

PVNet LEO Vocabulary — List Number 1

1. **Alignment:** Making sure antenna elements are positioned accurately.
2. **Aluminum:** A lightweight metal commonly used for antenna elements.
3. **Aluminum Rod:** Lightweight metal used to fabricate antenna elements.
4. **Antenna:** A device that converts electrical signals into radio waves and vice versa.
5. **Azimuth:** Horizontal direction (compass direction).
6. **Balun:** Device that balances electrical currents in the antenna.
7. **Beamwidth:** The width of the antenna's main signal direction.
8. **Boom:** The structural support that holds antenna elements in position.
9. **Build Log:** Written record of construction steps.
10. **Circular Polarization:** Radio waves that rotate as they travel, used by satellites to reduce signal loss.
11. **Circular Polarization Assembly:** Element arrangement that allows reception of rotating radio waves.
12. **Circular Yagi:** A Yagi antenna designed to receive circularly polarized signals.
13. **Coaxial Cable:** Shielded cable designed to carry RF signals.
14. **Coaxial Cable (Coax):** Cable used to carry RF signals from antenna to receiver.
15. **Connector:** Metal fitting that joins cables to antennas or equipment.
16. **CubeSat:** A small satellite built in standardized units (1U, 3U, etc.).
17. **Deburring:** Removing sharp edges from cut metal for safety and accuracy.
18. **Design Constraints:** Limits such as size, cost, safety, and materials.
19. **Director:** Elements that focus the signal forward for higher gain.
20. **Director Element:** Elements placed in front of the driven element to increase gain.
21. **Documentation:** Written records of research, calculations, and build steps.
22. **Downlink:** Signals sent from a satellite to Earth.
23. **Driven Element:** The element connected directly to the radio or receiver.
24. **Element:** A metal rod in an antenna that interacts with radio waves.
25. **Elevation:** Vertical angle above the horizon.
26. **Feedline:** The cable carrying RF signals from antenna to receiver.
27. **Feedpoint:** The location where the cable connects to the antenna.
28. **Frequency:** How fast a radio wave oscillates, measured in Hertz (Hz).
29. **Gain:** A measure of how much an antenna focuses energy in one direction.
30. **Ground Station:** Equipment on Earth used to receive signals from satellites.
31. **Grounding Wire:** Wire that safely directs electrical energy to ground.
32. **Iteration:** Improving a design through repeated testing and modification.
33. **LEO (Low Earth Orbit):** An orbit close to Earth, typically 160–2,000 km high, where satellites move very fast across the sky.
34. **Left-Hand Circular Polarization (LHCP):** A circular polarization rotating counter-clockwise.
35. **Lightning Arrestor:** Device that protects equipment from electrical surges.
36. **Linear Polarization:** Radio waves oriented in a single plane (vertical or horizontal).

37. **Line of Sight:** A direct, unobstructed path between an antenna and a satellite.
38. **Low Noise Amplifier (LNA):** Amplifier that boosts weak satellite signals.
39. **Mast:** A vertical pole that supports the antenna.
40. **Mount:** Hardware that attaches the antenna to a pole or structure.
41. **Mounting Bracket:** Metal hardware used to attach the antenna boom to the mast.
42. **Noise:** Unwanted interference that reduces signal quality.
43. **Orbital Pass:** The period of time when a satellite is visible and reachable from a ground antenna.
44. **Performance:** How well the antenna receives satellite signals.
45. **Phasing Harness:** Cables that maintain correct signal phase for circular polarization.
46. **Polarization:** The orientation of a radio wave's electric field.
47. **Preamp (LNA):** A low-noise amplifier that boosts weak satellite signals.
48. **Prototype:** A first version built for testing and learning.
49. **PVC:** Plastic pipe used as a lightweight, non-conductive antenna boom.
50. **PVC Boom:** A non-conductive plastic pipe used as the antenna boom to avoid signal interference.
51. **Radio Frequency (RF):** Electromagnetic waves used to transmit information wirelessly.
52. **Receiver:** Electronic equipment that listens to radio signals.
53. **Reflector:** The rear element that reflects radio energy forward.
54. **Reflector Element:** The rear element that reflects radio energy forward.
55. **Right-Hand Circular Polarization (RHCP):** A circular polarization rotating clockwise.
56. **Rotator:** Motorized device that moves the antenna to track satellites.
57. **Rotator (Azimuth/Elevation):** A motorized mount that moves the antenna left/right and up/down.
58. **SatNOGS:** A global open-source satellite ground station network.
59. **Satellite:** A human-made object placed in orbit around Earth to collect or transmit data.
60. **SDR (Software Defined Radio):** A radio receiver controlled by software instead of hardware knobs.
61. **Signal:** Information sent by radio waves from a satellite to Earth.
62. **Symmetry:** Equal spacing and balance on both sides of the antenna.
63. **Telemetry:** Data sent from a satellite about its status.
64. **Testing:** Measuring whether a system works as expected.
65. **Tolerance:** Allowed variation in measurements.
66. **Tracking:** Moving an antenna to follow a satellite as it travels across the sky.
67. **Tradeoff:** A compromise where improving one thing may worsen another.
68. **U-Bolts:** U-shaped metal bolts used to clamp the antenna securely to the mast.
69. **UHF (Ultra High Frequency):** Radio frequencies from 300–3,000 MHz, often used for satellite downlinks.
70. **Uplink:** Signals sent from Earth to a satellite.
71. **VHF (Very High Frequency):** Radio frequencies from 30–300 MHz, commonly used by satellites.
72. **Weatherproof Enclosure:** Box that protects electronics from outdoor exposure.
73. **Wavelength:** The physical length of one cycle of a radio wave; determines antenna size.
74. **Yagi Antenna:** A directional antenna made of multiple metal elements mounted on a boom.