News from

The GLORIOUS SOCIETY OF THE WORMHOLE

September 2019

Hello Worms

Well I have waited and Dorian has finally started moving north. I hope it stays out to sea and doesn't impact anyone on the east coast but the storm surge will probably cause some damage. I feel sorry for those living in the Bahamas particular on Grand Bahama Island where is stopped and tore the place up.

Five members ordered Wormhole shirts at the last meeting. I expected to deliver them this meeting but my embroiderer website said they were closed for August. They split off and sold their decal business and moved the embroidery business. They are now taking orders but now I have decided to wait for the next meeting which is only a week away. So anyone who has not ordered can order now either at the meeting or by email. I told everyone that the prices are on the website but they are not. Prices are as follows: S to XL $22.50, 2X $24.50, 3X $26.50, 4X $28.50, 5X $30.50, 6X $32.50. The shirt colors are either Bimini blue (which have come in three or four different shades) or white. The Bimini Blue is available in S to 4X and the white is available S to 6X. The shipping is built in for orders of five or more so in the future if less than five are ordered then the shipping would be shared among the orderees, is that a word?

Talk-in is on the Wormhole repeater system. For those coming to the meeting who cannot hit the repeater we will also monitor the Honeywell club repeater on 443.050 +141.3.

BRING A FOLDING CHAIR FOR THE MEETING IF YOU HAVE ONE. Every meeting someone says they forgot their chair, see if you can avoid being the one this month ;-) I can say that the last three meetings no one has left a chair! Who said a Worm cannot learn a new trick?

* 2019 CONTEST UNIVERSITY VIDEOS ONLINE *

This item from KB6NU's Ham Radio Blog 8 August 2019. Videos from the May 2019 Contest University held at Dayton are now on line. Here are the videos that are available:

- Radio Contesting – Contesting with Integrity – K5ZD
- Session 1 – 2BSIQ & SO3R Riding the Edge of Human Capabilities – N6MJ
- Session 2 – No Compromise Remote Contesting – KL9A
- Session 3 – Solar Cycle Impacts on Radio Propagation: Forecasting Cycle 25 – WX6SWW
- Session 4 – Eyeball Sprint Contest – K1DG
- Session 5 – Contest Station Optimization – K3LR
- Session 6 – Waterfalls, Recordings, and Reverse Beacon Network – N6TV
- Session 7 – Improving your Contest Scores – K5ZD
- Session 8 – Contest Radio Comparisons & Hybrid Architecture Explained – NC0B

* MEASURING LOSSES IN COAX*

By Ralph WD0EJA

I have been publishing this technical article since January of 2013. For the past 40 years I have manufactured the Isotron Antennas. This also involved helping many with their very difficult installations. Some of the information will be from what we learned solve these problems. Some information will be right from a text book or credible article. You are welcome to contact me at wd0eja@isotronantennas.com with question you may have.

Our coaxial lines are out in the elements day after day. Some are buried. Not the best environment for longevity. How can you measure the losses in coax, the length in wavelength and velocity factor?

Measuring power loss is not difficult. There are several ways to make the measurement. You can use a watt meter (two works better) or you can use your fancy shmancy antenna analyzer.

With two power meters (calibrated close together) insert one at the transmitter. The other at the other end of the coax that is terminated with a dummy load that is the same resistance as the coax (normally 50 ohms).

Send a carrier at a known power taking note of the reading at the meter nearest the transmitter. Now dash out to the other meter, have someone key down, then take the reading. The closer meter will have a higher reading than the farther one. Now you can calculate the loss. The formula is:

$$dB = 10 \log \frac{P1}{P2}$$

P1 is the meter near the transmitter.
P2 Is the farther meter.

Simple? Anyone can do it, even I can.

How about with an analyzer? This is even physically easier.

Put your analyzer on the Z function. Open the end of the coax. Whatever length your coax is, it will show an impedance (Z) dip on the first 1/4 wavelength. Therefore, you want to start at the lowest frequency your analyzer is capable of. It will dip in Z value every other 1/4 wavelength.

When you find the first dip, take note of the Z value. Then take note of the frequency. If your analyzer goes low enough in frequency, then you have the 1/4 wavelength of your coax.

Take the Z value and calculate the dB loss with this formula: Loss (50 ohm line) dB = 0.17 x minimum Z

You can make this measurement every other 1/4 wavelength. This will give you the losses as you increase frequency.

The 1/4 wave frequency can also be used to confirm velocity factor.

Calculate the free space wavelength of your minimum 1/4 wave frequency your analyzer is reading. If your coax is too long for your analyzer to measure, then you can do the same measurement by shorting the coax. Now the reading will be your 1/2 wave frequency of the line.

$$\text{Wavelength (free space in meters)} = \frac{300}{\text{frequency in MHz.}}$$

Then divide by 4 for 1/4 wave or 2 for 1/2 wave. Take the actual length of your coax and divide it by the free space wavelength. This percentage is your velocity factor.

You can use this value to determine actual 1/2 or 1/4 wave lengths of coax at the frequency you desire. This is done by calculating the free space wavelength at your desired frequency, then
multiplying it by the velocity factor percentage.

There are other ways to make these measurements however, these are one of the easiest and fastest.

73,
Ralph WD0EJA
AUG 2019

* MILLION DOLLAR REWARD TO HACK AN iPHONE *

INFOPACKETS by John Lister on August, 12 2019

Apple is offering a million dollar bounty to anyone who can successfully hack an iPhone and shares the details. But it's limited to specific circumstances that will mean the payout is well worth it for the company.

Like several tech giants, Apple already had a reward scheme for people who find and report bugs. To date the biggest bounty Apple has offered is $200,000 and only to people who have previously been approved to explore Apple bugs. The million dollar bounty is officially open to anyone.

The new offer was made at the Black Hat convention in Las Vegas, the leading annual gathering of people interested in security vulnerabilities, and certainly not a place to connect to unfamiliar WiFi networks.

Only a very specific "hack" meeting three criteria is eligible for the million dollar reward. Firstly, it has to access the iOS kernel. That's the single most important and central part of the operating system and decides which task the processor carries out at any given moment, as well as what's stored in memory.

Secondly, the hack must give persistent access rather than only getting inside for a moment. Thirdly, the hack must work without requiring the phone user to click anything such as a rogue link or file.

The eye-catching bounty is likely a response to reports that a malicious hacking group has offered $500,000 for details of such an attack. The price has also been driven up by recent incidents where government law enforcement agencies have paid third parties to find ways to bypass security controls on phones seized from suspects.

To further push the program, Apple is giving away a special version of the iPhone handset. It allows more access to the traditionally-closed iOS software, giving security experts a better opportunity to dig into the code. While the bounty is open to anyone, only approved applicants will get these handsets.

Recently, a group of hackers working for Google's Project Zero program uncovered a cache of flaws in Apple's software, which would allow hackers to gain access to your phone simply by sending you a message.

But the Google hackers quietly shared the details with Apple, which fixed the flaws before the details were made public, which would allow hacker to take advantage of them.

MAJOR BREACH FOUND IN BIOMETRICS SYSTEM
THE GUARDIAN by Josh Taylor 14 Aug 2019

The fingerprints of over 1 million people, as well as facial recognition information, unencrypted usernames and passwords, and personal information of employees, was

discovered on a publicly accessible database for a company used by the likes of the UK Metropolitan police, defence contractors and banks.

Suprema is the security company responsible for the web-based Biostar 2 biometrics lock system that allows centralised control for access to secure facilities like warehouses or office buildings. Biostar 2 uses fingerprints and facial recognition as part of its means of identifying people attempting to gain access to buildings.

Last month, Suprema announced its Biostar 2 platform was integrated into another access control system – AEOS. AEOS is used by 5,700 organisations in 83 countries, including governments, banks and the UK Metropolitan police.

The Israeli security researchers Noam Rotem and Ran Locar working with vpnmentor, a service that reviews virtual private network services, have been running a side project to scans ports looking for familiar IP blocks, and then use these blocks to find holes in companies' systems that could potentially lead to data breaches.

In a search last week, the researchers found Biostar 2's database was unprotected and mostly unencrypted. They were able to search the database by manipulating the URL search criteria in Elasticsearch to gain access to data.

The researchers had access to over 27.8m records, and 23 gigabytes-worth of data including admin panels, dashboards, fingerprint data, facial recognition data, face photos of users, unencrypted usernames and passwords, logs of facility access, security levels and clearance, and personal details of staff.

Much of the usernames and passwords were not encrypted, Rotem told the Guardian. "We were able to find plain-text passwords of administrator accounts," he said.

"The access allows first of all seeing millions of users are using this system to access different locations and see in real time which user enters which facility or which room in each facility, even." "We [were] able to change data and add new users," he said.

This would mean that he could edit an existing user's account and add his own fingerprint and then be able to access whatever building that user is authorised to access, or he could just add himself as a user with his photo and fingerprints.

In the paper about the discovery provided to the Guardian before being published by vpnmentor on Wednesday, the researchers said they were able to access data from co-working organizations in the US and Indonesia, a gym chain in India and Sri Lanka, a medicine supplier in the United Kingdom, and a car parking space developer in Finland, among others.

The researchers said the sheer scale of the breach was alarming because the service is in 1.5m locations across the world and because, unlike passwords being leaked, when fingerprints are leaked, you can't change your fingerprint.

"Instead of saving a hash of the fingerprint (that can't be reverse-engineered) they are saving people's actual fingerprints that can be copied for malicious purposes," the researchers said in the paper.

The researchers made multiple attempts to contact Suprema before taking the paper to the Guardian late last week. Early Wednesday morning (Australian time) the vulnerability was closed, but they still have not heard back from the security firm.

Suprema's head of marketing, Andy Ahn, told the Guardian the company had taken an "in-depth evaluation" of the information provided by vpnmentor and would inform customers if there was a threat. "If there has been any definite threat on our products and/or services, we will take immediate actions and make appropriate announcements to protect our customers' valuable businesses and assets," Ahn said.

Rotem said the problem wasn't unique to Suprema. "It's very common. There's literally millions of open systems, and going through them is a very tedious process," he said. "And some of the systems are quite sensitive."

He said supply chain vulnerabilities – where a company uses a third-party company for a service that doesn't have appropriate security – was common but often some of the vulnerabilities discovered were with Fortune 500 companies.

Rotem said he contacts around three or four companies per week with similar issues. Earlier this year, Rotem pointed out a substantial flaw in Amadeus's flight booking system.

"Mistakes happen, and the real test is how you handle them," Rotem said. "If you have a security team that can respond quickly and efficiently it's good enough. If you have a security team that will send a legal team to threaten you, well, it's less efficient. "And this happens quite a lot. It's unpleasant for someone to point out you have a vulnerability or weakness. Some people take it as *an opportunity to fix it and some people are offended by it for some reason."*

DXPEDITION TO USE FT8 ROBOT?

This article forwarded by Bruce Nebergall, AFW4C, USAF MARS 4th Communication Wing Commander

From time to time our hobby changes. While the idea that we're all a bunch of old men playing with spark gap transmitters, or using strange noises to the annoyance of others, the reality of amateur radio is markedly different from that stereotype.

The changes we experience come from many different sources. As amateurs we're always trying something new, inventing things and building stuff. That type of change is integral to the hobby and in many ways it's why our community exists in the first place.

Other changes are external. A new product arrives into the marketplace and we gleefully take possession of a new gadget. That in turn creates other changes which are incorporated into our day to day life as amateurs.

A more structured change happens when the regulator makes a proposal, instigates a new rule, enforces an old rule or does something else that affects us.

In the time I've been an amateur, I've seen changes happen that originate from the regulator that both benefit and impede our activities. Things like the introduction of new bands, the trial of high power, but also the removal of frequencies, the restriction on modes and across the globe this happens in every single jurisdiction.

For example, in Sweden the regulator proposed and then implemented a reduction in transmitter power, from 1 kW down to 200 Watt. I'm sure it made lots of noise in

Sweden, but here in Australia there was hardly a squeak.

In France proposals have been drafted to reallocate the 2m band to the Aeronautical Mobile Service, to be discussed as an agenda item at WRT 2023. The 2m band is a band that is widely used, often as the first band for most amateurs, a band that offers local communication, hosts local discussion nets, has many options of affordable equipment, uses small antennas commonly installed on vehicles.

In Australia the regulator is looking at removing access to the 3.6 GHz band for specific areas and defining more precise access restrictions, removing emission mode and bandwidth restrictions and removing specific Foundation restrictions, such as the ability to build radios, connect radios to the Internet and use digital modes.

The Australian regulator is also of the opinion that any station should be able to use 400 Watts, regardless of the license level, since it's unlikely to increase interference. Interestingly, the local representative bodies are at odds with this, since they appear to believe that we need multiple levels of license, even though I've never actually heard a coherent argument to support that.

There's more, but let's move on. What strikes me is that the benefits are celebrated and the impediments are bemoaned with hardly any thought expressed on how these changes happened and what brought them about. There are representations made by representative bodies, but most of that is at arms-length.

We're a tiny community in the scheme of things, we always have been, but we have access to one of the richest resources available and we have a regulator who is required to consider our existence when new rules are made and old rules retired.

In discussion with other amateurs I hear time and time again that making a submission is hard, it's a waste of time and takes too long. For me that makes no sense. The notion that our tiny community has no impact is not credible in the face of the evidence, so why is it that the idea of making submissions to the regulator is such a waste of time and so

difficult?

Why is it that we give up before we even start? What is it in our DNA that leaves these submissions to others and what is it that makes us think we're unworthy or unable or unheard of if we never even try.

A submission doesn't have to be a book, it doesn't need to have more than one page. You can write a letter to your regulator that says: Hey, I'm an amateur, I'm affected by your proposal and I think the following.

My point is this. If amateur radio is important to you, if it gives you joy, if it teaches you stuff, if it gives you a community, if it justifies buying gadgets, then why don't you express that to the regulator when they announce a request for consultation?

What are you waiting for? Share your opinion, make your voice count, you can be part of the change.

I'm Onno VK6FLAB

DXPEDITION TO USE FT8 ROBOT?

By Dan Romanchik, KB6NU

It's inevitable. At some point, machines are going to render humans irrelevant. It's been a recurring theme in science fiction since before I was born (1955), and there are numerous predictions of the Singularity, the point in time when machines will be smarter than human, occurring between 2030 and 2045.

It may happen in amateur radio sooner than we think. A couple of days ago, one of my readers, sent me a link to a blog post by John, AE5X: Automated FT8 "FoxBot" in upcoming DXpedition – confirmed. He wrote:

> "A DXpedition to Tokelau will take place from 1 to 11 October and it will be your chance to work an FT8 robot operating in Fox/Hound mode.

> "Stathis SV5DKL has been working on a "FoxBot" for some time now, is listed as a partner to this DXpedition and has confirmed that the DXpedition will be using his FoxBot."

John has since updated this post, noting "The SV5DKL logo has now been removed and the DX team will be in 'full compliance' with the mode." Full compliance meaning following the rules set up by the ARRL DXCC rules.

The ARRL is, of course, against the use of robots. A recent *ARRL Letter* noted:

> "ARRL has incorporated changes to the rules for all ARRL-sponsored contests and DXCC, prohibiting automated contacts and requiring that an actual operator is initiating and carrying out a contact. These changes also apply to Worked All States (including Triple Play and 5-Band WAS), Fred Fish W5FF Memorial, and VUCC awards. The changes are effective immediately and affect the rules for both HF contests, and VHF/UHF contests as well as DXCC.

> "A resolution at the July ARRL Board of Directors meeting pointed to 'growing concern over fully automated contacts being made and claimed' for contest and for DXCC credit. The rules now require that each claimed contact include contemporaneous direct initiation by the operator on both sides of the contact. Initiation of a contact may either be local or remote."

As AE5X says, however, the use of FT8 robots in the future is a certainty. Sooner or later, some DXpedition is going to use an FT8 robot without saying anything about it. How is the ARRL going to know that a DXpedition is using robots if the DXpedition operators don't tell them?

I'm wondering when some DXpedition is going to give up on SSB and CW altogether. Why bother with those modes when you can make hundreds or thousands more contacts by just operating FT8?

Another thought just occurred to me. If the ARRL gets its way and Techs are awarded HF digital privileges, how long will it take for some enterprising Tech to make the DXCC Honor Roll using FT8 exclusively. Oh, the horror of it all!

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Dan Romanchik, KB6NU, is the author of the KB6NU amateur radio blog (KB6NU.Com), the "No Nonsense" amateur radio license study guides (KB6NU.Com/study-guides/), and often appears on the ICQPodcast (icqpodcast.com). When he's not wondering when robots are going to take over the world, he likes to (manually) operate CW on the HF bands.

CLUB MEETING

The next club meeting is September 7th. We meet on the first Saturday every month at 11:00 Saturday morning at the Minnreg Building located at 6340 126th Ave N, Largo. Members are welcome to come in the rear area through the fence gate on the southeast corner of the property. Talk-in is on the Wormhole repeater system. For those coming to the meeting who cannot hit our repeater we will be monitoring the Honeywell club repeater on 443.050 +141.3. We will keep an eye peeled for you. We will take advantage of the cooking facilities with an after-the-meeting Social and Wormdog picnic.

CLUB NETS

Check in on the club net Thursdays at 1930 and 2000 (or at the end of the 2M net). 2M at 146.850 – with a tone of 146.2. Our 6M net runs after our regular 2M net on 53.150 – 1MHz offset 146.2 tone. We are always looking for volunteers to be the net control operator. Anyone interested, talk to one your club officers.

LOCAL NETS

MONDAY

1730 147.030 + Receiver sites and tone info http://www.qsl.net/wd4scd/ St Pete Yacht Club ARC

1830 147.060+ no tone Petersburg	St Pete ARC daily net	St
1900 144.210 USB Clearwater	CARS, vertical polarization	
1900 147.135 +146.2 Zephyrhills	Zephyrhills ARC	
2000 147.165+ 136.5 Brandon	Brandon ARS	from
2000 50.135 County	Pinellas ARK	Pinellas
2030 NI4CE system	EAGLE Net, NTS traffic net,	NI4CE system
2030 145.450 County	Pinellas ARK	Pinellas

TUESDAY

1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
1900 50.200 USB ARS	6M net	Brandon
1900 28.450 Clearwater	WCF section net	

1900 NI4CE system system	WCF Section VHF ARES	NI4CE
1930 145.170 & 442.4 both pl 156.7	Pinellas ACS net	Clearwater
1930 444.900 +141.3	Sheriff's Tactical ARC	Tampa
2000 NI4CE system	WCF Skywarn net	NI4CE system
2000 147.105+ 146.2 Tampa	Tampa ARC net	from
2000 28.365 USB	simplex	Brandon ARS
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
2100 28.465 USB	10/10 net	from Orlando
1900 146.490 simplex simplex Net	3RD Tuesday monthly, Hillsborough Co ARES	

WEDNESDAY

1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
1930 52.020 simplex Petersburg	Suncoast 6'ers	from St
1930 NI4CE system system	WCF Section Digital Info Ne	NI4CE
2000 147.105 146.2 Tampa	Greater Tampa CERT net	from
2000 146.97- 146.2 Clearwater	Clearwater ARS	from
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
2100 NI4CE system affiliated	Tampa Bay Traders Net	non-

THURSDAY

Time / Freq	Net	Location
1800 146.52 simplex Tampa	Hillsborough ARES/RACES	North
1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
1900 444.750 +146.2 Tampa	Fusion net	from
1915 224.660- no tone Petersburg	St Pete ARC	from St
1930 146.6385 -127.3 Lakeland	Lakeland ARC	from
1930 444.225 + 146.2 Tampa	Hillsborough ARES/RACES	from
1930 146.850- 146.2 Petersburg	Wormhole	from St
2000 53.150 –1MHz 146.2 Petersburg	Wormhole	from St
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE

FRIDAY

Time / Freq	Net	Location
1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE

SATURDAY

Time / Freq	Net	Location
0730 3.940 (7.281 Alt.)+/- QRM WCF	WCF Section HF Net	from
1830 147.060 no tone Petersburg	St Pete ARC daily net	from St

2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE

SUNDAY

0800 3.933	Florida Traders Net	non-affiliated
1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
1930 NI4CE system system	WCF Section Net	NI4CE
2000 147.550 simplex County	550 Simplex Net	Pinellas
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
2100 144.210 USB orientation	Clearwater ARS	vertical

FOR SALE / WANTED

Anyone having something for sale or who might be looking for an item let me know. I will not print phone numbers or email addresses unless specifically told to since this newsletter might end up on the web. The exception is when I get the information off the web. If you are a member of the Wormhole then you have all the information you need on a club roster and if you are not a member .. why not? OK, if you are not a member you can contact me at the email address at the end of this newsletter, I will give you the information to contact the person involved.

FOR SALE, Mosley TA-33M 10-15-20M beam with the 40M add on kit. Antenna is on the ground and in good shape. There are several parts that need replacement. The 40M kit is new in box. Antenna is broken down into six or seven feet sections so easy to handle. Asking $300, talk to me, Bill AG4QX at arrl dot net or see me at the meeting.

FOR SALE, Cushcraft A4S 10-15-20M beam, on the ground. There are several parts that need replacement. Asking $250, talk to me, Bill AG4QX at arrl dot net or see me at the meeting.

HAMFESTS

2019

September 28	**Pasco County Hamfest,** Gunn Hwy Flea Market, 2317 Gunn Highway, , talk-In: 145.350 (no tone), no info on the website, for info contact Don Nystron , KA2kdp 727-868-0176
October 26	**Gulf Coast ARC Hamfest,** New Port Richey, Millennium Academy, 10005 Ridge Road, admission $6, tailgate free, Talk-In on 146.670 - no tone, For info contact Ralph McCullough , WA3YFQ 727-247-4790, no information on their website
November 9	Pinellas Park, **SPARCFest**, admission FREE, tailgate free, Freedom Lake Park, 9990 46th St N, Southeast corner of US 19 and 49th Street, Talk-in on 147.060+ no tone. VE testing at 0900. For more information go to http://www.sparc-club.org/sparcfest.html
December 13 & 14	**Plant City, the 2018 Tampa Bay Hamfest is the West Central Florida Section Convention, Friday and Saturday, at the Expo Building in the Strawberry Festival grounds, advanced admission $9, at the door $10, for information contact Bill Williams AG4QX,** chairman@fgcarc.org **or go to** http://www.tampabayhamfest.org **or you can just ask me, Jim or Dee at a meeting ;-)**

2020

February 7-9	**Orlando Hamcation and State Convention,** Central Florida Fairgrounds, 4603 West Colonial Drive, Tickets $15 in advance, $17 at door. Talkin 146.4760 - no PL or D-Star 146.850 -, all the information at www.hamcation.com or call 407-841-0874

February 21 & 22 Punta Gorda, **5th Annual TECHCON Convention, Charlotte County Emergency Operations Center, 26571 Airport Rd, ,** for more info http://arrlwcf.org/ or contact Darrell Davis at kt4wx@arrl.net.

May 23 **WormFest 2020, Pinellas Park, admission FREE, tailgate free, Freedom Lake Park, 9990 46th St N, southeast corner of US 19 and 49ᵗʰ Street, 33782. Park opens at sunrise for vendor setup, hamfest starts at 0800. Talk-in on 442.625 + or 146.850 – both with a tone of 146.2. For a map and directions see** http://www.TheWormholeSociety.org **.**

Mid January   Frogman swim in Tampa Bay.
                    http://www.tampabayfrogman.com/
Last full weekend January   Winter Field Day,
https://www.winterfieldday.com/
Late January   Gasparilla celebration
Late February   West Central Florida Tech Conference
http://arrlwcf.org/wcf-special-events/wcftechconference/
March/April   MS Walks
March/April   Mass Casualty Exercises
Late April   Southeastern VHF Society Conference,
http://www.svhfs.org
Late April   Florida QSO Party
Mid May   March For Babies (was March of Dimes)
https://www.marchforbabies.org/Registration/Events
Early to Mid May   MS 150 Citrus Tour bike ride
http://www.citrustour.org/register.php
Mid-May   Annual Armed Forces Crossband Test
Mid-May   Florida Hurricane Exercise
May, Memorial Day Weekend   Wormfest
Early June   Museum Ships on the Air

Fourth weekend in June   Field Day
http://www.arrl.org/contests/announcements/fd/
July 3/4   Midnight Run in Largo
http://www.kiwanismidnightrun.com/
August   International Lighthouse/Lightship Week
https://illw.net/
October, 3rd weekend   JOTA, Scout Jamboree-on-the-AIR (around
14.280MHz)
Early December   ALS bike ride in Walsingham Park
December, Second weekend   Tampa Bay Hamfest http://www.fgcarc.org/

YOUR WORMHOLE OFFICERS

Bill AG4QX is President and editor of this newsletter, Treasurer is Jim KD4MZL, Paul KA4IOX is the Secretary, Dee N4GD is the Repeater Trustee and Mike K4ZPE is both our club Vice President and webmaster.

YOUR WORMHOLE REPEATERS

53.150 –1Mz PL 146.2

442.625 +5Mz PL 146.2

146.850 - 600Kz PL 146.2

The Wormhole repeaters are both now dual mode Yaesu DR-1X.   FM analog as always and now Yaesu Fusion, a C4FM/FM digital mode.

The Wormhole website is at: http://www.TheWormholeSociety.org.

West Central Florida Section website: http://www.arrlwcf.org/.

The ARRL website is at: http://www.arrl.org/

This newsletter is written for The Glorious Society of the Wormhole, an ARRL affiliated amateur radio club located around the Seminole section of Pinellas County

Florida. Anyone wishing to be added or removed from The Glorious Society of the Wormhole mailings please write to me at the address below and thy will be done.

73,
Bill Williams
AG4QX
ag4qx AT arrl DOT net