



News from



## The GLORIOUS SOCIETY OF THE WORMHOLE

December 2017

### Hello Worms

The holiday season has gotten into full speed but I am not. I just cannot celebrate a holiday for six or seven weeks before the event. I hope you had a wonderful Thanksgiving holiday but I don't start with Christmas until about the 15<sup>th</sup> of December. That's when I will pull the decorations out and start putting up the lights.

The Tampa Bay Hamfest and Section Convention in Plant City is the weekend after the meeting, on Dec 8 & 9. The ARRL forum should be interesting since the guest speaker is Mike Corey, KI1U. Emergency Preparedness Manager. Mike went to Puerto Rico to help with the amateur radio response and to represent ARRL in the aftermath of hurricane Irma. With all the controversy over the amateur radio efforts there I am sure there will be some pointed questions asked. The hamfest can always use a few volunteers, mostly to sell tickets or check tickets at the gates. For every hour volunteered you would get a chance at a \$50 cash drawing. Talk to Jim, Dee or myself.

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 if you have one.

**\* HOW DOES A VACUUM TUBE WORK \***

By Ralph WD0EJA

Old technology? Yes.

Does it have application now? Yes.

Where? Vacuum tubes or as the English call them, valves, are still used in many of our linear amplifiers. There is some audio applications also.

A linear amplifier is a relatively simple piece of equipment. That is if you have a simple one. Many that have been manufactured are within the scope of most Amateur operators to repair it. The amplifier is designed around one or more tubes. Some of the older one used six.

What does the tube do? Use a triode as an example. It has three parts to the tube. A cathode, control grid and plate. Sometimes the cathode is also the heater and in others it may have a separate heater. This is the part that glows in the dark.

**The Cathode.** This is the negative side of the tube. In some circuits it is at ground potential. In other applications it is slightly above ground potential. This means if you put a volt meter on it to ground, you will see a low positive voltage.

**The Control Grid.** This is normally a fine wire or mesh physically close to the cathode. This is the control part of the tube. Normally with the grid at 0 volts in respect to the cathode, the tube will be in full conduction. This will vary with tubes. Putting a little negative voltage in respect to the cathode, the tube will start increasing in resistance until it completely turns of.

**The Plate.** This is the positive side of the tube. In linear amps the + voltage is quite high. Anywhere from 1K to 5K volts. Needless to say **EXTREME** caution is needed when working with this part of the tube.

The tube is a voltage amplifying device. That means it operates at a very high voltage and relatively low current. When the tube is turned on by lowering the negative voltage (going toward +) on the grid, the resistance of the tube drops sufficiently to make a large change in a decrease in voltage on the plate.

Keep in mind the resistance of the tube from the cathode to the plate is quite high even when in full conduction. That is a reason for the device using such high voltages. The tube will produce big swings in voltage resulting in an amplified output.

There are a variety of configurations on setting the tube up in a circuit. However, I am at the end of the paper so it will be for another time.

73,

Ralph WD0EJA

[www.isotronantennas.com](http://www.isotronantennas.com)

**\* FREE WINDOWS 10 UPDATE ENDS AT END OF YEAR \***

*Lifehacker* Patrick Lucas Austin Nov 14, 2017

Microsoft's Windows 10 upgrade program was discontinued for the general public last July, but you can still get your hands on a free upgrade to Windows 10 if you're a user of the company's assistive technology features. Luckily, Microsoft's definition of the term is pretty broad, which means if you rely on features like closed captioning (or even keyboard shortcuts), you still qualify for a free upgrade. The offer ends December 31.

Upgrading is a pretty straightforward process. Visit [Microsoft's Windows 10 Upgrade page](#) and hit the Upgrade Now button, which downloads the upgrade assistant to your device. Run the program, follow the on-screen prompts, and you'll have a working version of Windows 10 on your machine.

You may have been wary of upgrading your Windows PC to Windows 10 in the past, but the OS has received its fair share of media-oriented updates and bug fixes since its 2015 release. The latest major update, the [Windows 10 Fall Creator's Update](#), adding both mixed reality support and the Mixed Reality Viewer app to the operating system's list of features. That means you can pair a compatible PC with a mixed reality headset and take advantage of the immersive environment to enjoy some interactive entertainment (or get a little work done).

You may not be vision or hearing impaired, but if you use assistive features [such as the Magnifier tool](#), dictate writing in documents using [speech recognition](#), or even Windows' digital assistant, Cortana, you're eligible for an upgrade. Hell, even keyboard shortcuts fall under the umbrella of "assistive technology", meaning everyone who's used CTRL-C and CTRL-V is technically eligible for a free upgrade.

Microsoft suggests you check with your assistive tech manufacturer to ensure their hardware and software is compatible with Windows 10, and [provides a list](#) of the most popular companies offering assistive technology products.

If you remain unconvinced (or hate keyboard shortcuts), the [frequently asked questions](#) section of the upgrade program implies that, while the upgrade is intended for use by users relying on assistive technology to navigate their PC, it isn't going to really *stop* anyone from upgrading if they don't use assistive tech. So... get on it.

## \* NEW POSSIBLE HACK IN WINDOWS 8 & 10 \*

*ZDNet* By Liam Tung | November 20, 2017

Microsoft has been telling users to upgrade to Windows 10 because of its superior in-built defenses against attacks, compared with Windows 7. That advice would be true if it properly implemented the defense known as Address Space Layout Randomization (ASLR).

ASLR is used by Android, Windows, Linux, iOS and macOS to prevent attacks that rely on code executing at predictable memory locations by loading programs at random addresses.

Are you tired of clicking through categories to find a specific Windows 10 setting? If you know the right commands, you can create shortcuts that take you to specific pages with a single click

It's been used by Microsoft since Windows Vista to counter memory-based attacks. However, Microsoft introduced an error in Windows 8 when implementing a feature known as Force ASLR or system-wide mandatory ASLR.

This feature is meant to randomize executables even if an application hasn't enabled support for ASLR. It can be switched on through Microsoft's Enhanced Mitigation Experience Toolkit (EMET). As of the Windows 10 Fall Creators Update, EMET became part of Windows Defender Exploit Guard (WDEG).

But as Will Dormann of Carnegie Mellon University's CERT/CC discovered, enabling system-wide ASLR in Windows 8 and newer only does half the job it's meant to, resulting in programs being relocated but to the same address every time.

"Starting with Windows 8.0, system-wide mandatory ASLR (enabled via EMET) has zero entropy, essentially making it worthless. Windows Defender Exploit Guard for Windows 10 is in the same boat," Dormann [wrote](#) on Twitter.

Dormann made the discovery while researching the recently discovered vulnerability stemming from Microsoft Equation Editor, or EQNEDT32.EXE, which was compiled 17 years ago, long before ASLR was supported on Windows.

In theory, an admin could force ASLR on EQNEDT32.EXE by enabling system-wide ASLR in EMET or WDEG.

Not only is the feature "worthless" in Windows 10, but Windows 7 with EMET actually does a better job of enforcing ASLR than Windows 10, according to Dormann.

"Actually, with Windows 7 and EMET System-wide ASLR, the loaded address for eqnedt32.exe is different on every reboot. But with Windows 10 with either EMET or WDEG, the base for eqnedt32.exe is 0x10000 EVERY TIME. Conclusion: Win10 cannot enforce ASLR as well as Win7".

"Windows 8 and newer systems that have system-wide ASLR enabled via EMET or Windows Defender Exploit Guard will have non-DYNAMICBASE applications relocated to a predictable location, thus voiding any benefit of mandatory ASLR. This can make exploitation of some classes of vulnerabilities easier," wrote Dormann in a CERT/CC advisory.

Dormann notes there is no solution to this problem, but has offered a workaround in the advisory that admins can follow.

ZDNet has contacted Microsoft for its comments and will update this story if it receives a response.

## **\* FT-8: I'M NOT FEELING THE MAGIC \***

By Dan Romanchik, KB6NU

Partly out of curiosity and partly because Jeff, KE9V, shamed me into it, I setup my Signalink interface, downloaded WSJT-X from <https://physics.princeton.edu/pulsar/k1jt/wsjtx.html>, and started operating FT-8, the latest “shiny object” (as the ARRL dubbed it) from the K1JT team. As you probably know, this mode has really caught on with the digital crowd, and the waterfall is chock full of FT-8 signals. Part of the reason for this is that it has some of the characteristics of JT-65, but is not as excruciatingly slow. Over the past couple of days, I've made 32 QSOs, including a couple of DX contacts. It's been fun to try something new, but to be honest, I'm not really feeling the magic.

Part of it is that I don't feel like I'm really doing anything. I downloaded the software, plugged in my digital interface, fooled around with the settings a bit, and then, the computer started making contacts. I have to click a few on-screen controls to make contacts, but even that's a step that could be easily programmed in by the WSJT-X developers. (In fact, I wonder why they haven't done that already!)

Take a look at the screenshot above to see how a typical contact happens. When a CQ appears in the “Band Activity” window, you double click on it. When you do this, the software begins listening for signals on that frequency. In this case, I double-clicked on the CQ by WA9THI. When I double-clicked on the CQ, the program began decoding signals on that frequency and display the transmissions in the “Rx Frequency” window.

Then, I clicked on “Enable TX” and the program began the contact sequence, sending “WA9THI KB6NU EN82.” EN82 is my grid designator. This is shown as the first yellow line in the Rx Frequency window. The transmissions that I sent are highlighted in yellow. The transmissions sent by WA9THI are highlighted in red.

The sequence of transmissions shown there comprise a complete contact, and that whole process takes less than two minutes. And, once WA9THI received my first transmission, the sequence is all automatic. You just sit there and watch the two computers talk to one another.

While I can certainly appreciate the thought and the work that went into the design of the protocol and programming to implement it, sitting and watching the computers talk to one another just doesn't excite me. On the other hand, if you're one of those guys who wants to make contacts, but doesn't really want to talk to anyone, than this is the mode for you!

Here are a few more notes about FT-8 operation:

- Not surprisingly, synchronizing your computer with the other stations computer is very important. To do that, you need to get your computer to use the network time protocol (NTP). I failed to do this when I first installed WSJT-X, and while my waterfall was full of FT-8 signals, WSJT-X just wouldn't decode them.
- I got my PC laptop to talk ntp by installing Meinberg NTP software (<http://www.ntp.org/ntpfaq/NTP-s-def.htm>). Once I did that, WSJT-X magically started decoding transmissions.
- Most of the cool guys seem to be using Meinberg NTP, but there are other options. One of the guys in our club is using a program called Dimension 4, for example.
- Apparently, you don't have to limit your power output as you would with PSK-31. At first, I set my output power to 10 W. I had a bit of success at 10 W, but I expected more. When I asked on Twitter how much power other guys were using, most of them said that they were using more than that.
- For the last couple of sessions, I've been setting my output power to 25 W, and I've been having more success. I've now worked several Europeans on 30m.
- Even at 25 W, my signal reports are more often than not as good as the signal reports I'm handing out. I haven't figured this one out yet. This

doesn't happen to me when I'm operating CW, so I don't think it's my antenna.

- When I'm operating, I write down the calls of stations I've contacted. The reason for this is that while WSJT-X does have a logging function, it doesn't have a log window, so unless you have a great memory, you could end up working guys two or three times a session. That's probably not a big deal since contacts are so quick, but I'd rather avoid doing that if I can.
- WSJT-X works "split." While most contacts take place on the same frequency, a station can call you anywhere in the passband of your receiver and WSJT-X will decode the signal and begin a contact. This threw me the first time or two that this happened, and I tried to change my transmit frequency to match the other station's. In doing so, I messed up the sequence. I now just let the contact proceed normally, and it works out great.
- When I work the other digital modes, I set my IC-746PRO to the USB-D mode. In this mode, the receive passband is narrower than for working phone. When operating FT-8, however, you don't want to limit that passband. Signals will appear across the entire 2.6 kHz of the USB signal, and if you narrow the passband, you won't be able to work those stations.
- WSJT-X checks the validity of call signs. This afternoon, there was a guy who had typed in his call as "WAMAD" and was calling CQ. WSJT-X wouldn't let me answer that CQ.
- Operating this mode opens up the possibility of working more stations whose call signs spell words and adding those QSL cards to my collection. I have, for example, already worked K1GUY, N4HER, and N5SLY. I'm guessing that these guys don't operate CW.

All told, I've found this to be an interesting foray into a new digital mode. While I'm not feeling the magic that some others seem to be feeling when operating FT-8, it certainly will be a change of pace to operate this mode from time to time. Give it a shot and tell me what you think.

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Dan, KB6NU, is the author of the “No Nonsense” amateur radio license study guides and blogs about amateur radio at KB6NU.Com. When he's not working FT-8, he teaches ham radio classes and operates CW on the HF bands. You can email him at [cwgeek@kb6nu.com](mailto:cwgeek@kb6nu.com).

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### \*CLUB MEETING\*

The next club meeting is December 2<sup>ND</sup>. 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 the 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.

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### \*CLUB NETS\*

Check in on the club net Thursdays at 1930. 442.625 + with a 146.2 tone or the 2M side at 146.850 – also with a tone of 146.2. 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                      St Petersburg

1830 147.060+ no tone                      St Pete ARC daily net                      St  
Petersburg

1900 144.210 USB                      CARS, vertical polarization  
Clearwater

1900 147.135 +146.2                      Zephyrhills ARC  
Zephyrhills

2000 147.165+ 136.5                      Brandon ARS                      from  
Brandon

2000 50.135                      Pinellas ARK  
Pinellas County

2030 NI4CE system                      EAGLE Net, NTS traffic net, NI4CE  
system

2030 145.450                      Pinellas ARK  
Pinellas County

## TUESDAY

1830	147.060 no tone Petersburg	St Pete ARC daily net	from St
1900	50.200 USB Brandon ARS	6M net	
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 system	WCF Skywarn net	NI4CE
2000	147.105+ 146.2 Tampa	Tampa ARC net	from
2000	28.365 USB ARS	simplex	Brandon
2030	NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
2100	28.465 USB	10/10 net	from Orlando

## WEDNESDAY

1930	146.30 simplex net from Tampa	Hillsborough ARES/RACES	
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	Tampa Bay Traders Net	non-affiliated

### **THURSDAY**

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
1930 146.850- & 442.625+ both pl 146.2 Petersburg	Wormhole	from St
1930 146.6385 -127.3 Lakeland	Lakeland ARC	from
1915 224.660- no tone Petersburg	St Pete ARC	from St
2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE

### **FRIDAY**

1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
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2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
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**SATURDAY**

0830 3.911 (7.281 Alt.)+/- QRM Pinellas County	WCF Section HF Net	from
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1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
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2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
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**SUNDAY**

1830 147.060 no tone Petersburg	St Pete ARC daily net	from St
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1930 NI4CE system system	WCF Section Net	NI4CE
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2000 147.550 simplex Pinellas County	550 Simplex Net	
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2030 NI4CE system system	EAGLE Net, NTS traffic net	NI4CE
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2100 144.210 USB orientation	Clearwater ARS	vertical
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**\*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**, WWII Xceiver RT-68 & Power Supply with connecting cable, includes original manual all in very good condition, No idea of operating condition, trying to find a good home.

Free local pick up, St. Pete Beach Fl. Pictures here:

<https://forums.qrz.com/index.php?threads/wwii-xceiver-rt-68-local-pick-up.573447/> and here: <http://bunkerofdoom.com/mil/rt68/index.html> , contact Jack at [w4grj@arrl.net](mailto:w4grj@arrl.net)

**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 \$400, 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 \$300, talk to me, Bill AG4QX at arrl dot net or see me at the meeting.

**FOR SALE**, 13 element, 14.5 ft 220 beam. Wormhole property, \$20, contact Bill AG4QX or any other officer. **Free to any Wormhole member or other club.** Pickup at Bill's house.

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### **\*HAMFESTS\***

**December 8-9**      **Plant City, the 2017 Tampa Bay Hamfest is the West Central Florida Section Convention, Friday and Saturday, at the Expo Building in the Strawberry Festival grounds, 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 ;-)**

**January 13**      **TARCFest**, TARC Clubhouse, 22<sup>nd</sup> St at the river, \$4 entry plus \$3 to tailgate, inside tables \$15 in advance, talkin on 147.105 +146.2, more info at <http://hamclub.org/>

**February 9-11**      **Orlando Hamcation and State Convention**, Central Florida Fairgrounds, 4603 West Colonial Drive, Tickets \$13 in advance, \$15 at door. Talkin 146.4760 - no PL or D-Star 146.850 -, all the information at [www.hamcation.com](http://www.hamcation.com) or call 407-841-0874

**February 24**      **West Central Florida Section Technical Conference (3rd Annual TECHCON)**, Winter Haven, Polk County Emergency Operations Center  
1890 Jim Keene Blvd. **Looking for presentations and displays.** **Talk-In** 146.985, 444.625, 443.900 or 444.950, Pl for all 127.3. For info see <http://www.arrlwcf.org/> or contact Darrell Davis KT4WX at kt4wx@arrl.net

**May 26**      **WormFest 2017, Pinellas Park, FREE, Freedom Lake Park, 9990 46th St N, southeast corner of US 19 and 49<sup>th</sup> 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> .**

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Mid January      Frogman swim in Tampa Bay.  
<http://www.tampabayfrogman.com/>

Last full weekend January      Winter Field Day, <http://www.sparhams.org/index.php>

Late January      Gasparilla celebration

March/April      MS Walks

March/April      Mass Casualty Exercises

Late April	Southeastern VHF Society Conference, <a href="http://www.svhfs.org">http://www.svhfs.org</a>
Late April	March For Babies (was March of Dimes) <a href="https://www.marchforbabies.org/Registration/Events">https://www.marchforbabies.org/Registration/Events</a>
Late April	Florida QSO Party
Mid-May	Annual Armed Forces Crossband Test
Early to Mid May	MS 150 bike ride <a href="http://bikeflc.nationalmssociety.org/site/TR?fr_id=28207&amp;pg=entry">http://bikeflc.nationalmssociety.org/site/TR?fr_id=28207&amp;pg=entry</a>
Mid-May	Florida Hurricane Exercise
Late May	Wormfest
Early June	Museum Ships on the Air
Fourth weekend in June	Field Day <a href="http://www.arrl.org/contests/announcements/fd/">http://www.arrl.org/contests/announcements/fd/</a>
July 3/4	Midnight Run in Largo <a href="http://www.kiwanismidnightrun.com/">http://www.kiwanismidnightrun.com/</a>
August	International Lighthouse/Lightship Week <a href="https://illw.net/">https://illw.net/</a>
October, 3 <sup>rd</sup> weekend	JOTA, Scout Jamboree-on-the-AIR (around 14.280MHz)
Early December	ALS bike ride in Walsingham Park
December, first full weekend	Ride & Run With The Stars in Fort DeSoto Park
December, Second weekend	Tampa Bay Hamfest <a href="http://www.fgcarc.org/">http://www.fgcarc.org/</a>

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### **\*YOUR WORMHOLE OFFICERS\***

Bill AG4QX is President and editor of this newsletter, Vice-President is Mike K4ZPE, Treasurer is Jim KD4MZL, Paul KA4IOX is the Secretary, Dee N4GD is the Repeater Trustee and Neil W4NHL and Mike K4ZPE are our club webmasters.

### **\*YOUR WORMHOLE REPEATERS\***

442.625 + PL 146.2

146.850 - 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 repeater crew updated the software on May 3, 2016.

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 they will be done.

73,

Bill Williams

AG4QX

ag4qx AT arrl DOT net