

Loudoun Amateur Radio Group

Regular Meeting Minutes January 20, 2024

Venue: Leesburg Lutheran Church

Meeting called to order at 8:35 AM. The President was not present, so Steve KS1G, Vice President presided over the meeting.

- Pledge of Allegiance
- One unlicensed guest was recognized. Greg Marks.
- Gary N7BRJ provided the monthly presentation on the subject of Radio Astronomy. All bodies except those at absolute zero radiate. The radiation occurs at various frequencies in the electromagnetic spectrum. Visible light occurs in a very narrow frequency range in the overall spectrum. Our eyes are sensitive to visible light. Artificial sensors that are sensitive to ranges of the frequency spectrums outside the range of visible light can be constructed. Those sensors generate an image of an area in the sensor field of view that indicates the intensity and frequency of radiation in the frequency range for which they are designed. The intensities and frequencies can be artificially colors to create an image of the radiation in the field of view of the instrument. The James Webb orbital telescope is an example of an instrument that is not designed for the range of the visible spectrum.

The first trans-Atlantic telephone calls used radio waves for the transmission medium. The sound quality of the calls was quite noisy. Carl Janski was commissioned to study the noise and try to determine the source. During his analysis, many noise sources were identified. One source could not be identified. It was referred to as 'from the stars'.

In West Virginia there is the Greenbank radio astronomy lab. There are several receiving antennas that are used to listen to the radio spectrum in the sky. It has been observed that large dish antennas deform from a perfect parabola when the dish is tilted away from vertical. There is a large dish antenna that can be adjusted to compensate for the deformation.

There is also the very large array (VLA) of antennas in New Mexico. It consists of many small dishes that are steered in coordination to focus on the same location in the sky. This large array results in an equivalent to a very large dish without the problem of sagging. The signals from the antennas are combined using interferometry to produce a single image of the screen on which the array is focused.

Two organizations that are available for amateur radio astronomers are Project Jove and SARA. Radio Jove has reviewed several radio receivers and published recommendations for commercial products that can be used to listen to the sky noise. It was noted that direct digitization of received signals results in the least noise in the received image. A tradeoff was noted between sensitivity (detection of small signals) versus selectivity

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(ability to discriminate between two signals). Higher sensitivity results in lower selectivity and vice versa.

The radio telescope at Arecibo in Puerto Rico has no plans to be rebuilt. It collapsed several months ago. The National Science Foundation (NSF) no longer supports the Arecibo or Greenbank radio telescope installations.

- The current club policies require that members submit a resume that describes their qualifications to be a member of the Board of Directors. Resumes for current candidates can be found through the club website at <https://k4lrg.org/memberonly/board/Resumes/>. This page requires a login and password. Send an email to leadership@k4lrg.org to get the login credentials.

It was noted that Board membership may occur at any time of the year.

- There was a motion from the floor to accept the slate of club officers, all of whom were running unopposed. The motion was seconded. A verbal vote was unanimous in the affirmative.
- Paul N4PD is the current custodian of the club call sign (K4LRG). He announced that he would like to pass the custodianship to another club member, preferably one that is a bit younger. The custodian is responsible for returning QSL cards and processing contacts to Logbook of The World (and other online QSL databases). Interested club members should send an email to leadership@k4lrg.org.
- Chris W4PMP announced that he does stellar photography. He uses digital signal processing to enhance the photos and provide artificial coloring of the image details.
- Tareck K9TRE reported that the club checking account balance is \$10,974.49. Expenses during the previous month included a donation to the Leesburg VFW of \$500. The donation allows the club to store trailers on their property.
- The club is in need of one or two new members of the IT committee. If you would like to participate in keeping the club web resources in good shape, send an email to the leadership email address.
- The meeting adjourned at 10:10.
- The next club meeting is scheduled for February 17.
- Attendance

KS1G Steve

K9TRE Tareck

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K3WD	Bill
N4PD	Paul
N3UW	Rich
KQ4MHT	Jim
KG4UPR	Bryan
W0MPM	John
KT9N	Chris
KK4RNV	Val
W4PMP	Chris
NoCall	Greg
KE4S	Dave
K4FW	Jim
N7BRJ	Gary
N7EVN	Carla
N4FAF	Jim