

ITU-T The leader on G-PON Standards

G.984.1 – Gigabit-capable Passive Optical Networks (G-PON): General characteristics

Provides examples of services, User Network Interfaces (UNI) and Service Node Interfaces (SNI) that are required by network operators. In addition, it shows the principal deployment configuration. Wherever possible, this Recommendation maintains characteristics from the ITU-T G.982 and G.983.x series Recommendations in order to promote backward compatibility with existing Optical Distribution Networks (ODN) that comply with these Recommendations.

G.984.2 – Gigabit-capable Passive Optical Networks (G-PON): Physical Media Dependent (PMD) layer specification

Specifies the physical layer requirements and specifications for the Physical Media Dependent (PMD) layer.

This Recommendation covers systems with nominal line rates of 2488.320 Mbit/s in the downstream direction and 1244.160 Mbit/s and 2488.320 Mbit/s in the upstream direction.

Both symmetrical and asymmetrical (upstream/downstream)

Gigabit-capable Passive Optical Network (G-PON) systems are described.

G.984.3 – Gigabit-capable Passive Optical Networks (G-PON): Transmission convergence layer specification

Specifies the frame format, media access control method, ranging method, OAM functionality and security in G-PON networks.

G.984.4 – Gigabit-capable Passive Optical Networks (G-PON): ONT management and control interface specification

Specifies the managed entities of a protocol-independent Management Information Base (MIB) that models the exchange of information between the Optical Line Termination (OLT) and the Optical Network Termination (ONT). In addition, it covers the ONT management and control channel, protocol and detailed messages.

G.984.5 – Enhancement band for gigabit-capable optical access networks

Defines wavelength ranges reserved for additional service signals to be overlaid via wavelength-division multiplexing (WDM) in future Passive Optical Networks (PON) for maximizing the value of Optical Distribution Networks (ODNs).

G.984.6 – Gigabit-capable Passive Optical Networks (G-PON): Reach extension

Outlines the architecture and interface parameters for G-PON systems with extended reach using a physical layer reach extension device, including regenerators or optical amplifiers. The maximum physical reach is up to 60 km, with loss budgets in excess of 27.5 dB being achievable in both spans. This new capability will allow operators to provide optical access service to areas that were previously out of reach, and also explore new network designs for greater central office consolidation.

G-PON means

- Full service support – including voice, TDM, Ethernet (10/100/1000 BaseT), xDSL, leased lines, wireless extension and more.
- Physical reach of up to 60 km.
- Support for bit-rate options using the same protocol, including 2.5 Gbit/s downstream and 1.25 Gbit/s upstream, and symmetrical 2.5 Gbit/s.
- Strong Operation, Administration, Maintenance and Provisioning (OAM&P) capabilities offering end-to-end service management.
- Security at the protocol level for downstream traffic due to the broadcast nature of PON.

For more information on optical transmission Recommendation related activities, please check the ITU-T Study Group 15 website at: www.itu.int/ITU-T/com15

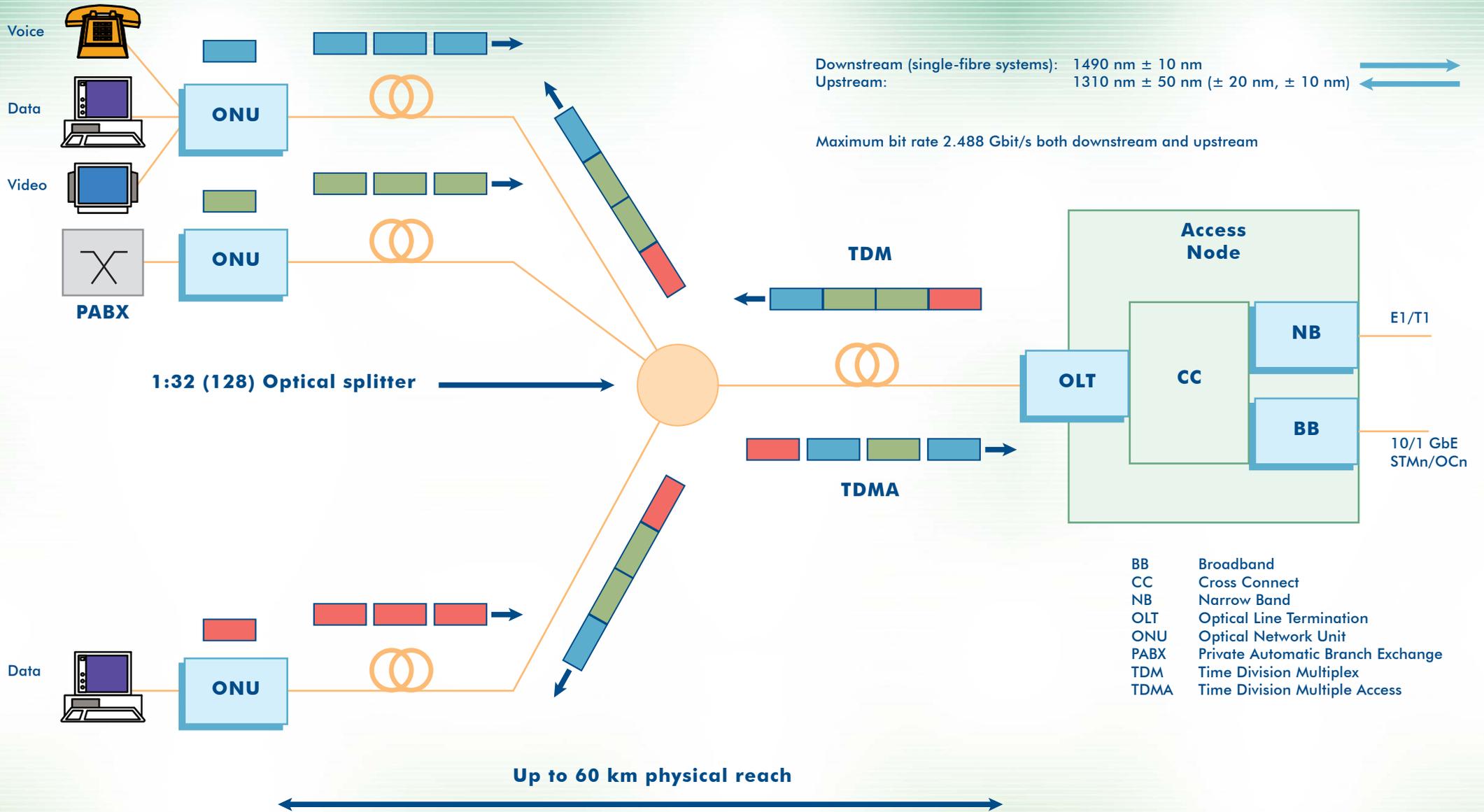
G-PON

GIGABIT-CAPABLE PASSIVE OPTICAL NETWORKS

Your full service fibre optic access network transport solution

06.2008 isbprimo@itu.int

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ITU-T Study Group 15 Question 2 is responsible for the development of Recommendations in the area of optical systems for access networks.