

Loudoun Amateur Radio Group
Regular Meeting Notes June 15, 2019

Venue: Leesburg Holy Trinity Lutheran Church.

- 8:30-8:45 Coffee, meet and greet
- Pledge of Allegiance
- President welcome and meeting overview
- Attendance
 - 21 club members signed the sign in roster
 - 1 non member signed the sign in roster
 - 3 club officers were present. The Vice President was absent.
- The minutes from the May member meeting were accepted as written.
- The Treasurer gave the financial report.
 - A total of \$351 was deposited since the previous meeting. The money was collected during the Technician class sponsored by the club.
 - The checking account balance is \$6,474.57.
- Dave (KE4S) reported on the discussions during the club Board-of-Directors meeting
 - The budgeted fee for the 503(c) filing will be less than the budgeted amount
 - It was noted that the club records store needs to be available for public examination. The solution to this will be coordinated with the IT committee
 - Discussion topics included club participation in the Loudoun Makersmith group and coordination with the Ole Virginia Hams to support future Manassas Hamfest events.
 - The dues for 2020 were discussed. The current amount is \$12 for a year. The proposal is to increase the annual amount to \$25 for an adult member with additional \$5 to cover all additional family members in the same household and \$10 for a student or youth member that is not part of a family membership. There was no vote taken to adopt the new dues structure.
 - John (W5ODJ) has volunteered to coordinate support for the Reston Century bike ride.
- A graphics presentation was displayed to describe events during Space Day at Farmwell Middle school. The events did not include contacting the International Space Station (ISS) which is scheduled for late October. The ISS event will require significant support

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to coordinate an interface to the Internet, local speakers and microphones and the RF link to the ISS.

- Jeff (KOZR) presented a description of Digital Signal Processing (DSP) in modern radios.
 - DSP processing is used to generate the spectral display on some radios
 - The digital data that is input to the DSP operation is an output from an analog-to-digital (AtoD) conversion. Design factors in the AtoD processing include sample rate and number of bits in the generated digital data.
 - The presentation included visual clips showing a wagon wheel that appears stationary or moving slightly to illustrate the effect of varied sampling rates
 - Nyquist's theorem indicates that the audio sample rate must be ≥ 2 times the bandwidth of the maximum frequency that is present.
 - Slower samples result in aliasing
 - If the sample rate equals the bandwidth of the sampled signal, the data contains some aliased information because perfect bandpass filters cannot be constructed.
 - If the digital data is generated with a larger number of bits, a larger dynamic range is available in the converted data
 - A Digital Fourier Transform (DFT) is used to generate the data of the spectral display
 - A Fast Fourier Transform (FFT) processes only the first half of the data since the sample magnitudes of the second half is a mirror of the first half. Note that no phase information is available when an FFT is performed.
- Meeting adjourned at 9:45.