



GLOSSARY AND ABBREVIATIONS

Antenna

A device for transmitting and receiving radio waves. Depending on their use and operating frequency, antennas can take the form of a single piece of wire, a dipole a grid such as a yagi array, a horn, a helix, a sophisticated parabolic-shaped dish, or a phase array of active electronic elements of virtually any flat or convoluted surface.

Backhaul

A terrestrial communications channel linking an earth station to a local switching network or population centre.

Bandwidth

How much data you can send through a connection. Usually measured in bits-per-second. A full page of English text is about 16,000 bits. Sometimes it refers to thousands of bytes per sec (kB), the page referred to would be 2Kb.

C Band

This is the band between 4 and 8 GHz with the 6 and 4 GHz band being used for satellite communications. Specifically, the 3.7 to 4.2 GHz satellite communication band is used as the down link frequencies in tandem with the 5.925 to 6,425 GHz band that serves as the uplink.

Circular Polarization

Unlike many domestic satellites which utilize vertical or horizontal polarization, the international Intelsat satellites transmit their signals in a rotating corkscrew-like pattern as they are down-linked to earth. On some satellites, both right-hand rotating and left-hand rotating signals can be transmitted simultaneously on the same frequency; thereby doubling the capacity of the satellite to carry communications channels.

DAMA

Demand-Assigned Multiple Access - A highly efficient means of instantaneously assigning telephony channels in a transponder according to immediate traffic demands.

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.

DVB

Digital Video Broadcasting - The European-backed project to harmonise adoption of digital video.

Earth Station

The term used to describe the combination of antenna, low-noise amplifier (LNA), down-converter, and receiver electronics. used to receive a signal transmitted by a satellite. Earth Station antennas vary in size from the .2 foot to 12 foot (65 centimetres to 3.7 meters) diameter size used for TV reception to as large as 100 feet (30 meters) in diameter sometimes used for international communications.

The typical antenna used for INTELSAT communication is today 13 to 18 meters or 40 to 60 feet.

Firewall

A special computers set up on a network to prevent intruders from stealing or destroying confidential files.

Footprint

A map of the signal strength showing the EIRP contours of equal signal strengths as they cover the earth's surface. Different satellite transponders on the same satellite will often have different footprints of the signal strength. The accuracy of EIRP footprints or contour data can improve with the operational age of the satellite. The actual EIRP levels of the satellite, however, tends to decrease slowly as the spacecraft ages.

Hub

The master station through which all communications to, from and between micro terminals must flow. in the future satellites with on-board processing will allow hubs to be eliminated as MESH networks are able to connect all points in a network together.

Internet

A worldwide network of networks, the Internet is not an online service and has no real central "hub." Rather, it is a collection of millions of networks, online services, and single-user components as well as Web servers and email services.

ISP

Internet Service Provider. A company that provides an Internet connection.

Intranet

Internal systems, based on Internet technology, designed to connect the members of a specific closed-user group. An Intranet is a private Internet: a private network, usually a LAN or WAN, that enables the use of Internet based applications in a secure and private environment.

Ku Band

The frequency range from 10.9 to 17 GHz.

LAN

Local Area Network. A local area network is a short-distance (less than 500 metres) network used to link a group of computers together within a building. 10BaseT Ethernet is the most commonly used form of LAN. A piece of hardware called a hub (or sometimes a switch) serves as the common wiring point, enabling data to be sent from one machine to another over the network, which may be a mixture of copper or fibre-optic cables.

L-Band

The frequency range from 0.5 to 1.5 GHz. Also used to refer to the 950 to 1450MHz used for mobile communications.

Low Noise Block Downconverter (LNB)

A combination Low Noise Amplifier and downconverter built into one device attached to the feed.

Microwave

Line-of sight, point-to-point transmission of signals at high frequency. Many CATV

systems receive some television signals from a distant antenna location with the antenna and the system connected by microwave relay. Microwaves are also used for data, voice, and indeed all types of information transmission. The growth of fibre optic networks have tended to curtail the growth and use of microwave relays.

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.

Multiplexing

Techniques that allow a number of simultaneous transmissions over a single circuit.

Rain Outage

Loss of signal at Ku or Ka Band frequencies due to absorption and increased sky-noise temperature caused by heavy rainfall.

RAS

Remote Access Services a Windows service that allows users to log into a Windows based LAN using any one of a variety of methods and protocols.

Router

Network layer device that determines the optimal path along which network traffic should be forwarded. Routers forward packets from one network to another based on network layer information.

Server

A server is a computer that handles requests for data, e-mail, web pages, file transfers, and other network services from other computers

SSPA

Solid state power amplifier. A VSLI solid state device that is gradually replacing Travelling Wave Tubes in satellite communications systems because they are lighter weight and are more reliable.

Transponder

A combination receiver, frequency converter, and transmitter package, physically part of a communications satellite. 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 although the INTELSAT VI at the extreme end has 50.

Uplink

The earth station used to transmit signals to a satellite.

VSAT

Very Small Aperture Terminal. An earth station, used for the reliable transmission of data, video, or voice via geo-stationary satellite, with a relatively small dish-antenna (often 2.4m or 3.8m in diameter).

WAN

Wide Area Network. Two or more local area networks joined over any geographical distance.

Wireless Network / WiFi

This uses low power microwave radio to link one or more groups of users together, or to provide a link between two buildings. It can span several kilometres point to point but cannot be used where trees are in the way (water in the leaves absorb the radio signal). WiFi hotspots cover an area of a hundred metres radius using multiple channels to provide multi-user access to a central Internet access point.