The Compass!

Official Newsletter of the Great South Bay Amateur Radio Club, INC.

March/April 2020 Volume 48 #3/4

ALL MEETINGS, OPEN HOUSES, CLASSES AND VE SESSIONS CANCELLED DUE TO THE CORONA VIRUS

PLEASE FOLLOW CDC, FEDERAL AND STATE GUIDELINES FOR SOCIAL DISTANCING AND DISINFECTING

WATCH YOUR EMAIL FOR ANY CHANGES AND UPDATES

STAY SAFE AND KEEP YOUR FAMILIES AND FRIENDS SAFE—WE WILL RETURN WHEN THINGS ARE BACK TO NORMAL

CORONAVI

Inside this issue:

- ***New Raffle***
- ***Inside the Squirrel Cage***
- ***Photos from Repeater and I.T. Work Party***
- ***NIST and Radio***

Long Island's Friendliest Amateur Radio Club!

President's Message

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March is here and the weather has not been that bad so far with snow. We had a great presentation at our general meeting by Stu AF2SC on batteries. He explained the hows and whys of battery types and uses. It was an eye-opener for some as he explained how to choose the right battery for a portable setup or a backup system for emergencies. Thank you, Stu it was great!

Unfortunately, due to the coronavirus we have suspended all club activities till May 28th. Sorry about that but since we value our membership, we decided to take this step to protect everyone's health. Get on those repeaters. All our meetings will be via Zoom. I will send out the info on the groups.io page. It will have a clickable link. All you need is your computer with a camera microphone and speakers.

HERE IS THE INFO FOR THE MEETING:

Time: Mar 26, 2020 08:00 PM Eastern Time
Join Zoom Meeting
https://zoom.us/j/4992515313
Meeting ID: 499 251 5313
One tap mobile: 4992515313# US Toll
Dial by your location US Toll
Find your local number: https://zoom.us/u/abFgbQJ4Ox

As you all know we had the Fusion repeater running in a test mode for a few months now and had purchased a real antenna for it. Good news! The new antenna and the Fusion / analog 446.775 repeater is up and running. For analog users it's 446.775 -5 110.9 pl encode decode. For Digital users, it's DN mode and rock and roll. WiresX is running and works great so have some fun.

Thank you to the crew that spent the last day of February dealing with the chilly windy conditions. We did some testing from several spots and the coverage seems pretty good. The 147.255 D-STAR repeater is mounted in the rack and will go on air in the near future. We will let you all know when it goes on air for you all to enjoy. Yes it will be a fully steerable D-STAR repeater. So, I want to thank the RF crew WB2QGZ, N2DBB, KI2I, KC2SYF and KD2ADC for the great Job, and I hope you all warmed up when you got home. It took a while, but I managed to so. A huge thank-you to KA2CAQ for bringing us some hot coffee to warm us up. It was much-needed as were the supplies to finish up the job.

Our annual raffle will be starting soon. Grand prize is an Anytone AT-D878UV-BT Bluetooth VHF/UHF DMR handheld with a SharkRF OpenSpot 3. Second prize will be a BuddiPole portable antenna system, and the third prize will be a Shark RF OpenSpot 2. All of the prizes are fantastic and I wish everyone the best of luck. Tickets will be available soon so make sure you get yours.

As you know we have a mode called ALLSTAR on the VHF repeater which has been there for some quite time. What does this mean? Well if you have an ALLSTAR hotspot and cannot get into the repeater due to your location, you can connect to 46571 and take part in the weekly nets on Monday nights. Or use it to stay in touch if you are one of our out-of-state or country members. Want to build your own node transceiver? Here is a link to start you on the path to another fun mode of amateur radio. Go to http://crompton.com/hamradio/baofeng888/ to see how to build your own node. Then go to the ALLSTAR web page https://allsatrlink.org request an ID. If you need help ask Pres W2PW, he is the ALLSTAR guru. There is an interface you will need. It is called a URI you can source this from this website http://dmkeng.com/URI_Order_Page.htm the one you want is called the URIxB (amateur) cost is 84.95 standard shipping included.

The Raspberry Pi 4 works great you can get one here

I built one and it works really well. So if you want to build something and be able to get use out of it this is it.

As with everything we do, our club always has fun. In the next few months we will be getting ready for special events and Field Day – yes I said it. Field Day. We always need more and more operators to come to Field Day and have a blast at our six stations! That's 3 SSB and 3 CW. The key to a great special event and Field Day is to have the radios in constant use – and for that to happen we need a lot of operators. If you need some guidance on how to operate during those conditions so please don't hesitate or be ashamed to ask us for help. Many of our experienced operators will be glad to show you how to fully be comfortable as an operator at any event. Remember at our special events and Field Day we are the DX. We call CQ – we don't hunt and pounce as they say.

Since we were having so many issues with our internet, we upgraded to FIOS 1 gigabyte internet, we also upgraded our network switch to a high speed switch and upgraded to cat 6 cable to all the computers, smartboard and Roku. We also installed the UPS for the whole internet and IT package. Since the install there have been no dropouts at all. We will be installing a weather station soon we will post the link for you all to see it in action after it's installed.

Continued on page 3

In Memoriam

Philip R. Lewis, N2MUN, the founder of Ham Radio University, passed away on March 5, 2020, after a long bout with cancer. He was 72. Phil was active right up until the end, participating in a meeting of his amateur radio club, the Order of Boiled Owls of New York, at their March monthly meeting only 3 days before his death.

Lewis was born in Brooklyn in 1947 and grew up in Inwood in the Five Towns region of Nassau County, Long Island, New York. He graduated from RCA Institutes, America's oldest radio school, and worked in the aerospace industry for Hazeltine and later BAE Systems on Long Island. He retired after 43 years. Lewis was a manager and problem solver. He was very good with people, had a positive outlook on life and would always find "a way" to get things done!

Lewis obtained his Amateur Radio license in 1991 and upgraded to Amateur Extra Class. He joined the Great South Bay Amateur Radio Club and was on its board of directors, was an active volunteer examiner and an instructor for their license class exam courses. He was active on their Field Day committee and a participant in special event stations at Fire Island Lighthouse. He was GSBARC president from 2000 to 2002.

In 1999, Lewis had the idea of creating a day of education for amateur radio. With a small, dedicated group of Long Island hams, the notion of Ham Radio University (HRU) was formed. Phil Lewis was its first committee chairman, a distinction he held from 2000 to 2003. The first annual event was held in January 2000 at Babylon Town Hall Annex in North Babylon. HRU has since grown and expanded and is now being held at its fourth different location, LIU/Post in Brookville. HRU 2020 marked the 21st annual running. N2MUN gave two forums again this year and has been on the HRU committee since its inception.

On Jan. 18 of this year, Lewis was featured in the Long Island newspaper Newsday in an article with the headline "Hamming it up on the air." For his work on behalf of Amateur Radio, Lewis was named the American Radio Relay League (ARRL) Hudson Division Amateur of the Year for the Year 2000. He was also a long-time ARRL Hudson Division Assistant Director and the ARRL New York City / Long Island Section Affiliated Club Coordinator.

Lewis kept himself busy in his retirement, building radio kits with his son, Steven, and active daily on ham radio. He had a weekly on-air schedule with his cousin Marty in Virginia who was also a ham. Lewis was an active DX'er and Contester. He was a member of the Order of Boiled Owls of New York and the Yankee Clipper Contest Club.

Besides contesting and DX'ing, Phil also enjoyed a "ragchew" on the air, easily conversing with people from all walks of life. Phil was an avid pet lover and his cats Lucky and Buddy graced his QSL cards and social media profile photos. He referred to them as his "non-paying family members."

Lews is survived by his son, Steven, cousins Carol Goodman, from Manhattan, NY, and Marty from Maryland, and his many ham radio friends. He was predeceased by his wife Iris who died in 2011 and his brother Robert.

President's Message continued from page 2

It will also be on Weather Underground as well. Some other updates: We are installing a UPSA for the repeater computers. This will ensure that when to power goes out all our equipment will stay connected for all to use for an emergency and fun.

All of the upgrades were donated to the club as to not drain the club's treasury. Thank you to all who worked hard on the install of the upgrades and also to the those who donated some much equipment for this to happen.

We will be doing a deep cleaning of the EOC as to ensure that we provide a safe area to meet after this pandemic is all over with.

I am pleased to see that our education program is going strong and we hope all that have benefited from it will take part in everything we do here at GSBARC from the Open Houses to the special events – to Field Day.

What makes a club successful? Many people have different answers to that question. My answer to that here at GSBARC is all of you are the element that makes it successful. Everyone has a special talent and when we combine all of our talents together here at GSBARC we accomplish a lot. We here at GSBARC pride ourselves as a very active club with a dedication to public service events and emergency communications. We can always use more RACES members if you are interested please let us know and we can you started.

Meanwhile, since the weather has not been too bad I hope you have playing with antennas and portable stations and enjoying the world of amateur radio.

73, John Melfi, W2HCB

How The National Bureau Of Standards Helped Make "Radio"

By Alex Boss (via KB6NU's Blog)

This was originally published as "NIST's Role in the Early Decades of Radio (1911-1933)" on the National Institute of Science and Technology's blog, Taking Measure—Dan

Even if you weren't able to watch the recent Super Bowl on TV, you could still listen to the play-by-play commentary on the radio. But radio does more than just broadcasting sporting events or playing music. It plays a major role in emergency response, navigation and science.

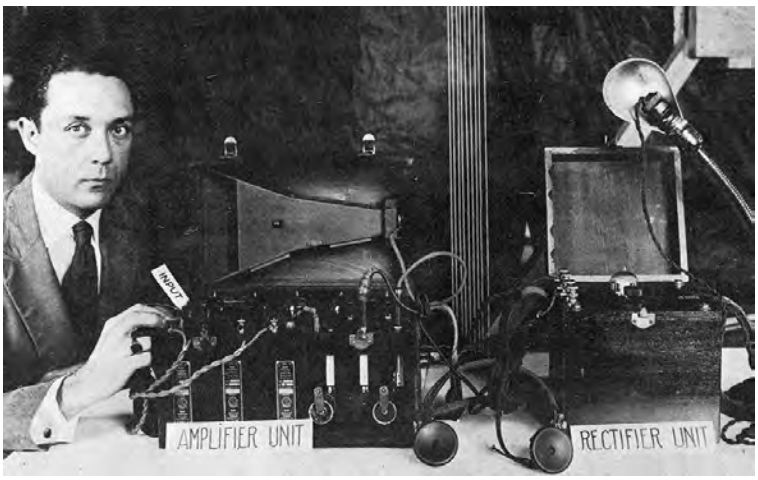
The word "radio," however, didn't become part of our regular vocabulary until 1911, and it happened thanks in part to J. Howard Dellinger, a radio scientist at the National Bureau of Standards (NBS), the agency that became the National Institute of Standards and Technology (NIST). This came about when the second International Radiotelegraph Conference was being planned in London, and a professor sent Dellinger a paper that he was going to present to the conference for review.

At the time, "wireless" was used as the term for radio communication, especially by the British. However, NIST was charged with revising standards in preparation for the conference, and Dellinger suggested that the professor use "radio," which was already becoming a popular word in the U.S., instead of "wireless." The professor agreed, and the word "radio" went on to become the universally accepted term.

Dellinger not only played a role in popularizing the word "radio," but he also played a role in the first radio work done at NIST. A commercial company asked NIST to calibrate a wavemeter, a device developed by one of its engineers that measures electromagnetic waves like those of radio. Dellinger was known as the wireless expert and took on the project of calibrating the first radio instrument at NIST.

A New Type of Radio Receiver

But for radio to become mainstream, it first had to be commercialized, which began with its introduction into households. However, the challenge was building a radio set that used the electrical current, called alternating current (AC), which powered lights, fans and kitchen appliances when plugged into wall sockets. The predecessor to this technology was developed and patented by two researchers, Percival D. Lowell and Francis W. Dunmore, at NBS in 1922. They called their invention the "mousetrap."



The "mousetrap" was a receiver for a radio amplifier that could run on AC. This was considered a breakthrough because at that time radios were only able to be powered by direct current (DC) provided by batteries. These batteries were bulky and heavy, had to be charged from time to time and were considered dangerous because of the acid used in them. The researchers' prototype meant the radio could be used in homes without causing damage and with the same performance quality.

Lowell and Dunmore filed two more patents together for other innovations, and for the "mousetrap" they sold the rights to the Dubilier Condenser Corporation. Little did they know that, because there was no uniform policy on patents issued to government employees, their actions would result in more than a decade of litigation over who legally had the rights to the patent.

While they were tied up in court, the Radio Corporation of America (RCA) developed its own model of the AC radio in 1926. Its model later became the first AC-powered radio sold to consumers.

Flying by Radio

During the early years of flight navigation, NIST was doing research to assist pilots while they were flying and landing. Pilots needed three things to get their bearings when flying "blind," meaning it's foggy, too dark or too cloudy to see.

Inside the Squirrel Cage

By Caryn, KD2GUT

The International DX Convention in Visalia, Calif. is cancelled. The Hiram Percy Maxim station W1AW closes to visitors. And Dayton Hamvention has been cancelled for the first time in its long history.

There's something called COVID-19 out there – seemingly everywhere - and it's done all but stop the world on its axis and everything with it. Health officials are invoking the word "pandemic" for the first time in nearly a century. It's not just amateur radio events coming to a screeching halt. It's Broadway, it's Lincoln Center, it's major sporting events, it's the economy. The world is churning in crisis mode, spinning perhaps out of control.

So we retreat to our shacks to remind ourselves: When all else fails, amateur radio. No, this isn't a crisis in which we've lost power and need our rigs to pull our collective selves out of the abyss - but perhaps what we've lost, and need to recover, is our perspective.

Can amateur radio provide a cure or even an inoculation in a world turned upside-down? Neither. It can, however, remind us we are a community. When the voices of the world tell their part of the story, it can keep communications real. We can key our mic on HF and become one of those hams discussing the situation in our part of the U.S. We can have ragchews with hams in Europe and in Australia and be good listeners (despite the QRM). In a recent late-night QSO on DMR, I talked to a ham in South Korea who told me how he keeps calm amid the madness in his city: he takes breaks from the quiet of his 15th-floor apartment and walks down to the shore or ventures out to the park. He's still taking precautions but he refuses to be frozen with fear.

We all need to be careful, of course. But we also need to get on the air, whether we're in self-imposed isolation or not. We need to keep talking to the world the way we'd pay a social call to a seriously ill patient who's trying desperately to recover.

When all else fails, ham radio can help do this for us. So let's remind one another that we're still here, we're sharing the airwaves together – and along with that, the hope that this nightmare will soon be over.

They needed to know the longitudinal position, altitude and speed of the aircraft, which were all achieved by various beacons installed in the plane. The remaining issue was that there were two frequencies the pilot constantly had to switch between the frequency that the Department of Commerce used to send weather information to planes and ships, which sometimes caused interference for pilots, and the frequency the radio beacon operated on, which gave altitude and other information.

Dunmore created a prototype, but Harry Diamond, a radio engineer who joined NIST in 1927, completed the device, called the radio guidance system. Diamond solved the problem by developing a separate device that allowed for voice communication to the pilot without receiving any outside interference from ships' radios.

A Curtiss Fledgling, a trainer aircraft developed for the U.S. Navy, was equipped with the device, and flight tests were performed between NIST's experimental air station at College Park, Maryland, and Newark Airport in New Jersey in foggy weather. After a series of successful tests were performed, the device was turned over to be used by the Department of Commerce in 1933.

Praise From a Famous Inventor

While mostly intended for serious users, some of NIST's journals and publications were popular with the public. One such book, titled The Principles Underlying Radio Communication, covered topics such as elementary electricity, radio circuits and electromagnetic waves and was also published as a textbook for soldiers in the U.S. Army. The famous inventor Thomas Edison received a copy from NIST and wrote a letter thanking the first director, Samuel W. Stratton, for publishing it, saying it was "the greatest book on this subject that I have ever read."

As these and other examples show, NIST had a significant influence on radio research between 1911 and 1933. However, NIST's radio work didn't end with the first blind landing. NIST would continue to contribute to the field leading up to and during World War II, and research continues to this day in areas such as 5G, public safety communications and spectrum sharing.

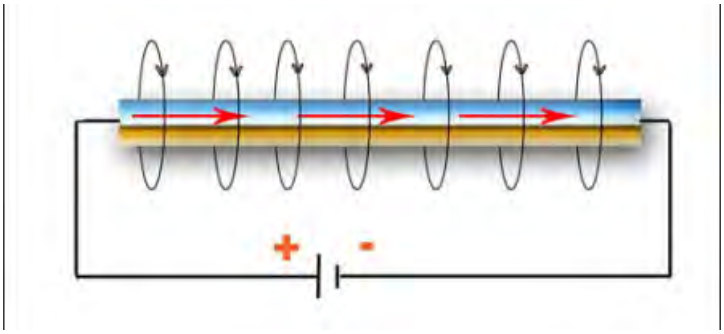
About the author: Alex Boss is a general assignment writer in the NIST Public Affairs Office and covers standard reference materials (SRM). She has a B.S. in biology from Rhodes College and an M.A. in health and medical journalism from the University of Georgia. Her favorite pastimes include playing in DC's recreational soccer leagues and drinking chai lattes.

Parasitics

By Kevin, AB2ZI

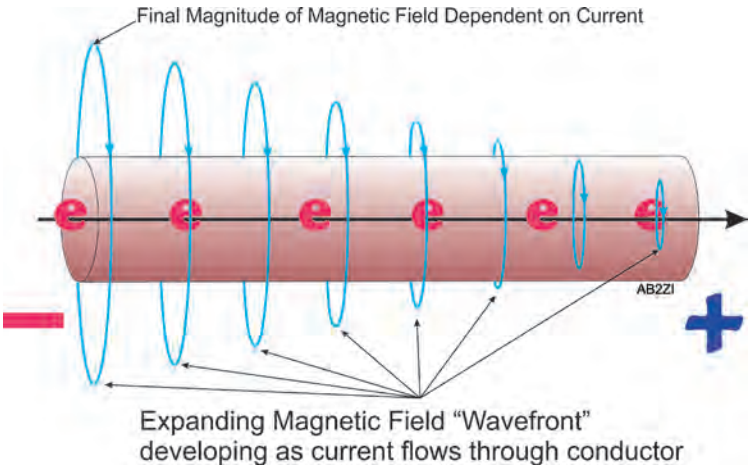
Every person who is introduced to basic electronics learns that a moving electric field produces a related magnetic field at 90 degrees to that flow. What we don't discuss is the inductance of that wire because of how negligible that inductance is at dc or relatively low frequencies, and by relatively low I mean 30 MHz and below.

As new initiates to electronics we are shown this illustration:



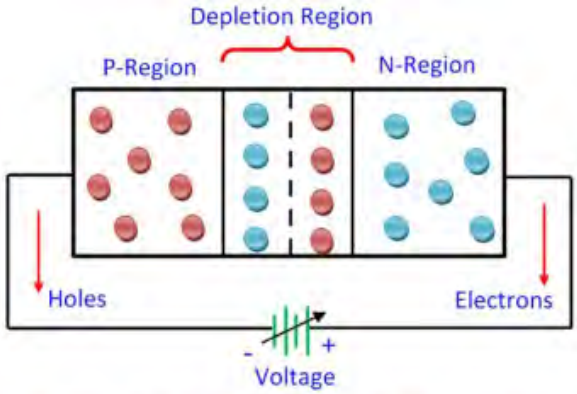
In this case the polarity of the magnetic field is shown to be positive around the wire in the clockwise direction going from left to right (this diagram is using conventional current flow, which is positive to negative).

What is not discussed often enough is how as the electrons move into the wire. There is what I will refer to as a "blooming" of the magnetic field like a wavefront as those electrons move into the wire. We start with an initial field forming at the surface of the wire which is opposed due to eddy currents in the conductor opposing the flow as the initial magnetic field is established. This opposition at HF and below is negligible enough to ignore. However, at VHF and higher frequencies, this inductance of the wire becomes more and more of a factor and needs to be accounted for by engineers (and hams) who build circuits. This is what is known as "parasitic inductance."



At UHF and higher, the length of leads becomes more and more critical and in the case of capacitors, the combination of lead inductance and the components capacitance can cause all kinds of problems like reducing the impedance of that capacitor.

There is also parasitic capacitance, also known as stray capacitance. This is unavoidable and usually unwanted. All components in a circuit—inductors, diodes, transistors, etc., have internal capacitance. There is always capacitance



Depletion Region in a Reverse Biased P-N junction

present between conductors. This includes component leads, jumpers and circuit board traces. Parasitic capacitance is a major problem at significantly high frequencies and is usually the limiting factor in terms of frequency and bandwidth.

Sometimes internal capacitance is used like a real capacitor as in components like Varactor diodes. We all (should) know that inside a diode, between the P and N materials, a depletion region is formed. The spacing of that depletion region acts like a diode. By increasing reverse bias on these diodes, the depletion region becomes wider which has the effect of moving the virtual plates of our internal capacitor further apart.

In the case of super high frequencies, the capacitance between circuit board traces can mean signal leakage between those traces, or between component leads and ground.

Repeater Work...

I.T. Upgrades in EOC

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,
http://www.huntingtonnyaresraces.org/
Div. 3—Town of Islip ARES/RACES
Mondays 8:30 PM
EC/RO: Philip Jacobs, W2UV, 631-838-2500
Div. 4—Town of Smithtown ARES/RACES
Net: 145.430 MHz, PL136.5, Mondays 7:30 PM
EC/RO: Rich Johnston, KC2TON, 631-872-4039
Div. 5—Town of Brookhaven ARES/RACES
EC/RO: Ted Debowy, AC2IR, 631-751-6576
Div. 6—Riverhead ARES/RACES
EC/RO: Steve Casko, W2SFC, 917-701-3919
Div. 7—Southampton ARES/RACES
EC/RO: Removed & Currently Vacant
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: Eddie Schnell, WZ2Y, 864-973-9250
Div. 10—Shelter Island ARES/RACES
EC/RO: Vacant (Neal Raymond, N2QZA, SK)

Suffolk County ARES/RACES Net:
Mondays 2100 Local—145.330/R (136.5PL)
Alternate Frequency—146.820 (136.5 PL)

New York State RACES Net (HF)
Sundays 0900 Local, 3993.5 KHz LSB

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"

2020 VE Session Dates

- March 28th
- April 25th
- May 23rd
- June 20th
- July 25th
- August 22nd
- September 26th
- October 24th
- November 28th
- December 26th

CANCELLED

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 CSCEs you may have. Non programmable calculators are allowed. The exam fee is $15 payable by cash or a check made out to "ARRL VEC."

Visit FCC Universal Licensing System site to register for an FRN number to use on the paperwork.

The GSBARC Repeater List

146.685 W2GSB -shift 110.9 Hz Enc/Dec

146.685 -shift 127.3 PL (south input LINKED to 146.685)

438.475 WB2QGZ -shift 110.9 PL *LINKED TO 146.685*

223.860 W2GSB -shift 110.9 PL Enc/Dec w/ECHOLINK

223.860 -shift 156.7 PL Enc/Dec Local use

440.850 W2GSB + shift 110.9 PL Enc/Dec

446.775 KB2UR -shift 110.9 PL Enc/Dec Fusion Steerable

927.3125 W2YMM -shift D606 Enc/Dec

440.250 W2TOB/B + shift DSTAR REF020A Babylon

147.255 WB2TOB/C + shift DSTAR Steerable

445.725 WD2NY/B -shift DSTAR *REF020A* Selden

GSBARC 2020 Raffle

1st Prize: Anytone 878 VHF/UHF DMR HT and Open Spot 3 w/accessories and 2yr warranty

2nd Prize: Buddipole (Long Version) Portable Antenna System

3rd Prize: Open Spot 2 portable hotspot

Drawing to be held at Ham Radio University, January 9th, 2021

Ticket Donation $5 or book of 5 tickets for $20
Winner need not be present to win.