International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

G.989.1

Amendment 1

(08/2015)

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

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

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40-Gigabit-capable passive optical networks (NG-PON2): General requirements

Amendment 1

Recommendation ITU-T G.989.1 (2013) – Amendment 1

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Recommendation ITU-T G.989.1

40-Gigabit-capable passive optical networks (NG-PON2): General requirements

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Summary

Amendment 1 to Recommendation ITU-T G.989.1 (2013) provides additional information on protection and/or restoration in NG-PON2 networks using flexible wavelength scheduling, which is not covered in clause 9.4, as well as other new requirements of the ITU-T G.989-series systems not captured in ITU-T G.989.1 (2013).

Requirements identified for inclusion in this amendment are:

– Network protection in the case of a multi-wavelength access system. In particular, the possibility of ODN topologies that appear to be type B (shared splitter), but that provide additional capabilities. Also, the potential for 1:n protection in addition to the 1:1 protection previously described.

– Transport of wireless fronthaul links over the access system. Such links have exceptional service requirements and these are evolving as the application develops in the industry.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T G.989.1	2013-03-09	15	11.1002/1000/11810
1.1	ITU-T G.989.1 (2013) Amd. 1	2015-08-13	15	11.1002/1000/12557

* To access the Recommendation, type the URL http://handle.itu.int/ in the address field of your web browser, followed by the Recommendation's unique ID. For example, http://handle.itu.int/11.1002/1000/11830-en.

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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.

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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.

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Recommendation ITU-T G.989.1

40-Gigabit-capable passive optical networks (NG-PON2): General requirements

Amendment 1

1) Clause 2, References

Add the following new reference to clause 2:

[ITU-T G.989] Recommendation ITU-T G.989 (2015), *40-Gigabit-capable passive optical network (NG-PON2): Definitions, abbreviations and acronyms*.

2) Clause 3, Definitions

Replace clause 3 with the following text:

See [ITU-T G.989] for the definitions used in this Recommendation.

3) Clause 4, Abbreviations and acronyms

Replace clause 4 with the following text:

See [ITU-T G.989] for the abbreviations and acronyms used in this Recommendation.

4) Clause 7.6, High data rate services

Add new clause 7.6 with the following text:

7.6 High data rate services

To accommodate the prospective increase in customer bandwidth demand, NG-PON2 systems may support an optional extension for services in excess of 10 Gbit/s upstream and/or downstream towards one PON client.

5) Clause 9.4, Resilience and redundancy requirements

Replace clause 9.4 with the following text:

9.4 Resilience and redundancy requirements

PON resilience will become more important in supporting business applications and high value consumer applications, such as IPTV, especially in the node consolidation scenario. Node consolidation/bypass creates a high number of subscriber lines on the highly centralized access node. A redundancy mechanism is required to avoid service disruption to potentially thousands of users in the event of fibre cable or equipment failure. Besides the usual hardware redundancy requirements at the OLT and in the backhaul transmission equipment (towards the metro/core), networks require feeder and/or OTL line redundancy options to avoid large scale customer outages as well as full redundancy for business services requiring end-to-end type C protection. NG-PON2 systems must support the resilience options defined in clause 14 of [ITU-T G.984.1] including duplex and dual parenting duplex system configuration as well as the extensions described in Appendices II and III of [ITU-T G.984.1]. For PON redundancy, use cases and guidelines are defined in [b-ITU-T G-Sup.51].

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