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TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

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

Digital networks – Optical transport networks

SERIES Y: GLOBAL INFORMATION INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS, NEXT-GENERATION NETWORKS, INTERNET OF THINGS AND SMART CITIES

Internet protocol aspects – Transport

Terms and definitions for optical transport networks

Recommendation ITU-T G.870/Y.1352

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Recommendation ITU-T G.870/Y.1352

Terms and definitions for optical transport networks

Summary

Recommendation ITU-T G.870/Y.1352 provides terms, definitions and abbreviations used in optical transport network (OTN) Recommendations. In this edition, Recommendations (namely Source Recommendation per term) are identified that originally introduced OTN terms and are primarily responsible for the definitions of those terms. For the OTN terms defined in the previous edition, this edition provides the pointers to the Sources Recommendations as a directory. Official definitions are now given in those Source Recommendations.

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Directory, optical transport network, OTN, source recommendation, terminology, terms.

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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

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Recommendation ITU-T G.870/Y.1352

Terms and definitions for optical transport networks

1 Scope

This Recommendation contains a listing of the terms that are broadly used in the Recommendations associated with optical transport networks (OTNs). In the previous editions, [ITU-T G.870] collected and defined major OTN terms. In this edition, the Recommendations that originally introduced and primarily describe those OTN terms are identified as the Source Recommendation. From this revision, the Source Recommendations are primarily responsible for the definitions of those terms. Official definitions are now provided by those Source Recommendations.

For those OTN terms defined in the previous edition, this edition of [ITU-T G.870] provides the pointers to the Source Recommendations as a directory.

Some terms that were defined in the previous editions are now widely used in a general sense and there is no identified need to define them. Some terms are obsolete and are not recommended to be used.

Abbreviations and acronyms, which the previous editions listed, are not included in this edition.

It should be noted that the terms contained in this edition are based on the previous edition and are not exhaustive in OTN terminology.

Directory document and/or service that indicate(s) the source Recommendations per OTN term are under study.

OTN terms specific to synchronization or physical layer characteristics are not a part of this Recommendation.

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.694.1] Recommendation ITU-T G.694.1 (2012), *Spectral grids for WDM applications: DWDM frequency grid*.

[ITU-T G.709] Recommendation ITU-T G.709/Y.1331 (2016), *Interfaces for the optical transport network*.

[ITU-T G.780] Recommendation ITU-T G.780/Y.1351 (2010), *Terms and definitions for synchronous digital hierarchy (SDH) networks*.

[ITU-T G.798] Recommendation ITU-T G.798 (2012), *Characteristics of optical transport network hierarchy equipment functional blocks*.

[ITU-T G.800] Recommendation ITU-T G.800 (2016), *Unified functional architecture of transport networks*.

[ITU-T G.801.1] Recommendation ITU-T G.801.1/Y.1307 (2016), *Ethernet service characteristics*.

[ITU-T G.805] Recommendation ITU-T G.805 (2000), *Generic functional architecture of transport networks*.

[ITU-T G.806] Recommendation ITU-T G.806 (2009), *Characteristics of transport equipment – Description methodology and generic functionality*.

[ITU-T G.808] Recommendation ITU-T G.808 (2016), *Terms and definitions for network protection and restoration.*

[ITU-T G.872] Recommendation ITU-T G.872 (2016), *Architecture of optical transport networks*.

[ITU-T G.874] Recommendation ITU-T G.874 (2013), *Management aspects of optical transport network elements.*

[ITU-T G.7044] Recommendation ITU-T G.7044/Y.1347 (2011), *Hitless adjustment of ODUflex(GFP).*

[ITU-T G.7710] Recommendation ITU-T G.7710/Y.1701 (2007), *Common equipment management function requirements*.

[ITU-T G.7712] Recommendation ITU-T G.7712/Y.1703 (2008), *Architecture and specification of data communication network.*

[ITU-T G.8201] Recommendation ITU-T G.8201 (2011), *Error performance parameters and objectives for multi-operator international paths within the optical transport network.*

[ITU-T M.3010] Recommendation ITU-T M.3010 (2000), *Principles for a telecommunications management network.*

[ITU-T M.3013] Recommendation ITU-T M.3013 (2000), *Considerations for a telecommunications management network.*

[ITU-T X.700] Recommendation ITU-T X.700 (1992), *Management framework for Open Systems Interconnection (OSI) for CCITT applications*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 adaptation: [ITU-T G.805].

3.1.2 adaptation function: [ITU-T G.806].

3.1.3 adapted information: [ITU-T G.805].

3.1.4 administrative domain: [ITU-T G.805].

3.1.5 atomic function: [ITU-T G.806].

3.1.6 automatic protection switching (APS): [ITU-T G.780].

3.1.7 block: [ITU-T G.780].

3.1.8 characteristic information (CI): [ITU-T G.805].

3.1.9 connection: [ITU-T G.805].

3.1.10 connection function (C): [ITU-T G.806].

3.1.11 connection point (CP): [ITU-T G.806].

3.1.12 connection supervision: [ITU-T G.805].

3.1.13 data communications channel (DCC): [ITU-T G.780].

3.1.14 defect: [ITU-T G.806].

3.1.15 errored block (EB): [ITU-T G.780].

3.1.16 embedded communication channel (ECC): [ITU-T G.7712].

3.1.17 failure: [ITU-T G.806].

3.1.18 fault: [ITU-T G.806].

3.1.19 function: [ITU-T G.806].

3.1.20 layer: [ITU-T G.780].

3.1.21 link connection: [ITU-T G.805].

3.1.22 managed object: [ITU-T X.700].

3.1.23 management application function (MAF): [ITU-T G.780].

3.1.24 management information (MI): [ITU-T G.806].

3.1.25 member: [ITU-T G.806].

3.1.26 message communication function: [ITU-T M.3013].

3.1.27 multiplex section (MS): [ITU-T G.780].

3.1.28 multiplex section overhead (MSOH): [ITU-T G.780].

3.1.29 network: [ITU-T G.805].

3.1.30 network connection (NC): [ITU-T G.805].

3.1.31 network element: [ITU-T M.3010].

3.1.32 network element function (NEF): [ITU-T M.3010].

3.1.33 network node interface (NNI): [ITU-T G.780].

3.1.34 operations systems function (OSF): [ITU-T M.3010].

3.1.35 path: [ITU-T G.806].

3.1.36 path overhead (POH): [ITU-T G.780].

3.1.37 process: [ITU-T G.806].

3.1.38 reference point: [ITU-T G.780].

3.1.39 section: [ITU-T G.806].

3.1.40 signal degrade (SD): [ITU-T G.806].

3.1.41 signal fail (SF): [ITU-T G.806].

3.1.42 subnetwork: [ITU-T G.805].

3.1.43 subnetwork connection (SNC): [ITU-T G.805].

3.1.44 synchronous transport module (STM): [ITU-T G.780].

3.1.45 telecommunications management network: [ITU-T M.3010].

3.1.46 trail: [ITU-T G.805].

3.1.47 trail termination function (TT): [ITU-T G.806].

3.2 Terms previously defined in this Recommendation

The previous editions of this Recommendation defined the following terms. The latest definitions are now given in the Recommendations associated with the terms as below. Some terms are now widely used in a general sense and there is no identified need to define them. Some terms are obsolete and are not recommended to be used.

3.2.1 **1+1 (protection) architecture**: [ITU-T G.808].

3.2.2 **1:n (protection) architecture (n ≥ 1)**: [ITU-T G.808].

3.2.3 **$(1:1)^n$ protection architecture**: [ITU-T G.808].

3.2.4 **access function (AC)**: [ITU-T G.798].

3.2.5 **active transport entity**: [ITU-T G.808].

3.2.6 **adaptation management**: Widely used in a general sense.

3.2.7 **APS-byte pass-through**: [ITU-T G.808].

3.2.8 **APS channel**: [ITU-T G.808].

3.2.9 **APS protocol: 1-phase**: [ITU-T G.808].

3.2.10 **APS protocol: 2-phase**: [ITU-T G.808].

3.2.11 **APS protocol: 3-phase**: [ITU-T G.808].

3.2.12 **bridge**: [ITU-T G.808].

3.2.12.1 **permanent bridge**: [ITU-T G.808].

3.2.12.2 **broadcast bridge**: [ITU-T G.808].

3.2.12.3 **selector bridge**: [ITU-T G.808].

3.2.13 **CBRx**: [ITU-T G.798].

3.2.14 **CBR2G5**: Refer to the description in [ITU-T G.798].

3.2.15 **CBR10G**: Refer to the description in [ITU-T G.709].

3.2.16 **CBR40G**: Refer to the description in [ITU-T G.709].

3.2.17 **central frequency**: Refer to the description in [ITU-T G.694.1].

3.2.18 **clear (CLR)**: [ITU-T G.808].

3.2.19 **clear lockout of normal traffic signal #i**: [ITU-T G.808].

3.2.20 **connection monitoring end-point (CMEP)**: [ITU-T G.709].

3.2.21 **connectivity supervision**: Widely used in a general sense.

3.2.22 **continuity supervision**: Widely used in a general sense.

3.2.23 **crossing APS-bytes**: [ITU-T G.808].

3.2.24 **detection time**: [ITU-T G.808].

3.2.25 **do not revert normal traffic signal #i (DNR #i)**: [ITU-T G.808].

3.2.26 **effective frequency slot**: [ITU-T G.872].

3.2.27 **end-to-end overhead/OAM (e)**: Widely used in a general sense.

3.2.28 **entity**: Widely used in a general sense.

3.2.29 **escalation**: Widely used in a general sense.

3.2.30 **exercise signal #i (EX)**: [ITU-T G.808].

3.2.31 **extra traffic signal**: [ITU-T G.808].

3.2.32 **forced switch for extra traffic signal (FS #ExtraTrafficSignalNumber)**: [ITU-T G.801.1].

3.2.33 **forced switch for normal traffic signal #i (FS #i)**: [ITU-T G.801.1].

3.2.34 **forced switch for null signal (FS #0)**: [ITU-T G.801.1].

3.2.35 **freeze**: [ITU-T G.808].

3.2.36 **full pass-through**: [ITU-T G.808].

3.2.37 **group**: [ITU-T G.808].

3.2.38 **GMP normal mode**: Refer to the description in [ITU-T G.7044].

3.2.39 **GMP special mode**: Refer to the description in [ITU-T G.7044].

3.2.40 **head-end**: [ITU-T G.808].

3.2.41 **hitless activation/deactivation of a connection monitor**: Widely used in a general sense.

3.2.42 **hitless protection switch**: [ITU-T G.808].

3.2.43 **hold-off time**: [ITU-T G.808].

3.2.44 **hypothetical reference optical path**: [ITU-T G.8201].

3.2.45 **impairment**: [ITU-T G.808].

3.2.46 **intermediate node**: [ITU-T G.808].

3.2.47 **intra-domain interface (IaDI)**: Widely used in a general sense.

3.2.48 **inter-domain interface (IrDI)**: Widely used in a general sense.

3.2.49 **link capacity adjustment scheme (LCAS)**: Obsolete.

3.2.50 **local craft terminal**: [ITU-T G.7710].

3.2.51 **lockout of normal traffic signal #i**: [ITU-T G.808].

3.2.52 **lockout of protection transport entity #i (LO #i)**: [ITU-T G.808].

3.2.53 **maintenance indication**: Obsolete.

3.2.54 **management communications**: Widely used in a general sense.

3.2.55 **manual switch for extra traffic signal (MS #ExtraTrafficSignalNumber)**: [ITU-T G.801.1].

3.2.56 **manual switch for normal traffic signal #i (MS #i)**: [ITU-T G.801.1].

3.2.57 **manual switch for null signal (MS #0)**: [ITU-T G.801.1].

3.2.58 **media element**: Refer to the description in [ITU-T G.872].

3.2.59 **m:n (protection) architecture**: [ITU-T G.808].

3.2.60 **network media channel**: [ITU-T G.872].

3.2.61 **network survivability**: [ITU-T G.808].

3.2.62 **no request (NR)**: [ITU-T G.808].

3.2.63 **non-associated overhead (naOH)**: [ITU-T G.709].

3.2.64 **non-revertive (protection) operation**: [ITU-T G.808].

3.2.65 **normal traffic signal**: [ITU-T G.808].

3.2.66 **null signal**: [ITU-T G.808].

3.2.67 **optical carrier group of order n (OCG-n[r])**: Obsolete.

3.2.67.1 OCG with full functionality (OCG-n): Obsolete.

3.2.67.2 OCG with reduced functionality (OCG-nr): Obsolete.

3.2.68 optical channel (OCh[r]): Refer to OCh in [ITU-T G.709].

3.2.68.1 optical channel with full functionality (OCh): Refer to OCh in [ITU-T G.709].

3.2.68.2 optical channel with reduced functionality (OChr): Refer to OCh in [ITU-T G.709].

3.2.69 optical channel carrier (OCC[r]): Obsolete.

3.2.69.1 OCC with full functionality (OCC): Obsolete.

3.2.69.2 OCC with reduced functionality (OCCr): Obsolete.

3.2.70 optical channel data unit (ODUk): Refer to ODU in [ITU-T G.709].

3.2.71 optical channel data unit-k path (ODUk path) (ODUkP): Refer to ODU in [ITU-T G.709].

3.2.72 optical channel data unit-k, tandem connection sublayer (ODUk TCM) (ODUkT): Refer to ODU in [ITU-T G.709].

3.2.73 optical channel payload unit (OPUk): Refer to OPU in [ITU-T G.709].

3.2.73.1 OPUk multiframe: Refer to OPU in [ITU-T G.709].

3.2.74 optical channel transport unit (OTUk[V]): Refer to OTU in [ITU-T G.709].

3.2.74.1 completely standardized OTUk (OTUk): Refer to OTU in [ITU-T G.709].

3.2.74.2 functionally standardized OTUk (OTUkV): Refer to OTU in [ITU-T G.709].

3.2.75 optical multiplex unit (OMU-n, n ≥ 1): Obsolete.

3.2.76 OTN network element (O.NE): Refer to the description in [ITU-T G.874].

3.2.77 optical overhead signal (OOS): Obsolete.

3.2.78 optical physical section: Obsolete.

3.2.79 optical physical section of order n (OPSn): Refer to OPS in [ITU-T G.709].

3.2.80 optical supervisory channel (OSC): Refer to OSC in [ITU-T G.872].

3.2.81 optical transport hierarchy (OTH): Obsolete.

3.2.82 optical transport module (OTM-n[r].m): Obsolete.

3.2.82.1 OTM with full functionality (OTM-n.m): Obsolete.

3.2.82.2 OTM with reduced functionality (OTM-0.m, OTM-nr.m): Obsolete.

3.2.83 optical transport network: [ITU-T G.709].

3.2.84 optical transport network node interface (ONNI): [ITU-T G.709].

3.2.85 optical transport unit-k (OTUk): Refer to OTU in [ITU-T G.709].

3.2.86 OTH multiplexing: Obsolete.

3.2.87 OTM overhead signal (OOS): Obsolete.

3.2.88 OTN management network (O.MN): Refer to the description in [ITU-T G.874].

3.2.89 OTN management subnetwork (O.MSN): Refer to the description in [ITU-T G.874].

3.2.90 outgoing signal fail (OSF): Obsolete.

3.2.91 overhead access (OHA): Obsolete.

3.2.92 overhead information: Obsolete.

3.2.92.1 client-specific overhead information: Obsolete.

3.2.92.2 auxiliary channel overhead information: Obsolete.

3.2.92.3 reserved overhead information: Obsolete.

3.2.92.4 trail termination overhead information: Obsolete.

3.2.92.5 unassigned overhead information: Obsolete.

3.2.92.6 network operator-specific overhead information: Obsolete.

3.2.93 protected domain: [ITU-T G.808].

3.2.94 protection: [ITU-T G.808].

3.2.95 protection class: trail protection: [ITU-T G.808].

3.2.96 protection class: network connection protection: [ITU-T G.808].

3.2.97 protection class: individual: [ITU-T G.808].

3.2.98 protection class: group: [ITU-T G.808].

3.2.99 protection communication channel: [ITU-T G.808].

3.2.100 protection control: [ITU-T G.808].

3.2.101 protection group: [ITU-T G.808].

3.2.102 protection ratio: [ITU-T G.808].

3.2.103 protection transport entity: [ITU-T G.808].

3.2.104 resize multiframe (RMF): Refer to the description in [ITU-T G.7044].

3.2.105 restoration: [ITU-T G.808].

3.2.106 revertive (protection) operation: [ITU-T G.808].

3.2.107 selector: [ITU-T G.808].

3.2.107.1 merging selector: [ITU-T G.808].

3.2.107.2 selective selector: [ITU-T G.808].

3.2.108 severely errored second (SES): [ITU-T G.8201].

3.2.109 signal: Widely used in a general sense.

3.2.110 signal degrade group (SDG): [ITU-T G.808].

3.2.111 signal fail group (SFG): [ITU-T G.808].

3.2.112 signal quality supervision: Widely used in a general sense.

3.2.113 sink node: [ITU-T G.808].

3.2.114 source node: [ITU-T G.808].

3.2.115 SRP-1: [ITU-T G.808].

3.2.116 SRP-p: [ITU-T G.808].

3.2.117 standby transport entity: [ITU-T G.808].

3.2.118 steering: [ITU-T G.808].

3.2.119 sublayer overhead/OAM (s): Widely used in a general sense.

3.2.120 subnetwork connection protection: [ITU-T G.808].

3.2.121 subnetwork connection supervision: Widely used in a general sense.

3.2.122 **subnetwork interworking**: Widely uses in a general sense.

3.2.123 **switch**: [ITU-T G.808].

3.2.124 **switch event**: [ITU-T G.808].

3.2.125 **switching time**: [ITU-T G.808].

3.2.126 **tail-end**: [ITU-T G.808].

3.2.127 **TCM control function (TCMC)**: [ITU-T G.798].

3.2.128 **TCM control information (TCMCI)**: [ITU-T G.798].

3.2.129 **TCM control point (TCMCP)**: [ITU-T G.798].

3.2.130 **traffic signal**: Widely used in a general sense.

3.2.131 **transport entity**: [ITU-T G.800].

3.2.132 **transport entity protection**: [ITU-T G.808].

3.2.133 **user-network interface (UNI)**: Widely used in a general sense.

3.2.134 **wait-to-restore normal traffic signal #i (WtR)**: [ITU-T G.808].

3.2.135 **wait-to-restore time**: [ITU-T G.808].

3.2.136 **working transport entity**: [ITU-T G.808].

3.2.137 **wrapping**: [ITU-T G.808].

ITU-T Y-SERIES RECOMMENDATIONS

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