



THE COMPASS

Official Newsletter of the Great South Bay Amateur Radio Club

February 2016

Volume 44

Issue #2

Upcoming Club Events

Next General Meeting:

Thursday, Feb. 25th,
8 PM at the EOC

Dues are now Overdue!!!

Pay at any meeting or by PayPal on the club's website: www.gsbarc.org (see PayPal link at the bottom of this column)

GSBARC's FREE License Classes Tuesday nights 7-9:30 PM. Currently Running. Extra License Classes

Open Houses on Wednesday nights from 7:30 to 9:30 p.m. and also Saturdays from noon to 3 p.m

Visit us on Facebook at www.facebook.com/g sbarc

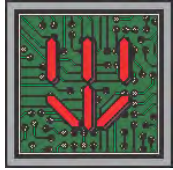


George K2KVI inventories new equipment.

Inside this issue of The Compass...

- The Toys Have Arrived!
- Inside the Squirrel Cage (a column)
- K2IZ Opines on Split Operations
- Installing the New Smart Display Board

President's Message



Well, it's official: As I started to write this month's message, it's still a marshmallow world outside. I hope everyone made it through the blizzard with no problems. I know it's a pain when it snows, but it is what it is. As always, you were all ready to jump into action -- but we were told to sit tight and be ready.

I want to thank all the operators who took part in the on-the-air operations for the duration of the blizzard. Here in Babylon, we had our local net covering all of our towns as well as the Nassau County SKYWARN net.

Liaisons with the Islip and Huntington Nets were also maintained all at the same time thanks to our well-equipped operators. Then we got word of a digital net going on 40 meters from AC2MI Keith so we all tuned down to the frequency and there it was: Olivia/MSFK Weather reports coming in from Pennsylvania, New Jersey – and now, us. The Pennsylvania ARES group started the net and welcomed our reports.

OK, what is Olivia? It's a digital mode of communication that works very well in sending such forms as weather reporting forms, NTS forms, Radiograms and FEMA ICS Forms. We all were using FLDIGI with FL message and some of us had to use FL rig control.

Now you're probably wondering: Where do I get this and how much does it cost – right? First, it's free! And you can download it right from our website under "downloads." Thanks to K2KVI George for getting that up on the website. If you want to be ready for the next big storm or want to copy any digital signals, this will get you there. No

worries: There is plenty of help if you get stuck or can't get it working. We all know that GSBARC is like a family to a lot of our members and we always help who ever we can. (FYI: I have it set up on HF and VHF/UHF -- the Signalink link works great with my Kenwood TMV-71 and a laptop.) I would like to recommend that if you're involved in ARES this is a great tool to have so please make sure you have it on a computer or laptop that you use for ham radio operations.

So what else is going on? Well, the new equipment has been rolling in! New radios, power supplies, laptops, generators etc. We are still waiting for some more equipment to arrive and soon. You will see the changes at the EOC. I would like to thank KA2CAQ Walter and KC2SYF Mike for meeting the truck with the DX Engineering order on Feb. 5. W2JGH took delivery of the smart board on Feb 6th



George, K2KVI inventories the new equipment.

So how are we keeping track of all this new equipment? Thanks to K2KVI George for setting up a program to scan the equipment's barcodes and then our Asset Tag barcode. All of the equipment was tagged before it went down to the EOC.

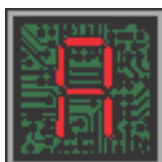
The generators were delivered to the QTH of W2YW Bob and KA2KZT Donna, then loaded into their two Jeeps and delivered to my QTH so I can prep them for use. Also they will be recorded and scanned into the new inventory system. A big thank you to Bob and Donna for doing this. We needed to have it delivered by a large truck and it needed to be signed for.

The speakers for the touch board and mount got delivered on Friday, Jan. 29. All the generators have been tested and scanned for inventory as of Jan. 30. K2KVI and I did the task of prepping the generators, tagging them and transporting them to the EOC. Also we have started the upgrading of the EOC. We have replaced the mono band radios with two new IC-5100 radios. One of the mono band radios is now to be in the meeting room. Also for radio programming, we are in the middle of moving all the software to a laptop,

Continued on page 4...

Inside the Squirrel Cage

by Caryn, KD2GUT



ctive on the HF bands from almost anywhere in the U.S., all while marking a glorious 100th birthday, our national parks surely qualify as the Ultimate OM.

From our own Fire Island National Seashore to Mississippi's Natchez Trace Parkway (which I worked this month) to California's Merced National Wild and Scenic River, the ARRL's National Parks on the Air event has bestowed a year of opportunity for hams to think (and operate) outside the box that we otherwise know as our home shacks.

Al fresco operating is nothing new, of course. But this singular celebration mirrors neither SOTA nor IOTA. This is in a class by itself. It's a way for the amateur community to take part in the reanimation of a 100-year-old entity by using RF. (Eat your heart out, Victor Frankenstein).

But why stop there? And why power down on Dec. 31, 2016? Let's take this as inspiration for those of us challenged to secure precious air time because of our full-time jobs or other schedule conflicts. The implications of NPOTA are vast: One inspiring upstate operator, Steve Mussi, KD2ETP, staged a one-man special event, Marsh on the Air, or MOTA, last year in a soggy wetland outside Syracuse. KD2ETP also operates FLOTA, for Frozen Lakes on the Air, when the weather sets the proper conditions.

So as a horse-owner, why shouldn't I think about launching QUOTA - Quarter horses On the Air? (The greater question here is, actually, whether my dipole could double as a riding crop.) For homemakers, there could be SMOTA - Supermarkets on the Air. (Just imagine the thrill of calling CQ for Winter Field Day from inside the frozen food section of Stop N Shop). And to give amateur radio a more literary ambience, why not participate in LOTA - Libraries on the Air? (Music cannot be played on the air, of course, but has the FCC ruled against reading whole chapters from Salinger or Updike? Or there's always "Fifty Shades of Grey Line Propagation.")

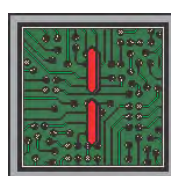
And finally, there are more basic needs to think of.

Activate the line at an all-you-can-eat restaurant, for BLOTA (Banquet Line On the Air), activate a zoo or wildlife park, and participate in GOATA, and really, who could resist a chance to activate OHOTA, Outhouses on the Air? Nature can call CQ pretty effectively, after all.

Besides, just imagine the QSL card for that last one. Then again, maybe not. ☺

THE DOWN SIDE OF "CQ UP"

by John Smale, K2IZ



've been a ham radio operator since 1971. Since then, I've held appointments as an officer for a couple of radio clubs. I've been the Section Communication Manager (SCM/SM) for the New York City/Long Island Section of the Hudson Division of the ARRL. I've also held section appointments such as: Official Phone Station, Official Relay Station, Official Observer Station, and Assistant Division Director.

Now I realize there is one appointment that is missing: Official "Up" Police.

This appointment's time has come. How many times have you heard a DX station calling "CQ Up" and someone who doesn't understand how their radio works starts sending their call on the CQ frequency? Immediately, there is a chorus of "up, up, up, up," sometimes laced with profanity. All those stations do is interfere with the DX station who is now coming back to someone. You can't tell if he's calling you or someone else -- all you hear is "up, up, up!"

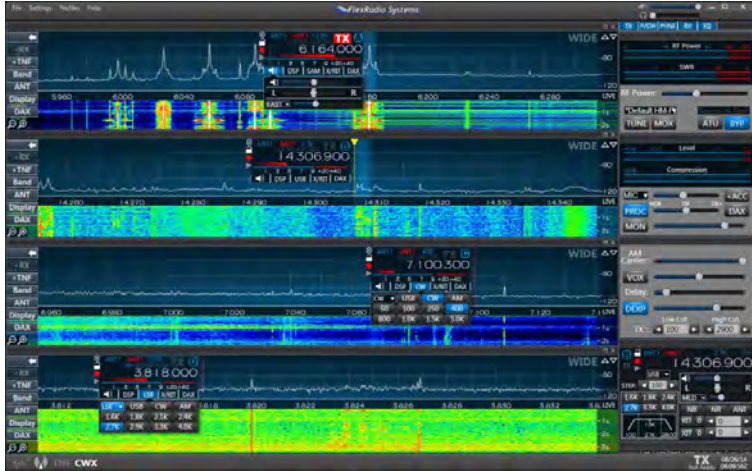
It makes you wonder what kind of a life some of these people have. It seems they are more than willing to spend large amounts of time listening to a DX station and when someone makes an error, they take it upon themselves to be the self-appointed observers/police of the frequency. They create more interference than the one station dropping their call.

Perhaps the next group that goes to a rare place should be allowed to coordinate with the Official "Up" Police. They could have them assigned to follow the DX stations around on the different frequencies, for the entire operation, and self-righteously proclaim their authority... "Up, up, up!" ☺

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so please give N2OEP a week or two to get it all up and running.

We have a lot work ahead of us, but I know that the crew is up to the task -- from upgrading all our antennas' feedlines and setting up the new gear. By the way, did you see the Flex 6500 yet? Cool radio! AB2ZI Kevin and W2YW set it up and wow, really cool. Soon the Interactive display will be installed and will give the classes a great tool -- and be a useful tool during emergencies. That's a full 70 inches for AB2ZI to show instructional videos and draw with his fingers. This will be awesome!



Flex 6500 running 4 independent receivers!

Right now the packet station is down but will be back up in a few weeks.

By the way, we will have some training on the new equipment, so if you're not sure how to use a particular piece of equipment, please ask how it works and someone will assist you. So please, make sure you're on the GSB-ARC yahoo group because a lot of important announcements come out via the yahoo group page.

As we were getting all this equipment in, we needed to take hard look at security for it so, with that said, a new video surveillance system is being installed and will send alerts to board members. If you have been to the meetings, you know how much new equipment we now have.

K2TV Bob has been very busy with QSL cards. Did you see the new lighthouse cards? They look great! Where did we get them from? We went to www.k4jsg.com -- K4JSG Jeff Gaskins does really nice high quality work!

How about Ham Nation? One of our West Coast members -- Gordon West WB6ONA -- was wearing his GSBARC shirt and mentioned us on the program once again. Our other West Coast member, John Amodeo NN6JA, has announced that the set of "Last Man Standing" will be on



Gordon West, WB6NOA, of Ham Nation wearing his GSBARC polo shirt on the air!

the air on Mondays and Tuesdays from 5 to 6 PM PST on 20 and 40 meters. That's when they take their dinner break while taping the show. Congratulations to the cast and crew on the 100th episode of "Last Man Standing." So listen for KA6LMS and see if John NN6JA is operating and say hi to our West Coast member.

Our repeater crew, headed up by WB2QGZ Bill, has some work to do as they are getting ready to get some updated and new equipment ready to be installed at several locations. Once all the work is done, it will give us a lot of flexibility. Thanks to the whole crew for all your hard work. We all appreciate it.

Have you noticed the Wi-Fi has gotten better in the EOC? Thank you to KD2GAG Joe for setting that up a few weeks ago as well as getting the laptops all ready. He will also be upgrading our security camera system soon. By the way, have you checked out the computer net on the second Thursday of the month? KD2GAG Joe is your net control for that. Joe has been in the IT computer field for a long time and is awesome with his knowledge. Check it out on the W2GSB 2-meter repeater.

We are growing! GSBARC is now at 206 members! Welcome to all our new members. We hope to see you at our events, our open houses and of course, Field Day.

National Parks on the Air is under way. I am glad to see our members going out and activating the national parks on the Island. We know that WA2ANQ Bill activated Sagamore Hill and KC2SYF Mike AND KD2GFO Phil activated the Fire Island National Seashore. KA2CAQ Walter is setting up some dates with the Fire Island lighthouse to operate from there a few times to play in National Parks on the Air.

This is a year-long event.

If you were at the January meeting, you saw that we were treated to pizzas from Babylon Central. Why? It was a thank-you for all we do to help them out. It was nice to have Barbara from Babylon Central stop by our meeting to say thanks in person. It is so nice to have a great relationship with the Babylon Central crew and the Town of Babylon. We all look out for each other and I must say it is a great feeling to know that we have a place to meet and do what we do -- from teaching classes and open houses, holding meetings and being ready for whatever happens. Our EOC will be ready.

At the general meeting, we showed a Dxpedition DVD on the K1N station that a lot of you had worked on the air. I hope you all enjoyed it. Let's continue to do all the great things we do that make GSBARC the great club that it is.

Please make sure you join the GSB-ARC Yahoo group. We send out a lot of information and announcements via the Yahoo group page. Also check us out on Facebook and of course, make sure you check out the website for all the cool stuff that gets added -- like programs and logging software, for starters.

One last thing: Starting Feb. 6, K2KVI George will be starting a robotics programming workshop. It will start at 10 a.m. and cover programming basics, Arduino overview, controlling DC motors, IR sensors and performing a simple task.

At our Board meeting we discussed what to do with the two Kenwood TS 570 transceivers. As you all know we now have a lot of nice new gear, with that said we upgraded all of our HF equipment and need to make room for it so we can get it set up.

If you are looking for a good back up radio or a starter radio this might be for you

We are selling them with the MC 60 Microphone for \$600.00.

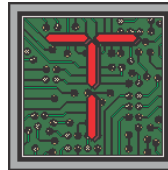
I would like to remind everyone to please pay your dues for 2016 to be a member in good standing. Dues are due by the February General meeting. I would like to welcome all of our newest members. Thank you for becoming part of GSBARC.

Members, if you have an idea that you would like to share please do! We always appreciate hearing from you -- and we especially appreciate new ideas.

John Melfi, W2HCB 

Inside the Classroom with AB2ZI

Effective Radiated Power (ERP)



The first real mention of the term *Effective Radiated Power*, or ERP, is first heard in the General License class material where it's briefly brought up. The Extra Class license is where a more comprehensive discussion of ERP takes place. So what exactly *is* ERP?

Effective radiated power is how much of the final output power from your transceiver is actually being radiated, or in some cases, how much power *appears* to be radiating. The phrase "*appears to be radiating*" is the key here because sometimes you may appear to be radiating more power than your transmitter is capable of creating. This has to do mostly with antenna gain which is usually given in one of two ways, either in dBi—decibels with respect to an isotropic radiator—or dBd—decibels with respect to a dipole. Let's examine these conventions first.

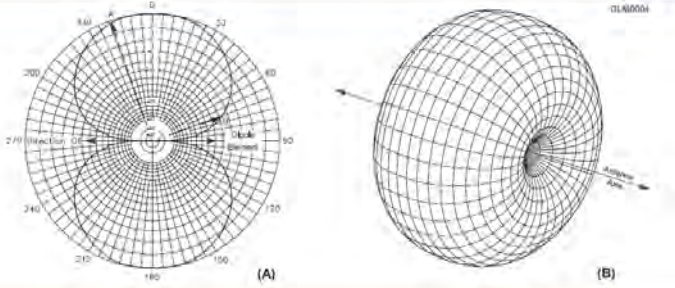
An isotropic radiator is a theoretical antenna that is able to radiate 360 degrees in azimuth and elevation. It's a purely mathematical model that doesn't exist in the real world. When you study antennas, the radiation pattern for an isotropic radiator is shown with a pattern like a basketball with the radiator (antenna) being in the core of the ball. In nature you can imagine this like the sun in the center of our solar system. It radiates light in all directions like our theoretical antenna.

A dipole, on the other hand, radiates in a toroidal (donut) pattern around the wire or element being used to radiate the energy. This pattern of a perfect donut only exists in free space, that is, *not* over ground and so it too, is kind of theoretical, at least in its ideal depiction.

A dipole, we are told, has 2.15 dBi of gain. What the heck does that mean? This means a dipole has 2.15 dB more output when compared to an isotropic radiator. They do this because even though you *can* actually build a dipole and measure it in the real world, environmental considerations, such as type of ground, height above ground, etc., can affect the power measured between 2 supposedly identical

Continued on page 6...

dipoles, whereas measuring from an ideal theoretical point gives a truer baseline. This can be confusing to a lot of hams though, since claiming an antenna gives 2 dBi of gain actually means you have *less* effective radiated power than if you were using a plain old dipole!



Ideal toroidal (donut) pattern of a dipole.

You can think of this like this: Suppose you go to the doctor's office and get weighed on their calibrated super duper accurate doctor scale. The nurse tells you your weight is 250 pounds and your doctor recommends losing some weight. You go home and weigh yourself on that pretty bathroom scale you bought and *it* says you weigh 235 pounds. Now you go on a diet and after a week your bathroom scale reads 230 pounds, how much weight did you lose? Well, relative to YOUR scale you lost 5 pounds, but since you know your doctor's scale is more accurate you can tell yourself (and your friends) that you lost 20 pounds your first week! By using the doctor's higher number and your scales lower number you get a greater difference. Of course if you go back to the doctor's office and get on her scale you'd weigh in at 245 pounds. The change on both scales was 5 pounds but by referencing your starting point on their scale and the ending point on yours you have a greater difference.

Referencing to dBi is like that. Since the dipole is a real antenna you don't get any gain from it when you use it (dBd) as the reference. But if you use the isotropic radiator for a reference (dBi) you see a gain of over 2 decibels. This is the reason QST magazine doesn't allow antenna manufacturers to give gain figures for their antennas. Too many unscrupulous advertisers would claim big numbers but forget to include whether they were referenced to dBi or dBd and in most cases it was dBi. So an antenna that had a real world gain of 3 dBd got listed as having "over 5 dB" of gain.

Now, on to ERP. Many factors affect your final radiated power. There are feed line losses, SWR losses, losses in duplexers or circulators (mostly for repeaters), and there are places where your signal can get some gain. Amplifiers and gain antennas are the chief sources for gain.

Calculating your ERP is fairly straightforward. Decibels add and subtract quite nicely, you just have to remember

that any loss is a negative decibel value and gain is a positive. For example:

Say you are using a 900 MHz FM radio in your home and are feeding your antenna 100 feet away using some leftover RG-58 you had lying around. First, you make note of your radio's output power, let's say it's 25 watts. Next get out a book or get on the Internet and Google "coax loss table" and see what the loss is for RG-58 at 900 MHz. Remember, as frequency gets higher and higher, losses increase in coax. Here's what I found online:

Attenuation (dB per 100 feet)

Coax Cable Signal Loss (Attenuation) in dB per 100ft*								
Loss*	RG-174	RG-58	RG-8X	RG-213	RG-6	RG-11	RF-9914	RF-9913
1MHz	1.9dB	0.4dB	0.5dB	0.2dB	0.2dB	0.2dB	0.3dB	0.2dB
10MHz	3.3dB	1.4dB	1.0dB	0.6dB	0.6dB	0.4dB	0.5dB	0.4dB
50MHz	6.6dB	3.3dB	2.5dB	1.6dB	1.4dB	1.0dB	1.1dB	0.9dB
100MHz	8.9dB	4.9dB	3.6dB	2.2dB	2.0dB	1.6dB	1.5dB	1.4dB
200MHz	11.9dB	7.3dB	5.4dB	3.3dB	2.8dB	2.3dB	2.0dB	1.8dB
400MHz	17.3 dB	11.2dB	7.9dB	4.8dB	4.3dB	3.5dB	2.9dB	2.6dB
700MHz	26.0dB	16.9dB	11.0dB	6.6dB	5.6dB	4.7dB	3.8dB	3.6dB
900MHz	27.9 dB	20.1dB	12.6dB	7.7dB	6.0dB	5.4dB	4.9dB	4.2dB
1GHz	32.0dB	21.5dB	13.5dB	8.3dB	6.1dB	5.6dB	5.3dB	4.5dB
Imped	50ohm	50ohm	50ohm	50ohm	75ohm	75ohm	50ohm	50ohm

* Note: Coax losses shown above are for 100 feet lengths. Loss is a length multiplier, so a 200 ft length would have twice the loss shown above and a 50 ft length would have half the loss. This multiplier factor is why you should keep cable installation lengths between radios and antennas as short as practical!

Looking at our chart we see that for 100 feet of RG-58 operating at 900 MHz we will have 20.1 dB of loss. That's a LOT of loss and we should really rethink using this coax, but OK, let's say it's all we have for now and we really want to get on the air. Our numbers are 25 watts out of the transmitter and 20 dB of loss in the coax (if we had other figures to add and subtract remember this is minus 20 dB). 20 dB is a factor of 100 so in this case we multiply by 1/100 or 0.01, or 25 watts x 0.01 = 0.25 watts ERP. Our effective radiated power is a quarter of a watt! We're probably better off just using a rubber duck inside the house.

Another example I love to use in the classes is this one: Suppose you have a 100 watt HF rig feeding a 5 element Yagi with 13 dBd of gain fed with RG-8X. If we choose 14 MHz we can estimate from the chart approximately 1.4 dB of loss. 100 watts, minus 1.4 dB (multiply by 0.72) plus 13 dB (multiply by 20) gives us: 100 x 0.72 = 72 watts x 20 = 1,440 watts ERP. Our effective transmitting power is almost as much as a 1500 watt linear amplifier would give us and we're only using 100 watt rig to do it!

I hope this clarifies the topic of ERP. If you have any questions you can email them to me at: kmorgan6@optonline.net.

New Equipment: Installing the 70" Smart Display



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). 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, KB2JOE, 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: < Unknown — no longer in state. >

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

2016 VE Session Dates

- February 27th
- March 26th
- April 23rd
- May 28th
- June 18th
- July 23rd
- August 27th
- September 24th
- October 22nd
- November 26th
- December 17th

All sessions are at the Town of Babylon EOC at 10 a.m., 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".

The Prizes for our next raffle.



1st Prize: Rigol 1054Z Oscilloscope



- 2nd Prize (left) MFJ-269C Antenna Analyzer
- 3rd Prize (right) Extech EX330 Digital Multimeter

Club Name Badges

Club name badges are available from *The Sign Man* (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"



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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.