

Loudoun Amateur Radio Group

Regular Meeting Minutes September 21, 2024

Venue: Leesburg Lutheran Church

Meeting called to order at 8:35 AM.

- Pledge of allegiance.
- Joe KD4HAX presented material about solar storms and other space weather. Effects of changing space weather on technology, communications and human health were analyzed in the presentation.

Solar radiation is generated by the sun. Coronal Mass Ejections and other variations in the solar wind result in variations in the energy generated by the sun. The magnetic field of the earth provides some protection from the variations. The variations that reach the earth's surface induce currents in the electric conductors of various systems. The induced currents were not well understood in the 1980s, but research projects were started to understand the currents and design fault tolerant systems.

The Voyager space probe has been used to measure the characteristics of the solar wind variations as they move out from the sun. There are also satellites in orbit around Mars to measure the solar wind effects. It has been observed that additional space radiation such as alpha particles and cosmic rays cause failures in integrated circuits. As the density of transistors increases, a single alpha particle can cause a change of state in an element of an integrated circuit because the particle size is similar to the size of the transistor.

Human health is believed to be affected by strong changes in the solar winds. Blood pressure can be changed and depression can be caused. It was noted that railroad tracks and pipelines are large conductors. Large currents can be induced by the solar wind in these structures. It was noted that data centers must be designed with proper grounding to provide a sink for the induced currents and minimize damage to the computer systems in the center.

There are several websites that track the current solar weather.

- The club has presentations for the monthly meetings in October and November scheduled. It is not known if there will be a meeting in December. The club has historically held a holiday party in December, but a party is not scheduled for this year. Any club member interested in hosting a party should send an email message to 'leadership@k4lrg.org'.
- After the successful Field Day event at the Western Loudoun Sheriff's Station in Hillsboro, a letter was sent to Sheriff Chapman. A letter was recently received from Mr. Chapman thanking the club for our good working relationship with the Sheriff's office.

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- Steve KS1G reported that the ARIS contract being coordinated with the Hillsboro Charter Academy is tentatively scheduled for December 9. Club members will have an opportunity to participate in making the event a success.
- Doug KM4GC reported that the Loudoun ARES group will participate in the national Simulated Emergency Test (SET) event in October. Details about the SET scenarios will be distributed on the LARG email reflector. The Loudoun ARES group has been dormant since the Covid shutdown. Doug and others are attempting to restart the ARES activities. The ARES group has a website at lcares.org. Reference the website for some historic data. The website and other organizational data will be updated as the ARES activities are restarted.
- The Treasurer Tareck K9TRE reported that the club checking account balance is \$9722.38.
- Steve KS1G brought in a plastic ammo box that contains a DigiPeater. The unit consists of a RaspberryPi 2W and a handheld radio. The equipment is powered by a battery in the box. The radio is connected to a BNC jack that is mounted in the lid of the box. For the demonstration, the BNC had a 2 meter antenna directly attached to the jack.
- The meeting adjourned at 10:25.
- The next club meeting is scheduled for October 19.

- Attendance

W4PMP	Chris
KE4S	Dave
KT9N	Chris
K3WD	Bill
K4FWD	Frank
N4RAF	Steve
KM6URX	Bryce
N2ALA	Dwight
KM4GC	Doug
KQ4IBI	Ron
KQ4MHT	Jim

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K4FW	Jim
NOCALL	Tom
KQ4UMW	Chad
K9TRE	Tareck
KS1G	Steve
N4FAF	Jim