

Clipsal Datacomms – Professional Product and Applications Lifetime Warranty Program

Lifetime Warranty Program

This warranty specifically applies to Clipsal Datacomms - Professional products as defined in the Clipsal Datacomms - Professional catalogue. In order to comply with this warranty the product must be purchased from an Authorized Clipsal Datacomms Distributor, installed by an Authorized Clipsal Datacomms Systems Integrator and the site must have certified registered certificate issued by Clipsal Datacomms.

The product warranty from Clipsal Datacomms covers the passive components that are registered in the Clipsal Datacomms Professional range of products in the Clipsal Datacomms - Professional catalogue. Passive products are those not requiring energy or exhibiting gain.

The Clipsal Datacomms Professional products are free from manufactured defects in material or workmanship under normal and proper use.

All Clipsal Professional products including the entire Clipsal Datacomms Professional installation meet or exceed the relevant AS/NZS 3080 (Int):2002 standard.

The product warranty is only applicable to the original site of installation and Clipsal Datacomms will either replace or repair the defective product. Clipsal Datacomms will replace product either itself or through one of its certified Systems Integrators – including labor to reinstall.

Lifetime expressly refers to the operation of the product in the original site of installation and is owned by the original end user as listed on the Clipsal Professional Product and Applications Assurance warranty issued by Clipsal Datacomms.

Applications Assurance

This directly refers to the application as listed on the Clipsal Datacomms Professional Product and Applications Assurance Certificate. Clipsal Datacomms guarantees the stated application on the warranty will operate for the lifetime of the site.

The Applications Assurance is only applicable to the original site of installation and Clipsal Datacomms will either replace or repair defective product. Clipsal Datacomms will replace product either itself or through one of its certified Systems Integrators – including

labor to reinstall. It will ensure that the site is returned to support the original application as listed on the original Clipsal Datacomms Professional Product and Applications Assurance warranty. In the event that Category of product is no longer available, Clipsal Datacomms will provide the next highest rated product available. The reinstall will only cover the defective product and not the replacement of the entire system.

The Assurance program also covers any applications in accordance with recognized standards from either EIA/TIA or ISO 11801 that apply to the originally installed system.

Lifetime expressly refers to the operation of the product in the original site of installation and is owned by the original end user as listed on the Clipsal Datacomms Professional Product and Applications Assurance warranty issued by Clipsal Datacomms.

Claims

In the event of a claim for a site, the end user must determine the site application that fails due to the cabling system, the end user must notify the Clipsal Datacomms Systems Integrator, Clipsal Datacomms Authorized Distributor or Clipsal Datacomms direct. Clipsal Datacomms will verify the claim and determine a resolution to the claim. In the event investigation shows that the site cabling is not the cause of failure of operation, Clipsal Datacomms reserves the right to charge a site visit fee to recover costs of that visit.

Coverage

This lifetime warranty is only for the benefit for the original end user purchaser as listed on the Clipsal Datacomms Professional Product and Applications Assurance warranty.

Moves and Additions

All additions must be fully documented to Clipsal Datacomms and must be carried out by an Authorized Clipsal Datacomms Systems Integrator. All product used must be Clipsal Datacomms Professional Product as listed in the Clipsal Datacomms Professional catalogue. Any other brand of products used will void this warranty and systems assurance completely.

Audits

Clipsal will audit each year a percentage of new sites to ensure quality and compliance of the installation.

What is not covered by this warranty?

This warranty does not cover the failure of the installer to follow AS/NZS 3080 (Int):2002 guidelines for the appropriate Category of product used in the installation in either design or installation.

As previously mentioned any other product that is not Clipsal Datacomms Professional product as listed in the Clipsal Datacomms Professional Catalogue or any other vendors product will not be covered and if used will void the warranty completely.

Any installation work subsequent to the original installation that is not carried out by a Clipsal Datacomms Trained and Authorized Systems Integrator.

Any installation work subsequent to the original installation that has not been submitted for site amendment and updated certificate issued.

Any accidents, damage in transit, alteration, unauthorized repair, failure to follow instructions, misuse, fire, flood, acts of God, civil unrest or wars.

Any product not purchased from an Authorized Clipsal Datacomms Professional Distributor or product without purchase receipt from the Authorized Clipsal Datacomms Professional Distributor.

Any product reinstalled at any site automatically makes this warranty null and void.

This warranty does not cover any loss of time, inconvenience, loss of use of the Clipsal Datacomms product or any associated product, property damage caused by failure of the product to work or any other incidental or consequential damages.

Final Statement

This warranty and assurance is the only warranty on Clipsal Professional product and it sets forth all Clipsal Datacomms' responsibilities regarding the product. Repair or replacement by Clipsal Datacomms or its Authorized Clipsal Datacomms Professional Systems Integrators is the exclusive remedy.

Technical Information

Australian/New Zealand Standard™

Network standard: AS/NZS 3080(Int):2002

Telecommunications Installations - Generic cabling for commercial premises.

- i. Planning and installing of structured wiring systems
- ii. Cable and cross-connecting hardware specifications, performance and installation requirements
- iii. Physical star topology
- iv. Cabling divisions: Horizontal & Backbone

Horizontal: The maximum channel length shall be less than 100m

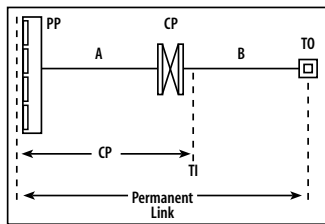
- i. Cabling installed between the floor distributor (FD) and the telecommunications outlet (TO)
- ii. Maximum distance of 90 metres for UTP & fibre from FD to TO, 3 metres for workstation jumpers and 7 metres for cross-connect jumpers and patch cords. Where this exceeds 10m the length of the fixed horizontal cable shall be reduced according to table 21, page 40
- iii. Two wall outlets per workstation
 - One cable must be 4 pair 100 Ohm UTP
 - Other cable can be any of the recognised media
- iv. Recognised media
 - 4 pair, 100 Ohm UTP
 - 4 pair 100 Ohm ScTP (F/UTP)
 - 50 or 62.5 µm Optic Fibre

Backbone: The maximum channel length shall be less than 2km and may require a mix of cabling media and performance

- i. Cabling between building entrance facility, campus/building distributor and floor distributor
- ii. Conventionally, vertical shaft cable; but also used in a star topology in a campus type network
- iii. Recognised media
 - 100 Ohm Multipair UTP
 - 100 Ohm Multipair ScTP (F/UTP)
 - 50 or 62.5 µm Optic Fibre
 - Single mode Fibre

Twisted-Pair Performance

Permanent link and consolidation point (CP) link model

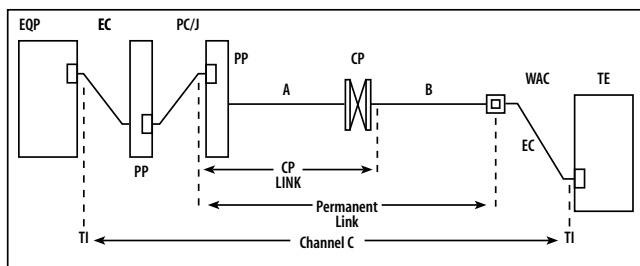


LEGEND

- PP = Patch Panel
- TO = Telecommunications Outlet
- TI = Test Interface
- CP = Consolidation Point

- The cabling under test in configuration A is termed the CP link. This configuration is cabled with fixed cabling only.
- The cable under test in configuration B is termed the permanent link. This configuration is cabled with fixed cabling only.
- The consolidation point (CP) shall only contain passive connection hardware which shall be located so there is at least 15m from it to the floor distributor.

Channel model



LEGEND

- EQP = Equipment Patch Panel
- EC = Equipment Cord
- PC/J = Patch Cord/Jumper
- PP = Patch Panel
- TO = Telecommunications Outlet
- TI = Test Interface
- CP = Consolidation Point
- WAC = Work Area Cord
- TE = Telecommunications Equipment

- The cabling under test in configuration C is termed the Channel. This configuration is cabled with fixed cabling and includes the performance of the Equipment cord, Patch and Jumper Cord, Work Area Cord and the fixed jumpering of the Consolidation Point.

Twisted-Pair Media

The following table defines the AS/NZS 3080 (Int):2002 CLASS (Category) for horizontal copper cables.

CLASS A (Category 1) and CLASS B (Category 2)

These twisted-pair cables are not recognised in the ANSI/TIA/EIA-568-A standard. Typically used for voice and low speed data (9600 b/s or less) transmission rates. The characteristics of these cables are specified up to 100KHz and 1 MHz respectively.

CLASS C (Category 3)

This designation applies to twisted-pair cable and connection hardware currently specified in the AS/NZS 3080 (Int):2002 standard. The characteristics of these cables are specified up to 16Mhz. They are typically used for voice and data transmission rates up to 10Mb/s (e.g. IEE 802.5 4Mb/s twisted-pair annex and IEE 802.3 10Base-T).

CLASS D (Category 5)

The characteristics of these twisted-pair cable and components are specified up to 100Mhz. They are intended to be used for voice and data transmission rates up to and greater than, 16Mb/s [e.g. IEE 802.5 16Mb/s twisted-pair standard and ANSI X3T9.5 100Mb/s twisted-pair physical media dependent (TP-PMD)]. Previously referred to as Category 5e, these products are designed with additional parameters necessary to support application that make use of all four pairs in the cable for simultaneous bidirectional transmission (such as IEE IEE 802.3 1000BASE-T) Gigabit Ethernet.

Class E (Category 6)

Continued development of high-speed applications drove the need for more bandwidth than CLASS D cabling systems. CLASS E channels have a power sum ACR that is greater than zero at 200 Mhz, and parameters are specified up to 250 Mhz.

CLASS F (Category 7)

Cabling consists of four individually shielded twisted pairs having nominal impedance of 100Ω. CLASS F cable requires a new fully-shielded connector design. CLASS F cabling has parameters specified to 600Mhz.

F/UTP (ScTP)

The characteristics of these cables and components are defined in terms of impedance and class (category). The cables and components shall have the same nominal impedance i.e: 100Ω or 120Ω for CLASS A to CLASS C and 100Ω for CLASS D, E and F.

Solid vs. Stranded Cable

UTP Solid Cable

For runs between Building Distributor or from the Floor Distributor to a wall plate, choose regular UTP cable. These solid-conductor cables, designed for horizontal and backbone cable runs, should not be flexed, bent or twisted repeatedly and should be installed in accordance with recommended installation guidelines.

UTP Stranded Patch Cable

Use stranded patch cable for connecting your workstation NICs to the wall plate with patch panels and with other equipment such as hubs. Since it's made with stranded components, stranded patch cable is excellent for applications that call for repeated flexing without damaging the cable.

Since attenuation is higher in stranded cables than in solid-conductor cables, you should try to keep these cables' runs short to lower the chance of introducing even more attenuation into your system. It's best to keep lengths of stranded patch cables under 6.0 metres.

Unshielded vs. Shielded Twisted Pair Cable

In "noisy" environments such as airports and manufacturing facilities, shielded twisted-pair F/UTP (ScTP) cable is preferred. These environments contain radio frequency interference (RFI) and/or electromagnetic interference (EMI). The shielding protects the data being transmitted through the cable and it keeps the cable itself from emitting EMI and RFI.

Cables feature the same core and jacket as the widely used Unshielded Twisted Pair (UTP) cables. And they contain a drain wire and foil shield that covers all four pairs. The plugs are also shielded.

Some STP cables use a thick braided shield which can make them harder to install than their UTP counterparts. However, some STP cables use a thin outer foil shield. These cables called foiled twisted pair (FTP) or screened twisted pair (ScTP) are thinner and less expensive than braided STP cable but they can still be used in noisy environments in place of UTP.

Choosing Fibre Type

As a general guideline in premises applications for backbone cabling:

- i. 62.5/125µm or 50/125 µm multi mode optical fibre is recommended for:
 - Distances 2km and under for OM1, OM2 and OM3 optical fibre types in both 850nm and 1300nm
 - Data rates up to 266 Mbits/s
- ii. Single-mode fibre is recommended for greater distances or higher data rates:
 - Distances 2km and under for OS1 in both 1310nm and 1550nm
 - Data rates up to 10 Gb/s IEEE802.3:10GBASE-LR/LW + ER/EW respectively

Often, a backbone comprised of both multi-mode and single-mode fibre is recommended to satisfy present and future needs in the backbone.

- i. For horizontal cabling, 62.5/125µm or 50/125µm multi-mode optical fibre is recommended for:
 - Distances up to 90m
 - Data rates up to 2.5 Gb/s
- ii. For centralised cabling, 62.5/125µm or 50/125µm multi-mode optical fibre is recommended for:
 - Distances up to 300m
 - Data rates up to 1.25 Gb/s

Always follow the original equipment manufacturer (OEM) electronic equipment specifications for optical fibre core size when designing on optical fibre telecommunications system. Contact the OEM if:

- Specifications vary from the 62.5/125µm or 50/125µm multi-mode standard
- The fibre is used for a unique application

The most common identification of fibres is in 12-fibre groups with each group colour coded as follows:

- | | |
|-----------|---------------------|
| 1. blue | 7. red |
| 2. orange | 8. black |
| 3. green | 9. yellow |
| 4. brown | 10. violet |
| 5. grey | 11. light blue/aqua |
| 6. white | 12. pink |

Note: OM3 Multi mode 62.5/125µm Optical fibre can now support 10Gb/s IEEE 802.3: 10GBASE-SR/SW.

Segregation of UTP/STP from Power Cable

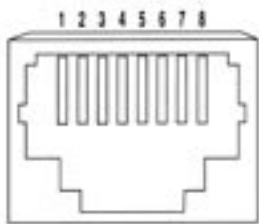
When routing UTP cable, maintain the following minimum distances from power source:

- 15 cm (6 in.) from powerlines of 2 KVA or less
- 30 cm (12 in.) from high voltage lighting (including fluorescent)
- 90 cm (36 in.) from powerlines of 5 KVA or greater
- 100 cm (40 in.) from transformers and motors

When routing STP cable, maintain the following minimum distances from power source:

- 6.5 cm (3 in.) from powerlines of 2 KVA or less
- 15 cm (6 in.) from powerlines of 2 KVA or less
- 30 cm (12 in.) from high voltage lighting (including fluorescent)
- 90 cm (36 in.) from powerlines of 5 KVA or greater

Sequence Options



RJ-45 Modular Jack Female



RJ-45 Modular Jack Male

Sequence is defined as the order in which the incoming pairs are terminated into the modular interface pins. Each pair is designated as a Transmit conductor and a Receive conductor.



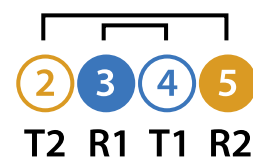
10 Base-T

Used with the WE8W polarisation, this is a modification of the EIA 568B sequence, leaving pair #1 open and starting with pair #2. This provides an additional level of protection from interconnection of voice and data equipment. If voice equipment is always wired on pins 4 and 5 (pair #1), and data equipment never has pins 4 and 5 active, no interconnection is possible.



EIA 568A

This is the preferred connection sequence for Australia and New Zealand as stated in AS/NZS 3080-1885; also the EIA Commercial Cabling Specification Draft 9.0 for termination of UTP data cable. The international standard for ISDN also states this standard. This is similar to the 568B sequence except that pairs #2 and #3 are transposed. This provides backward compatibility to the USOC sequence for two pairs instead of the single pair of 568B.



EIA 568B

This is the preferred connection sequence for the U.S. and is derived from ISO 11801 and is a sub-set of IEEE 802.3 10 Based-T Ethernet over twisted pair. This standard is only applicable to eight wire polarisation (WE8W). In the 568B sequence, pair #1 and pair #3 correspond to pair #1 and pair #2 of the USOC sequence, providing backward compatibility with 2 pair systems (such as analogue voice). Pair #1 is therefore designated as 'T1 and R1'. The sequence defines which pins of the modular interface are defined as T1, R1, T2, R2 etc. Some sequences are only applicable to certain polarisation.

USOC

Historically was the most common sequence and is used by US telephone systems. Pairs are 'nested', i.e. pair #1 is centred, pair #2 is the next two contacts out, etc. This maintains pair-to-pair continuity when, for instance, one pair equipment is connected through a 4 pair circuit. Nesting of pairs also enables a reversal to be made within each pair through the use of simple 'reversing' line cord (1 to 8, 2 to 7).

USOC is applicable to WE2W, WE4W, WE6W and WE8W polarisations. An advantage of the pair nesting of the USOC sequence is that a WE4W/6W plug inserted into a WE8W jack works fine as long as quality (correctly toleranced) components are used.

Glossary

°C	Degrees Celsius	
10BASE-T	An implementation of the Institute of Electrical and Electronic Engineers (IEEE) Ethernet standard on 24-AWG, unshielded, twisted-pair wiring, a baseband medium of 10Mb/s.	
100BASE-T	Official project name for 100 Mb/s Fast Ethernet on CLASS C.	
100BASE-TX	100 Mb/s Fast Ethernet using 2-pair Category 5 cable.	
1000BASE-T	A specification for Gigabit Ethernet over copper wire (IEEE Standard 802.3ab). The standard defines 1 Gb/s data transfer over distances of up to 100 metres using four pairs of CLASS D balanced copper cabling and a 5-level coding scheme.	
1000BASE-TX	A specification for Gigabit Ethernet over copper wire (TIA/EIA). The standard defines 1 Gb/s data transfer over distances of up to 100 metres using four pairs of Category 6 balanced copper cabling.	
10GBASE-LX4 ER/EW, SR/SW LR/LW	The IEEE has initiated work on the specification of 10 Gigabit Ethernet over optical fibre cabling, with specifications for Multi Mode and Single Mode fibre.	
802.3	Defined by the Institute of Electrical and Electronic Engineer (IEEE), these standards govern the use of the Carrier Sense Multiple Access/Collision Detection (CSMA/CD) network access method used by Ethernet networks.	
802.5	Defined by the Institute of Electrical and Electronic Engineer (IEEE), these standards govern the use of the token ring network access method.	
802.11	Defined by the Institute of Electrical and Electronic Engineer (IEEE), these standards govern the use of wireless LANs.	
A	see Ampere (A)	
Adaptor	A device that (1) enables different sizes or types of plugs to mate with one another or to fit into an information outlet, (2) provides for the rearrangement of leads, (3) allows large cables with numerous wires to fan out into smaller groups of wires, or (4) makes interconnections between cables.	
American National Standards Institute (ANSI)	Organization responsible for the definition and maintenance of the Fibre Distributed Data Interface (FDDI) standard. ANSI is the principal group in the United States for defining standards. ANSI represents the U.S in the International Standards Organisation (ISO).	
American Wire Gauge (AWG)	The standard gauge for measuring the diameter of copper, aluminium, and other conductors.	
Ampere (A)	A standard unit of current. One ampere of current is produced by one coulomb of charge passing a point in one second.	
Analogue Transmission	A method of signal transmission in which the shape of the signal is a continuously variable and directly measurable physical quantity.	
ANSI	see American National Standards Institute (ANSI)	
Application	A system, with its associated transmission method which is supported by telecommunications cabling.	
Asynchronous Transfer Mode (ATM)	ATM is a high speed (155Mbps and over) cell relay, switching and transport technology for either local or wide area environments.	
Attachment Unit Interface (AUI)	Most commonly used with reference to the 15pin D type connector and cables used to connect single and multiple channel equipment to an Ethernet transceiver.	
Attenuation	The effect of signal reduction, experienced with accumulation line length or distance of radio transmission.	
Attenuator	A device inserted into the electrical or optical path to lessen or weaken the signal.	
Australian Standard /New Zealand (AS/NZ)	Integrated communications cabling systems for commercial premises.	
Balanced Coupler	A coupler having an even ratio of power splits i.e. 1X4-25/25/25/25.	
Bandwidth	The range of frequencies that can be used for transmitting information on a channel. It indicates the transmission –carrying capacity of a channel. Thus, the larger the bandwidth, the greater the amount of information that can pass through the circuit. Measured in Hertz or b/s or MHz km (for Fibre).	
Bend Loss	A form of increased attenuation caused by either having the fibre curved around a restrictive radius of curvature, or microbends caused by minute distortions in the fibre imposed by externally induced perturbations. Excessive bend loss may result from poor drawing or cable manufacturing techniques.	
Bend Radius	The radius of curvature that Fibre or copper can bend without breaking or causing excessive loss.	
Bidirectional	Bidirectional The movement of optical signals in opposite directions through a common fibre cable.	
Broadband	Networks in which the bandwidth can be shared by multiple simultaneous signals that are encoded with radio frequency modulations.	
Buffer	The plastic material that surrounds the core and cladding of an optical fibre strand. This coating adds strength and flexibility to the fibre strand.	
Cable Assembly	Fibre optic cable that has connectors installed on one or both ends. General use of these cable assemblies includes the interconnection of multi mode and single mode fibre optic cable systems. If connectors are attached to only one end of the cable, it is known as a pigtail. If connectors are attached to both ends, it is known as a jumper.	
Cable Fill	The ratio of cable installed into a conduit/trunking against the theoretical maximum capacity of the conduit/trunking.	
Cabinet	A physical enclosure for rack-mount equipment; standard cabinets have 19" vertical spacing between mounting holes and 19" wide horizontal spacing between mounting rails.	
Cabling	A system of telecommunication cables, cords and connecting hardware that can support the connection of information technology equipment.	
Capacitance	The property in a system of conductors and dielectrics that permits the storage of electrically separated charges whenever a difference in potential exists between the conductors. Capacitance is undesirable in copper wire cable because it interferes with signals travelling on the wire by opposing the desired flow of current.	
Category 3	For Cable and connecting hardware products with transmission characteristics specified to 16 MHz, typically used to support digital transmission of 10Mb/s.	
Category 5	For cable and connecting hardware products with transmission characteristics specified to 100 MHz, typically used to support digital transmission of 100 Mb/s and above .	
Category 5e	This is an enhanced version of Category 5, with additional parameters specified to enable parallel transmission with full duplex across the four pairs. Enhanced category 5 specifications for cable and connecting hardware products with transmission characteristics specified to 100 MHz, intended to support digital transmission of 1000 Mb/s.	
Category 6	For cable and connecting hardware products with transmission characteristics specified to 250 MHz, used to support digital transmission of 1 Gb/s and above.	
Category 7	For cable and connecting hardware products with transmission characteristics specified to 600 MHz. Category 7 is a cable standard only and will require a new connector standard to fully exploit transmission at the above frequencies.	
CATV	An acronym for cable television, derived from Community Antenna Television.	
Characteristic Impedance	A frequency-dependant resistance that quantifies the complex opposition to current flow offered by a transmission line.	

Circuit	A two-way communication path between electronic devices.	Decibel (dB)	A unit used to measure relative increase or decrease in power, voltage or current using a logarithmic scale.
Cladding	The low refractive index material that surrounds the core of an optical fibre, usually pure silica.	Delay Skew	Delay skew is the difference in propagation delay between any two pairs within the same cable sheath.
Client-Server	A technique by which processing can be distributed between nodes requesting information (clients) and those maintaining data (servers).	Dielectric	A non-conducting or insulating material that resists passage of electric current.
Coating	A protective layer of material over the cladding of an optical fibre.	Dielectric Cable	A non-conducting cable, such as fibre optic cable, without metallic members.
Coaxial Cable (Coax)	A cable with a centre conductor surrounded by thick insulation, surrounded by an outer conductor made of metal braid. An outer jacket insulation is optional.	Dielectric Constant	The ratio of the capacitance of the insulated wire to that of the same wire uninsulated in air.
Composite Cable	A cable construction technique that combines multiple cables or media in a single overjacket.	Dielectric Strength	A measure of the maximum voltage that the insulation of a particular cable can withstand without breakdown.
Conductor	A medium such as copper wire that can carry electrical current.	Digital Signal	A signal that represents information by a series of fixed, encoded, rectangular pulses, usually consisting of two possible voltage levels. Each voltage level indicates one of two possible values or logic states, such as on or off, open or closed, true or false. See also Analogue Signals
Conduit	A pipe, usually metal, that runs underground from floor to floor, or along a floor or ceiling to protect cables. In Riser Backbone Subsystems when riser telecommunication closets are not aligned, conduit is used to protect cable and provide the means for pulling cable from floor to floor. In the horizontal Subsystem, conduit may be used between a telecommunication closet and an information outlet in an office or other room. Conduit is also used for in-conduit campus distribution, where it is run underground between buildings and intermediate manholes and is made of plastic encased in concrete. Multiduct, clay-tile conduit may also be used.	Digital Transmission	A technique in which all information is converted into binary digits for transmission.
Connecting Block	A flame-retardant plastic block containing metal wiring terminal (quick clips) that establishes an electrically tight connection between the cable and the cross-connect wire.	Dispersion	The tendency of a beam of light to spread out and lose its focus.
Connector	A device that allows you physically to connect and disconnect copper wires or fibres to cable equipment or to other wires or fibres. Copper wire and fibre optic connectors must often join transmission media to equipment or cross-connects.	Distributor	The term used for the function of a collection of components (for example, patch panels, patch cords) used to connect cables.
Core	The central transmission area of fibre. The core always has a refractive index higher than that of the cladding.	Drop cable	The coaxial cable that connects the feeder portion of the distribution system to the subscriber's premises.
Cords	A short length of copper wire or fibre optic cable with connectors on each end. Used to connect equipment to cabling, or to connect cabling segments (cross-connection).	Duplex	A duplex cable contains two fibres, a duplex connector links two pairs of fibres.
Coulomb (C)	A quantity of electricity transferred by a current of one ampere in one second.	EIA/TIA	North American Standards organization
Coupling	Transfer of light into or out of an optical fibre. Note: that coupling does not require a coupler.	EIA/TIA 568B	North American commercial building telecommunications wiring standard.
Coupler	A device that connects three or more fibre ends, dividing one input between two or more outputs or combining two or more inputs into one output.	EIA/TIA569A	North American commercial building standard for telecommunication pathways and spaces. Its purpose is to standardize specific design and construction practices within and between buildings which are in support of telecommunication media and equipment.
CPU	See Central Processing Unit (CPU)	EIA/TIA 606	North American administration standard for the telecommunications infrastructure of commercial buildings. Its purpose is to provide guidelines for a uniform administration scheme for the cabling infrastructure.
CRC	See Cyclic Redundancy Check (CRC)	Electromagnetic Compatibility (EMC)	The ability of a system, equipment or device to operate satisfactorily in its environment without introducing unacceptable electromagnetic disturbance, or being affected by that environment.
Cross-Connect	A facility enabling the termination of cable elements and their interconnection, primarily by means of patch cords or jumpers.	Electronics Industries Association (EIA)	North American Electronics Association.
Crosstalk	An electromagnetic coupling between two physically isolated circuits in a system. This coupling causes a signal on one circuit to induce a noise voltage on adjacent circuits, thereby causing signal interference.	Electromagnetic Flux	Electric and magnetic fields (commonly referred to as emission) generated by equipment or system.
Cyclic Redundancy Check (CRC)	A coded sequence of information allowing error checking and correction.	Electromagnetic Interference	The interference in signal transmission or reception caused by the radiation of electric and magnetic fields (EMI).
Data Communication Equipment (DCE)	Data Communication Equipment (DCE) General terminology for data communication equipment such as modems. A device that terminated a data communication session and provides encoding or conversion if necessary. See also Data Terminating Equipment (DTE).	ELFEXT	see Equal Level Far End Crosstalk
Data Terminating Equipment (DTE)	The term used to describe any type of computer or other equipment, when connected to a data communication network.	EMC	see Electromagnetic Compatibility
		EMI	see Electromagnetic Interference
		EN 50173	The European standard for generic cabling for customer premises.
		EN 50174	A proposed European cabling system planning & installing standard developed by CENELEC.
		Equal Level Far End Crosstalk (ELFEXT)	Is the same as FEXT, except that the coupled signal at the remote end is relative to the attenuated signal at the remote end on the pair the signal was applied to at the local end.
		Equipment Cable	A cable connecting equipment to a distributor.

Equipment Room	The room in which voice and data common equipment (for example, a DEFINITY® switch) is housed, protected, and maintained and where circuit administration is done using the trunk and distribution cross-connects.	
Equipment Subsystem	The part of a premises distribution system that includes the cable and distribution components in an equipment room and that interconnects system-common equipment, other associated equipment, and cross-connects.	
Ethernet	The common name for the most widely used local area network (LAN), generally conforming to the Institute of Electrical and Electronic engineers (IEEE) 802.3 Standard.	
ETL	Electrical Testing Laboratory.	
Far End Crosstalk (FEXT)	Refers to the undesired coupling of signals from the transmit pair onto (FEXT) the receive pair at the other (=far) end. FEXT isolation is also expressed in dB. For some applications this is an important parameter, for most applications however, the NEXT values are more important.	
Fast Ethernet	Fast Ethernet A 100 Mb/s LAN Based On CSMA/CD Protocol. See 100BASE-T	
Federal Communication Commission (FCC)	A board of five commissioners, appointed by the president, that regulates all electronic communications systems originating in the United States, including telephone systems.	
Ferrule	The alignment sleeve portion of an optical connector.	
Fibre	Any filament or fibre, made of dielectrics materials, that guides light. See also Fibre Optics.	
Fibre Channel	This is an ANSI standard describing point and switched point to point physical interface, transmission protocol, signalling protocol, services and command set mapping of a high performance serial link for uses between mainframe computers and computer peripherals.	
Fibre Distributed Data Interface (FDDI)	An American National Standards Institute (ANSI) standard for a fibre-based token ring physical and data link protocol that operates at a 100 Mb/s data transfer rate.	
Fibre Optic	A fibre optic cable in which individual optical fibres are formed into a cable for primary use inside a building	
Fibre Optics	A technique of conveying light or images through glass or plastic fibres. Incoherent fibre optics will transmit light but not an image; coherent fibre optics will transmit both and should actually be called "aligned fibre optics" because the fibres are all the same length and are in a constant spatial relationship.	
Fibre Optic Cable	A transmission medium consisting of a core of glass or plastic surrounded by a protective cladding, strengthening material, and outer jacket. Signal are transmitted as light pulses, introduced into the fibre by a light transmitter (either a laser or light-emitting diode [LED]). Some of the advantages offered by fibre optic cable are low data loss, high speed transmission, large bandwidth, small physical size, light weight, and freedom from electromagnetic interference and grounding problems.	
Fibre Optic Connectors	Connectors designed to connect and disconnect either single or multiple optical fibres repeatedly. Fibre optic connectors are used to connect fibre cable to equipment and interconnect cables.	
Fibre Optic Cross-Connection	Fibre optic apparatus for terminating cable in coupling. Designed for high-density cross-connection fields, the apparatus can terminate up to 72 fibres on each shelf, with up to nine shelves in a bay frame. Single shelves can also be wall mounted. Cross-connections are handled with fibre optic patch cords. See also Patch Cords	
Fibre Optic Cross-Connect (LGX)	A component of fibre optic cross-connect hardware. This components accommodated 24-216 fibre terminations. Also referred to as an LGX or shelf or frame.	
Fibre Optic Interconnect	An interconnect unit used for circuit administration and	built from modular cabinets. It provides interconnection for individual optical fibre but, unlike the fibre optic cross-connect panel, it does not use patch panel cords or jumpers. The fibre optic interconnect provides some capability for routing and re-routing circuits, but is usually used where circuit rearrangements are infrequent.
Fibre Optic Interconnections Unit (LIU)	A component of fibre pitch cross-connect hardware. This component accommodates 12, 24 or 48-fibre terminations. also referred to as an LIU.	
Fibre Optic Splice	A fibre optic cable splice is used to join together 2 or 24 fibre optic cable ends, permanently.	
Fire Retardant (FRD)	A rating used for cable with Teflon or equivalent jacket and insulation. Use this cable when local fire codes call for low flame and low smoke, or when cable is run through a forced air plenum.	
Foil Screened Twisted Pair Cable (FTP)	A cable that uses a metallic Foil to surround the conductors in a Twisted Pair Cable.	
Frame	A metallic structure for hanging switch hardware.	
Frequency	The number of cycles completed by a signal in one second: measured in Hertz (Hz).	
FTP	See Foil Screened Twisted Pair Cable.	
Full Duplex	In contrast to half-duplex devices, full duplex ones allow permanent, simultaneous two-way transmission of information, without interaction or interference of receive and transmit signals.	
Full Duplex Ethernet	Full Duplex Ethernet will allow nodes to transmit and receive data at the same time, bringing aggregate throughput to 20Mb/s. The CSMA/CD protocol may have to be disabled for the full duplex mechanism to function.	
Fusing	The actual operation of joining fibres together by fusing or melting.	
Gauge	A measure of a conducting wire's physical size; usually referred to as AWG (American Wire Gauge). See also American Wire Gauge (AWG).	
Graded-Index Fibre	Fibre design in which the refractive index of the core is lower toward the outside of the fibre core and increases toward the center of the core; thus, it bends the rays inward and allows them to travel faster in the lower index of refraction region. This type of fibre provides high bandwidth capabilities.	
Graphite	Grey powdercoat paint colour of Clipsal rack mounted panels.	
Half Duplex	A telecommunication device allowing two-way transmission of signals or other information, but only in one direction at a time. Thus a half-duplex device cannot simultaneously transmit and receive, though interspersed burst in each direction are possible.	
Headend	The central facility where signals are combined and distributed in a cable television system.	
Hertz(Hz)	The standard unit of frequency; equal to one cycle per second.	
Horizontal Cable	A cable connecting the floor distributor to the telecommunications outlet(s).	
IBM	International Business Machines Corporation.	
Insulation Displacement Contact (IDC)	A type of wire terminating connection in which the insulating jacket is cut by the connector when the wire is inserted.	
IEC 60332	The international standard covering fire performance of cables.	
Institute of Electrical and Electronic Engineers (IEEE)	Institute of Electrical and Electronic Engineers in the USA. This organization is also involved in producing Local Area Network standards such as 10 Base-T and Token Ring.	
Insertion Loss	The amount of the signal that is loss (attenuation) as the signal passes through a connection or interface.	

Insulation	A material having high resistance to flow of electric current. Thin conducting wires are covered with colour coded insulation for protection.	primarily designed for indoor use in applications where easy re-connection is required. Mechanical splices are primarily designed for any environment where a permanent, low loss joint is required.)
Insulation Displacement	The type of wire terminals that require no wire stripping; when the wire is correctly attached, its insulation displaced (pierced to form a connection).	
Insulation Resistance	The measure of ability of an insulation material to resist the flow of current through it; usually measured in Megohm-feet (m-ft).	
Interconnect	A circuit administration point, other than a cross-connect or information outlets, that provides capability for routing and re-routing circuits. It does not use patch cords or jumpers. Typically it is a jack and plug device used in smaller distribution arrangements or to connect circuits in large cables to those in smaller cables.	
Interference	A signal impairment caused by the interaction of another unwanted signal.	
Integrated Services Digital Network (ISDN)	A CCITT standard providing switched end to end simultaneous handling of digitised voice and data traffic.	
International Standard Organisation (ISO)	The organization responsible for the Open Systems Interconnect (OSI) standards.	
Interoperability	The ability to operate and exchange information in a heterogeneous network.	
ISO/IEC 11801	An international standard for generic cabling for customer premises.	
ISO/IEC 14763-1	The international standard for basic administration of generic cabling.	
Jack	A receptacle used with a plug to make electrical contact between communications circuits. Jacks and their associated plugs are used in a variety of connecting hardware applications including adaptor, information outlets, and equipment connections.	
Jacket	The flexible covering of a cable, used to protect the colour coded conductors inside.	
Joule (J)	A unit of work or energy equal to 0.7375 foot-pounds.	
Jumper	A cable unit or cable element without connectors used to make a connection on a cross-connect.	
Jumper Wire	A short length of connectorised copper wire used to route a circuit by linking two cross-connect termination points.	
Kevlar	An aramid fibre used to provide crush resistance and pulling strength in a fibre cable. Kevlar is a trademark of the Du Pont Company.	
LAN	See Local Area Network.	
Link	The transmission path between any two interfaces of generic cabling. It excludes equipment cable and work area cables.	
LIU	See Fibre Optic Interconnection Unit (LIU).	
Laser	A device that amplifies light waves and concentrates them in a narrow, very intense beam.	
Light Emitting Diode (LED)	A device used in a transmitter to convert information from electric to optical form. It typically has a large spectral width.	
Local Area Network (LAN)	A data communication network consisting of host computers or other equipment interconnected to terminal devices, such as personal computers, often via twisted-pair or coaxial cables. LANs allow users to share information and computer resources. Typically, a network is limited to a single premises.	
Loose Tube	A protective tube loosely surrounding a cabled fibre, often filled with gel.	
Macro-bending	In an optical waveguide all macroscopic deviations of the axis from a straight line.	
Mechanical Splicing	One of several available devices for splicing fibres in lieu of fusion splicing. Not to be confused with connectors. (Connectors are	
Megabit (Mb)	One million binary bits.	
Megabits per second (Mbps)	Rate of data transmission.	
Megahertz (MHz)	One million Hertz (cycles per second)	
Microbending	Bends in the fibre, usually of a radius less than 1mm, that cause a localised increase in the loss of the fibre due to the leaking of light through the core-cladding interface.	
Micron (mm)	A micrometre; one-millionth of a metre.	
Modem	A modulator / demodulator unit used for data transmission. It converts digital data into analogue tones when transmitting over standard voice-grade telephone lines and reverses this process when receiving.	
Modulation	Coding of information onto the carrier frequency. This includes amplitude, frequency or phase and modulation techniques.	
Multifibre Cable	An optical cable that contains two or more fibres, each of which provides a separate information channel.	
Multi Mode	Many light rays (modes) propagating through the fibre core.	
Multi Mode Fibre	Optical Fibres that have a large core and that permit non-axial rays or modes to propagate through the core. 62.5 micron is the common standard core size for premises cabling systems.	
Multiplexing	The process of combining multiple signals, usually by time-division multiplexing (TDM) on a high-frequency carrier, to optimize the use of available transmission media.	
Nanometre (nm)	A unit of length in the metric system denoting one-billionth of a metre. (10mm)	
Near End Crosstalk (NEXT)	Refers to the undesired coupling of signals from the transmit pair onto the receive pair on the same (=near) end. NEXT isolation is expressed in dB and is a measure of how well the pairs in a cable are isolated from each other.	
Network	The local and long-distance telecommunications capability provided by common carriers for switch and private line telecommunications services. A system software and hardware connected in a manner to support data transmission.	
Network Architecture	Network topology and design.	
Network Interface	The point of interconnection between building communications wiring and outside communications lines (telephone company facilities.)	
Network Interface Card (NIC)	The piece of equipment that is installed into the expansion port of a personal computer and allows communication between the PC and the network.	
Node(s)	A piece of communication equipment on the network.	
Noise	The term used for spurious signals produced in a conductor by sources other than the transmitter to which it is connected. Noise can affect a legitimate signal to the extent that it is inaccurate or indecipherable when it reaches the receiver. The higher the speed of data transmission, the worse the effects of noise become.	
Numerical Aperture	The number that expresses the light gathering power of a fibre.	
Ohm(w)	The standard unit of electrical resistance .One volt will cause one ampere of current to flow one ohm of resistance.	
Open System Interconnection (OSI)	A conceptual model specified by CCITT recommendations in the X200 series. The model describes the 7-layer process of communication between 'co-operating' computers. The model provides a standard for the development of communication protocols allowing for computers of different manufacturers to be interconnected.	

Optical Connectors	See Fibre Optic Connectors.
Optical Fibre	A transmission medium consisting of a core of glass or plastic surrounded by a protective cladding. Signals are transmitted as light pulses, introduced into the fibre by a light transmitter i.e. Laser or an LED.
Optical Splice	See Fibre Optic Splice.
Optical Time-Domain Reflectometre (OTDR)	An instrument that characterizes cable loss by measuring the backscatter and reflecting of injected light as a function of time. It is useful for estimating attenuation and for locating splices, connecting and breaks.
Outlets	A term used to describe the sockets provided in the work location of a Structured Cabling Systems. These are usually 8-pin modular sockets which can support a variety of service e.g. voice, video and data.
Pair	Two wires grouped (usually twisted) together and marked with reciprocal colour coding. See also Twisted Pair.
Passive Device	A static device that requires no power for its intended function.
Patch Cord(s)	A short length of copper wire or fibre optic cable with connector on each end used to join communication circuits as a cross-connect.
Patch Panel(s)	A cross-connect designed to accommodate the use of patch cords. It facilitates administration for moves and changes.
PCB	Printed Circuit Board.
Pigtail	Fibre optic cable that has connectors installed on one end. See also Cable Assembly.
Plenum Cable	Cable specifically designed for use in a plenum, the space above a suspended ceiling used to circulate air back to the heating or cooling system in a building. Plenum cable has insulated conductors often jacketed with TEFLON or HALAR on the copper and low smoke PVC on fibre optics to give them low flame-producing and low smoke producing properties.
Plug	A device used for connecting wires to a jack. It is typically used on one or both ends of equipment cords or on wiring for interconnects or cross-connects.
Polyvinyl Chloride (PVC)	A flame-retardant thermoplastic insulation material that is commonly used in jacks or building cables.
Port	The cable terminations in the equipment system at which various types of communication devices, switching equipment, and other devices are connected to the transmission network.
Ports	A computer interface capable of transmitting and or receiving information.
Power Sum	A method of testing and measuring crosstalk in multi-pair cables that accounts for the sum of crosstalk affecting a pair when all other pairs are active. This is the only method of specifying crosstalk performance that is suited to cables with more than four pairs.
Primary Rate Interface (PRI)	ISDN standard interface comprising 23 B+1D Channel for North America, and 30B+1D Channel for Europe. See Basic Rate Interface (BRI) and Integrated Services Digital Network (ISDN).
Propagation Delay	A signal travelling from end to end of a simplex link is delayed in time by an amount equal to the length of cable divided by the velocity of propagation for that transmission medium. The delay is called Propagation Delay.
Protocol(s)	A rule of procedure by which computer devices intercommunicate. Thus a protocol is the equivalent of a human language, with punctuation and grammatical rules.
Pulling Tension	The amount of pull, measured in pounds, placed on a cable during installation.
Quad Fibre Cable	A type of fibre optic cable that has four single cables enclosed in an extruded jacket of polyvinyl chloride (PVC), with a ripcord for pulling back the jacket to access the fibres.
Rack	A vertical or horizontal open support, usually made of aluminium or steel, that is attached to a ceiling or wall. Cables are laid in and fastened to the rack.
Rack Mount	Designed to be installed in a cabinet.
Reflectance	The full or partial return of transmitted optical or electromagnetic energy to the source by an index or impedance mismatch, measured in decibel (dB).
Registered Jack (RJ)	Acronym describing Modular Jacks in 4 (RJ11), 6 (RJ12) and 8 (RJ45) wire versions.
Resistance	The property of a conductor that determines the current produced by a given potential difference. It impedes the flow of current and results in the dissipation of power as heat. Resistance is measured in ohms.
Return Loss	The Channel Return Loss (RL) is a measure of the consistency of the impedance down the length of not just the cable, but also the connections and the patch cables.
Riser(s)	The term used to describe a space utilized by backbone cabling to house communications cabling and other building services. This space should preferably be specified, or allowed for, at the time of the building design.
Riser Backbone Subsystem	The part of a premises distribution system that includes a main cable route and structure for supporting the cable from an equipment room (often in the building basement) to the upper floors, or along the same floor, where it is terminated on a cross-connect in a riser telecommunications closet, at the network interface, or at distribution components of the Campus Backbone Subsystem. The Riser Backbone Subsystem usually extends from an equipment room (often in a building's basement) to the upper floors in a multistorey building, or along the same floor in a low-wide building. It is terminated on a cross-connect in a riser telecommunication closet, at the network interface, or on the distribution components of the Campus Backbone Subsystem.
Riser Cable	Used in applications for indoor cables that pass between floors. It is normally used in a vertical shaft or space.
Router(s)	A router can be used to connect networks with similar protocols (802.5 token ring local area network [LANs] or dissimilar Open System Interconnection (OSI) model protocols (802.5 token ring LANs and X.25 packet-switching networks). Routers are more sophisticated than bridges and can be used to prevent some of the speed mismatch, security and reliability problems that occur in large networks. An intermediate system between two or more networks capable of forwarding data packets at the network layer (layer 3).
Satellite Cabinet	Surface-mounted or flush-type wall cabinets for housing circuits administration hardware. Satellite cabinets, like satellite communication closets, supplement riser telecommunication closets by providing additional facilities for connecting horizontal cables from information outlets in user work areas. Sometimes referred to as a "satellite location".
Satellite Telecommunication Closet/Room	A walk-in shallow wall closet that supplements a riser telecommunication closet by providing additional facilities for connecting riser backbone cables to horizontal cables from information outlets. Also referred to as a "satellite location". see also Telecommunication Closet/Room.
Serial Data Transmission	Data transmission between computer devices using only a single circuit path. Whole bytes of information (8 bits) are sent in sequential pattern. Compares with parallel transmission. Parallel transmission is often used internally within computing

	devices because of the higher processing speeds which are possible, but long distance telecommunication, serial transmission is more economic in terms of line plant.
Serial Port(s)/ Transmission	Normally a DB 9 pin connector located on the motherboard of a PC. A technique in which each bit of information is sent sequentially on a single channel.
Server(s)	Host Computer(s).
Servicing Closet	See Satellite Telecommunication Closet/Room.
Sheath	A common term for the collection of twisted pairs of multi pair cables.
Shield	The metallic layer that surrounds insulated conductors in shielded cable. The shield may be the metallic sheath of the cable or the metallic layer inside a non-metallic sheath.
Shielded Twisted Pair Cable (STP)	An electrically conducting cable comprising of one or more elements each of which is individually shielded. There may be an overall shield in which case the cable is referred to as a shielded twisted pair cable with an overall shield.
Simplex	A transmission means allowing only one direction of transmission. (For example public broadcast radio).
Single-Fibre Cable	A plastic-coated fibre surrounded by an extruded layer of plastic encased in a synthetic strengthening material, and enclosed in a plastic sheath.
Single Mode	Single Mode Optical Fibre with a small core diameter in which only single mode is capable of propagation. 8.3 micron is the common standard core size.
Sleeves	Short length of rigid metal pipe, approximately 4 in. (10.0cm) in diameter, located in riser telecommunication closets that allows cables to pass from floor to floor when closets are vertically aligned. Sleeves also provide for easy pulling of cable.
Slots	Opening in the floor of riser telecommunications closets that allow cables to pass through from floor to floor when closets are vertically aligned. A slot accommodates more cable than an individual sleeve.
Splice	The physical joining of two or more copper wire or optical fibres to form a common connection.
Splice Closure	A container used to organise and protect splice trays.
Splitter	Another name for coupler. See also Coupler.
Splitting Ratio	The ratio of power emerging from two output ports of a coupler.
Straight-Tip (ST) Connector	A fibre optic connector used to join single fibres together at interconnects or them to fibre optic cross-connects.
Stranded Cable	A strong woven-copper-wire used to support cable in aerial distribution systems. The cable is lashed to the stranded cable during installation.
Structured Cabling	Flexible cabling scheme which allows rapid reconfiguration for office moves through patching.
Surge	A sudden voltage rise and fall in an electrical circuit.
Switching	A function carried out by a switching hub, alleviating traffic by making virtual connections between transmitting and receiving nodes.
Synchronisation	The method by which the bit patterns appearing on digital line systems may be properly 'clocked' and interpreted - allowing the beginning of particular patterns and frame formats to be correctly identified.
System Connect	The method by which connection is physically made to the host computer or Local Area Network.
Telecommunication Closet/Room	An enclosed space for housing telecommunication equipment, cable terminations, and cross-connect cabling. The telecommunications closet is a recognized cross-connect point between the backbone and horizontal cabling subsystems. See also Satellite Telecommunications Closet/Room.
Telecommunication Outlet	A connector where the horizontal cables terminate. The telecommunication outlet provides the interface to the work area cabling.
Terminal Block	A protected or unprotected unit of wiring blocks, connecting blocks, and troughs that serves as a transition point between cable conductors.
Termination	A 75-ohm resistor that terminates the end of a cable or an unused tap port with its characteristic impedance to minimize reflections.
Thermoplastic	A plastic material that softens and flows when heated and becomes firm when cooled. This process can be repeated.
Thermoset	A plastic material that is crosslinked by a heating process known as curing. Once cured, thermosets cannot be reshaped.
Thick coax	The transmission medium used for Ethernet or IEEE 802.3 10Base5 LANs. It is a 50 ohm thick coax cable (commonly referred to as the thick yellow cable).
Thin coax	The transmission medium used for IEEE 802.3 10Base2 LANs (sometimes referred to as CheaperNet). It is a 50 ohm thin coax cable.
TIA/EIA	North American Standards Organisation.
TIA/EIA 568A or B	North American Commercial Building Telecommunications Wiring Standard.
TIA/EIA 569	North American Commercial Building Standard for Telecommunications Pathway and Spaces. Its purpose is to standardize specific design and construction practices within and between buildings which are in support of telecommunications media and equipment.
TIA/EIA 606	North American Administration Standard for the Telecommunication Infrastructure and Commercial Buildings. Its purpose is to provide guidelines for uniform administration scheme for cabling infrastructure.
TP-PMD	Twisted Pair Physical medium Dependent. A twisted pair version of the FDDI standard that allows 100Mb/s transmission over Category 5 copper.
Transmission Distance	The actual length of the path from the transmitter of one node to the receiver of the next downstream node. The maximum transmission distance is determined by the maximum signal loss (attenuation limit) that can be withstood between any transmitter and receiver.
Transmission Media	The various types of copper wire and fibre optic cable used for transmitting voice, data or video signals.
Transport Control Protocol/Internet Protocol (TCP/IP)	A common network layer and transport layer data networking protocol.
Transport Layer	Layer 4 of the OSI model. The transport layer provides for end-to-end data relaying services across any type of data network and is responsible for end-to-end reliability.
Twisted Pair(s)	Two insulated copper wires twisted together. The twists, or lays, are varied in length to reduce the potential for signal interference between pairs. In cables greater than 25 pairs, the twisted pairs are grouped and bound together in a common sheath. Twisted pair is the most common type of transmission media.
Twisted Pair Physical Media Dependent (TP-PMD)	ANSI X3T9.5 Committee's proposed 100Mbps over UTP standard. Also referred to as CDDI.
UL	Underwriters' Laboratories, Inc.
Uniformity	The variation of power level between the optical outputs of a splitter.

Unshielded Twisted Pair (UTP) Cable	Normal copper building cable, capable of high-speed data transmission. Techniques exist to address the signal impairments due to the transmission characteristics of copper media and to limit the radiated emission of UTP media.
Volt (V)	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.
Watt (W)	A unit of power equal to one joule per second.
Wavelength	The physical distance of one electromagnetic wave cycle.
Wavelength Division Multiplexer (WDM)	A passive device that transmits signals at different wavelength through the same fibre.
Wide Area Network (WAN)	Any physical network topology that spans large geographic distances. WANs usually operate at lower speeds and have higher delays than local area networks (LANs).
Wireless LANs	Local area network that communicates using radio technology.
Wiring Block	A moulded plastic block that is designed in various pair configurations to terminate cable pairs and establish pair location on 110 Connector Systems.
Wiring Closet	See Telecommunication Closet/Room.

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1ST20P	■	95ESG4P10/	■	JGAD06F9100	■	NKCU62BA018	■	RJ5H/1DRRP	■
1ST30P	■	95ESW16P10/	■	JOBDS56AA018	■	NKCU62BA024	■	RJ5H/1RRP	■
1ST50P	■	95ESW24P10/	■	JOBDS56AA025	■	NKCU62BA036	■	RJ5H/1RRPHC	■
1ST100P	■	95ESW5P10/	■	JOBDS56AA032	■	NKDU10BA006	■	RJ5H/2RRP	■
2ST10	■	95ESW8P10/	■	JOCDS56AA010	■	NKDU10BA008	■	RJ5H/2RRPHC	■
2ST15	■	95MC100SCRJ	■	JOCDS56AA012	■	NKDU10BA012	■	RJ5H1/16PP	■
2ST20	■	95MC100STRJ	■	JOCDS56AA018	■	NKDU10BA018	■	RJ6A8/05PL, BU	■
2ST30	■	9688	■	JOCDS56AA025	■	NKDU10BA036	■	RJ6A8/05PL, WE	■
2ST50	■	9841	■	JOCDS56AA032	■	NKDU10BA036	■	RJ6A8/10PL, BU	■
2ST100	■	9842	■	JRJD	■	NKDU62BA006	■	RJ6A8/10PL, WE	■
1SC10P	■	9880	■	JVJD06CL004BED5	■	NKDU62BA008	■	RJ6A8/20PL, BU	■
1SC20P	■	9907	■	JVJD06CL004BEDA	■	NKDU62BA012	■	RJ6A8/20PL, WE	■
1SC30P	■	9913	■	JRJDAG004BE	■	NKDU62BA018	■	RJ6A8/30PL, BU	■
1SC50P	■	C2000A4L	■	NKDU10BA018	■	NKDU62BA036	■	RJ6A8/30PL, WE	■
1SC100P	■	C2031HI	■	NKDU10BA024	■	NKDU62BA24	■	RJ6A8/40PL, BU	■
2SC10	■	C2032HI	■	NKDU10BA036	■	NMCU10BA060	■	RJ6A8/40PL, WE	■
2SC15	■	C2033HI	■	NKDU10BA18	■	NMCU62AA060	■	RJ88AB6 (BK)	■
2SC20	■	C2034HI	■	NKDU10BA036	■	NMCU62AA060	■	RJ88AB6 (WE)	■
2SC30	■	C2035HI	■	NKDU72B024	■	NMDU10BA060	■	RJ88AB6K (AL)	■
2SC50	■	C2036HI	■	NKDU72B036	■	NPCU10BA048	■	RJ88AB6K (WE)	■
2SC100	■	C2031VI	■	NKGU62DA006	■	NPCU62BA048	■	RJ88AB6U (BK)	■
1ST10	■	C2032VI	■	NKGU62DA012	■	NPDU10BA048	■	RJ88AB6U (WE)	■
1ST15	■	C2033VI	■	NKGU62DA018	■	NPDUBA048	■	TAI796IB010	■
1ST20	■	C2034VI	■	NQCU02AA004	■	NQDU10AA006	■	TAP794PP006	■
1SC10	■	C2035VI	■	NQCU02AA006	■	NQDU10AA012	■	TAP794PP010	■
1SC15	■	C2036VI	■	NQCU02AA008	■	NQDU62AA004BEB3	■	TAP794PP020	■
1SC20	■	DDE20/5CP	■	NQCU02AA012	■	NQDU62AA006BEB3	■	TAP794PP030	■
2SCT10	■	DDM24MBK2	■	NAJU10CA006	■	NQDU62AA008BEB3	■	TAP794PP050	■
2SCT15	■	FMMST/1	■	NAJU10CA012	■	NQDU62AA012BEB3	■	TAP794PP100	■
2SCT20	■	FMMST/2	■	NARU10BA012	■	NRAP10AA004	■	TAP796PP006	■
2SCT30	■	FMMST/3	■	NCAP10AA004	■	NRAP10AA006	■	TAP796PP010	■
2SCT50	■	FASC/1	■	NCAP10AA006	■	NRAP10AA008	■	TAP796PP020	■
2SCT100	■	FAST/1	■	NCAP10AA008	■	NRAP10AA012	■	TAP796PP030	■
5ABLTC	■	FASCT/1	■	NCAP10AA012	■	NRAP10AA016	■	TAP796PP050	■
5MNCT	■	12FTK1	■	NCAP10AA018	■	NRAP10AA024	■	TAP796PP100	■
8102	■	24FTK2	■	NCAP10AA024	■	NRAP62AA004	■	TBP796FN002	■
8241	■	FSDIUSC24	■	NCAP10AA036	■	NRAP62AA006	■	TBP796FP002	■
8261	■	FSDIUST24	■	NCAP62AA004	■	NRAP62AA008	■	TDB796FN006	■
8262	■	FM2CG8/12	■	NCAP62AA006	■	NRAP62AA012	■	TDB796FN010	■
8281	■	FMICG6/8	■	NCAP62AA008	■	NRAP62AA014	■	TDB796FN020	■
83242	■	FMICG8/12	■	NCAP62AA012	■	NRAP62AA016	■	TDB796FN030	■
8451	■	FMICG10/14	■	NCAP62AA018	■	NYCP10TA001	■	TDB796FN050	■
8723	■	FMICG12/16	■	NCAP62AA024	■	RJ1HUDSR	■	TDB796FN100	■
8760	■	FMICG15/21	■	NCAP62AA036	■	RJ1HUSSR	■	TDB796FP006	■
8761	■	FMIUSC24P	■	NCBP62AA002	■	RJ5A8/05PL	■	TDB796FP010	■
9116	■	FMIUST24P	■	NEYP10AA002	■	RJ5A8/10PL	■	TDB796FP020	■
9207	■	FM2CG6/8	■	NKCU10BA006	■	RJ5A8/15PL	■	TDB796FP030	■
9259	■	FM2CG10/14	■	NKCU10BA008	■	RJ5A8/20PL	■	TDB796FP050	■
9269	■	FM2CG12/16	■	NKCU10BA012	■	RJ5A8/30PL	■	TDB796FP100	■
9275	■	FM2CG15/21	■	NKCU10BA024	■	RJ5A8/50PL	■	TDP794FN010	■
9463	■	FM2CG18/28	■	NKCU10BA036	■	RJ5EABH1/16PP	■	TDP794FN020	■
9501	■	FM2USC24P	■	NKCU10BA18	■	RJ5EABH1/24PP	■	TDP794FN030	■
9502	■	FM2UST24P	■	NKCU62BA006	■	RJ5EABH2/32PP	■	TDP794FN050	■
9504	■	JGAD06F9025	■	NKCU62BA008	■	RJ5EABH2/48PP	■	TDP794FN100	■
9508	■	JGAD06F9050	■	NKCU62BA012	■	RJ5H/1CMP	■	TDP794FP006	■

TDP794FP010	■	C244/20	■	900/16/16PT	■	900/25/16EI	■	9170Q	■
TDP794FP020	■	C244/25	■	900/19/7	■	900/40/25EI	■	9170QIE	■
TDP794FP030	■	C244/32	■	900/19/7PT	■	900/50/50EI	■	9170QEE	■
TDP794FP050	■	C245/20	■	900/25/16	■	900/50/75EI	■	9170QC	■
TDP794FP100	■	C245/25	■	900/25/16PT	■	900/50/100EI	■	9170QEP	■
TDP796FN006	■	C246/20	■	900/25/25	■	900/75/75EI	■	9170BOX	■
TDP796FN010	■	C246/25	■	900/25/25PT	■	900/75/100EI	■	9170MTA	■
TDP796FN020	■	C246/32	■	900/40/16	■	900/100/10EI	■	9170UE	■
TDP796FN030	■	C242/20	■	900/40/16PT	■	900/16/16EE	■	9170DE	■
TDP796FN050	■	C242/25	■	900/40/25	■	900/25/16EE	■	9170UT	■
TDP796FN100	■	C242/32	■	900/40/25PT	■	900/40/25EE	■	9170DT	■
TDP796FP006	■	C247/20	■	900/40/25/2	■	900/50/50EE	■	9170CR	■
TDP796FP010	■	C247/25	■	900/40/25/2PT	■	900/50/75EE	■	9170QCR	■
TDP796FP020	■	C247L20	■	900/60/25	■	900/50/100EE	■	9170MTA	■
TDP796FP030	■	C247L25	■	900/60/25PT	■	900/75/75EE	■	9170CE	■
TEP794FP002	■	C247L32	■	900/60/40	■	900/75/100EE	■	9170CT	■
TEP794FN002	■	C247L50	■	900/60/40PT	■	900/100/100EE	■	9170CR	■
TJC590AA005	■	SC9016	■	900/12/7PT3	■	900/25/16TR	■	9170QMTA	■
TJC590AA006	■	SC9020	■	900/16/16PT3	■	900/25/16TL	■	9170QE	■
TJC590AA010	■	SC9025	■	900/25/25PT3	■	900D50S	■	9170QT	■
TJC590AA015	■	SC9032	■	900/50/50	■	900D75S	■	9170QCR	■
TJC590AA020	■	SC9040	■	900/50/75	■	900D100S	■	9170MCR	■
TJC590AA025	■	SC9050	■	900/50/100	■	900CC	■	9170COU	■
TJC590AA035	■	SC263/16	■	900/75/75	■	900C50	■	9170D	■
TJC590AA050	■	SC263/20	■	900/75/100	■	900C75	■	9170SIC	■
TJC590AA100	■	SC263/25	■	900/100/100	■	900C100	■		
TJZ790AA717RW2	■	SC263/32	■	900/150/50	■	900MMB	■		
TJZ790AA717RW5	■	SC263/40	■	900/150/75	■	900SPMB	■		
TLC590D5001	■	SC263/50	■	900/16/16P	■	900SKMB	■		
TLC590DA001	■	SC247/16	■	900/25/16P	■	900MBC	■		
TLC590DA003	■	SC247/20	■	900/40/25P	■	900SPBP	■		
TTA796IB001	■	SC247/25	■	900/50/50P	■	900AT12	■		
TUP796PP002	■	SC247/32	■	900/50/75P	■	900AT18	■		
TUT796IB002	■	SC247/40	■	900/50/100P	■	900AT24	■		
TUP799DPP002	■	SC247/50	■	900/75/75P	■	287/150	■		
TUP796PN002	■	SC246/16	■	900/75/100P	■	287/250	■		
TUP799PV002	■	SC246/20	■	900/100/100P	■	287R150LD	■		
TAP796PN006	■	SC246/25	■	900/40TA25	■	287R200LD	■		
TAP796PN010	■	SC246/25	■	900/16A10	■	287R250LD	■		
TAP796PN020	■	SC246/32	■	900/16A16	■	287R300LD	■		
TAP796PN030	■	SC245/16	■	900/25A25	■	287R150HD	■		
TAP796PN050	■	SC245/20	■	900/40A16	■	287R200HD	■		
TAP796PN100	■	SC245/25	■	900/40A25	■	287R250HD	■		
TAP796PN006G	■	SC242/16	■	900/16A10	■	287R300HD	■		
TAP796PN010G	■	SC242/20	■	900/16A16	■	9170S	■		
TAP796PN020G	■	SC242/25	■	900/25A25	■	9170SIE	■		
TAP796PN030G	■	SC242/32	■	900/40A16	■	9170SEE	■		
TAP796PN050G	■	SC242/32	■	900/40A25	■	9170SC	■		
TAP796PN100G	■	SC242/40	■	900/16/16C	■	9170LEP	■		
C9020	■	SC242/50	■	900/25/16C	■	9170REP	■		
C9025	■	SC240L	■	900/40/25C	■	9170C	■		
C9032	■	900/12/7PT	■	900/50C	■	9170CIE	■		
C9050	■	900/16/10	■	900/75C	■	9170CEE	■		
C9080	■	900/16/10PT	■	900/100C	■	9170CC	■		
C9100	■	900/16/16	■	900/16/16EI	■	9170CEP	■		

Notes: