



THE COMPASS

Official Newsletter of the Great South Bay Amateur Radio Club

July 2015

Volume 43

Issue #7

Upcoming Club Events

Next General Meeting:

Thursday, July 30th,
8 PM at the EOC

Operators Needed:
Maggie Fisher Cross
Bay Swim, Fri. July
17th. Email Tom,
N2MIG to volunteer:
Bigtom5@aol.com

John, KB2SCS, Needs
Radio Operators for
the Suffolk County
Marathon on Sept. 13th.
Volunteer at
www.islipares.org/

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

Visit us on Facebook at
www.facebook.com/gsbarc



Field Day 2015... ...Brought to you by ICOM



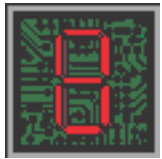
Inside this issue of The Compass...

- Field Day Photos!!!
- Field Day Totals
- Schmitt Trigger/TDR Project
- KB6NU's Guest Column
- Inside the Squirrel Cage (a column)

Upcoming Special Events

- Maggie Fisher
Cross Bay Swim
July 17th
- Fire Island Lighthouse
August 15th & 16th
- Babylon Village Fair
September 13th
- Hope for the Warriors
Run Saturday Nov. 7th

President's Message



oy oh boy what a great field day we had! All the preparation and hard work really paid off especially the refurbishing of the antennas and the tower trailer, all the time spent on dipole tuning, and the many work parties in the weeks leading up to field day—they were worth all the effort.

A very special thank you to Will Jourdain, KI4VXF, from ICOM for spending not only field day with us, but it was also his 25th birthday. Will gave us a hand with setting up a few of the radios the Friday night before field day.

Field day started for me getting up well before sunrise in order to load up my truck and tow the club's trailer up to town hall. The *JLG 860AJ* boom we used for the VHF/UHF antennas had been dropped off on Friday afternoon. Once I parked the trailer setup proceeded from north to south. Everyone on hand was performing a very important job and doing them perfectly

If you were there for lunch I hope you all enjoyed it as it is my pleasure to supply lunch for the set up crew—you all work very hard and that is the least I can do for you all. For dinner Rich, K2BBQ, once again outdid himself and his YL'S salads were awesome as well. Later in the night Pres, W2PW, made his famous *bananas foster* which I ended up missing while out on a fuel run for the generators with Walter, KA2CAQ.

Among our many visitors this field day weekend were Tony Martinez, Rich Schaffer, and Tom Donnelly who presented the club with a citation for 40 years of public service to the Town of Babylon.

Our friends from *SHTFLI* were also on hand to help with set up and they really stepped up. They saved W2JGH's shelter even while one of theirs got destroyed by the high winds. The mesh node IP camera was awesome too. They even took care of the generators for us over the long wet windy night.

Thanks to our friends at *NEWS12*. Once again they did a great job covering the event. And did you see the *Newsday* article? Be sure to get a copy and find Phil, KD2GFO, and ask him to autograph the picture of him in the *GOTA* tent.

As you know, this year's field day was sponsored by ICOM. How about those ICOM radios! How many of you fell in love with them? They performed very well even though the band conditions were not the best, but we did great.

I am so pleased with everyone's performance—you all did a great job. . I want to thank you all very much for being part of field day, from the early morning set up crew, to the operators and take down crew, you were all awesome

In closing you all make it very easy for me to say how proud I am to be the president of this great club.

73. John Melfi, W2HCB 

Field Day Totals

How did we do this year? Our score is 12,248 and breaks down like this:

SSB phone	1476 QSO's	1,476 points
CW	1949 QSO's	3,898 points
Total points before multiplier =		5,374
Power multiplier =		times 2
Our QSO points are		10,078
Total number of QSO's =		3,425

Adding in all our bonus points the total comes to 12,248

Wow! Awesome job by everyone involved in field day. Without the teamwork and dedication of many of our GSBARC members' field day would have not been a successful event. I sure hope you had fun at field day and I hope everyone has dried out and recuperated from all the hard work.

Our next HF event is the Fire Island Lighthouse August 15 & 16. We will set up two stations, one on 40 and the other on 20 meters and be the DX for the day.

Schmitt Trigger/TDR Project

By Kevin, AB2ZI



recent YouTube post by Alan Wolke, W2AEW, featured a Schmitt trigger circuit originally featured in several of Alan's excellent YouTube videos, that had been updated to a circuit board design by a ham in Spain, Marcus Jenkins, EA5IGC, who sent a completed unit to Alan in appreciation for all of his (Alan's) great videos.



I liked the Schmitt trigger videos and am always on the lookout for simple projects for the club and so thought this one fit the bill. So I ordered 20 of the boards from China and the rest of the parts from Digi-Key's website. When I got the parts I did a quick build of 5 of the boards and they all went together quickly and worked perfectly the first time. Being a success I announced the project at June's general membership meeting and arranged to be available for Wednesday open house for a couple of weeks for those interested in building them. Here's a synopsis of Alan's videos of what you can do with this project.

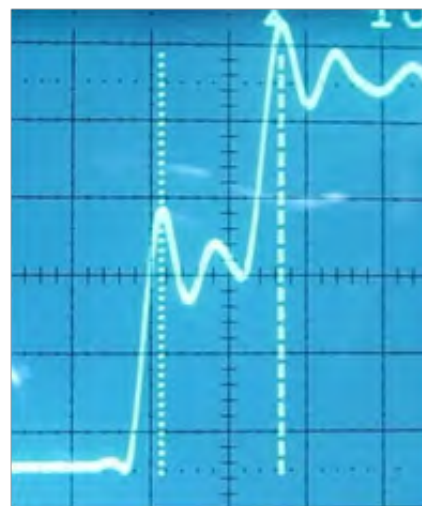
1. Measure Coax Length (with known velocity factor—VF):

a. First you need to calculate how fast signals propagate in the coax. The speed of light is 186,282 miles per second, we need to know this in inches, so we multiply 186,282 by 5,280 (feet in a mile) then multiply that number of feet by 12 to convert to inches per second.

$186,282 \times 5,280 \times 12 = \text{approx. } 11.8 \text{ billion inches per second.}$ Now divide by a billion and we find that signals move 11.8 inches per nanosecond. This figure is for free space but our coax has a VF that's a percentage of this. Typical coax has a VF of 66% so we multiply 11.8 by 0.66 and get 7.79 inches per nanosecond.

b. Now using a tee adapter we connect the ST/TDR to an oscilloscope and to the coax we want to measure. The Schmitt trigger produces a square wave with a fast rise time, in this case about 3 nanoseconds (ns). The pulses travel down the coax, reflect back from the open circuit at the end and add to the original outgoing signal. Because it arrives with a delay the waveform now looks like a pair of steps. The first lower step is the incident (outgoing) wave and the larger step is the reflected wave adding to the first: (see oscilloscope trace next column).

c. The time difference between the rising leading edges of the incident and reflected signal is twice (2x's) the travel time (out and back) of the signal through the coax. Half that time, in nanoseconds, multiplied by 7.79



Waveform showing incident and reflected wave with "step" and cursors measuring time difference.

inches per nanosecond equals the length of the coax. For example, suppose our time difference was 6.42 nanoseconds. Half that time, 3.21 ns times 7.79 inches/ns equals 25 feet.

2. Characterize (determine VF and impedance) an unknown coax:

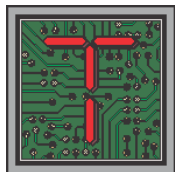
- a. Calculate the V.F.:
 - i. First you have to physically measure how long the coax is (let's use 50 feet for an example).
 - ii. Attach the ST/TDR as we did in step b. above and get the time difference incident-to-reflected. Let's say our time difference was 8.64 ns.
 - iii. Divide that difference by 2 to get 4.32 ns, call this our measured time.
 - iv. Calculate the time it would take for a wave in free space to travel the distance of the coax. In free space waves move 11.8 inches per nanosecond, so 50 feet divided by 11.8 equals 4.23 ns.
 - v. Divide the free space time by the measured time, $4.23\text{ns}/4.32\text{ns} = 0.98$. This transmission line in the example has a VF of 98%.

- b. Measure the impedance:
 - i. Make up an adapter (for coax with PL259 connectors use a barrel connector) with a potentiometer across the center pin and shield. The potentiometer should have enough range to cover whatever impedances you may encounter. For coax a pot going to 1 or 2 hundred ohms should suffice.
 - ii. Attach the adapter with the potentiometer and the SC/TDR and get your step pattern on your oscilloscope.
 - iii. Adjust the potentiometer to bring the upper step down (or up) until then are as close to the same as possible. The potentiometer is now set to the impedance of your cable.

Remove the adapter and measure with an ohmmeter and you're done! 📡

HamShield turns an Arduino into a VHF/UHF Transceiver

By Dan Romanchik, KB6NU



The Arduino seems to be making a big splash in ham radio circles these days. The ARRL has recently published a couple of books about the Arduino and Arduino-based amateur radio projects. And, recently, I purchased a NanoKeyer (nanokeyer.wordpress.com), which is a CW keyer powered by an Arduino Nano.

Now, a couple of enterprising young hams have built the HamShield (<https://www.kickstarter.com/projects/749835103/hamshield-for-arduino-vhf-uhf-transceiver>). It's an Arduino shield that turns an Arduino into a VHF/UHF transceiver. With the HamShield, you can transmit and receive on the 2 m, 220 MHz, and 440 MHz bands.

According to Casey, KC7IBT, one of the project leaders, "We have both voice and data working on the shield right now and also have a powerful library to control it."

"We also have it talking to the Chrome browser, so any computer that can run a web browser can operate a packet radio station or voice station. We also have another piece of chrome software called "APRS Messenger", a text messaging app for APRS. One of our prototypes is in a neat little case that clips right to the back of your laptop (shown in the video). I will launch these apps in the Chrome Store once we get closer to completion.

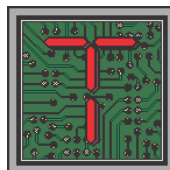
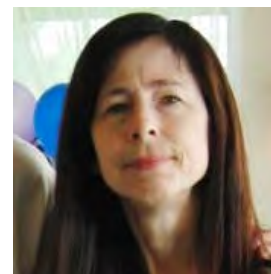
"We have 10 working prototypes currently, but need to raise money to fund the production cost and get the unit prices down to acceptable levels. This means buying parts in bulk and reducing production costs."

I think this is a very cool project, and I hope that you'll consider supporting the HamShield Kickstarter project. I plan to get one and see what I can do with it. ☺

When not playing with Arduinos, Dan operates CW on the HF bands and blogs about amateur radio at KB6NU.Com. He is also the author of the "No-Nonsense" amateur radio license study guides. His most recent book is The CW Geek's Guide to Having Fun with Morse Code. The books are available on his website or on Amazon.

Inside the Squirrel Cage

by Caryn, KD2GUT



Here are field days, and then there is Field Day.

So when the sun ended up having a field day of sorts with our planet late last month, rudely belching its coronal mass ejections into our faces, most bets were off for reliably decent HF contacts — unless you happened to be calling CQ for the Undead.

Geomagnetism had taken our atmosphere by storm, and although the accompanying Aurora Borealis put on quite a show — especially for those fortunate souls on the East End of Long Island — the shimmering visuals were small consolation. Many of us, frustrated by this sun-induced disbanding of the bands, even ejected a few of our own, unique CMEs (Cranky Malevolent Expletives), in language colorful enough to cause even the Aurora to blush.

Hams on 6 meters, however, found themselves blessed by a band on the run. Six's fickle, unpredictable nature, enhanced by that final week's solar happenings, made for the kind of intermittent DX party on VHF that HF loyalists could only envy. Happily, 6 meters got to have its own version of Field Day, though at times it was described more like a flash mob featuring a mashup of microphones and antennas.

And then there was that Field of Streams in our own backyard. A wet weather system had made its move at the end of the week and it, too, reveled in its own self-styled Field Day. Never mind rampant QRN or other band conditions: By nightfall, it was land conditions that proved to be the more significant multiplier. They imparted a whole new meaning to the message from one ham, during a particularly difficult copy, "you're down in the mud."

Part electromagnetic Olympics and part Apocalyptic fantasy, the real Field Day exercise melds a radio signal with human stamina and douses it all with an unrelenting, 24-hour stream of strong hot coffee. Yes, we still made it happen. Our tents rocked, our antennas soared and the logs were still pumped full of good QSOs. By Sunday's finish, when the clouds lifted, taking with them all the challenges of the various storms, this was ultimately the only Field Day that counted under the returning sun. ☺



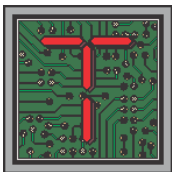
At June's General Meeting Coast Guard LTJG, Bill Dahl, W2ANQ, presented Great South Bay Amateur Radio Club with a certificate of appreciation which says: ***"In grateful appreciation of the Great South Bay Amateur Radio Clubs willingness to assist and further the Mission and Purpose of the United States Coast Guard Auxiliary.***

Over the past (5) five Years, The Great South Bay Amateur Radio Club has provided upon request with no compensation or publicity.


Direct support to the Division 13 Communications Team and USCG Station Jones Beach, invaluable assistance by providing equipment to support enhanced radio operations for the Jones Beach Air Show.

Whether through making equipment available or directly loaning support infrastructure in the form of cables, masts, or advice.

The USCG Auxiliary Division 13 Communications Team and USCG Station Jones Beach greatly appreciate their ongoing and continued willingness to serve the publics interests..



The gentleman in the VFW uniform is Jerry Schatz, W2MFW. A long time member of the club, today Jerry was honored when they named the part of St. Ann's Ave. in front of his house "Jerry Schatz Place."

Jerry was the youngest person ever to be signed to a contract with Paramount Pictures, he was in several "Our Gang" films along with Shirley Temple in *Captain January*. 

























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, 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

- July 25th
- August 22nd
- September 26th
- October 24th
- November 28th
- December 26th

2016 VE Session Dates

- January 23rd

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) 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"



July Birthdays

Kevin, AB2ZI

John, KD2BKX

Ed, KC2VUS

Joe, KC2RJW

Robert, N2CLJ



Pride Equipment

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