

TERM	GENERAL MEANING
10G, 40G, 100G, 400G, 1T	Various transmission rates in terms of G igabits per second (1 gigabit = 10 ⁹ bits = 1,000,000,000 bits) and T erabits per second (1 terabit = 10 ¹² bits = 1,000,000,000,000 bits = 1,000 gigabits).
1GbE, 10GbE, 100GbE	Ethernet frames transmission rates in terms of Gigabits per second complying with IEEE 802.3x standards
Acceptance Testing	A test program developed and executed by the Contractor in order to prove that the components, sub-systems and fully assembled System, function in compliance with these Technical Specifications
Add/Drop Multiplex (ADM)	Add/Drop Multiplex -- The generic term which refers to the combining of lower data rate traffic into higher data rate groups and the reverse process of disassembling the higher data rate traffic into lower data rate groups. This can be done at the electrical level (ADM) the optical level (OADM) or the Reconfigurable optical level (ROADM)
Articulated Piping	A system of interlocking pipe sections which are fitted over the cable in shallow water to give more protection than afforded by cable armouring alone.
ASIC	Application Specific Integrated Circuit- is a specific high-density circuit customized to perform very specific purposes, such as forward-error correction/detection.
Asynchronous Transfer Mode (ATM)	Asynchronous Transfer Mode (ATM) is, according to the ATM Forum, "a telecommunications concept defined by ANSI and ITU (formerly CCITT) standards for carriage of a complete range of user traffic, including voice, data, and video signals," and is designed to unify telecommunication and computer networks. It uses asynchronous time-division multiplexing, and it encodes data into small, fixed-sized cells. This differs from approaches such as the Internet Protocol or Ethernet that use variable sized packets or frames. ATM is a core protocol used over the SONET/SDH backbone of the public switched telephone network (PSTN) and Integrated Services Digital Network (ISDN), but its use is declining in favour of all IP.
Attenuation	ATM was developed to meet the needs of the Broadband Integrated Services Digital Network, as defined in the late 1980s
Backhaul	The transmission facility (or facilities, e.g. land-based fiber-optic cable and possibly interim microwave/radio facilities) extending from the System Interface at the Interface Distribution Frame in the Cable Station to a central office or Point-of-Presence within the domestic terrestrial network.
Beach Manhole (BMH)	Beach Manhole - traditionally the point where the transition between the marine cable and terrestrial cable occurs. A chamber is constructed near the landing point and the beach joint is constructed inside. The cable is often also anchored at the BMH.
Best And Final Offer (BAFO)	The final bid, submitted by system suppliers in a competitive RFQ process, upon which system owners make their purchase decision, and from there, commence negotiations.
Billing Schedule	The portion of a system supply contract which defines the milestones associated with the System Supplier Activity (e.g. completion of marine installation, shipment of terminal equipment, etc.) that govern the planned timing of payments from Cable System Purchaser to Supplier over the construction period.

Beginning of Life (BOL) or Start of Life (SoL)	Often used in system design (optical power/impairment) budgets to reflect the values of various parameters at the time of RFS (the beginning of a cable life)
Bollard Pull	Measure of a vessels towing capabilities, that for a cablesip defines it's ability to tow an undersea cable plough
Branch	See also Branching Unit (BU). The Branch of a cable network extends the main route (often called trunk route) of the cable network to an additional landing, making a network that would otherwise be point-to-point a three-point network.
Branching Unit (BU)	Branching units are underwater units which connect three cables together, allowing the fibers in one cable or a portion of the capacity thereof when used in combination with Wet OADM's (Optical Add/Drop Multiplexers), to be routed individually to two separate cables (in a "Y" fashion). To illustrate this, one can think of a cable across the Atlantic with four fiber pairs, two of which land in the UK and two of which land in France. They are split apart from each other in a BU off the European coastline.
Burial Feasibility Study (BFS) or Burial Assessment Study (BAS)	An activity performed for evaluating the potential burial along the preliminarily recommended route and assessing the expected burial feasibility using marine Route Survey data
Cable Bight	A cable bight is created when jointing a cable at sea either during a repair or when connecting two ends during an installtion. The cable required to reach from the seafloor to the cablesip to make a ship based joint is laid out on the seabed after jointing, to one side of the cable route line in a 'bight'.
Cable Joint - Cable Splice	The physcial connection between two ends of a cable (which has fiber splices inside of it).
Cable Landing License	The permission from the local government to land the cable in their jurisdiction.
Cable Station or Cable Landing Station, (CS or CLS)	The Telco-grade building, fit out properly with power, air-conditioning, security, monitoring systems, fire-suppression, etc, usually located relatively close to the beach, which most often is used to house all of the undersea cable related terminal equipment (SLTE, PFE, NMS, etc). The CLS may be the meet-me location for the cable system to its customers. There is an increasing trend to house the cable's PFE (power) in the CLS, but remotely locate the transmission equipment (SLTE) in a nearby PoP, allowing the meet-me place to be at a more convenient facility with more access options.
Cable Stopper	A device made of various materials (chain, wire, webbing, etc) for gripping a cable. Often applied in half hitches to cables and used during recovery operations, buoying off cable ends or cable pulls.
Cable Tank	Circular storage area inside a cablesip where cable is coiled
Cable Terminating Unit (CTU)	Fibers of an undersea cable are terminated in this enclosure located in a Cable Statin.
C-band Amplifiers	This is the term used to describe Optical Amplifiers which provide transmission in the C band frequencies. The C band is a name given to certain portions of the electromagnetic spectrum, as well as a range of wavelengths of microwaves that are used for long-distance telecommunications. In infrared optical communications, C-band refers to the wavelength range 1530 - 1565 nm, which corresponds to one amplification range of erbium doped fiber amplifiers (EDFAs) as defined by the International Telecommunications Union Standards ITU G.692 and ITU G.694.

Certification	Certification refers to the activity (which is also part of the manufacturing process) to eliminate the risk of not complying with the performance and reliability specifications of all components or sub-assemblies or sub-systems of the Cable System
Chromatic Dispersion (CD)	Chromatic dispersion is a form of dispersion, i.e. spreading of a pulse in an optical fiber caused by differences in wave velocity in the medium. It is measured in picoseconds of pulse spreading per nanometer of spectral width per kilometer of fiber length. Chromatic dispersion is the sum of waveguide dispersion and material dispersion. Material dispersion is caused by the fact that the speed of light in a medium is sensitive to the wavelength, i.e., the velocity of light in a medium depends on its wavelength (<i>i.e. its color whereby referred to as chromatic.</i>) Waveguide dispersion is caused by the fact that a given wavelength travels at different speeds in the core and cladding of a single-mode fiber (SMF). The fiber CD parameter is specified in units of ps/km/nm.
Coaxial Cable	Coaxial cable, or coax, is an electrical cable with an inner conductor surrounded by a flexible, tubular insulating layer, surrounded by a tubular conducting shield. The term coaxial comes from the inner conductor and the outer shield sharing the same geometric axis. Coaxial cable is used as a transmission line for radio frequency signals, in applications such as connecting radio transmitters and receivers with their antennas and distributing cable television signals.
Coherent Transmission	In Coherent Transmission, the information is transmitted by modulating the frequency or the phase of the optical carrier. Coherent technology has been used in microwave and radio systems. It was introduced in lightwave systems in the 1980's but has only been recently commercialized in undersea systems as a new modulation format utilized for high-bit rates (currently some 40G and all 100G) transmission to improve performance and extend the reach.
Coherent Detection	In coherent detection (as opposed to Direct Detection), the phase information is preserved at the receive end and used to decode and reconstruct the signal.
Commissioning	Testing activities that demonstrate the System has been designed with adequate margins against impairments, ageing, temperature, etc. so that the error performance requirements will be met throughout the System Design Life Period.
Commissioning Limit or Q Value	Quality Value (Q Value) which represents that the System has been designed with adequate margins against impairments, ageing, temperature, etc. so that the error performance requirements will be met throughout the System Design Life Period
Compound Annual Growth Rate (CAGR)	the per annum growth rate compounded year over year, usually used in the context of the volume of traffic demand
Cone	A truncated conical structure in the centre of the cable tank that prevents the cable from being stowed at less than it's minimum bending radius and holds the stow in position
Construction and Maintenance Agreement (C&MA)	Legal agreement binding cable investors (usually service operators) together to jointly invest in a new cable
Contract Variation (CV)	Legal agreement reflecting a variation to the Supply Contract already in effect.
Coupler	Passive devise that splits a fibre in to 2 or more fibres.

Cut and Hold Grapnel	A grapnel which when deployed to the seabed and dragged over a cable cuts it and mechanically holds one side to enable recovery back to the ship
D+ Fiber	Fiber with positive dispersion
Dark Fiber Pair	A cable may be installed with several fiber pairs, e.g. 4, but initially the cable owners may only light (provision) wavelengths on some of these pairs. The others remain "dark", i.e. they do not carry traffic until they are provisioned with SLTE/wavelengths
Data Communication Channel (DCC)	Communicating data from one location to another requires some form of pathway or medium. These pathways, called communication channels, use two types of media: cable (twisted-pair wire, cable, and fiber-optic cable) and broadcast (microwave, satellite, radio, and infrared). Cable or wireline media use physical wires of cables to transmit data and information. Twisted-pair wire and coaxial cables are made of copper, and fiber-optic cable is made of glass.
Data Communication Network (DCN)	The transmission network (equipment and facilities) that provides connectivity between Network Elements of the CSE to the various management systems within the Cable Station and those management systems located at the Network Operations Center and/or Remote Operator Positions.
Dense Wavelength Division Multiplexing (DWDM)	(Dense WDM) The term given to wavelength division multiplexing (WDM) when significantly more channels were being added thus reducing the channel spacing. Since WDM is increasingly more "dense" all the time, both terms are used synonymously.
Desktop Study (DTS) or Cable Route Study CRS)	Provides information for use in the design, construction and maintenance of the System. The DTS is primarily used to select cable landing sites, a cable route for marine survey, assess risks for the proposed route, identify permitting requirements and identify information that will affect the schedule and ease of installation and maintenance. Sometimes also termed a cable route study (CRS)
Digital Line Segment (DLS)	Digital Line Segment. A DLS forms a part of a digital link (data transmitted to data received) and includes the SLTE (Submarine Line Terminating Equipment) and all Submerged Plant.
Direct Detection	The magnitude (Intensity) of the transmitted (intensity modulated) optical signal is detected directly at a photodiode to convert it to the original digital signal in the electrical domain. This function is performed by a Direct Detection Receiver.
Direct Measures of Quality (DMOQs)	Performance Metrics established and agreed to insure proper levels of performance (e.g. Availability equal or better than 99.9999%).
Dispersion	In fiber optic transmissions, chromatic dispersion is a term used to describe the spreading of a light pulse as it travels down a fiber. Light pulses launched close together (high data rates) can spread beyond equipment tolerances and result in errors and a loss of information. Therefore dispersion management is a key consideration within wet-plant engineering. There are two types of dispersion to be managed in optical transmission: Chromatic Dispersion (CD) and Polarization Mode Dispersion (PMD)
Dispersion Compensation	Intentional introduction of positive and/or negative dispersion such that the maximum end-to-end dispersion does not exceed that of the dispersion accommodation capability of the receiving electronics.
Dispersion Compensating Fibre (DCF)	Dispersion Compensating Fibre is a fiber which has either high positive or negative dispersion which is introduced into a DLS (Digital Line Segment) to keep the overall end-to-end chromatic dispersion within the tolerance of the end-to-end chromatic dispersion specifications

Dispersion Flattened Fiber (DFF)	Length of fiber which uses a combination of positive and negative dispersion fibers such that the overall dispersion is near zero.
Double Armour (DA)	Level of cable protection consisting of two outer layers of steel armour wires, often used in shallow water or higher risk areas from external aggression
Dry OADM	An optical add-drop multiplexer installed on-shore, providing somewhat the equivalent of a wet OADM (sorting out wavelengths to be dropped locally from the remainder of the network capacity), however it is done onshore rather than undersea
Dry Plant	The suite of equipment, typically located in a Cable Station, which comprises all of the undersea system transmission equipment, synchronization equipment, management equipment, cabling (electrical and optical), spares, test equipment, Ocean Ground Protection Panel, etc. for the System.
Element Management System (EMS)	The Element Management System (EMS) is the controller (computer) which monitors and/or controls a specific piece of communications equipment . For example, an element management system for a DWDM terminal would collect data on the alarms and error performance of that equipment, and be able to set parameters of that equipment.
Enhanced Modulation	Transmitter modulation schemes which enhances (i.e. increased) the spectral efficiency.
End of Life (EOL)	Often used in system design (optical power/impairment) budgets to reflect the values of various parameters at the end the cable lifetime (e.g. usually 25 years) after accomodating all of the aging, repair and transmission impairments that accumulate over time
Erbium Doped Fibre Amplifier (EDFA)	Erbium Doped Fibre Amplifier is a standard optical amplifier used in both subsea repeaters and /terrestrial systems. Uses a length of erbium doped fibre stimulated/energised by a local pump to amplify the optical signals that pass through it.
Ethernet	
Exclusive Economic Zone	(EEZ) This is a regulatory and legal maritime boundary prescribed by the United Nations Convention on the Law of the Sea normally 200 nautical miles from the the coast. Within their EEZ governments have powers over exploitation of resources (e.g. Fishing, Energy).
Feasibility Study	A high-level assessment of a prospective cable system's likely success, through examination of the market demand (capacity demand and pricing), project costs, risks, etc. The feasibility study is often used as a relatively inexpensive litmus test to assess the reasonableness of a project prior to investing in the much more exhaustive effort of developing a full project Business Plan.
Fiber Pair (FP or Fpr)	Two individual fiber strands that are paired together for bi-directional (i.e. transmit & receive) communication.
Fiber Pair Count	The number of individual fiber strands counted in twos (a send fiber and a receive fiber) in a cable.
Flex-grid spectrum	Historically, undersea (and terrestrial) DWDM networks were designed with a fixed "grid" of wavelengths spaced (or provisioned) at very specific frequencies, e.g.. With separations of 50GHz, or 33GHz, or 25GHz. As technology evolved, and wavelengths were able to operate over narrower channels, mixing and matching where wavelengths were positioned in the spectrum often became a bit challenging without losing valuable transmission spectrum in holes left by the fixed grids. In a flex grid, the design allows wavelengths to be positioned in the spectrum with less uniformity and pre-fixing.

Forward Error Correction (FEC)	A communications technique that can correct data corrupted during transmission at the receiving end. Before transmission, the data are processed through an algorithm that adds extra bits for error correction. If the transmitted message is received in error, the correction bits are used to repair it.
Fronthaul	The outside terrestrial physical plant including trenches, ducts, cable, fiber, electronics etc. which extends from the Beach Manhole to the Cable Station.
Gain Equalization	Adjustment of the undersea gain profile (e.g. gain shape, gain tilt) characteristics to ensure that the end-to-end error performance requirements will be met throughout the System Design Life Period.
Initial Loading Equipment (ILE)	The ILE is equipment used to provide non-traffic-carrying signals onto the fiber (sometimes called dummy signals), which when operating with the actual traffic-bearing waves, balance the power of the fiber across the full spectrum.
Intelligent Control Plane	A transmission node's means (physical and software implementation) of dynamically and intelligently routing signals through a mesh network
Intensity Modulation (IM)	A digital transmission scheme in which an electrical bit stream is used to modulate the intensity of the optical carrier. At the receiver, IM signals are detected by a direct detection receiver.
Intent To Proceed (ITP)	An ITP is an abbreviated agreement, often in the form of a binding letter agreement, which provides the terms of binding agreement between a cable owner and system supplier for the start of work on a new project, with limited scope and capped liabilities. For example, an ITP may authorize a desk top study and/or permitting activity to be undertaken by the anticipated supplier, on behalf of the purchaser, at a capped price. This will allow work to begin on the relatively low cost, long lead activities of a project to be started, without the full contract in force.
Internet Service Provider (ISP)	Company that provides Internet connections and services to individuals and organizations.
Land Cable	The Land Cable in an undersea network is the cable between the beach and the cable station.
Landing Party	The landing party is the licensed company (often a telecommunications provider themselves) who provide the landing facilities (beach manhole, cable stations, ducts), services (operations and maintenance services) and often also the regulatory approvals to land a cable system in a specific country. The landing party in a consortium cable is often an investor in the cable, and the agreement for landing facilities and services are contained in the C&MA. Landing parties in private systems may be independent parties, and contracted via a stand alone Landing Party Agreement.
Landing Party Agreement (LPA)	The commercial agreement governing the provision of facilities and services of a local operator to a cable owner, including such things as cable station facilities, license and permit support, OA&M services, etc.
Large Effective Area Fiber (or Non-Zero Dispersion Shifted Fiber, NZDSF)	A class of fibers with a large effective area (i.e. $> 70 \mu\text{m}^2$) which reduces the effect of nonlinearities in long distance transmission. However, disadvantages are that these fibers have a larger chromatic dispersion slope and reduced efficiency for distributed Raman amplification. LEAF is the Corning Brand Name, TrueWave is the OFS Brand Name.
Latency	The transmission delay associated with a specific signal reaching its destination, which is largely dependent on the length of the route.
Layback	Distance from the stern (or principal point of navigation) to the position of a towed vehicle, or the point at which the cable touches the seabed.
Lightweight (LW)	Type of cable which does not have layers of armouring, used in deep water areas

Line Monitoring Equipment (LME)	The equipment specifically designed to monitor the performance of the Submersible Plant (e.g. cables, repeaters and Bus) including Land Cable Sections.
Linear Cable Engine (LCE)	An LCE is a piece of equipment used to pay out and pick up cable consisting of two rows of wheels with tyres that grip the cable top and bottom, the more cable weight the more sets of wheels are required to hold it
Liquidated Damages (LDs)	Penalties paid by a system supplier (to the cable purchaser) for delayed completion of cable system construction, typically so long as such delays were not caused by either the Purchaser or Force Majeure events.
Maintenance Authority (MA)	Owner appointed party with responsibility to interface with the Cable Maintenance provider, develop cable maintenance plans and agreements.
Maintenance Controller /Operator Position - (MC/OP)	A computer server or server complex that provides a centralized means for monitoring and controlling the Line Segments, inclusive of the Network Elements comprising the TSE (e.g. SLTE, PFE and LME) and the Cable Segments (fibers, Repeaters, BUs, OADM, etc.). Operator Positions are the human computer interfaces that provide local users (i.e. in same physical location as the MC) access to the MC.
Mean Time Between Failures (MTBF)	Mean Time Between Failure - Of any component or subsystem used to determine availability of system
Mean Time To Repair (MTTR)	Mean Time to Repair - The time to replace a failed component or subsystem to allow service to be restored to normal operating condition
Memorandum Of Understanding (MOU)	MOUs in the undersea industry are used in many situations, but most often they are used as preliminary handshakes amongst prospective cableowners who are interested in working together to co-invest in a new cable system. The MOU will be the basis for launching formal C&MA negotiations and system supply RFQ. MOUs can also be used with Landing Parties and in other situations. Sometimes, they are binding and carry monetary commitments.
Mesh network	A mesh network is a transport network with multiple paths connecting similar end points, such that a signal can transit any one of these paths to reach its end destination.
Minimum Bending Radius (MBR)	The smallest radius that cable or fibre can be bent around without causing damage of unacceptable losses (sheaves, tank coiling etc)
Mobilise and demobilise	Mobilising is the process of preparing a vessel for a project. It involves loading of equipment, spares, fuel, victualling and people in a mobilisation port. For cable projects it does not include cable loading. Demobilising is reverse process of unloading of equipment and the disembarkation of people in port.
MUX / DEMUX (Electrical)	A piece of equipment which combines lower-rate signals into a higher-rate signal, and vice-versa. E.g., ten 10G signals are multiplexed to a single 100G wave/signal in a mux (multiplexer), and a 100G wave/signal is demultiplexed into ten 10G signals in a demux (demultiplexer).
MUX / DEMUX (Optical)	Multiplexor: Use to combine different wavelengths on to a single fibre in a DWDM system Demultiplexor. Used to separate out different wavelengths in a DWDM system on to separate fibres
Network Management System (NMS)	The maintenance equipment and software that monitors and controls the complete System from a central location. The NMS may be comprised of the various System EMSs or a single human computer interface which integrates the various System EMSs.
Network Operations Center (NOC)	Physical location that provides a management view of the network and provides the tools to perform the fault, performance, and configuration management functions.

Nominal Operational Tensile Strength (NOTS)	NOTS - the tension that can be applied over a 48 hr period to a fibre optic cable in suspension with a greater than 95% fibre survival probability
Nominal Permanent Tensile Strength (NPTS)	The NPTS is the the tension that the cable/fiber can support (the System staying in compliance with the Performance Requirements of this Specification) during the System Design Life Period.
Nominal Transient Tensile Strength (NTTS)	NTTS is the tension that can be applied to the cable during a cumulative period of one hour, without significant reduction of the NPTS/NOTS. This condition is typically encountered during recovery operations
OC-x or STS-x, x=1, 3, 12, 24, 48, 192, 768	The basic unit of transmission in SONET is the STS-1 (Synchronous Transport Signal 1) or OC-1, operating at 51.84 Mbit/s—exactly one third of an STM-1/STS-3c/OC-3c carrier.
Ocean Ground Bed (OGB)	The electrodes installed (often near the beach, but sometimes closer to the cable station) which provide a solid electrical ground for the network
ODF - Optical Distribution Frame	Connection panel to interconnect fiber optic cables.
On/Off Keying (OOK) Modulation	On/Off Keying. A technique used to send digital data over a carrier by turning the carrier on and off (1,0)
Operations Expense (OpEx)	The costs and expenses required for the Operations, Administration, and Maintenance, including personnel, contracted services, rents, leases, taxes, permits, training, communications, etc...
Optical Add/Drop Multiplexer (OADM)	A device which allows specific wavelengths to be added to, or dropped from, a fiber pair. OADMs come in a variety of forms. Most often, in undersea applications, the OADMs are housed in a Branching Unit (or adjacent to a Branching Unit in nearby splice boxes), as opposed to onland, where they were be termed a "Dry OADM". When inside (or nearby) a BU, the OADM enables a fraction of the bandwidth of a fiber to be used to communicate with a specific landing point, via a branch cable. In the undersea cable industry, the historical form came with fixed (pre-defined) routing. There are varieties of OADMs on land, which are remotely reconfigurable, labeled ROADMs. ROADMs are not yet common in the undersea communications industry.
Optical Amplifier	A device that boosts light signals in an optical fiber network. Unlike regenerators, which have to convert light to electricity in order to amplify it and then convert it back again to light, the optical amplifier amplifies the light signal itself. A repeater is a hermetically sealed device which houses Optical Amplifiers in an undersea environment.
Optical Power Budget	The optical power budget in a fiber-optic communication link is the allocation of available optical power (launched into a given fiber by a given source) among various loss-producing mechanisms such as launch coupling loss, fiber attenuation, splice losses, and connector losses, in order to ensure that adequate signal strength (optical power) is available at the receiver. In optical power budget attenuation is specified in decibels (dB) and optical power in dBms.
Out of Service (OOS)	A term used to describe a cable no longer in service but still in situ on the seabed.

Plesiochronous Digital Hierarchy (PDH)	The plesiochronous digital hierarchy (PDH) is a technology used in telecommunications networks to transport large quantities of data over digital transport equipment such as fibre optic and microwave radio systems. The term plesiochronous is derived from Greek plēsios, meaning near, and chronos, time, and refers to the fact that PDH networks run in a state where different parts of the network are nearly, but not quite perfectly, synchronised. PDH is being replaced by synchronous digital hierarchy (SDH) or synchronous optical networking (SONET) equipment in most telecommunications networks.
Permits	The large set of permissions required to construct, own and operate a cable network, including but not limited to permissions from local governments to land the cable in their territory (or transit their territorial waters), operational permits, environmental permits, rights of way, agreements with local fishermen, etc.
Performance Budget	The performance budget is a list of parameters that define the performance of each digital line segment (DLS) at the beginning of life (BoL) and end of life (EoL). It includes the optical power budget and all system impairments and degradations over the life of the system.
Phase Shift Keying (PSK) Modulation	Phase Shift Keying. A technique used to send digital data over a carrier by changing the phase of the carrier.
Plan of Work (POW)	The project schedule (construction timeline).
Polarisation Mode Dispersion (PMD)	Polarisation Mode Dispersion . PMD is a form of modal dispersion where two orthogonal polarizations of light (vertical and horizontal) in a waveguide, which normally travel at the same speed, travel at different speeds due to random imperfections and asymmetries in the fiber (fiber birefringence), causing random spreading of optical pulses. The fiber PMD Coefficient is measured during manufacturing and is specified in units of ps/√km.
Polarisation Mode Dispersion Compensator (PMDc)	Polarisation Mode Dispersion Compensator or Compensation, currently often accomplished via Digital Signal Processing. PMD increases with the sqrt of length; the longer the cable the more PMD compensation is needed.
Power Feeding Equipment (PFE)	The Power Feeding Equipment is a very large, high-voltage power supply, usually located in the cable station, which provides line current into the undersea cable. PFEs are typically located at each cable station (powering from one end of the cable to the other) of a repeatered network. The line current is used to power the lasers in the amplifiers in each undersea repeater. Specific PFE products are unique to the undersea cable world, and not used in other telecommunication networks. PFEs are not needed for a repeaterless cable, but just for a repeatered cable.
Pre Laid Shore End (PLSE)	A Pre Laid Shore End is a section of cable laid in a separate marine operation from the main cable installation at a landing point. The potential reasons for choosing a PLSE as a solution are numerous but a common reason is extended shallow water close to shore, less than the draft of the main installation vessel.
Pre Lay Grapnel Run (PLGR)	A pre installation grapnel operation along the cable route to clear any obstructing debris (e.g. fishing warps)
Pre Sales	Commitments, usually prior to project finance closure, to purchase capacity on the cable network if it is built. Certain levels of presales commitments are often a prerequisite for project finance, as an indication of true market opportunity.
Protection (or Power) Grounding Unit	provides the earth path in the event of a cable becoming live during a repair on a system that has power switchable branching units. It will allow the vessel to work on the faulty leg of a system without loss of traffic on other branches.

Provisioning Schedule	The portion of the cable system supply contract which details the unit quantities, unit prices and total system price (normally by cable segment) governing the purchase price of the network
Q Value or Commissioning Limit	Quality Value (Q Value) which represents that the System has been designed with adequate margins against impairments, ageing, temperature, etc. so that the error performance requirements will be met throughout the System Design Life Period
Qualification	Qualification is the activity (which is also part of the development process), to demonstrate to the satisfaction of the Purchaser, in accordance to the requirements of the Contract, that a technology, a component, an assembly or a sub-system is able to comply with its performance and reliability specifications (including live testing). It also provides inputs to the test specifications for the certification process.
Quality Of Service (QoS)	In the field of computer networking and other packet-switched telecommunication networks, the traffic engineering term quality of service (QoS) refers to resource reservation control mechanisms rather than the achieved service quality. Quality of service is the ability to provide different priority to different applications, users, or data flows, or to guarantee a certain level of performance to a data flow.
RAMAN Amplification	A technique used to amplify optical signals using the transmission fibre as the medium that does the amplification. In submarine systems applications, it is typically used to extend the range of un-repeated systems.
Ready For Provisioning Acceptance (RFPA)	RFPA is the commercial point in time when a cable is accepted by the cable owners from the system supplier. It follows complete testing of the network to assure it meets all owners requirements. At this time, the warranties commence, and a substantial payment is made to the supplier. This is not, however, usually the final payment- which is usually made months thereafter, after all remaining construction details are brought to closure and the system has performed adequately for several months.
Ready For Service (RFS)	Ready for Service follows RFPA, although sometimes the terms are used interchangeably. During the period after RFPA, but before RFS, the cable owners typically connect the network to their own domestic facilities and run end-to-end service tests, to assure the network is actually ready to provide service.
Reasonable endeavours (Burial)	Reasonable endeavours related to cable burial is a clause often found in installation contracts which defines a set of agreed working parameters for the installer regarding burial speeds vs target burial depths. Note, this has commercial connotations and perhaps must be used carefully.
Reconfigurable Optical Add/Drop Multiplexer (ROADM)	Reconfigurable Optical Add/Drop Multiplexer is a large optical switch which routes specific wavelengths to different fibers (paths), and the connectivity is determined by external controls and changeable over time. ROADMs are prevalent in terrestrial optical networks, but not yet prevalent in undersea networks.
Regenerator or Regen	A Regenerator converts an optical signal into electrical, cleans up the signal (from its noise) and amplifies it, retimes it, and then retransmits as optical again. It is equivalent to a "transmitter/receiver" pair except that it retains the data rate during the regeneration process and does not break down the data to lower multiplexing rates.
Remote Hands	Contracted services at sites normally not staffed by a party where occasional technical services may be needed (e.g. alarm reset, card changes, etc...)
Remote Operated Vehicle (ROV)	Remote Operated Vehicle - an unmanned submersible, often used in cable work to undertake cable detection, inspection and burial tasks. They are usually powered and controlled from the ship through an umbilical cable. Operational to depths typically reaching 2000m.

Remote Operator Position (ROP)	Remote Operator Positions are the human computer interfaces that provide remote users (i.e. NOT in same physical location as the MC) access to the MC through the DCN and/or external networks and used to supervise the System.
Remote Optically Pumped Amplifier (ROPA)	Remote Optically Pumped Amplifiers are used in un-repeated systems to extend the range of un-repeated systems. Erbium doped fibre (see EDFA) in a non-powered enclosure is located in the sea typically 80km away from the CLS (Cable Landing Station). The Erbium doped fibre is stimulated/ energised by a high power laser located in the CLS and serves as an amplification medium for the incoming optical signal.
Rennie and Gifford	Types of grapnels, very commonly used as part of a grapnel rig for cable recovery
Repeater	The underwater equipment which is responsible for boosting (amplifying) the optical signal traversing the cable network. The active elements of the repeater are the EDFAs (one on each fiber); the repeater also includes power (for the pump lasers energizing the EDFAs) and supervisory capability (to monitor the health of the repeater and/or the cable spans adjacent to that repeater. The repeater includes a high-pressure, hermetic body, which encases the opto-electronics, and connects to the cable via a joint.
Restoration Liaison Officer	Owner's representative for cable restoration planning and implementation. Responsible for development of restoration plans, agreements.
Restoration Office	Owner appointed party with cable restoration responsibility
Rock Armour (RA)	Level of cable protection consisting of two outer layers of steel armour wires, the outer layer coiled in a tighter pattern (pitch) to maximise robustness. Used in the harshest of marine environments in shallow water where cable cannot be buried, often due to rocky seabed.
Route Position List (RPL)	A Route Position list is a listing of geographic positions of all the cable events and wet plant, and alterations to the course of the route. It defines the route of the cable and is a primary system record and should match its corresponding SLD.
Route Survey	The marine survey (most often undertaken as part of the System Supply Contract by the chosen System Supplier), that collects information concerning the bottom conditions along the planned cable route, in an effort to discern the appropriateness of the route for the cable, the burial feasibility, and the appropriate levels of cable protection (armoring)
Synchronous Digital Hierarchy (SDH)	Synchronous Optical Networking (SONET) and Synchronous Digital Hierarchy (SDH) are standardized protocols that transfer multiple digital bit streams over optical fiber using lasers or highly coherent light from light-emitting diodes (LEDs). At low transmission rates data can also be transferred via an electrical interface. The method was developed to replace the Plesiochronous Digital Hierarchy (PDH) system for transporting large amounts of telephone calls and data traffic over the same fiber without synchronization problems.
Synchronous Optical Network (SONET)	SONET is the North-America equivalent of Synchronous Digital Hierarchy (SDH). SONET and SDH often use different terms to describe identical features or functions. This can cause confusion and exaggerate their differences. With a few exceptions, SDH can be thought of as a superset of SONET.
Sea State	The condition of the sea surface due to the combined effects of sea and swell heights and directions, that may affect a marine operation.
Seed Funding	Initial capital used to fund project development (for such things as feasibility studies, business plans, regulatory support, etc) before full financing for a project is closed.
Sheaves	Large wheels at the bow or stern of a ship that the cable runs over during cable operations

Ship Repair	The repair of a cable at sea, by a special-purpose ship capable of performing cable repairs.
Shunt Fault	The term commonly given to an electrical fault on a cable, not necessarily interrupting optical traffic.
Significant Wave Height	(SWH or Hs) this is a wave height measurement often used to partly define the operational limits of marine vessels.
Single Armour (SA)	Level of cable protection consisting of a single outer layer of steel armour wires, used in areas where external aggression may occur but deployment restrictions prevent heavier cable.
Slack	Expressed as a percentage, this is the extra cable length over the route distance required to be laid over undulating seabed so that the cable will lie conformant with the seabed without suspensions or excess cable to achieve the designed system length.
Software Defined Networking (SDN)	Software Defined Networking. SDN is an approach to building computer networks that separates and abstracts elements of these systems. SDN allows system administrators to quickly provision network connections on the fly instead of manually configuring policies
STS-x or OC-x, x=1, 3, 12, 24, 48, 192, 768	The basic unit of transmission in SONET is the STS-1 (Synchronous Transport Signal 1) or OC-1, operating at 51.84 Mbit/s—exactly one third of an STM-1/STS-3c/OC-3c carrier.
Service Level Agreement (SLA)	The set of performance requirements that govern the quality of a delivered service, e.g. errors, availability, etc. associated with a lease of capacity or service
Start of Life (SoL) or Beginning of Life (BOL)	Often used in system design (optical power/impairment) budgets to reflect the values of various parameters at the time of RFS (the beginning of a cable life)
STM-x, x=1, 4, 16, 64, 256	The basic unit of framing in SDH is a STM-1 (Synchronous Transport Module, level 1), which operates at 155.520 megabits per second (Mbit/s)—exactly three times that of an OC-1/STS-1c carrier.
Straight Line Diagram (SLD)	A Straight Line Diagram is a schematic representation of the cable system wet plant. It is a primary system record and should match its corresponding RPL.
Submarine Line Terminal Equipment (SLTE)	Submarine Line Terminal Equipment - consists of Transmission Terminal Equipment with multi-channel transmission capability for transmitting data to and from various cable landing stations
Supply Contract	Legal Contract binding a cable owner and a cable supplier for construction of an undersea cable system. It includes a commercial volume and a technical volume.
Territorial Waters	(TW) This is a regulatory and legal maritime boundary prescribed by the United Nations Convention on the Law of the Sea often referred to as the 12 mile limit, as it is most commonly found 12 nautical miles from the the coast. Within territorial waters governments tend to have far greater powers over where and how cables are laid.
TransAtlantic Telephone (TAT)	The TAT systems were the series of consortium cables connecting the US to Europe, starting with TAT-1 in the mid-20th, culminating in TAT-14 installed at the end of the century. Today, there are many similar cable networks across the Atlantic, each with their own unique name, but the TAT systems retain the unique heritage of being the original transatlantic telephone cables built the cooperation of carriers over many generations.
Transponder	Converts short reach client side traffic into a DWDM wavelength that will launch into the Line System

Ultra Long Haul (ULH)	Ultra Long Haul- reflects a design capability for a specific piece of equipment which allows it to perform adequately over very long distances, e.g. many thousand kilometers.
Undersea Cable	The cable specifically refers to the physical cable, composed of fiber, copper, steel, polyethylene etc. between repeaters, with protective armoring over the outside of the cable (as appropriate, for shallow water regions with external hazards such as fishing trawlers). People sometimes refer to the "cable" in loose terms, inclusive of the repeaters.
Upgrade	The addition of new wavelengths to a network by the provisioning of additional transponders (SLTE Equipment), which light more of the available transport capacity on the cable network and make it available to transport traffic
Wavelength Division Multiplexing (WDM)	A technology that uses multiple lasers and transmits several wavelengths of light (lambdas) simultaneously over a single optical fiber. Each signal travels within its unique color band, which is modulated by the data (text, voice, video, etc.).
Wavelength Grid	A table of standardized wavelengths (or associated frequencies) for used in WDM systems as defined by ITU G.694 standard.
Weather Window	Time between two forecast periods of bad weather when operations can be conducted.
Wet Maintenance Contract	The service agreement between a cable owner and a wet-maintenance service provider (one who performs ship repairs).
Wet Optical Add-Drop Multiplexers - OADM	A Network Element with the capability to add/drop wavelengths, on a fiber pair basis, from a transiting fiber pair to an add/drop fiber pair (e.g. from a trunk fiber pair to a branch fiber pair). An OADM may be implemented within the transmission equipment located within the Cable Station or within submersible housing as part of the Wet Plant.
Wet Plant	All equipment of an undersea cable system that is installed between Beach Manholes (e.g. cable, repeaters, couplers, branching units, equalizers, joints, etc.) of each termination point of a cable route.
Wideband Repeater	Repeaters that contain Optical Amplifiers which can provide transmission over a wide portion of the electromagnetic spectrum.
WTE - Wavelength Terminating Equipment	The Wavelength Terminating Equipment is the piece of equipment at the receive end of a fiber, which contains optical splitters, filters, and maybe amplifiers, which parse (separate) individual wavelengths within a single fiber to specific receivers (one for each wavelength).

