

Annex A: Glossary

- **AES-CMAC**: Cipher-based Message Authentication Code (Used for PLOAM/OMCI integrity).
- **AES-CTR**: AES in Counter Mode (The default encryption mode).
- **Allocation-ID** (Alloc-ID): A unique identifier assigned by the OLT to an ONU for upstream bandwidth allocation. One ONU can have several Alloc-IDs.
- **BC-ECMAC**: BlockCipher-ExtendedCMAC; In 50G-PON, the chosen block cipher provides both data encryption (in CTR mode) and message authentication (in CMAC mode). The “Extended” refers to support for output sizes larger than 128 bits, which is required to derive the 256-bit Master Session Keys (MSK).
- **FTTx**: Fibre-to-the-x. Designates an optical fibre infrastructure used for the last kilometre. The x takes different values, for instance FTTH (Fibre-to-the-home) or FTTB (Fibre-to-the-building).
- **GEM**: GPON Encapsulation Method.
- **GPON**: Gigabit PON, an asymmetric PON specification with up to 2.4 Gbps downstream and 1.2 Gbps upstream. Still widely used.
- **HSP**: Higher Speed PON. The evolution of NG-PON2 which can coexist with previous PON specifications. HSP builds on the NG-PON2 specification and generalises it; however, its current implementation, 50G-PON, does not use TWDM.
- **IFC**: Intra-frame Counter (Used in the encryption counter).
- **ISP**: Internet Service Provider.
- **ITU-T**: International Telecommunication Union Telecommunication Standardization Sector.
- **MAC**: Message Authentication Code.
- **ME**: Management Entity, a sort of table in the OMCI database.
- **MIB**: Management Information Base. Used in the SNMP and OMCI protocols, it’s a database with various operations available.
- **MSK**: Master Session Key (The primary key derived from authentication).
- **NG-PON2**: Next-generation PON 2, 40-Gigabit PON for the overall network. Each individual ONU can have 10 Gbps downstream/10 Gbps upstream, 10/2.5 Gbps or 2.5/2.5 Gbps.
- **OAM**: Operation, Administration and Maintenance.
- **ODN**: Optical Distribution Network. A point-to-multipoint optical fibre infrastructure, linking OLTs to ONUs. A simple ODN is called an ODS (Optical Distribution Segment), is entirely passive (passive filters, combiners, splitters) and corresponds to what ODN used to mean in GPON and previous PON iterations. A composite ODN is composed of multiple passive segments interconnected by active devices, a segment being an optical trunk line or an ODS (simple ODN).
- **OLT**: Optical Line Termination. Can be seen as a “fibre router”, as it aggregates and manages various ONUs.
- **OMCI**: ONU Management and Control Interface, a high-level protocol used for OMCI authentication, configuration of Layer 2 and 3, debug and overall configuring the ONU device itself as well as exchanging information with the OLT.
- **ONT**: Optical Network Termination. Designates an ONU assigned to a single subscriber. ONU is the more generic term.
- **ONU**: Optical Network Unit, interface between the optical network and user services (one of which can simply be extracting Ethernet frames and sending them to the router).
- **PLOAM**: Physical Layer OAM, a protocol used to configure the PON link.
- **PON**: Passive Optical Network. “[Denotes] a system, that is, a combination of network elements including at least one OLT and multiple ONUs interconnected by an ODN that implements a particular coordinated suite of physical medium dependent layer, transmission convergence layer and management protocols.”. It used to be passive, but newer versions and reach extensions have introduced active elements in the ODN, which is why the definition has been updated.

- **PSK:** Pre-Shared Key (Used in OMCI-based authentication).
- **SFC:** Superframe Counter (Used in the encryption counter).
- **T-CON** (Transmission Container): A logical grouping of GEM ports used for bandwidth management.
- **TDM:** Time Division Multiplexing.
- **TWDM:** Time and Wavelength Division Multiplexing.
- **WDM:** Wavelength Division Multiplexing. Uses carefully allocated wavelengths to send multiple signals over the same ODN (same infrastructure).
- **XG-PON:** 10 Gigabit PON, an asymmetric PON specification with up to 10 Gbps downstream and up to 2.5 Gbps upstream.
- **XGEM:** 10 Gigabit PON Encapsulation Method (XG-PON and above).
- **XGS-PON:** 10 Gigabit symmetric PON, XG-PON but symmetric.