

Term	Definition
<b>bandwidth</b>	Under discussion at this time
<b>bridge</b>	see IEEE P802.3bh, D3.2, 1.4.113 <i>A layer 2 interconnection device that does not form part of a CSMA/CD collision domain but conforms to IEEE Std 802.1D. A bridge does not form part of a CSMA/CD collision domain but, rather appears as a Media Access Control (MAC) to the collision domain. (See also IEEE 100.)</i>
<b>burst</b>	In EPON, an organized sequence of octets transmitted by an ONU within the previously allocated transmission window, occupying this window partially or completely, depending on the amount of data available at the ONU, as well as scheduling and granting algorithms. A burst may carries data with FEC or without FEC information, depending on whether FEC function is enabled. Furthermore, a burst may include start of burst delimiter, end of burst delimiter, a series of code-groups to perform gain adjustment (AGC interval) and synchronize clock (CDR interval), as well as laser on and laser off periods. See IEEE P802.3bh, D3.2, 65.2.2.1 for detailed structure of 1G-EPON burst, and IEEE P802.3bh, D3.2, 76.3.2.5.1 for detailed structure of 10G-EPON burst.
<b>data detector</b>	In EPON, a data detector is responsible for observing data in the transmit path and controlling the state of the transmitter (laser), enabling it and disabling it depending on the presence of data in the transmit path. It typically includes a FIFO buffer, providing the physical layer enough time to turn the laser on and generate the necessary synchronization sequence before transmitting the data on the medium. This synchronization sequence may consist, among the others, of idle code-groups required by the receiver to perform gain adjustment (AGC interval) and synchronize clock (CDR interval), start of burst delimiter, end of burst delimiter. See IEEE P802.3bh, D3.2, 65.2.2 for 1G-EPON data detector, and IEEE P802.3bh, D3.2, 76.3.2.5 for 10G-EPON data detector.
<b>data rate</b>	the transfer rate of information, measured in bits per second (b/s)
<b>CCDN</b>	Coax Cable Distribution Network Passive or amplified coaxial distribution network, spanning between the MDI on CNU and the MDI on the CLT, carrying RF signals in downstream and upstream (FDD mode) or downstream or upstream (TDD mode) direction
<b>channel width</b>	a specific segment of contiguous RF spectrum measured in Hz
<b>CLT</b>	Coax Line Terminal The network-end DTE for a coaxial access network. The CLT is the master entity in a P2MP network with regard to the MPCP protocol.
<b>CNU</b>	Coax Network Unit The subscriber-end DTE to a coaxial access network. A CNU is a slave entity in a P2MP network with regard to the MPCP protocol.
<b>code word</b>	= code-group see IEEE P802.3bh, D3.2, 1.4.142 <i>For IEEE 802.3, a set of encoded symbols representing encoded data or control information. For 100BASE-T4, a set of six ternary symbols that, when representing data, conveys an octet. For 100BASE-TX and 100BASE-FX, a set of five code-bits that, when representing data, conveys a nibble. For 100BASE-T2, a pair of PAM5x5 symbols that, when representing data, conveys a nibble. For 1000BASE-X, a set of ten bits that, when representing data, conveys an octet. For 1000BASE-T, a vector of four 8B1Q4 coded quinary symbols that, when representing data, conveys an octet. (See IEEE Std 802.3, Clause 23, Clause 24, Clause 32, Clause 36, and Clause 40.)</i>
<b>CP</b>	Cyclic Prefix A redundant set of samples appended to the beginning of an OFDM symbol to introduce an effective delay between symbol payloads, thus mitigating inter-symbol interference. The k redundant CP samples attached at the beginning of the symbol are identical to the last k samples of the same symbol. The associated effective delay, (k x the OFDM sampling rate), is used primarily to combat multipath propagation effects.
<b>cyclic prefix</b>	The inefficiency incurred in an OFDM system as a result of the use of a cyclic prefix to combat

<b>overhead</b>	<p>multipath echo effects. The duration of the cyclic prefix overhead (CP_overhead) is defined as follows</p> $CP\_overhead = T_{cp} / (T_{cp} + T_s)$ <p>where <math>T_{cp}</math> is the duration of the cyclic prefix and <math>T_s</math> is the duration of the OFDMA symbol without the cyclic prefix.</p>
<b>downstream</b>	<p>see IEEE P802.3bh, D3.2, 1.4.173</p> <p><i>In an access network, where there is a clear indication in each deployment as to which end of a link is closer to a subscriber, transmission toward the subscriber end of the link.</i></p>
<b>EPoC</b>	EPON Protocol over Coax
<b>EPoC service group</b>	All CNUs connected to a CLT
<b>FDD</b>	<p>Frequency Division Duplexing</p> <p>An operating mode of EPoC, in which the transmitter and receiver operate at different frequency bands, transmitting and receiving simultaneously across the CDN</p>
<b>FEC block</b>	<p>An organized set of octets of predefined size, including data octets and parity octets, with specific structure. The size of the FEC block, its internal structure, amount of data and parity per block and their location is FEC-code dependent. For examples of FEC, see IEEE P802.3bh, D3.2, 74.7.2 for BASE-R FEC, or IEEE P802.3bh, D3.2, 76.3.2.4 for 10G-EPON.</p>
<b>fragmentation</b>	??? – need more discussion on whether the term needs to be defined in a generic way or not
<b>frame</b>	<p>see IEEE P802.3bh, D3.2, 1.4.248</p> <p><i>Consists of the Destination Address, Source Address, Length/Type field, MAC Client Data, Pad (if required), and Frame Check Sequence.</i></p>
<b>full-duplex</b>	<p>see IEEE P802.3bh, D3.2, 1.4.211</p> <p><i>A mode of operation of a network, DTE, or Medium Attachment Unit (MAU) that supports duplex transmission as defined in IEEE 100. Within the scope of this standard, this mode of operation allows for simultaneous communication between a pair of stations, provided that the Physical Layer is capable of supporting simultaneous transmission and reception without interference. (See IEEE Std 802.3.)</i></p>
<b>guard time / period</b>	<p>In EPoC, a period of time during which no signals are transmitted the PHY in order to avoid or minimize the likelihood of transmission overlap. In OFDM, the guard time protects against signal reflections that arrive with a delay and could otherwise cause interference. Note that in OFDM, a common alternative to the use of an actual guard time (a period of no transmission) achieving the same purpose, is to implement a cyclic prefix.</p>
<b>half-duplex</b>	<p>see IEEE P802.3bh, D3.2, 1.4.216</p> <p><i>A mode of operation of a CSMA/CD local area network (LAN) in which DTEs contend for access to a shared medium. Multiple, simultaneous transmissions in a half duplex mode CSMA/CD LAN result in interference, requiring resolution by the CSMA/CD access control protocol. (See IEEE Std 802.3.)</i></p>
<b>HFC</b>	<p>Hybrid Fiber Coax network</p> <p>An access network, comprising a cascade of optical fiber trunk and coaxial cable distribution, used for RF signal transmission between the headend and subscribers. In such a network architecture, optical nodes perform optical to RF conversion.</p>
<b>high split</b>	an HFC network requiring a diplex filter, in which the upstream is transported in spectrum below the downstream, above 108 MHz
<b>Idle Deletion</b>	<p>In 10G-EPON, the function responsible for deleting excess Idle characters to allow the parity data to be inserted without increasing the PMD line rate. This process deletes four 72 bit vectors containing Idle characters per every thirty-one 72 bit vectors received from the XGMII. The MPCP function ensures that sufficient Idle characters occur so that the minimum IPG is always preserved between two adjacent packets. See IEEE P802.3bh, D3.2, 76.3.2.1 for more details.</p>
<b>Idle Insertion</b>	<p>In 10G-EPON, the function responsible for inserting Idle characters removed by the Idle Deletion process in the transmit path. See IEEE P802.3bh, D3.2, 76.3.3.7 for more details.</p>
<b>Interleaver / block interleaver</b>	A function responsible for re-ordering individual bit or symbol transmissions to increase the robustness of the transmission to bursts of noise or interference, which otherwise would

	results in a series of consecutive errors. The process of interleaving has no purposeful effect on bit or symbol transitions, such as those induced by a scrambler to aid the timing recovery subsystem. Instead, the purpose of the interleaver is to aid the error correction and detection subsystem.
<b>LLID</b>	Logical Link Identifier see IEEE P802.3bh, D3.2, 1.4.246 <i>A numeric identifier assigned to a P2MP association between an OLT and ONU established through the Point-to-Point Emulation sublayer. Each P2MP association is assigned a unique LLID. The P2MP association is bound to an ONU DTE, where a MAC would observe a private association.</i>
<b>low split</b>	also known as sub-split, an HFC network requiring a diplex filter, in which the upstream is transported in spectrum below the downstream, up to 42 MHz in 6 MHz channel plan systems and below 65 MHz in 8 MHz channel plan systems
<b>mid split</b>	also known as extended sub-split, an HFC network requiring a diplex filter, in which the upstream is transported in spectrum below the downstream, up to 108 MHz
<b>OCU FCU FCN OCN</b>	Optical Coax Unit Fiber Coax Unit Fiber Coax Node Optical Coax Node A network element, internetworking between EPON and EPoC. Details are TBD
<b>OFDM symbol</b>	In EPoC, this term refers to the full set of time samples corresponding to the frequency-domain modulated subcarriers, complemented with the addition of the cyclic prefix (CP) . An OFDM symbol contains one QAM symbol from each modulated subcarrier used to carry data or control information.
<b>OFDMA</b>	Orthogonal Frequency Division Multiple Access This term refers to the use of OFDM in a multiuser system, enabling subsets of the full set of OFDM subcarriers to be used to transmit and receive data to/from different users in a flexible manner within a single OFDM symbol.
<b>OLT</b>	see IEEE P802.3bh, D3.2, 1.4.289 <i>The network-end DTE for an optical access network. The OLT is the master entity in a P2MP network with regard to the MPCP protocol.</i>
<b>ONU</b>	see IEEE P802.3bh, D3.2, 1.4.291 <i>The subscriber-end DTE to an optical access network. An ONU is a slave entity in a P2MP network with regard to the MPCP protocol.</i>
<b>packet</b>	see IEEE P802.3bh, D3.2, 1.4.299 <i>Consists of a MAC frame as defined previously, preceded by the Preamble and the Start Frame Delimiter, encoded, as appropriate, for the Physical Layer (PHY) type.</i>
<b>PCS</b>	Physical Coding Sublayer see IEEE P802.3bh, D3.2, 1.4.313 <i>Within IEEE 802.3, a sublayer used in certain port types to couple the Media Independent Interface (MII), Gigabit Media Independent Interface (GMII) or 10 Gigabit Media Independent Interface (XGMII) and the Physical Medium Attachment (PMA). The PCS contains the functions to encode data bits for transmission via the PMA and to decode the received conditioned signal from the PMA. There are several PCS structures. (For example, See IEEE Std 802.3, Clause 23, Clause 24, Clause 32, Clause 36, Clause 40, Clause 48, Clause 49, and Clause 82.)</i>
<b>PHY</b>	Physical Layer entity see IEEE P802.3bh, D3.2, 1.4.314 <i>Within IEEE 802.3, the portion of the Physical Layer between the Medium Dependent Interface (MDI) and the Media Independent Interface (MII), Gigabit Media Independent Interface (GMII) or 10 Gigabit Media Independent Interface (XGMII), consisting of the Physical Coding Sublayer (PCS), the Physical Medium Attachment (PMA), and, if present, the WAN Interface Sublayer (WIS) and Physical Medium Dependent (PMD) sublayers. The PHY contains the functions that transmit, receive, and manage the encoded signals that are impressed on and recovered from the physical medium. (For example, See IEEE Std 802.3, Clauses 23 to 26, Clause 32, Clause 36,</i>

	<i>Clause 40, Clauses 48 to 54, Clauses 58 to 63, Clause 65, Clause 66, and Clauses 82 to 89.)</i>
<b>PMA</b>	Physical Medium Attachment sublayer see IEEE P802.3bh, D3.2, 1.4.315 <i>Within 802.3, that portion of the Physical Layer that contains the functions for transmission, reception, and (depending on the PHY) collision detection, clock recovery and skew alignment. (For example, See IEEE Std 802.3, Clauses 7, 12, 14, 16, 17, 18, 23, 24, 32, 36, 40, 51, 62, 63, 66, and 83.)</i>
<b>PMD</b>	Physical Medium Dependent sublayer see IEEE P802.3bh, D3.2, 1.4.316 <i>Within 802.3, that portion of the Physical Layer responsible for interfacing to the transmission medium. The PMD is located just above the Medium Dependent Interface (MDI). (For example, See IEEE Std 802.3, Clause 25, Clause 26, Clause 38, Clause 39, Clause 54, Clauses 58to 60, Clause 62, Clause 63, and Clauses 84to 89.)</i>
<b>RF spectrum</b>	the radio frequency band, measured in Hertz (Hz) used to convey information via various modulation techniques
<b>QAM</b>	Quadrature Amplitude Modulation A data encoding technique whereby multiple bits are encoded into a single symbol by the mapping of a specific bit pattern to amplitude and phase value for the symbol.
<b>QAM symbol</b>	In EPoC, this term refers to the amplitude-phase representation of the bits of data that modulate a carrier signal, or, in OFDM, that modulate each of OFDM subcarriers.
<b>ranging</b>	see IEEE P802.3bh, D3.2, 1.4.339 (needs to be adapted to fit EPoC) <i>A procedure by which the propagation delay between a master (e.g., OLT) and slave (e.g., ONU) is measured. The round trip delay computation is performed by the OLT, using the timestamp in MPCP messages from the ONU.</i>
<b>repeater</b>	see IEEE P802.3bh, D3.2, 1.4.346 <i>Within IEEE 802.3, a device as specified in Clause 9and Clause 27that is used to extend the length, topology, or interconnectivity of the physical medium beyond that imposed by a single segment, up to the maximum allowable end-to-end transmission line length. Repeaters perform the basic actions of restoring signal amplitude, waveform, and timing applied to the normal data and collision signals. For wired star topologies, repeaters provide a data distribution function. In 100BASE-T, a device that allows the inter-connection of 100BASE-T Physical Layer (PHY) network segments using similar or dissimilar PHY implementations (e.g., 100BASE-X to 100BASE-X, 100BASE-X to 100BASE-T4). Repeaters are only for use in half duplex mode networks. (See IEEE Std 802.3, Clause 9and Clause 27.)</i>
<b>RTT</b>	Round Trip Time In EPON and EPoC, RTT is the difference between the local MPCP timer value and the value in the timestamp field carried in the time-stamped MAC Control message (see Table 31A–1), used for the ranging process.
<b>sample</b>	A sample is the digital representation of the physical waveform transmitted/received over the physical medium at the PMD layer.
<b>scrambler</b>	see IEEE P802.3bh, D3.2, 1.4.359 <i>A randomizing mechanism that is used to eliminate long strings of consecutive identical transmitted symbols and avoid the presence of spectral lines in the signal spectrum without changing the signaling rate. A self-synchronous scrambler is one in which the current state of the scrambler is the prior n bits of the scrambled output. Therefore, the descrambler can acquire the correct state directly from the received stream. A side-stream scrambler is one in which the current state of the scrambler is dependent only on the prior state of the scrambler and not on the transmitted data. Therefore, the descrambler must acquire state either by searching for a state that decodes a known pattern or by agreement to start at a known state in synchronization with the scrambler. A frame-synchronous scrambler is a side-stream scrambler that begins each frame in a known state. This definition is derived from ATIS-0600416.1999(R2010) and ATIS-0900105.2008, which take precedence.</i>
<b>switching /</b>	In TDD, the time required to switch the device between transmitting and receiving modes of

<b>turnaround time</b>	operation
<b>TDD</b>	Time Division Duplexing An operating mode of EPoC, in which the transmitter and receiver operate at the same frequency band, where transmitting and receiving operations across the CDN are interleaved in time..
<b>top split</b>	an HFC network requiring a triplex filter in which there are two upstream bands, one transported in spectrum below the downstream with the cross-over as per either the low, mid or high splits, and another transported in spectrum above the downstream
<b>upstream</b>	see IEEE P802.3bh, D3.2, 1.4.411 <i>In an access network, transmission away from the subscriber end of the link. Applicable to networks where there is a clear indication in each deployment as to which end of a link is closer to a subscriber.</i>
<b>XGMII</b>	10 Gigabit Media Independent Interface see IEEE P802.3bh, D3.2, 1.4.69 <i>The interface between the Reconciliation Sub-layer (RS) and the Physical Coding Sublayer (PCS) for 10 Gb/s operation. (See IEEE Std 802.3, Clause 46.)</i>