

# Glossary

**Access Line:** A local access connection (fixed or wireless) between a customer's premises and a carrier's central office switch.

**Aerial Cable:** Cable suspended in the air on poles or other overhead structures.

**Air Core:** A telephone outside plant cable construction for aerial and duct installation in which the insulated conductors in the cable core are surrounded by air.

**Alloy:** A combination of two or more metals to form a new or different metal, having specific or desirable qualities.

**ALPETH:** Telephone cable sheath employing a corrugated aluminum shield and an outer polyethylene jacket.

**American Wire Gauge:** (AWG)

A standard used in the determination of the physical size of a conductor determined by its circular mil area. AWG is used in the U.S. to designate the size of wire and conductors. The gauge numbers are retrogressive—the larger the gauge number the smaller the wire.

**Analog Signal:** A signal in which the intelligence is represented by continuously varying quantities.

**Anneal:** The act of softening a metal, such as copper, by means of heat to render it less brittle.

**Armor:** Mechanical protection usually accomplished by a metallic layer of tape, braid or served wires. Normally found only over the outer sheath.

**ASP:** A cable sheath consisting of a corrugated aluminum (A) shield, corrugated steel (S) shield, flooding compound and an outer polyethylene (P) jacket.

**ASTM:** Abbreviation of the American Society for Testing and Materials, a non-profit industry-wide organization which publishes standards, methods of test, recommended practices, definitions and other related material.

**Attenuation:** Power loss in an electrical system. In cables, generally expressed in dB per unit length, usually 1,000 feet.

**Bandmarking:** A circumferential color band applied to an insulated conductor at regular intervals for identification.

**Bandwidth:** The frequency range of electrical signals transmitted.

**Binder:** Usually spirally wrapped tape or thread used for holding assembled cable components in place.

**Buried Cable:** A cable installed directly in the earth without use of underground conduit. Also called direct buried cable.

**Cable:** Insulated conductors or twisted group of insulated conductors used for the transmission of electrical energy.

**Cabling:** The act of twisting together two or more insulated components by machine to form a cable.

**Capacitance:** The ratio of the electrostatic charge on a conductor to a potential difference between the conductors required to maintain that charge.

**Carrier:** A telco that owns and operates its own network and provides transmission services to other service providers through its facilities.

**Central Office:** A building housing the telephone switching apparatus.

**Cold Bend:** A laboratory test procedure whereby a sample of wire or cable is wound around a mandrel of a specified size at a specified temperature for a given number of turns at a given rate of speed and examined for defects.

**Color Code:** A color system for circuit identification by use of solid colors, tracers, braids, surface marking, etc.

**Compound:** A term used to designate an insulating or jacketing material made by mixing two or more ingredients. To Compound: the combining of two or more different materials to make one material.

**Conductivity:** A term used in describing the capability of a material to carry an electrical charge. Usually expressed as a percentage of copper conductivity—copper being one hundred (100%) percent. Conductivity is expressed for a standard configuration of conductor.

**Conductor:** Any material capable of easily carrying an electrical charge.

**Conduit:** A tube or trough for protecting electrical wires and cables. It may be a rigid or flexible tube into which insulated electrical wires are pulled.

**Core:** In cables, a component or assembly of components over which additional components (shield, sheath, etc.) are applied.

**Crosstalk:** Signal interference between nearby conductors caused by the pickup of stray energy.

**Decibel (dB):** A standard of unit based on a logarithmic scale for expressing transmission gain or loss and relative power levels.

**Dielectric:** Any insulating medium which intervenes between two conductors and permits electrostatic attraction and repulsion to take place across it.

**Dielectric Constant:** The ratio of the capacitance of an insulated wire with that of the same wire uninsulated in air.

**Dielectric Strength:** The voltage which an insulation can withstand before breakdown occurs. Usually expressed as a voltage gradient (such as volts per mil).

**Dielectric Test:** A test in which a voltage higher than the rated voltage is applied for a specified time to determine the adequacy of the insulation under normal conditions.

**Digital Signal:** A signal in which the data is represented by a series of discrete steps or pulses.

**Digital Subscriber Line (DSL):** A technology used to increase the capacity of copper telephone lines.

**Distribution Cable:** The cable portion of the local outside plant network between the feeder cable and the subscriber.

**Drain Wire:** An uninsulated wire in a cable used to facilitate shield connection.

**Drawing:** In the manufacture of wire, pulling the metal through a die or series of dies in order to reduce the diameter to a specified size.

**Drop Wire:** A wire designed for use as service drops from aerial distribution terminals to subscriber station protectors.

**Duct:** An underground or overhead tube for carrying electrical conductors.

**Elongation:** The fractional increase in length of a material stressed in tension.

**Embossing:** A means of marker identification by means of thermal indentation leaving raised lettering on a cable's sheath material.

**Ethernet:** A local area network (LAN) which uses the CSMA/CD (Carrier Sense Multiple Access with Collision Detection) access method on a bus topography.

**Extrusion:** Method of continuously forcing plastic, rubber, or elastomer material through an orifice to apply insulation or jacketing over a conductor or cable core.

**Figure 8 Cable:** An aerial cable configuration in which the conductors and steel strand, which supports the cable, are integrally jacketed. A cross-section of the finished cable approximates the figure "eight".

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**Filled Cable:** A telephone outside plant cable construction for direct buried installation in which the cable core is filled with a material that will prevent moisture from entering or passing through the cable.

**Flame Resistance:** Measure of a material's ability not to propagate flame once the source of heat is removed.

**Flammability:** Measure of a material's ability to support combustion.

**Foam Skin Cable:** A cable utilizing a foamed polyolefin inner layer covered by a solid polyolefin skin as the conductor insulation.

**Frequency:** The number of cycles, now expressed as hertz, by an alternating current in one second. The hertz is equivalent to the older unit cycles per second.

**Gauge:** A term used to denote the physical size of a wire.

**Ground:** 1) An electrical term meaning to connect to the earth or other large conducting body to serve as an earth thus making a complete electrical circuit; 2) A wire intended to be used for grounding (also called grounding conductor).

**Helical Stripe:** A continuous, colored, spiral stripe applied over the outer perimeter of an insulated conductor for circuit identification purposes.

**Hygroscopic:** Capable of absorbing moisture from the air.

**Impact Strength:** A test designed to ascertain the abuse a cable configuration can absorb, without physical or electrical breakdown, by impacting with a given weight, dropped from a given height, in a controlled environment.

**Impedance:** The total opposition that a circuit offers to the flow of alternating current at a particular frequency. It is a combination of resistance R and reactance X, measured in ohms.

**Inductance:** The property of a circuit or circuit element that opposes a change in current flow, thus causing current changes to lag behind voltage changes. It is measured in henrys.

**Insulated Wire:** A conductor of electricity covered with a non-conducting material.

**Insulation:** A non-conductive material usually surrounding or separating two conductive materials. Often called the dielectric in a radio frequency cable.

**Insulation Resistance:** That property of an insulating material which resists electrical current flow through the insulating material when a potential difference is applied.

**Integrated Service Digital Network (ISDN):** A digital data communications network providing full integration of data, voice and video.

**Interconnect Companies:** Companies which sell, install and maintain telephone systems for end users.

**Interexchange Carrier (IXC):** A long-distance telephone carrier authorized to carry transmissions between local access and transport areas.

**Internet Protocol (IP):** The set of rules that defines how information is packaged and addressed for delivery across the Internet.

**Internet Service Provider (ISP):** A company that offers consumers and businesses access to the internet and other related services.

**Interstices:** In cable construction, the spaces, valleys or voids between or around the cable's components.

**Jacket:** A material covering over a wire insulation or an assembly of components. An overall jacket on a complex cable grouping. Also called a sheath.

**Lay:** A term used in cable manufacturing to denote the distance of advance of one member of a group of spirally twisted members, in one turn, measured axially.

**Local Area Network (LAN):** A network spanning a limited geographical area, providing data communications between computers and peripherals, and switching equipment.

**Local Exchange Carrier (LEC):** A telephone company that provides the dial tone to the end consumer. Incumbent local exchange carriers (ILECs) are the Bell Operating companies and smaller independent phone companies that originally provided local phone services to specific geographic communities on a regulated, monopoly basis. CLECs are competitive local carriers created out of the Telecommunications Act of 1996.

**Local Number Portability (LNP):** The practice of letting a customer switch service from one local company to another without having to change their telephone number.

**Longitudinal Wrap:** A tape applied longitudinally with the axis of the core being covered, as opposed to a helical, or spiral, tape wrapped core.

**Marker Thread:** A colored thread laid parallel and adjacent to the strands of an insulated conductor which identifies the cable manufacturer. It may also denote a temperature rating or the specification to which the cable is made.

**Mil:** 1/1000 of an inch.

**Moisture Resistance:** The ability of a material to resist absorbing moisture from the air or when immersed in water.

**Mutual Capacitance (Cm):** The capacitance between two conductors when all other conductors, including the shield, are short circuited to ground.

**National Electrical Code (NEC):** A consensus standard published by the National Fire Protection Association (NFPA) and incorporated in OSHA regulations.

**Network:** 1) Series of points connected by communications channels; 2) Network of telephone lines normally used for dialed telephone calls; 3) Network of communications channels connected to the use of one customer. For purposes of data communications applications, components in a common geographical area, served by a common computer, or performing a common function may be defined as one network. Also defined as one or more interconnected data links.

**Ohm:** A unit of electrical resistance, the resistance of a circuit in which a potential difference of one volt produces a current of one ampere.

**Outside Plant (OSP):** All cables and wires extending outward from the network protectors on the main distribution frame to connect the terminal equipment to the Outside Plant.

**Pair:** Two wires forming a single circuit, held together by twisting, binding, or a common jacket.

**Parallel:** A construction in which two or more conductors are laid parallel and surrounded and separated by an insulating material.

**PASP:** A cable sheath consisting of an inner polyethylene (P) jacket, corrugated aluminum (A) shield, corrugated steel (S) and an outer polyethylene (P) jacket.

**PIC:** An abbreviation for Plastic Insulated Conductor: conductors covered with an extruded coating of plastic.

**Plasticizer:** A chemical agent added in compounding plastics to make them softer and more flexible.

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**Polyethylene:** A family of insulating materials derived from polymerization of ethylene gas. They are basically pure hydrocarbon resins with excellent dielectric properties.

**Polyvinyl Chloride (PVC):** A general purpose thermoplastic widely used for wire and cable insulations and jackets.

**Pressurization:** The use of pressurized gas or dry air inside Air Core cables to prevent the entry of water at faulty splices or minor sheath cracks. It can also trigger an alarm when major faults occur and can assist in locating the damaged areas.

**Pulling Eye:** A device which may be fastened to the conductor(s) or jacket of a cable or formed by or fastened to the wire armor and to which a hook or rope may be directly attached in order to pull the cable through a duct.

**Put-Up:** Refers to the packaging of wire and cable. The term itself refers to the quantity of product that is ready to be stored or shipped.

**Regional Bell Operating Company (RBOC):** A holding company formed by the divestiture of AT&T to provide both regulated and non-regulated telephone services.

**Resistance:** The property of an electric circuit which determines for a given current the rate at which electric energy is converted into heat and has a value such that the current squared multiplied by the resistance gives the power converted.

**Restriction on Hazardous Substances (RoHS):** The European Commission's Directive 2002/95/EC adopted January 27, 2003, also known as "RoHS," which restricts the use of certain hazardous substances in electrical and electronic equipment.

**Ring Banding:** See Bandmarking.

**Rip Cord:** A cord placed directly under the jacket of a cable in order to facilitate stripping (removal) of the jacket.

**Screened Cables:** A cable core design where an aluminum shield divides the cable core into two electrically separate compartments.

**Sheath:** The combination of a metallic shield and an extruded plastic jacket applied as the outermost covering on a cable. In the absence of a shield, the extruded jacket may be designated as a sheath.

**Shield:** A metallic layer placed around an insulated conductor or group of conductors to prevent electrostatic or electromagnetic interference between the enclosed wires and external fields. This shield can be braided or served wires, foil wrap, foil backed tape, a metallic tube, or conductive vinyl or rubber. When a metallic braid of tinned or bare copper is applied over the insulated conductor, the shielding effectiveness is in proportion to the amount of coverage, usually expressed as a percentage.

**Spark Test:** A test designed to locate pinholes in a wire's insulation by application of an electrical potential across the material for a very short period of time while the wire is drawn through an electrode field with one end of the wire grounded.

**STALPETH:** A cable sheath consisting of a corrugated steel (ST) shield applied over a corrugated aluminum (AL) shield and an outer polyethylene (PETH) jacket.

**Stranding:** The manufacturing process by which cable components are assembled around a central piece, forming a round core.

**Tank Test:** A voltage dielectric test in which the wire or cable test sample is submerged in water and voltage is applied between the conductor and water as ground.

**Temperature Rating:** The maximum temperature at which the insulating material may be used in continuous operation without loss of its basic properties.

**Tensile Strength:** A term denoting the greatest longitudinal tensile stress a substance can bear without tearing apart or rupturing.

**Thermoplastic:** Material that will soften and distort from its formed shape by heating above a critical temperature peculiar to the material.

**Tinned Wire:** Copper wire that has been coated with a layer of tin or solder to simplify soldering.

**Tracer Stripe:** When more than one color coding stripe is required, the first, or widest, stripe is the base stripe; the other, usually narrower stripes, being termed tracer stripes.

**Twisted Pair:** Two insulated conductors spiraled together.

**UL:** Abbreviation for Underwriters Laboratories, a non-profit independent organization, which operates a listing service for electrical and electronic materials and equipment.

## Unbundled Network Element Provider

**(UNE-P):** The wholesale purchase of all network elements from the RBOC, with the CLEC retaining the responsibility for integrating the elements together in order to complete connections and provide service.

**Voice Frequency:** Any of the frequencies that are audible to the human ear. For telephone transmission the range is generally from 300 to 3,400 Hz.

**Volt:** The standard unit of electromotive force or electrical pressure. One volt is the amount of pressure that will cause one ampere of current to flow through one ohm of resistance.

**Voltage Rating:** The highest voltage that may be continuously applied to a wire in conformance with standards or specifications.

**VW-1:** A test used by Underwriters Laboratories to classify wires and cables with regard to their resistance to burning. (Formerly designated as FR-1.)

**Wall Thickness:** A term expressing the thickness of a layer of applied insulation or jacket.

**Wide Area Network (WAN):** A network spanning a broad geographical area, providing data communications between computers and peripherals, and switching equipment.

**Wire:** 1) A single piece of slender, flexible metal, ranging in approximate size from a piece that is difficult to bend by hand to a fine thread. 2) Several wires as in (1) twisted together.