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SERIES G: TRANSMISSION SYSTEMS AND MEDIA,
DIGITAL SYSTEMS AND NETWORKS

Digital sections and digital line system – Optical line
systems for local and access networks

10-Gigabit-capable passive optical network (XG-PON) systems: Definitions, abbreviations and acronyms

Recommendation ITU-T G.987



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Recommendation ITU-T G.987

10-Gigabit-capable passive optical network (XG-PON) systems: Definitions, abbreviations and acronyms

Summary

Recommendation ITU-T G.987 contains the common definitions, acronyms, abbreviations and conventions of the ITU-T G.987.x-series Recommendations.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T G.987	2010-01-29	15
2.0	ITU-T G.987	2010-10-07	15
3.0	ITU-T G.987	2012-06-13	15

FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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Recommendation ITU-T G.987

10-Gigabit-capable passive optical network (XG-PON) systems: Definitions, abbreviations and acronyms

1 Scope

This Recommendation contains the common definitions, acronyms, abbreviations and conventions of the ITU-T G.987.x series Recommendations.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ITU-T G.902] Recommendation ITU-T G.902 (1995), *Framework Recommendation on functional access networks (AN) – Architecture and functions, access types, management and service node aspects*.
- [ITU-T G.987.1] Recommendation ITU-T G.987.1 (2010), *10 Gigabit-capable passive optical networks (XG-PON): General requirements*.
- [ITU-T G.987.2] Recommendation ITU-T G.987.2 revised (2010), *10 Gigabit-capable passive optical networks (XG-PON): Physical media dependent (PMD) layer specification*.
- [ITU-T G.987.3] Recommendation ITU-T G.987.3 (2010), *10 Gigabit-capable passive optical networks (XG-PON): Transmission convergence (TC) layer specification*.
- [ITU-T G.988] Recommendation ITU-T G.988 (2010), *ONU management and control interface (OMCI) specification*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 access network (AN) [ITU-T G.902]: An implementation comprising those entities (such as cable plant, transmission facilities, etc.) which provide the required transport bearer capabilities for the provision of telecommunications services between a service node interface (SNI) and each of the associated user-network interfaces (UNI).

3.1.2 Ethernet LAN service (E-LAN) [b-MEF 6.1]: An Ethernet service type that is based on a multipoint-to-multipoint Ethernet virtual connection.

3.1.3 Ethernet line service (E-Line) [b-MEF 6.1]: An Ethernet service type that is based on a point-to-point Ethernet virtual connection.

3.1.4 Ethernet tree service (E-Tree) [b-MEF 6.1]: An Ethernet service type that is based on a rooted-multipoint Ethernet virtual connection.

3.1.5 Ethernet virtual connection (EVC) [b-MEF 6.1]: An association of UNIs to which the exchange of service frames is limited.

3.1.6 service node (SN) [ITU-T G.902]: A network element that provides access to various switched and/or permanent telecommunication services.

3.1.7 service node interface (SNI) [ITU-T G.902]: An interface which provides customer access to a service node.

3.1.8 user-network interface (UNI) [b-ITU-T I.112]: The interface between the terminal equipment and a network termination at which interface the access protocols apply.

3.1.9 1:1 VLAN [b-DSL F TR-101]: A VLAN forwarding paradigm involving a one-to-one mapping between user port and VLAN. The uniqueness of the mapping is maintained in the access node and across the aggregation network.

3.1.10 N:1 VLAN [b-DSL F TR-101]: A VLAN forwarding paradigm involving many-to-one mapping between user ports and VLAN. The user ports may be located in the same or different access nodes.

3.2 Optical access architecture terms

This Recommendation defines the following terms:

3.2.1 gigabit-capable passive optical network (G-PON): A PON system supporting transmission rates in excess of 1.0 Gbit/s in at least one direction, and implementing the suite of protocols specified in the ITU-T G.984.x series Recommendations.

3.2.2 next generation PON (NG-PON): In the context of ITU-T standards development activity, a generic term referencing the PON system evolution beyond G-PON. The concept of NG-PON currently includes NG-PON1, where the ODN is maintained from B-PON and G-PON, and NG-PON2, where a redefinition of the ODN is allowed from that defined in B-PON and G-PON.

3.2.3 optical access network (OAN): A part of an access network whose network elements are interconnected by optical communication channels.

NOTE – An OAN may or may not extend all the way to the UNI, so that the user-side interface of the OAN does not necessarily coincide with the UNIs of the AN.

3.2.4 optical distribution network (ODN): A point-to-multipoint optical fibre infrastructure. A *simple* ODN is entirely passive and is represented by a single-rooted point-to-multipoint tree of optical fibres with splitters, combiners, filters, and possibly other passive optical components. A *composite* ODN consists of two or more passive *segments* interconnected by active devices, each of the segments being either an optical trunk line segment or an optical distribution segment. A passive optical distribution segment is a simple ODN itself. Two ODNs with distinct roots can share a common subtree.

3.2.5 optical distribution segment (ODS): A simple ODN, that is, a point-to-multipoint optical fibre infrastructure that is entirely passive and is represented by a single-rooted tree of optical fibres with splitters, combiners, filters, and possibly other passive optical components.

3.2.6 optical line termination (OLT): A network element in an ODN-based optical access network that terminates the root of at least one ODN and provides an OAN SNI.

3.2.7 optical network terminal (ONT): An ONU supporting a single subscriber.

3.2.8 optical network unit (ONU): A network element in an ODN-based optical access network that terminates a leaf of the ODN and provides an OAN UNI.

3.2.9 optical trunk line (OTL): A passive point-to-point segment of a composite ODN.