

[A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#)  
[R](#) | [S](#) | [T](#) | [U](#) | [V](#) | [W](#) | [X](#) | [Y](#) | [Z](#)

**AKM** : Apogee-Kick Motor (also ABM, Apogee-Boost motor). Rocket motor fired at highest point of GTO, to circularise orbit and inject satellite into GEO.

**BDC** : Block Downconverter or Block Downconversion.

[Go to Top](#)

---

**Beam Hopping** : The capability of satellites to shift their beam rapidly - in a matter of milliseconds - so that data can be sequentially processed from multiple earth stations.

**Bird** : Jargon or nick name for communication satellites.

**Block Downconversion** : The use of fixed-frequency first local oscillator, to downconvert an entire satellite band to a lower intermediate frequency for subsequent tuning and demodulation.

**BO** : Backoff (of non-linear system, from saturation). In a satellite transponder, may be qualified as input backoff or output backoff.

**BOL** : Beginning of Life (of a transponder or satellite).

**BS** : Broadcasting Satellite (Japan)

**Buttonhook Feed** : A rod shaped like a question mark supporting the feedhorn and LNA. A buttonhook feed for use with commercial grade antennas is often a hollow waveguide that directs signals from a feedhorn to an LNA behind the antenna.

[Go to Top](#)

---

**C-band** : Used loosely for satellite downlinks within the 3.4 to 4.2 GHz frequency range.

**Cassegrain Feed System** : An antenna feed design that includes a primary reflector, the dish, and a secondary reflector which redirects microwaves via a waveguide to a low noise amplifier.

**CBD** : "C-band Direct" (broadcast). Proposed name for a formalized home TVRO system in the US.

**Circular Polarity** : Electromagnetic waves whose electric field uniformly rotates along the signal path. Circularly polarized waves are used for satellite telephony because Faraday rotation does not alter their behavior.

**Clarke Belt** : The circular orbital belt at 22,247 miles above the equator, named after the writer Arthur C. Clarke, in which satellites travel at the same speed as the earth's rotation. Also called the geostationary orbit.

**Co-Polar(ized)** : Of the same polarization.

**Collocation** : Ability of multiple satellites to share the same approximate geostation orbital assignment.

**Cross Polarization** : Term to describe signals of the opposite polarity to another being transmitted and received. Cross-polarization discrimination refers to the ability of a feed to detect one polarity and reject the signals having the opposite sense of polarity.

[Go to Top](#)

---

**Declination** : The offset angle of an antenna from the axis of its polar mount as measured in the meridian plane between the equatorial plane and the antenna main beam.

**Delay** : The time it takes for a signal to go from the sending station through the satellite to the receiving station. This transmission delay for a single hop satellite connection is very close on one-quarter of a second.

**Declination Offset Angle** : The adjustment angle of a polar mount between the polar axis and the plane of a satellite antenna used to aim at the geosynchronous arc. Declination increases from zero with latitude away from the equator.

**Detent Tuning** : Tuning into a satellite channel by selecting a present resistance.

**Dish** : Jargon for a parabolic microwave antenna.

**Domsat** : Abbreviation for domestic communication satellite.

**Downconversion** : Translation of frequency or a block of frequencies to a lower portion of the electromagnetic spectrum, e.g. from SHF (microwavwe) frequencies to UHF or VHF.

**Downconverter** : A circuit that lowers the high frequency signal to a lower, intermediate range. There are three distinct types of down conversion used in satellite receivers: single down conversion; dual down conversion; and block down conversion.

**Downlink** : The space-to-Earth half of a two-way telecommunications satellite link.

**Downlink Antenna** : The antenna onboard a satellite which relays signals back to earth.

**DRO (or DSO)** : Dielectric - Resonator (or Dielectrically-Stabilized) Oscillator. Highly stable oscillator circuit used in LNBS and BDCS.

**Dual spin** : Spacecraft configuration in which the main body spins to provide attitude stabilization, and antenna assembly (and often some of the electronics) are de-spun by means of a motor and bearing system point continuously towards the earth.

**Dual-Band Feedhorn** : A feedhorn which can simultaneously receive two different bands, typically the C and Ku-bands.

[Go to Top](#)

---

**Earth station** : A complete satellite receiving or transmitting station including the antenna, electronics and all associated equipment necessary to receive or transmit satellite signals. Also known as a ground station.

**Eclipse** : Period when the satellite passes into the Earth's (or the Moon's shadow, when power must be drawn from storage batteries.

**Eclipse-protected** : Refers to a transponder that can remain powered during the period of an eclipse.

**Edge of Coverage** : Limit of defined service area, typically 3 dB down from beam center, but may be more. Reception is still possible beyond this line.

**Effective Isotropic Radiated Power (EIRP)** : A measure of the signal strength that a satellite transmits towards the earth below. The EIRP is highest at the center of the beam and decreases at angles away from the boresight.

**EIRP (or e.i.r.p.)** : Equivalent Isotropically Radiated Power (or Effective Isotropic Radiated Power). Combined result of transmitter (or transponder) RF power, and transmitting antenna gain.

**Ekran ("Screen")** : Soviet UHF DBS satellite serving the Stationar - T system. Downlinks at 714 MHz Siberia, but has usable coverage throughout Asia. Located 99 degrees E.

**EI/Az (EI over Az)** : An antenna mount providing independent steering in Azimuth and Elevation.

**Elevation** : Angle between antenna beam and horizontal plane (measured in vertical plane).

**EOL** : End of Life (of a transponder or satellite)

**Equatorial Mount** : Astronomers' term for Polar Mount.

**Equatorial Orbit** : An orbit with a plane that is parallel to the Earth's equator.

[Go to Top](#)

---

**F/D Ratio** : The ratio of an antenna's focal length to diameter. It describes antenna "depth".

**Faraday Rotation** : When peak sunspot activity highly charges the Earth's ionosphere, the vectors of linearly-polarized satellite signals can be rotated or "twisted" through interaction with the Earth's atmosphere.

**Feedhorn** : A satellite TV receiving antenna component that collects the signal reflected from the main surface reflector and channels this signal into the low-noise amplifier (LNA).

**Focal Length** : The distance from the reflective surface of a parabola to the point at which incoming satellite signals are focused, the focal point.

**Footprint** : The portion of the earth's surface covered by the signal from a communications satellite.

**Frequency** : The number of times that an alternating current goes through its complete cycle in one second of time. One cycle per second is also referred to as a Hertz, 1,000 cycles per second a kilohertz, 1,000,000 cycles per second a megahertz, and 1,000,000,000 cycles per second a gigahertz.

**FSS** : Fixed-Satellite Service.

[Go to Top](#)

---

**Gain-to-noise** : Temperature ratio of receiving system; its sensitivity or "figure of

merit". The higher the GIT better the reception capability of earth station.

**GEO** : The Geosynchronous Equatorial (Clarke) Orbit. Unique orbit in which a body can remain essentially stationary relative to Earth coordinates.

**Geosynchronous** : Prograde orbit having a period equal to that of the Earth's rotation (need not imply geostationary).

**Geosynchronous Orbit** : The orbit directly above the equator, about 35,800 kilometers (22,300 miles) above the earth in space. Also known as GEO, geostationary and Clarke orbit. When positioned in this orbit, a satellite appears to hover over the same spot on the earth because it is moving at a rate that matches the speed of the earth's rotation on its axis.

**Global Beam** : Beam covering the entire visible Earth surface, (42 percent of the globe) as seen from the satellite.

**Gorizont ("Horizon")** : Russian FSS satellites serving the STATIONAR system in the C- and Ku-bands.

**Gregorian** : Dual-reflector antenna geometry using a concave ellipsoidal subreflector and paraboloidal main reflector.

**Ground Noise** : Unwanted microwave signals generated from the warm ground and detected by a dish.

**GTO** : Geostationary (Geosynchronous) Transfer Orbit.

**Guard Band** : An unused spectra of frequencies which lie above and below each transponder. The guard band helps to prevent adjacent communications signals from interfering with one another.

[Go to Top](#)

---

**HACBSS** : Homestead and Community Broadcasting Satellite Service. Remote area DBS service via AUSSAT.

**Hall Circuit** : The uplink and downlink between the same earth station and a satellite.

**Half-Transponder** : A method of transmitting two TV signals through a single transponder, by reducing the deviation and power allocated to each. TV carriers each operate typically 4 dB to 7 dB below single-carrier saturation power.

**Head Unit** : Alternative term for an LNA, LNB, or LNC. Also called the outdoor unit.

**Hemispheric Beam** : Shaped beam covering approximately half of the visible Earth's surface (21 percent of the total globe), as seen from the satellite. INTELSAT spacecraft carry east and west hemispheric beams, while Russian Gorizont and Raduga satellites are equipped with northern hemispheric beams illuminating the visible portion of the globe which lies north of the equator.

**High Power Satellite** : Satellite with transponder RF power in excess of about 100 watts.

**Hour Angle** : Angle between antenna beam and meridian plane (measured in equatorial plane). Steering direction of a polar mount antenna.

[Go to Top](#)

---

**IDRS(S)** : Tracking and Data-Relay Satellite (System) used by NASA.

**Inclination** : Angle between orbital plane of satellite and equatorial plane of the Earth.

**Inclinometer** : An instrument used to measure the angle of elevation to a satellite from the surface of the earth.

**INSAT** : Indian National Satellite System.

**INTELSAT** : The International Telecommunication Satellite Consortium, a body of 154 countries working towards a common goal of improved worldwide satellite communications.

**Interferometer Feed** : Antenna feed generating controlled pattern of sidelobes and nulls, to permit use of small antennas with closely satellites.

**Intersatellite Link** : A transmission path directly between two communications satellites.

**IUS** : Internal Upper Stage (for GEO launches) A type of PKM. are scanned in separate fields both of which when combined paint one frame or complete picture.

[Go to Top](#)

---

**J-Hook (or button-book)** : Prime focus feed system with rear flange connected via hook-shaped waveguide run.

[Go to Top](#)

---

**Landsat** : An early resources technology satellite.

**LEO** : Low Earth Orbit.

**LEOsat** : Proposed mobile satellite systems using LEO.

**LHCP (or LCP)** : Left-Hand Circular Polarization.

**LNA** : Low-Noise Amplifier.

**LNF** : A combination of a feed, automatic polarizer and low noise amplifier in a common package.

**Local Oscillator** : A device used to supply a stable single frequency to an upconverter or a downconverter. The local oscillator signal is mixed with the carrier wave to change its frequency.

**Longitude** : The distance in degrees east or west of the prime meridian, located at zero degrees.

**Low Noise Amplifier (LNA)** : This is the preamplifier between the antenna and the earth station receiver. For maximum effectiveness, it must be located as near the antenna as possible, and is usually attached directly to the antenna receive port. The LNA is especially designed to contribute the least amount of thermal noise to the received signal.

**Low Noise Block Downconverter (LNB)** : A low noise microwave amplifier and

converter which downconverts a block or range of frequencies at once to an intermediate frequency range, typically 950 to 1450 MHz or 950 to 1750 MHz.

**Low Power Satellite** : Satellite with transponder RF power below about 30 watts.

**Low Noise Converter (LNC)** : An LNA and a conventional box. This device converts one channel at a time. Channel selection is controlled by the satellite receiver. The typical IF for LNCs is 70 MHz.

**Low Loss Dielectric** : An insulating material that has a relatively low dielectric loss, such as polyethylene or Teflon.

[Go to Top](#)

---

**MAC (A-, B-, C- or D-)** : Multiplexed Analog Components. An enhanced color TV transmission system developed especially for satellite use. Differences between the various types of MAC have to do with the various types of sound and data channels used. It has become obsolete after arrival of Digital technologies.

**Magnetic Variation** : The difference between true north and the north indication of a compass.

**MBTA** : Multiple Beam Tours Antena (Comsat design)

**Medium Power Satellite** : Satellite with transponder RF power in the region of 30W to 100W.

**Medium Power Satellite** : Satellite with transponder RF power in the region of 30 to 60 watts.

**Microwave Interference** : Interference which occurs when an earth station aimed at a distant satellite picks up a second, often stronger signal, from a local telephone terrestrial microwave relay transmitter. Microwave interference can also be produced by nearby radar transmitters as well as the sun itself. Relocating the antenna by only several feet will often completely eliminate the microwave interference.

**Monopulse** : Hardware-based automatic antenna tracking system.

**Mount** : The structure that supports an earth station antenna. Polar and az-el mounts are the most commonly variety.

**Multiple Analog Component (MAC) Transmissions** : An innovative television transmission method which separate the data, chrominance and luminance components and compresses them for sequential relay over one television scan line. There are a number of system in use and under development including A-MAC, C-MAC, D-MAC, D2-MAC, E-MAC and F-MAC.

[Go to Top](#)

---

**Off set-fed Antenna** : An antenna whose reflector forms only part of a paraboloid of revolution, usually excluding the pole or apex, such that a front feed causes no aperture blockage.

**OMT** : Orthogonal-Mode Transducer or otho-coupler; waveguide component that separates or combines othogonally polarized signals.

**Orthomode Coupler** : A waveguide, generally a three-port device, that allows simultaneous reception of vertically and horizontally polarized signals. The input port is typically a circular waveguide. The two output ports are rectangular waveguides.

**OTS** : Orbital Test Satellite. Pre-operational test vehicle for European Communications Satellite.

[Go to Top](#)

---

**Pad** : A concrete base upon which a supporting pole and antenna can be mounted.

**Perigee** : Lowest point (minimum altitude) of a geocentric orbit.

**Planar Array** : Flat satellite antenna composed of a gridwork of tiny resonant elements.

**Polar Orbit** : An orbital path located along the plane of the Earth's polar axis.

**Polar Mount** : Antenna mechanism permitting steering along the geostationary Arc (Clarke Orbit) by rotation about a single axis. Also Equatorial Mount. A classical polar mount has its axis parallel to that of the Earth. Satellite receiving antennas use modified polar mount geometry, incorporating a declination offset.

**Polarization** : A characteristic of the electromagnetic wave. Four senses of polarization are used in satellite transmissions: horizontal; vertical; right-hand circular; and left-hand circular.

**Polarization rot (at)or** : A birefringent component in a waveguide or antenna system, which converts between linear (plane) and circular polarizations. Not a polarization rotor.

**Polarotor** : A proprietary name for a type of polarization rotor, a transition with a remotely-rotatable probe.

**Preemptive transponder** : A transponder which is sold or leased under the condition that it can be supplied in an emergency to primary customers which have leased or purchased protected transponders from the selling or leasing entity.

**Proton** : Soviet D-class heavy launch vehicle (used for Stationar flights).

**Prime focus Antenna** : A parabolic dish having the feed/LNA assembly at the focal point directly in the front of the antenna. Prograde : being or relating to orbital or rotational motion of a body that is in the same direction as it another celestial body (Also see Geosynchronous).

**Protected Transponder** : Entities which lease or purchase protected transponders are guaranteed access to a backup transponder in the event that the primary transponder fails. (Also see preem transponder).

**QDBS (or Q-DBS)** : Quasi-DBS. The use of FSS satellites to provide a broadcasting service.

[Go to Top](#)

---

**Raduga ("Rainbow)** : Russian FSS satellite serving the STATIONAR system in the C-band frequency range.

**Repeater** : See transponder.

**RHCP (or RCP)** : Right-Hand Circular Polarization.

[Go to Top](#)

---

**S-band** : Satellite downlinks in the region of 2.6 GHz.

**Scalar Feed** : The wide flare corrugated horn antenna feed, commonly used in C-band home satellite TV receiving systems.

**Satellite Receiver** : The indoors electronic component of an earth station which downconverts, processes and prepares satellite signals, for viewing or listening.

**SCPC** : Single Channel Per Carrier. A narrowband transmission mode used to relay audio and data information.

**Servo Hunting** : An oscillatory searching of the feedhorn probe when use of inadequate quage control cables results in insufficient voltage at the feedhorn.

**Shaped Beam** : Beam of irregular cross-section, produced by multiple feed or shaped reflector techniques.

**Shaped Reflector** : Techniques for controlling beam pattern, aperture illumination, noise, and side lobe power, and for increasing antenna efficiency, by variation of antenna (and subreflector) shape from the true paraboloid, hyperboloid etc.

**Side Lobe** : A parameter used to describe an antenna's ability to detect off-axis signals. The larger the side lobes, the more noise and interference an antenna can detect.

**Signal-to-noise ratio** : The ratio of signal power to noise power in a specified bandwidth, usually expressed in decibels.

**Skew** : A term used to describe the adjustment necessary to fine tune the feedhorn polarity detector when scanning between satellites.

**Slant Range** : The distance that a signal travel from a satellite to a TVRO.

**Solar Eclipse** : When the Earth shadows the satellite's solar array from the Sun.

**Solar Array** : A network of solar cells which generate electricity when exposed to sunlight.

**Solar Outage** : The loss of reception that occurs when the sun is positioned directly behind a target satellite. When this occurs, solar noise downs out the satellite signal and reception is lost.

**SPADE** : Single channel per carrier, PCM multiple - Access Demand - Assignment Equipment (SCPC phony sys).

**Spherical** : Simple geometry for feed-steerable multiple beam antenna.

**Spherical Antenna** : An antenna system using a section of a spherical reflector to focus one or more satellite signals to one or a series of local areas.

**Spillover** : Usable (but often unwanted) signal reaching locations beyond defined Edge of Coverage.

**Spin stabilization** : A form of satellite attitude control which is achieved through spinning the exterior of spacecraft about its axis at a fixed rate.

**Splashplate** : Component of a backfire feed system - an unshaped (or arbitrarily shaped) subreflector.

**Spot Beam** : Beam of circular or elliptical cross-section, covering a defined region of the Earth's surface, small in relation to a global beam.

**SS-TDMA** : Satellite-Switched Time Division Multiple Access.

**Stationkeeping** : Orbital adjustments to maintain satellite accurately at desired geostationary location.

**Stationsar** : Russian geostationary communications satellite systems.

**Step-Track** : Software-based automatic antenna tracking system.

**STS** : Space Transportation System (the Shuttle).

**Subsatellite point** : The unique spot over the Earth's equator assigned to every geostationary satellite.

[Go to Top](#)

---

**TC** : Telecommand (control of a satellite).

**TDF** : French DBS satellite system.

**Telex X** : Nordic DBS satellite system.

**Telex** : A telegraphic text transmission system, linking teleprinters.

**Three-axis stabilization** : Type of spacecraft stabilization in which the body maintains a fixed attitude relative to the orbital track and the earth's surface. The reference axes are roll, pitch, and yaw, by nautical analogy.

**TI** : Terrestrial Interference. Interference to satellite reception caused by ground-based microwave transmitting stations.

**TM** : Telemetry. Satellite status data transmission.

**Torus** : Parabolic Torus geometry of multiple beam antenna. Reflector has a circular profile along the orbital arc, and a parabolic profile across the are.

**Transfer orbit** : A highly elliptical orbit which is used as an intermediate stage for placing satellites into geostationary orbit.

**Transmitter** : An electronic device consisting of oscillator, modulator and other circuits which produce a radio or television electromagnetic wave signal for radiation into the atmosphere by an antenna.

**Transponder** : A combination receiver, frequency converter, and transmitter package, physically part of a communications satellite. Transponders pick up signals transmitted from earth, translates them into new frequencies and amplifies them before retransmitting them back to ground. Transponders have a typical output of five to ten watts, operate over a frequency band with a 36 to 72 megahertz bandwidth in the L, C, Ku, and sometimes Ka Bands or in effect typically in the microwave spectrum, except for mobile satellite communications. Communications satellites typically have between 12 and 24 onboard transponders.

**TT & C** : Tracking, Telemetry, and Command (or Control)

**TTC&M** : Tracking, Telemetry, Command and Monitoring. A satellite's controlling Earth Station.

**TV-SAT** : German DBS satellite system.

**TVRO** : A television receive-only earth station designed only to receive but not to

transmit satellite communications.