

Loudoun Amateur Radio Group
Regular Meeting Notes November 19, 2022

Venue: Holy Trinity Lutheran Church in Leesburg

- Call To Order at 8:35 am.
- Pledge of Allegiance
- Jim N4FAF reported that the minutes from the October meeting can be accessed via the club web site. He also mentioned that the updated constitution and bylaws files are posted to the website.
- John W0MPM was absent, so Mike N4PDY reported that the bank account balance was \$10,400 on the October 31 statement. A check from the Reston Bike Club was donated to the club in recognition of our support of their century ride in August.
- There will be an election in January for club officers and members of the Board. The positions of President and Treasurer are open and one seat on the Board needs to be filled.
- The amendments to the club constitution and bylaws were reviewed. See the October minutes or the club website for details about the to adopted amendments.
- Dave KE4S remarked that the club is a non-profit corporation. He has been the registered agent for the club as the contact point of the company with the State Corporation Commission. This role in the club needs to be filled.
- There was a request for presentations at the monthly meetings. Send email to vicepresident@k4lrg.org if you have an idea or would like to volunteer for a presentation.
- John W5ODJ has volunteered to host the club holiday party. The Board will decide if the party will be held or if a regular monthly meeting will be held in December. Notice will be placed on the website and sent to the email reflector.
- Henry K2BFY reported that there will be a change to the Virginia QSO party in 2023. A new participant category named Rover will be included. Details will be included with the QSO party rules.
- There will be upcoming notices of silent auction of vintage electronic gear. Watch the email reflector.
- It was noted that some people have approached the club seeking classes and exams to become licensed. There was some interest in participating in training. The position of training chair is presently vacant. It was suggested that the club should reach out to the Boy Scouts, Cub Scouts and education institutions such as NVCC to encourage our hobby.

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- Jeff K0ZR gave a presentation about signaling. Signaling is manipulation of a physical media to convey information. Early signaling techniques included smoke and flags. Amateur radio CW began as spark signaling of morse code. Voice started with amplitude modulation because transmitter and receiver electronics are simpler. The technology of signaling has steadily improved to make better use of available bandwidth in the RF spectrum. Spark signaling uses a very large bandwidth. It was acceptable in early days of radio because few signals were present. Current modulation in CW mode uses 12.5 MHz bandwidth when transmitting at 20 words per minute. It was noted that higher speeds use more bandwidth because the rising and falling edges of the modulated signal generate more harmonics.

AM modulation uses 60% of the transmitter power to generate the carrier signal. The carrier does not transport any information. An AM signal requires 6 KHz of bandwidth for a voice signal. Single sideband modulation was developed to make more efficient use of band width. The carrier signal is suppressed and only one of the two sidebands is transmitted, so all the transmit power is used to generate the signal that carries the information.

Noise is a big problem that corrupts the transmitted information, especially for digital modes. Binary Phase Shift Keying (BPSK) sends two signals to indicate a zero or a one bit in a data stream. Noise can corrupt the signal at the receiver to make a zero appear as a one or a one appear as a zero. Forward Error Correcting (FEC) codes can be added to the digital data stream to allow some recovery from bit errors. It was noted that using two different receivers to decode a digital signal may provide a clear signal on one while the other receiver reports a higher error rate. This is due to the differences in the filters.

- It was noted that lithium batteries contain a very high concentration of energy. When lithium burns, it generates a very high temperature. Water will not put out the fire. Dry agent fire extinguishers should be used.
- A new satellite has been enabled by the Switzerland. It is in medium earth orbit rather than low earth orbit, so the signal footprint on the earth is considerably larger. It is operating in the 70cm band. The recommended transmitter is 25 watts with an antenna of 12 dB gain. The antenna does not need to move as frequently as with other satellites because the signal footprint is larger.
- The meeting adjourned at 10:10 AM.
- Attendance

N4TGA Merc

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KT9N	Chris
K4TRE	Tarek
N4RAF	Steve
K3WD	Bill
WA4KBM	Kevin
K2BFY	Henry
KS1G	Steve
K0ZR	Jeff
K4FWD	Frank
W4AU	John
KJ4NXG	Bob
KK2WXO	Ed
KI4UTB	Jay
KJ4BRH	Bonnie
WA4TXE	David
AD7FW	Roy
KE4S	Dave
N4PD	Paul
KN4HOZ	Steve
KD4BK	Barry
N4PDY	Mike
N4FAF	Jim