



# THE COMPASS

Official Newsletter of the Great South Bay Amateur Radio Club

May 2015

Volume 43

Issue #5

## Upcoming Club Events

### Next General Meeting:

Thursday, May 28th,  
8 PM at the EOC

### Our First Upcoming Special Events for 2015:

Air Power Museum  
Republic Airport,  
Farmingdale, NY  
May 16th & 17th

GSBARC's FREE license classes are on Tuesday evenings from 7:30 to 9:30 PM. A New Technician Class is starting on Tuesday evening, May 26th at 7:30 PM. Books available (8) at the EOC.

Visit us on Facebook at [www.facebook.com/gsbarc](http://www.facebook.com/gsbarc)



 **W2GSB**

 **Tuskegee Airmen P-51C Mustang**

W2GSB's Next Upcoming Event... American Air Power Museum in Farmingdale, May 16 & 17 (Note: this is *not* the W2GSB QSL card—ed.)

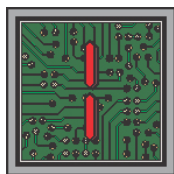
## Inside this issue of The Compass...

- Insertion/Reflection Loss
- AMSAT News
- Dr. Duino
- KB6NU's Guest Column
- Inside the Squirrel Cage (a column)
- New Technician Class Starting

## Upcoming Special Events

- Air Power Museum  
May 16th & 17th
- Field Day  
June 27th & 28th
- Maggie Fisher Cross Bay Swim  
July 17th
- Fire Island Lighthouse  
August 15th & 16th
- Babylon Village Fair  
September 13th
- Hope for the Warriors Run  
November 7th (Sat)

# President's Message



It's May 10, 2015, happy belated mother's day to all you moms out there.

Spring is here bringing with it lots of amateur radio things to do.

For starters we've had the MS Walk at Belmont State Park, thank you to all that helped out with that event. Next up is Armed Forces Day weekend and our special event station at the American Air Power Museum at Republic Airport in Farmingdale. We also have our first [GSBARC QSO Challenge](http://www.gsbarc.org/QSO_Challenge15.htm) starting on May 15th. Visit this link, [http://www.gsbarc.org/QSO\\_Challenge15.htm](http://www.gsbarc.org/QSO_Challenge15.htm), on our club web page to make sure you get in on the fun!

Now that the weather is improving it is time to get started on those antenna projects you've been putting off all winter. If you need help be sure to let us know, the antenna committee crew is awesome.

To paraphrase "Game of Thrones" field day is coming! We have been very busy getting the tri-band beam antennas rebuilt over the winter and have also started work on the trailer tower. Ed, KD2ADC, has been working in his spare time at night in order to get them in shape with time for testing before field day weekend. He's also rebuilt two rotators which will be used with them for field day. This year both the Phone and CW teams will each have use of a beam on a tower complete with a rotator—no more dragging the rope around to change beam headings.

We are going to start working on the trailer and dipoles on the 23rd outside the EOC. There's a lot that needs to

be done to ensure that we don't encounter any unexpected problems during field day setup so we can be all up and ready to operate when noon comes around.

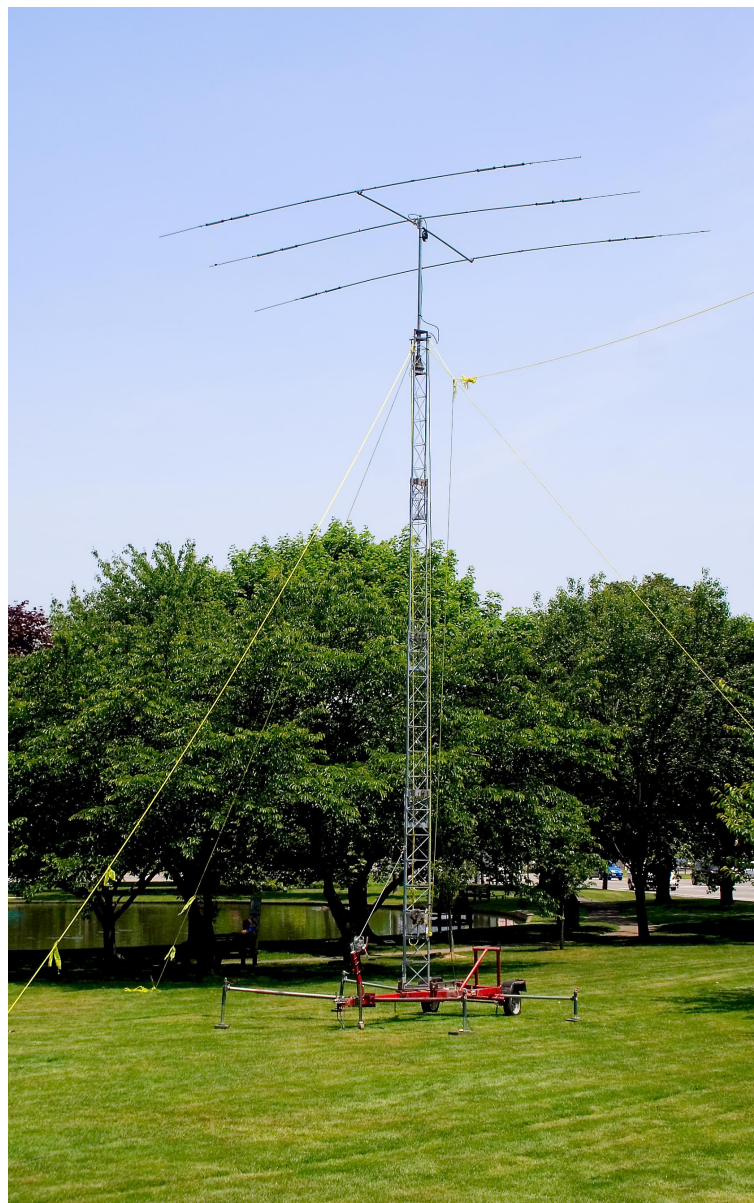
So far we have 75 people who have confirmed they will be coming down to help setup and operate this year's field day, the bigger the turn out the better.

If you can't make it down during the day try to make it for evening and overnight operations. We always need operators for the midnight shift and we're going to be running 6 stations this year.

Great job to all of you who worked the *N2L Lusitania Special event*, I hope you all had a good time with your pile-ups!

I hope to see everyone at the general meeting on the 28th.

73. John Melfi, W2HCB 

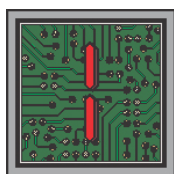




# In the Classroom with AB2ZI

## Your Loss is Your Gain

by Kevin Morgan, AB2ZI



In amateur radio we often hear terms for loss thrown around but there are 2 terms which may be confusing to some, those are *Insertion Loss* and *Return Loss*. Of the 2 Return Loss is the more confusing so I'm going to start with Insertion Loss.

The definition of Insertion Loss says it is “*the attenuation, or loss in signal power, resulting from the insertion of a component, such as a connector or splice, in a circuit. Insertion loss is measured as a comparison of signal power at the point the incident energy strikes the component and the signal power at the point it exits the component.*” Insertion Loss, IL from here on, is usually given in units of decibels (dB) but could also be given as a coefficient or fraction. All this is saying is that we're looking at how much signal makes it from the input of connection or device to its output. This could also be measuring the insertion loss from the start of a coax run to where it connects to an antenna. Stated mathematically it's just our friendly formula for decibels of power:

$$IL = 10 \log \left( \frac{P_{out}}{P_{in}} \right)$$

Here's an example: Let's say we want to know the insertion loss in a run of coax. We put in 100 watts at one end and get out 79 watts at the other end. Insertion loss is then:

$$IL = 10 \log \left( \frac{79}{100} \right) = 10 \log (0.79) = 10(-0.1) = -1dB$$

Insertion loss is then 1dB because we are losing 1 decibel of power in the coax. The more insertion loss, the more power we lose in the cable (or device).

Now let's look at Reflection Loss. Reflection loss is the ratio of the reflected power to the input power, or:

$$RL = 10 \log \left( \frac{P_{refl}}{P_{in}} \right)$$

In the case of reflection loss we want a large dB number, not a small one. If you are measuring a coax connected to an antenna with a network analyzer and its output is showing 0dB for reflection loss what does that mean? Well, first consider what zero dB means. Zero dB is a ratio of one (1). That means the reflected power is equal to the input power. If reflected power equals input power, and we're putting 100 watts into the coax then we are also getting 100 watts reflected back to the transmitter! Try the numbers in a calculator yourself. The log of 1 is zero.

If instead we see a reflection loss of -16dB (a factor of 1/40th), for example, then we only have 2.5 watts of reflected power. A much more desirable condition.

Remember that we are talking about losses here, not gain, so all our decibel numbers are going to be negative. 📡

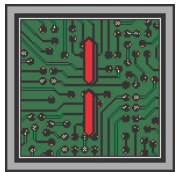
## Technician License Class

A new Technician License Class is starting on Tuesday night, May 26th at 7 P.M. Classes will run from 7:30 to 9:30 P.M. for 11 weeks and will include a test session on the last night of class.

Classes at Great South Bay Amateur Radio Club are always free!

Text for the class is the ARRL Ham Radio License Manual, 3rd edition. Books are available at the ARRL Website for \$29.99 plus tax and shipping or you can buy them from us for \$25. We currently have 8 copies in stock. Contact Kevin, AB2ZI for more information at [AB2ZI@arrl.net](mailto:AB2ZI@arrl.net)

# Dr. Duino™ Debugging and Arduino Learning Shield

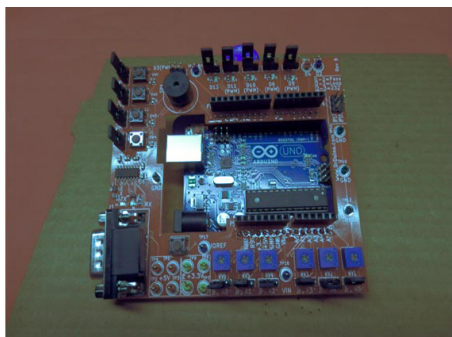


I bought an Arduino a couple of years ago and it sat in its box since then. Way too many projects that I had waiting since buying it. I happened to see an advertisement for the Dr. Duino™ Debugging and Arduino Learning Shield. It explained that it broke out all the leads on the Arduino for easy testing and debugging.



The picture shows the parts that come with the kit. As always, check the parts list against what has been delivered.

The second picture shows the completed unit with the Arduino UNO mounted. Total time to put it together



was 4 hours. The connector pins are somewhat difficult to get started and keep in line. The instructions mention the necessity of keeping the connectors in a straight line for mounting the Arduino. For more information take a look at the web site: [www.drduino.com](http://www.drduino.com).

The manual for building is very well laid out with big pictures so you don't have to squint to see what goes where. There are also test procedures to be downloaded. Hopefully after my surgery I will have the time during my rehab to do some testing.

I would also like to point out that this company is located right here on Long Island in Holbrook. 📍

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## AMSAT N.A. OPPORTUNITY FOR RIDE SHARE TO GEOSYNCHRONOUS ORBIT

*Posted on April 25, 2015 by K9JKM*



*(L-R) Sonya Rowe, KK4NLO; Jerry Buxton, N0JY; Bob McGwier, N4HY; Franklin Antonio, N6NKF; Tom Clark, K3IO; Michelle Thompson, W5NYV; and Phil Karn, KA9Q standing next to the Aquila M8 Bus flight article.*

AMSAT is excited to announce that we have accepted an opportunity to participate in a potential rideshare as a hosted payload on a geosynchronous satellite planned for launch in 2017. An amateur radio payload, operating in the Amateur Satellite Service, will fly on a spacecraft which [Millennium Space Systems](#) (MSS) of El Segundo, CA is contracted to design, launch, and operate for the US government based on their [Aquila M8 Series Satellite Structure](#).

A meeting to discuss this potential rideshare took place on April 13 at Millennium Space Systems that included Dr. Bob McGwier, N4HY; Sonya Rowe, KK4NLO; Franklin Antonio, N6NKF, co-founder of Qualcomm; Jerry Buxton,

NOJY, AMSAT Vice President of Engineering and member of the board for AMSAT-NA; Dr. Tom Clark, K3IO, Director and President Emeritus of AMSAT-NA; Phil Karn, KA9Q; and Michelle Thompson, W5NYV.

Hosting the meeting for MSS were Stan Dubyn as founder and chairman of MSS, Vince Deno as president of MSS, Jeff Ward, K8KA, of MSS as VP for Product Development, formerly with SSTL and University of Surrey Space Center, and Ryan Lawrence of MSS as Project Manager on the spacecraft mission. Attending by telephone were Dr. Jonathan Black, Associate Research Director of Hume Center for Aerospace Systems and Associate Professor of Aerospace and Ocean Engineering and Dr. Michael Parker, KT7D, founder of RINCON Research Corp.

Following the meeting, Dr. Bob McGwier, N4HY, Director of Research at the Hume Center for National Security and Technology of Virginia Tech, and former director and former VP Engineering of AMSAT, described this as an opportunity to go forward with “AMSAT-Eagle” which, in the 2006-2008 timeframe, evolved into a microwave payload to be flown to geosynchronous orbit as a hosted payload. It would have provided digital communications to small terminals on the ground and a linear bent pipe transponder had it flown. This failed to go forward in part due to lack of an affordable flight opportunity.

McGwier outlined the next steps toward developing this mission:

- 1) To organize an effort at Virginia Tech to make a firm proposal to MSS and its US government sponsor, and organize an effort to raise sufficient funds to pay for development of the mission.
- 2) Enable Dr. Jonathan Black to lead the construction project at Virginia Tech in the Space@VT Center. Sonya Rowe, KK4NLO, Project Manager at the Hume Center will be the project manager.
- 3) Work for development of a low-cost microwave ground station for amateur radio still needs to be determined.
- 4) Dr. Michael Parker, KT7D, will solicit the cooperation of the Rincon Research Corp. for development of the software radio technology for this payload.

The AMSAT Board of Directors has accepted the invitation to participate in this potential rideshare payload opportunity. AMSAT expects to be involved in the development of the ground station and the payload RF development, and will serve as the amateur radio (hosted) payload operator once the satellite has been launched.


McGwier summarized, “The launch is currently scheduled for 2017 and the payload must be delivered for testing and integration by Spring of 2016. It is an ambitious schedule and all involved will have to gain and maintain

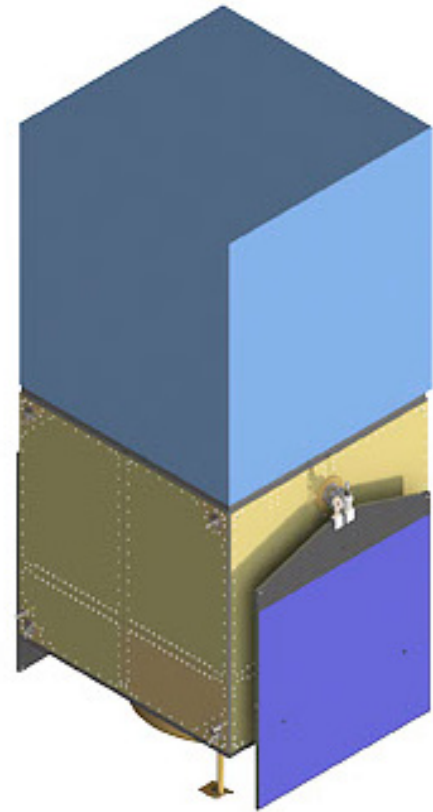
a serious level of commitment to that which they agree to undertake.” AMSAT President, Barry Baines, WD4ASW, said, “The AMSAT leadership is excited to fly a Phase-IV geosynchronous amateur satellite payload. This is an evolving development as we collaborate with the VT Hume Center with a project that provides technical challenges to create a new amateur radio capability in space that will provide a variety of benefits not only for amateurs but also for emergency communications and STEM educational outreach.”

The transponder is expected to support a wide range of voice, digital, and experimental advanced communications technologies. A decision is expected soon specifying the microwave uplink and downlink bands.

[Join and support AMSAT on this link!](#)

[Click here to download this page in PDF format for a handout at club meetings and hamfests.](#)

This entry was posted in [AMSAT-NA News](#), [New Satellites](#) by [K9JKM](#). Bookmark the [permalink](#). 



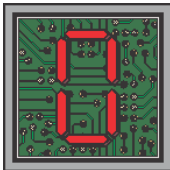
[Millenium Space Systems](#) M8 Series Satellite: Scheduled to fly in 2016 as a GEO platform, the AQUILA M8 EELV-class bus can also be deployed for LEO, MEO, and deep-space missions. With baseline payload power of 2500 W (options up to 10 kW), bi-propellant propulsion and single or dual-string avionics, the M8 is a top-of-the-line “small satellite” bus.



# What Would You Do?

By Dan Romanchik, KB6NU



 For the past three or four years, I've been threatening to buy a new radio to replace my ICOM IC-746PRO. The IC-746PRO is a great rig, though, and I've had trouble pulling the trigger on a \$3k – \$5k or more purchase. The radio that I've had my eye on is the Elecraft K3. Without a doubt the K3 is a better rig than the 746PRO, and it's certainly worth the price that Elecraft is asking. The question I keep asking myself, though, is, "Am I going to have \$5,000 more fun with a K3?"

To put it another way, the question is, assuming that I have a \$5,000 budget to spend on amateur radio gear over the next year or two or three, what's the best way to spend it? How can I maximize my purchases so that I have the most fun?

At this point, I think that I've decided not to buy that new rig and instead buy equipment that will help me make my own rigs. Some of the items that I have my eye on include:

- \* Aoyue 968A+ SMD Digital Hot Air Rework Station (I have actually already purchased this unit.)
- \* Rigol DS1102E 100MHz, Dual Channel, 1 GSa/s Digital Oscilloscope
- \* Rigol DSA815-TG Spectrum Analyzer
- \* A more professional workbench to replace the folding table that I'm currently using.
- \* Peaberry SDR V2 Kit
- \* More keys! I'd love to get a fancy Begali or N3ZN paddle, and the other day someone told me about the UR5CDX keys, which look like great deals.


Even if I purchased everything on this list, I'll have spent less than \$5,000.

One consequence of going this route is that I'll have less

time for operating. I'm betting (hoping?) that the extra time spent on tinkering will be just as much fun, or even more fun than I'm having now.

It also means that I'll be going to Dayton with a much different mindset than I have the past couple of years. Instead of spending my time configuring the perfect K3 in my head, I'll be looking for kits and scouring the flea market looking for parts.

I may be overthinking this, but like most amateurs, I have a limited budget to spend on amateur radio. That being the case, making conscious decisions about how to spend that money should help me have more fun with ham radio, and that's the goal, isn't it?

What do you think? Is this the right way to go, or am I going to regret this decision? If you've made a similar decision, I'd love to hear from you. 

*When not making crucial decisions about his amateur radio career, you'll find KB6NU working on updates to his "No Nonsense" study guides, teaching one-day Tech classes, or blogging about amateur radio at [www.kb6nu.com](http://www.kb6nu.com).*

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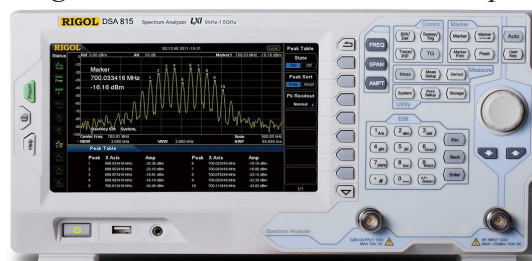
*Here are some of the items on KB6NU's Christmas Wish List...*



*Aoyue 968A+ SMD Rework Station*



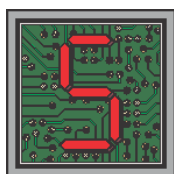
*Rigol DS1102E 100 MHz Oscilloscope*



*Rigol DSA815-TG Spectrum Analyzer*

# Inside the Squirrel Cage

by Caryn, KD2GUT



itting out on the deck with my HT and new copper JPole (a gift from a ham friend), I couldn't have asked for better reception -- all because of Gray Line Propagation.

Except this was mid-morning, not the dusky hour of ionospheric transformation. And I was on 440, not the 10 or 15 meter band.

Besides, this Gray Line wasn't hovering above me, twinkling beneath the E and the F layers; it surrounded me, dancing at my feet where, one by one by one, an ever-growing explosion of squirrels came parading in to burst through my QSOs. (In the fullest of propagation modes, these critters - when not engaged in their mating rituals - showed I wasn't the only one who could hit a repeater!)

On that recent spring day, my open-air home shack made its sun-drenched debut on the backyard deck. For the foreseeable months ahead, daytime DXing will now happen largely courtesy of EchoLink and IRLP, and every other QSO under the sun will be local. I'm officially in Daylight Saving Time mode, sporting some seasonal solar flair, and my shack has as open a floorplan as anyone could want: Calling CQ, I get to experience goldfinches and bluejays engaging in that call's avian equivalent. At the same time, the brazen bushytails deliver their own collection of "SQL cards," honoring their collective promise to not match the resistance of my coax to that of their formidable incisors.

It's spring, and I want to be outside: The HF shack is now reserved for rainy days and nighttime -- unless I'm working a special event, a contest, or holding up my end of a pre-arranged daytime ragchew with a friend.

OK, so it's not the Great Outdoors experienced by more adventurous island-hopping hams. In fact, SOTA

vets would likely wince to hear how much I enjoy my Summits On The Deck. Still, it does offer some waterfront (birdbaths do count), some wilderness (as confirmed by our Backyard Habitat Certification from the National Wildlife Federation.) Plus I am engulfed by mountains - almonds to the left of me, walnuts to the right.

Perhaps most importantly, though, plumbing awaits just on the other side of the sliding glass door. Yes, that matters. Because even though nature calls us hams to be outside at this time of the year, sometimes nature calls us indoors too -- where good reception counts just as much. ☺

## *Help Support Great South Bay ARC by purchasing a book of raffle tickets.*

Money raised from our yearly raffles helps to pay for food at work parties, supplies and parts for the trailer, antennas and extra radio gear.

This year's raffle has 5 prize levels with the winner's choice of cash or HRO Gift Certificate. Every ticket bought has 5 chances to win! Tickets are \$5 each or a book of 5 tickets for \$20. Prize levels are:

<i>Grand Prize</i>	<i>\$250</i>
<i>2nd Prize</i>	<i>\$200</i>
<i>3rd Prize</i>	<i>\$150</i>
<i>4th Prize</i>	<i>\$100</i>
<i>5th Prize</i>	<i>\$50</i>

*Tickets available at any meeting or open house.*



# YAHOO!

**GSBARC has a New Yahoo Group and the old one has been deleted**

**If you are a member in good standing and want to join the club's new Yahoo group, go to:**

<http://groups.yahoo.com/neo/groups/gsb-arc/>

**and click on "Join Group" Be sure to add a note when filling out your information with your call sign so we know who you are!**

## Club Apparel

Want a shirt, jacket, hat, sweatshirt or t-shirt with a Great South Bay club logo? We now use *Mr. Shirt*, located at 80 East Montauk Hwy in Lindenhurst ([www.mrshirt.com](http://www.mrshirt.com)). Now you can get color matched backgrounds on your logo too. Check them out...

## ARES/RACES Information

### Div. 1—Town of Babylon ARES/RACES

Net: 146.685/R, Mondays 8:15 PM  
EC/RO: John Melfi, W2HCB, (631) 669-6321

### Div. 2—Town of Huntington ARES/RACES

Net: 147.210 MHz +600/ PL 136.5,  
Mondays 7:00 PM

EC/RO Steven W. Hines, N2PQJ, (###) ###-####

### Div. 3—Town of Islip ARES/RACES

EC/RO: John J Blowsky, KB2SCS, 631-467-2410

### Div. 4—Town of Smithtown ARES/RACES

Net: 145.430 MHz, PL136.5, Mondays 7:30 PM  
EC/RO: Joe Albertus, KB2IOE, 631-664-6709

### Div. 5—Town of Brookhaven ARES/RACES

EC/RO: Ted Debowy, AC2IR, 631-751-6576

### Div. 6—Riverhead ARES/RACES

EC/RO: Donald Rollock, W2EUL, 631-929-0705

### Div. 7—Southampton ARES/RACES

EC/RO: Dennis O'Rourke, KB2ZWW, 631-728-5424

### Div. 8—Southold ARES/RACES

EC: Don Fisher, N2QHV, 631-765-2757  
RO: Charles Burnham, K2GLP, 516-779-4983

### Div. 9—East Hampton ARES/RACES

EC/RO: Nat Raynor, N2NEI, 631-324-3738

### Div. 10—Shelter Island ARES/RACES

EC/RO: Neal Raymond, N2QZA, 631-749-9330

## Suffolk County

### ARES/RACES Net:

Mondays 2100 Local - 145.330/R (136.5 PL)  
Alternate Frequency - 145.370 (136.5 PL)

## New York State

### RACES Net (HF)

Sundays 0900 Local, 3993.5 KHz LSB

## 2015 VE Session Dates

- May 23rd
- June 20th (3rd Sat. due to Field Day following weekend)
- July 25th
- August 22nd
- September 26th
- October 24th

All sessions are at the Town of Babylon EOC, located in the basement in the rear of town hall. Please bring photo ID, a copy and your original amateur radio license (if you have one), and any CSCE's you may have. Non programmable calculators are allowed. The exam fee is \$15 payable by cash or a check made out to "ARRL VEC".



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## Need Antenna Work?

Sign-up on the list at the EOC. Please supply as much information about your situation so the committee can be properly prepared with assistance and tools when they come to your QTH.

## Club Name Badges

Club name badges are available from *The Sign Man* ([www.thesignman.com](http://www.thesignman.com)) of Baton Rouge, LA.

The badges which are 1-3/4 in. x 3 in. If you visit The Sign Man's webpage you can order the badges by using a drop down selection on the orders page and clicking on "Great South Bay ARC - NY"



# W2GSB

## ELMER

GREAT SOUTH BAY A.R.C.

## May Birthdays

Phil, KD2GFO  
 Ron, KD2TT  
 Peter, KD2BAN  
 Justin, K2ZMB  
 Glen, KC2QIQ  
 Pete, W2JV  
 Mike, W2MEB  
 Frank, K2LI  
 Ed, K2LCK  
 Art, WA2KXE  
 Alan, N2CRV  
 Jim, WA2CDK  
 Brian, AC2AJ  
 Adam, W2AEM



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