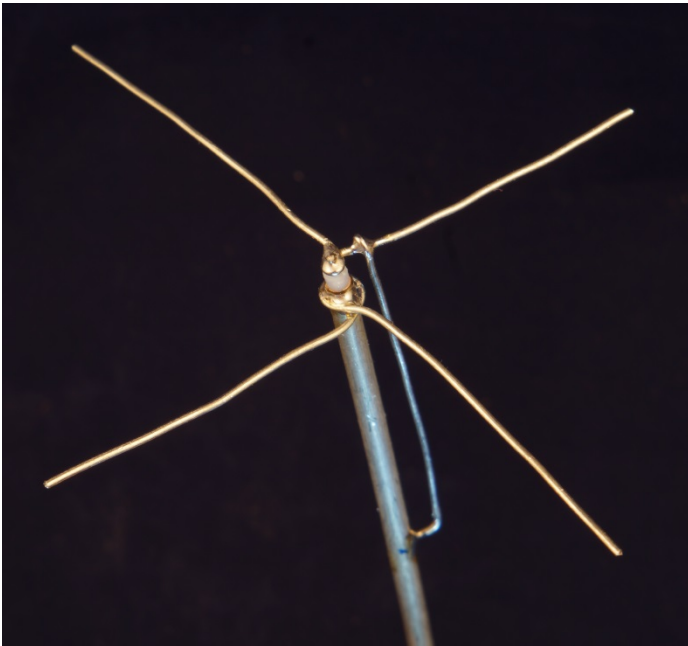


Figure 1 – Crossed Dipole Antenna



So how does it work? A quick test with both dipoles horizontal shows that the radiation favors the longer dipole and the polarization is mostly linear and horizontal. However, radiation in the boresight direction, along the coax axis, has less variation with polarization, and may be more circular. Better evaluation will require an antenna range better my shack.

But whether this is a great antenna or not, it is really simple to build, costs nothing, and is handy for a test source or local beacon or whatever. And it can be scaled to whatever frequency you might need.

Figure 2 – 1296 MHz by W1GHZ

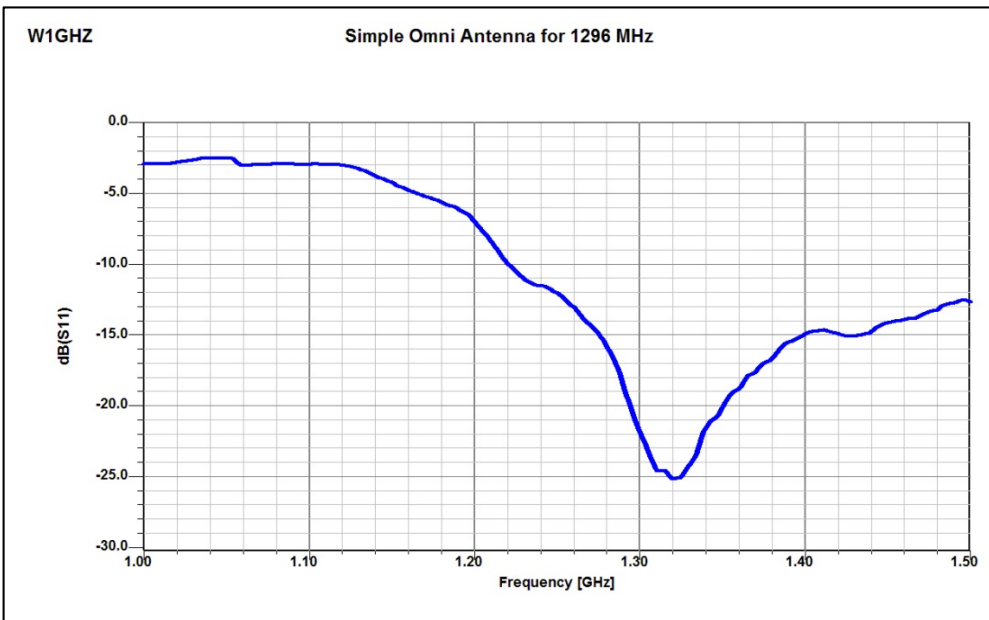


Figure 3 – Return Loss of 1296 MHz Antenna

### References

1. Son Xuat Ta, Imko Park, and Richard W. Ziolkowski, "Crossed Dipole Antennas, A review," IEEE Antennas & Propagation Magazine, October 2015, pp. 107-122 (Fig 9).
2. B. Y. Toh, R. Cahill, and V.F. Fusco, "Understanding and Measuring Circular Polarization," IEEE Trans. Educ., Aug. 2003, pp. 313-318.





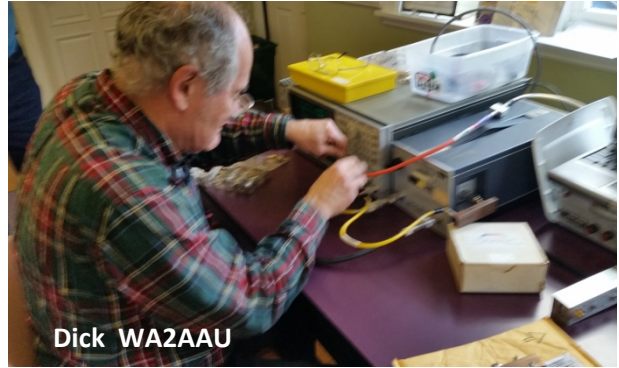
John N2OY

## NEWS Group Measurement Session

There was an impressive array of instrumentation on hand at the January NEWS Group meeting. Dick, WA2AAU, John, N1OY, and Robert, K12L, ran the equipment for those who brought their various devices to be measured.



Robert K12L



Dick WA2AAU

## Tower Work at W1SMS

Steve, W1SMS, like many others, took advantage of the unseasonably warm weather to do antenna and tower work. Here is Steve's rundown of what he was able to do:

"Had a 45 degree day - work started at 8:30 AM and ended at 7:00 PM (via flashlight). Tower top at 135', 2m/440 vert at 145', 33-ele/432MHz at 140', 8-ele/50MHz @130'. More to come as WX allows. SMS"



13th Top Section Fastening

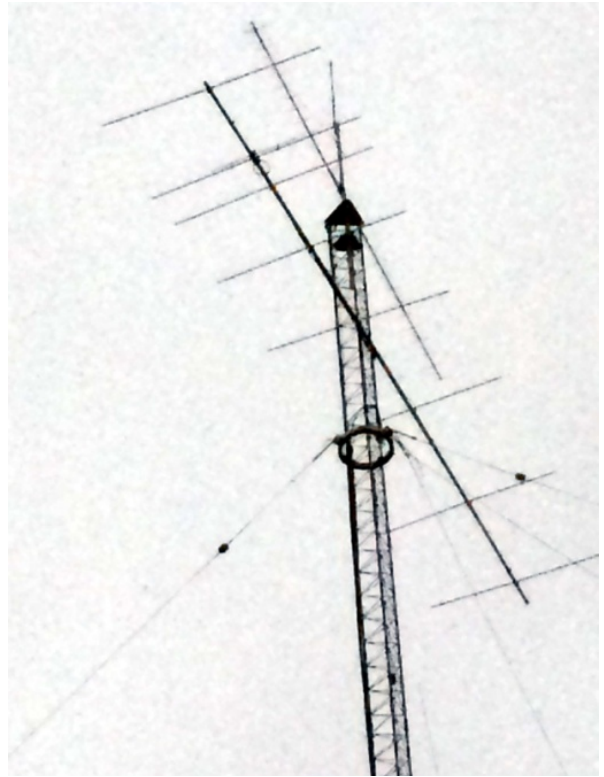


Attaching the FO33 432

## More of the tower work at W1SMS



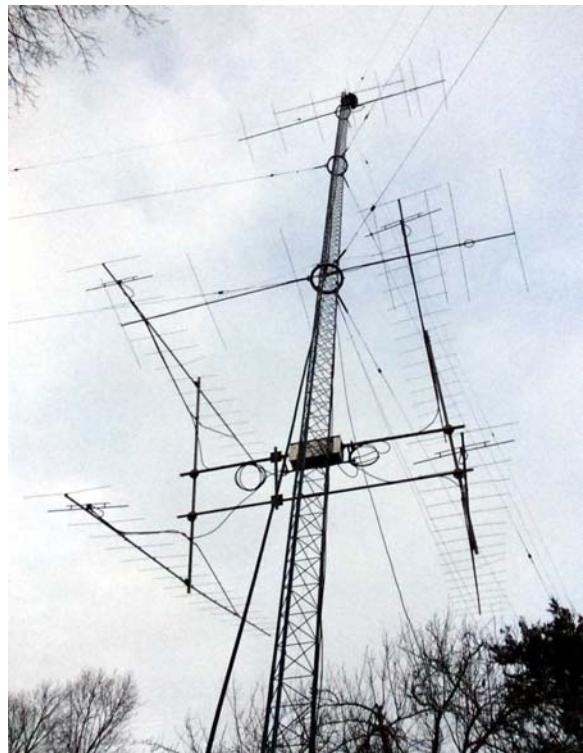
6M Yagi Being Attached



Stack - View from East



Tram Wire in Place



Stack as of 1-10-2016



## Tower Work at KC1V

The weather New Year's Eve Day was favorable and I was able to complete the installation of my recently acquired 65-foot Rohn 45G fold-over. It replaced my 40-foot self-supporting telescoping US Tower MA40. As the 45G required guying, a major part of the project was the installation of the concrete guy anchors. The four anchors each required approximately 1.8 yards of concrete. I now have more invested in concrete than I do in any of my radios!



It starts with a lot of digging...



a lot of rebar...



and lots and lots of concrete.



The bottom part went up one section at a time, with a gin pole.



The fold-over portion was assembled from the ground, from the back of a pickup.



Seeing the top section rise into place the first time was pretty exciting. We finished New Year's Day.



I can't imagine cranking this one up by hand! The winch raises it in less than two minutes.



# 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](mailto:w1ghz.arrl@gmail.com)) or Stephen, N2CEI ([n2cei@downeastmicrowave.com](mailto: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.

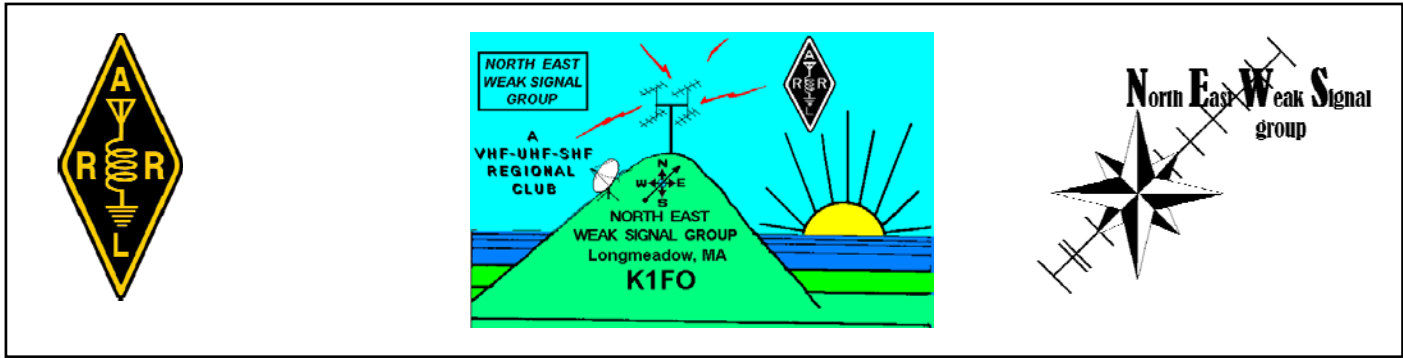
After March 15, registration cost will increase to \$99  
and the banquet cost will increase to \$49.

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](mailto:kc1v@arrl.net). Dues are \$15/year. Remember, this group is formed by VHF'ers for VHF'ers.

Mail to:

North East Weak Signal Group  
 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!