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Glossary

Alien Crosstalk: Noise or interference caused by electromagnetic coupling from one cable to another cable, expressed in decibels.

Attenuation: See Insertion Loss.

Attenuation to Crosstalk Ratio (ACR): The difference between insertion loss and crosstalk measured in decibels.

Attenuation to Crosstalk Ratio, Far-end (ACR-F): Crosstalk measured at the opposite end from which the disturbing signal is transmitted, normalised by the insertion loss of the cable or cabling.

Backbone Cabling: Cable and connecting hardware that comprises of the main and intermediate cross-connects, as well as cable runs that extend between telecommunications rooms, equipment rooms and entrance facilities.

Balance An indication of signal voltage equality and phase polarity on a conductor pair. Perfect balance occurs when the signals across a twisted-pair are equal in magnitude and opposite in phase with respect to ground.

Balanced Signal Transmission: Two voltages, equal and opposite in phase with respect to each other, across the conductors of a twisted-pair (commonly referred to as tip and ring).

Balun: An impedance matching transformer used to convert unbalanced signals to balanced signals and vice versa.

Bandwidth: A range of frequencies, usually the difference between the upper and lower limits of the range, typically expressed in megahertz (MHz). It may also be used to describe the information-carrying capacity of a medium. Optical fiber bandwidth is specified in megahertz kilometres (MHz.km).

Bonding: The permanent joining of metallic parts to form an electrically conductive path that will assure electrical continuity and the capacity to conduct safely any current likely to be imposed on it.

Bridged Tap: The multiple appearances of the same cable pair or fiber at several distribution points. Also known as parallel connections.

Bridging: A means of providing through connections between conductors or pairs that are terminated on connecting blocks. These through connections are commonly provided by means of individual metallic "bridging" clips or multiple "bridging" clips that are housed in a plastic insulator.

Building Distributor (BD): The international term for intermediate cross-connect. A distributor in which the building backbone cable(s) terminates and at which connections to the campus backbone cable(s) may be made.

Bundled Cable: An assembly of two or more cables continuously bound together to form a single unit prior to installation (sometimes referred to as loomed, speed-wrap or whip cable constructions).

Cabling: A combination of cables, wire, cords and connecting hardware used in the telecommunications infrastructure.

Campus Backbone: Cabling between buildings that share telecommunications facilities.

Campus Distributor (CD): The international term for main cross-connect. The distributor from which the campus backbone cable emanates.

Category:

- ANSI/TIA/568-C series of documents, the North American standards for cabling describes mechanical properties and transmission characteristics of balanced cabling components and assigns a unique number classification (category 3, category 5e, category 6 and category 6A).

2. ISO/IEC 11801 2nd edition, the international standard for cabling and local standardization documents define cabling component categories based on transmission performance parameters such as attenuation and NEXT loss, over a specified frequency range. Component categories category 5, category 6, category 6A, category 7 and category 7A.

Channel: The end-to-end transmission path connecting any two points at which application specific equipment is connected. Equipment and work area cables are included in the channel.

Classification: Application classes for cabling have been identified for the purpose of the ISO/IEC 11801 standard;

- Class A: cabling is characterized up to 100 kHz
- Class B: cabling is characterized up to 1 MHz
- Class C: cabling is characterized up to 16 MHz
- Class D: cabling is characterized up to 100 MHz
- Class E: cabling is characterized up to 250 MHz
- Class E_A: cabling is characterized up to 500 MHz
- Class F: cabling is characterized up to 600 MHz
- Class F_A: cabling is characterized up to 1000 MHz
- Optical Class: optical fiber links are characterized from 10 MHz and above.

Collapsed Backbone: A centralized network contained in one device. The network is said to be collapsed and made to fit into a box. Individual networks are connected to this central device and can then communicate with one another.

Common Mode Transmission: A transmission scheme where voltages appear equal in magnitude and phase across a conductor pair with respect to ground. May also be referred to as longitudinal mode.

Consolidation Point (CP): A location for interconnection between horizontal cables that extend from building pathways and horizontal cables that extend into work area pathways.

Cross-connect: A facility enabling the termination of cables as well as their interconnection or cross-connection with other cabling or equipment. Also known as a distributor.

Cross-connection: A connection scheme between cabling runs, subsystems and equipment using patch cords or jumpers that attach to connecting hardware on each end.

Crosstalk: Noise or interference caused by electromagnetic coupling from one signal path to another. Crosstalk performance is generally expressed in decibels.

Decibel (dB): A standard unit for expressing transmission gain or loss as derived from a ratio of signal voltages or power.

Delay Skew: The difference in propagation delay between the fastest and slowest pair in a cable or cabling system.

Demarcation Point (DP): A point at which two services may interface and identify the division of responsibility.

Differential Mode Transmission: A transmission scheme where voltages appear equal in magnitude and opposite in phase across a twisted-pair with respect to ground. May also be referred to as balanced mode.

Distributor: The term used for the functions of a collection of components (e.g. patch panels, patch-cords) used to interconnect cables.

Electromagnetic Compatibility (EMC): The ability of a system to minimise radiated emissions and maximize immunity from external noise sources.

Electromagnetic Interference (EMI): The interference in signal transmission or reception caused by the radiation of electrical and magnetic fields.

Entrance Facility (EF): An entrance to a building for both public and private network service cables (including antennae), including the entrance point at the building wall and continuing to the entrance room or space. Entrance facilities are often used to house electrical protection equipment and connecting hardware for the transition between outdoor and indoor cable.

Entrance Facility, Telecommunications: An entrance to a building for both public and private network service cables (including antennae) beginning with the entrance point at the building wall and continuing to the entrance room or space.

Entrance Point, Telecommunications: The point of emergence of telecommunications conductors through an exterior wall, a concrete floor slab, or from a rigid metal conduit or intermediate metal conduit.

Equipment Cable: A cable or cable assembly used to connect telecommunications equipment to horizontal or backbone cabling.

Equipment Room (ER): A centralised space for telecommunications equipment that serves the occupants of the building or multiple buildings in a campus environment. An equipment room is considered distinct from a telecommunications room because it is considered to be a building or campus serving (as opposed to floor serving) facility and because of the nature or complexity of the equipment that it contains.

Equipment Room, Telecommunications: A centralised space for telecommunications equipment that serves the occupants of the building. An equipment room is considered distinct from the telecommunications room because of the nature and complexity of the equipment it houses.

Far-end Crosstalk (FEXT): Crosstalk measured at the opposite end from which the disturbing signal is transmitted.

Fibre Optic Transmission: A communications scheme whereby electrical data is converted to light energy and transmitted through optical fibres.

Floor Distributor (FD): The international term for horizontal cross-connect. The distributor used to connect between the horizontal cable and other cabling subsystems or equipment.

Fully Shielded twisted-pair (S/FTP): A balanced twisted-pair cable containing balanced twisted-pair conductors that are individually foil shielded, surrounded by an overall metallic braid, and bound in a single cable sheath.

Ground: A conducting connection, whether intentional or accidental, between an electrical circuit (telecommunications) or equipment and earth, or to some conducting body that serves in place of the earth.

Hertz (Hz): A measure of frequency as defined in units of cycles per second.

Horizontal Cabling: The cabling between and including the telecommunications outlet and the horizontal cross-connect.

Horizontal Cross-connect (HC): A cross-connect of horizontal cabling to other cabling, e.g., horizontal, backbone, or equipment.

Hybrid Cable: An assembly of two or more cables, of the same or different types or categories, covered by one overall sheath.

Insertion loss

1. The loss resulting from the insertion of a device in a transmission line, expressed as the reciprocal of the ratio of the signal power delivered to that part of the line following the device to the signal power delivered to that same part before insertion.

2. In an optical fibre system, the loss of optical power caused by inserting a component, such as a connector, coupler or splice, into a previously continuous optical path.

Insulation Displacement Connection (IDC): A wire connection device that penetrates the insulation of a copper wire when it is being inserted (punched-down) into a metal contact, allowing the electrical connection to be made.

Interbuilding Backbone: Telecommunications cable(s) that are part of the campus subsystem that connect one building to another.

Interconnection: A connection scheme that provides direct access to the cabling infrastructure and the ability to make cabling system changes using equipment cords.

Intermediate Cross-Connect (IC): The connection point between a backbone cable that extends from the main cross-connect (first-level backbone) and the backbone cable from the horizontal cross-connect (second-level backbone).

Intrabuilding Backbone: Telecommunications cable(s) that are part of the building subsystem that connect one equipment room to another.

Jumper Wire: An assembly of twisted-pairs without connectors on either end used to join telecommunications links at a cross-connect.

Laser Optimised: A multimode optical fibre with a refractive index profile optimised for use with laser light sources.

Link: An end-to-end transmission path provided by the cabling infrastructure. Cabling links include all cables and connecting hardware that comprise the horizontal or backbone subsystems. Equipment and work area cables are not included as part of a link.

Local Area Network (LAN): A geographically limited data communications system for a specific user group consisting of a group of interconnected computers, sharing applications, data and peripheral devices such as printers and CD-ROM drives intended for the local transport of data, video, and voice.

Longitudinal Conversion Loss (LCL): A measure (in dB) of the differential voltage induced on a conductor pair as a result of subjecting that pair to longitudinal voltage. LCL is considered to be a measure of circuit balance.

Main Cross-connect (MC): A cross-connect for first level backbone cables, entrance cables, and equipment cables.

Modular Jack: A telecommunications outlet/connector for wire or cords as defined in the FCC Part 68 Subpart F. Modular jacks can have 4, 6 or 8 contact positions, but not all the positions need be equipped with contacts.

Modular Plug: A telecommunications connector for wire or cords as defined in the FCC Part 68 Subpart F. Modular plugs can have 4, 6 or 8 contact positions, but not all the positions need be equipped with contacts.

Multimedia:

1. An application that communicates to more than one of the human sensory receptors.
2. Applications that communicate information by more than one means or cabling media.

Multimode Optical Fibre: An optical fibre that will allow multiple modes of light to propagate. The fibre may be either a graded-index or step-index fibre. Multimode optical fibres have a much larger core than singlemode fibres. See also Optical Fibre Cable.

Multi-user Telecommunications Outlet Assembly (MuTOA): A grouping in one location of several telecommunications/outlet connectors.

Nanosecond (ns): One billionth of a second (10^{-9} seconds).

Near-end Crosstalk (NEXT Loss): The undesired coupling of a signal from one pair of wires to another. Signal distortion as a result of signal coupling from one pair to another at various frequencies.

Network Demarcation Point: The point of interconnection between the local exchange carrier's telecommunication facilities and the telecommunications systems wiring and equipment the end user's facility. This point shall be located on the subscriber side of the telephone company's protector or the equivalent thereof in cases where a protector is not required.

Open Office Cabling: The cabling that distributes from the telecommunications closet to the open office area utilising a consolidation point or multi-user telecommunications outlet assembly.

Outlet, Telecommunications: A fixed connecting device where the horizontal cable terminates. The telecommunications outlet provides the interface to the work area cabling. Sometimes referred to as a telecommunications outlet/connector.

Outlet/Connector, Telecommunications: A connecting device in the work area on which horizontal cable terminates.

Patch Cord: A length of cable with connectors on one or both ends used to join telecommunications links at a cross-connect.

Patch Panel: Connecting hardware that typically provides means to connect horizontal or backbone cables to an arrangement of fixed connectors that may be accessed using patch cords or equipment cords to form cross-connections or interconnections.

Pathway: A facility (i.e. conduit) for the placement and protection of telecommunications cables. Same as raceway or ducting.

Plenum: A compartment or chamber to which one or more air ducts are connected and that forms part of the air distribution system.

Private Branch Exchange (PBX): A private switching system usually serving an organisation, such as a business, located on the customer's premises. It switches calls both inside a building or premises and outside to the telephone network, and can sometimes provide access to a computer from a data terminal.

Propagation Delay: The amount of time that passes between when a signal is transmitted and when it is received at the opposite end of a cable or cabling.

Punch Down: A method for securing wire to a quick clip in which the insulated wire is placed in the terminal groove and pushed down with a special tool. As the wire is seated, the terminal displaces the wire insulation to make an electrical connection. The punch down operation may also trim the wire as it terminates. Also called cut down.

Return Loss: Noise or interference caused by impedance discontinuities along the transmission line at various frequencies. Return loss is expressed in decibels.

Shielded twisted-pair (F/UTP): A balanced twisted-pair cable surrounded by foil (screen) and bound in a single cable sheath.

Shielded twisted-pair (F/FTP): A balanced twisted-pair cable where each twisted pair is surrounded by an individual foil, and all four pairs are surrounded by an overall foil (screen), bound in a single cable sheath.

Singlemode Optical Fibre: An optical fibre that will allow only one mode of light to propagate; this fibre is typically a step-index fibre.

Small Form Factor: An optical fibre connector and adapter that provide for two strands of fibre in a surface area similar to an unshielded twisted-pair (RJ-style) plug and socket.

Star Topology:

1. A method of cabling each telecommunications outlet/connector directly to a cross-connect in a horizontal cabling subsystem.
2. A method of cabling each cross-connect (HC and IC) to the main cross-connect (MC) in a backbone cabling subsystem.

Surge: A rapid rise in current or voltage, usually followed by a fall back to a normal level. Also referred to as transient.

Telecommunications: Any transmission, emission or reception of signs, signals, writings, images, sounds or information of any nature by cable, radio, visual, optical or other electromagnetic systems.

Telecommunications Room (TR): An enclosed space for housing telecommunications equipment, cable terminations and cross-connect cabling used to serve work areas located on the same floor. The telecommunications closet is the typical location of the horizontal cross-connect and is considered distinct from an equipment room because it is considered to be a floor serving (as opposed to building or campus serving) facility.

Telecommunications Industry Association (TIA): An organisation that sets standards for cabling, pathways, spaces, grounding, bonding, administration, field testing and other aspects of the telecommunications industry.

Topology: The physical or logical layout of links and nodes in a network. These include star, ring and bus configurations.

Transfer Impedance: A measure (in milliohms / metre Ω) of shield effectiveness.

Trunk: A communication line between two switching systems. The term "switching systems" typically includes equipment in a central office (the telephone company) and PBXs. A tie trunk connects PBXs. Central office trunks connect a PBX to the switching system at the central office.

Unshielded Twisted-Pair (UTP): A balanced twisted-pair cable bound in a single cable sheath.

Work Area: The area where horizontal cabling is connected to the work area equipment by means of a telecommunication outlet. A station/desk which is served by a telecommunications outlet. Sometimes referred to as a work station.

Work Area Cable: A cable assembly used to connect equipment to the telecommunications outlet in the work area. Work area cables are considered to be outside the scope of cabling standards.

Please visit our standards update section of our website for the latest information on industry standards.

Acronyms & Abbreviations

ACR	Attenuation-to-crosstalk ratio
ANSI	American National Standards Institute
AWG	American wire gauge
BD	Building distributor
BER	Bit Error Rate
CD	Campus distributor
CP	Consolidation point
CPE	Customer premises equipment
CSA	Canadian Standards Association
dB	Decibel
EF	Entrance facility
EMC	Electromagnetic compatibility
EMI	Electromagnetic interference
ER	Equipment room
FCC	Federal Communications Commission
FD	Floor distributor
ft.	Feet
FEXT	Far-end crosstalk
F/UTP	Shielded or screened twisted-pair
Gb/s	Gigabit per second
GHz	Gigahertz
HC	Horizontal cross-connect
HVAC	Heating, ventilation and air conditioning
Hz	Hertz
IC	Intermediate cross-connect
IDC	Insulation displacement connection
IEC	International Electrotechnical Commission
IEEE®	Institute of Electrical and Electronic Engineers®
ISO	International Standards Organisation
Kb/s	Kilobit per second
Km	Kilometre
LAN	Local area network
lbf	Pounds force
LED	Light emitting diode
m	Metre
µm	Micron; one millionth of a metre (0.000001); also micrometre
Mb/s	Megabits per second
MC	Main cross-connect
MPO	Multi-fibre push on
MTP®	Registered trademark of US Connec MPO-Style Connector
MHz	Megahertz
MHz.km	Megahertz kilometre
mm	Millimetre
MuTOA	Multi-user Telecommunications Outlet Assembly
NEXT	Near-end crosstalk
W	Ohm
nm	Nanometre
POE	Power over Ethernet
PBX	Private branch exchange
PVC	Polyvinyl chloride
RF	Radio frequency
RMS	Rack mount space
SC	Subscriber connector
SOHO	Small office home office
S/FTP	Fully shielded twisted-pair
TIA	Telecommunications Industry Association
TO	Telecommunications outlet
UL®	Underwriters Laboratories Inc.®
UPS	Uninterruptible power supply
USOC	Universal Service Order Code
UTP	Unshielded twisted-pair
Vrms	Volts root mean square
WA	Work area

METRIC CONVERSION CHART

Imperial-to-Metric

Metric-to-Imperial

DISTANCE

To convert:	Into:	Multiply by:	To convert:	Into:	Multiply by:
Inches (in.)	Millimetres (mm)	25.4	Millimetres (mm)	Inches (in.)	0.039
	Centimetres (cm)	2.54		Feet (ft.)	0.003
	Metres (m)	0.0254			
Feet (ft.)	Centimetres (cm)	30.48	Centimetres (cm)	Inches (in.)	0.394
	Metres (m)	0.3048		Feet (ft.)	0.033
Yards (yd.)	Centimetres (cm)	91.4	Metres (m)	Feet (ft.)	3.281
	Metres (m)	0.914		Yards (yd.)	1.093
Miles (mi.)	Kilometres (km)	1.609	Kilometres (km)	Miles (mi.)	0.621

WEIGHT

To convert:	Into:	Multiply by:	To convert:	Into:	Multiply by:
Ounces (oz.)	Grams (gm)	28.35	Grams (gm)	Ounces (oz.)	0.035
	Kilograms (kg)	0.028		Pounds (lb.)	0.002
Pounds (lb.)	Kilograms (kg)	0.454	Kilograms (kg)	Pounds (lb.)	2.203

FORCE

To convert:	Into:	Multiply by:	To convert:	Into:	Multiply by:
Foot Pounds (lb-ft)	Newton Metres (N-m)	1.36	Newton Metres (N-m)	Foot Pounds (lb-ft)	0.738

TEMPERATURE

To convert:	Into:	Multiply by:	To convert:	Into:	Multiply by:
Fahrenheit ('F)	Celsius ('C)	0.56, then subtract 18	Celsius ('C)	Fahrenheit ('F)	1.8, then add 32

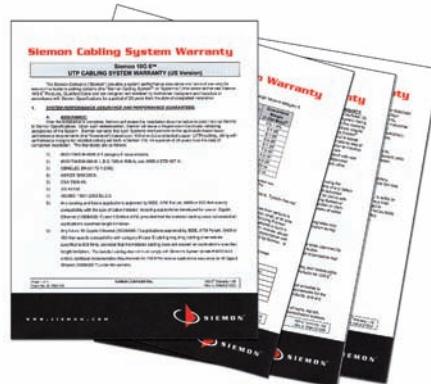
VOLUME

To convert:	Into:	Multiply by:	To convert:	Into:	Multiply by:
Quarts (qt.)	Litres (L)	0.946	Litres (L)	Quarts (qt.)	1.057
Gallons (U.S.) (gal.)	Litres (L)	3.785		Gallons (U.S.) (gal.)	0.264

Warranty

Siemon delivers a full range of product and system warranty programs:

- A one (1) year repair or replace warranty on Tools and Testers and active electronics (ie MapIT G2)
- A five (5) year repair or replace warranty for all Siemon Products (cabling system connecting hardware) when not installed in a certified Siemon Cabling System®
- An extended Siemon Cabling System Warranty covering application assurance, product, quality and performance margins when designed and installed by Siemon Certified InstallerSM and registered with Siemon.



Please contact your local Siemon Company sales office or visit Siemon's website for more information.

Limited Five (5) Year Product Warranty

Siemon warrants its products to be free from defects in material and workmanship. Should any product fail to conform, Siemon will, upon written notice from Distributor of such non-conforming product, within five (5) years after date of purchase, either replace it F.O.B. original point-of-delivery, or refund the purchase price, at Siemon's option, and shall have the right to require Distributor to return the defective product to Siemon's plant unless such return is impracticable. The remedies provided herein shall be Buyer's sole and exclusive remedies, and no statement or recommendation not contained herein shall have any force or effect unless in writing and

signed by an authorized officer of Siemon. Siemon makes no warranty, expressed or implied, as to merchantability or fitness for a particular purpose of any product sold. In no event will Siemon be liable for any special incidental, or consequential damages, where asserted in contract, tort, or otherwise. This warranty applies only to those cabling products that are used to terminate or cross-connect telecommunications cabling. Warranty terms for other categories of cabling products (e.g., tools, test equipment, protection apparatus, etc.) may vary.

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