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Optical line terminals
LTX use cases

XGS-PON operation mode

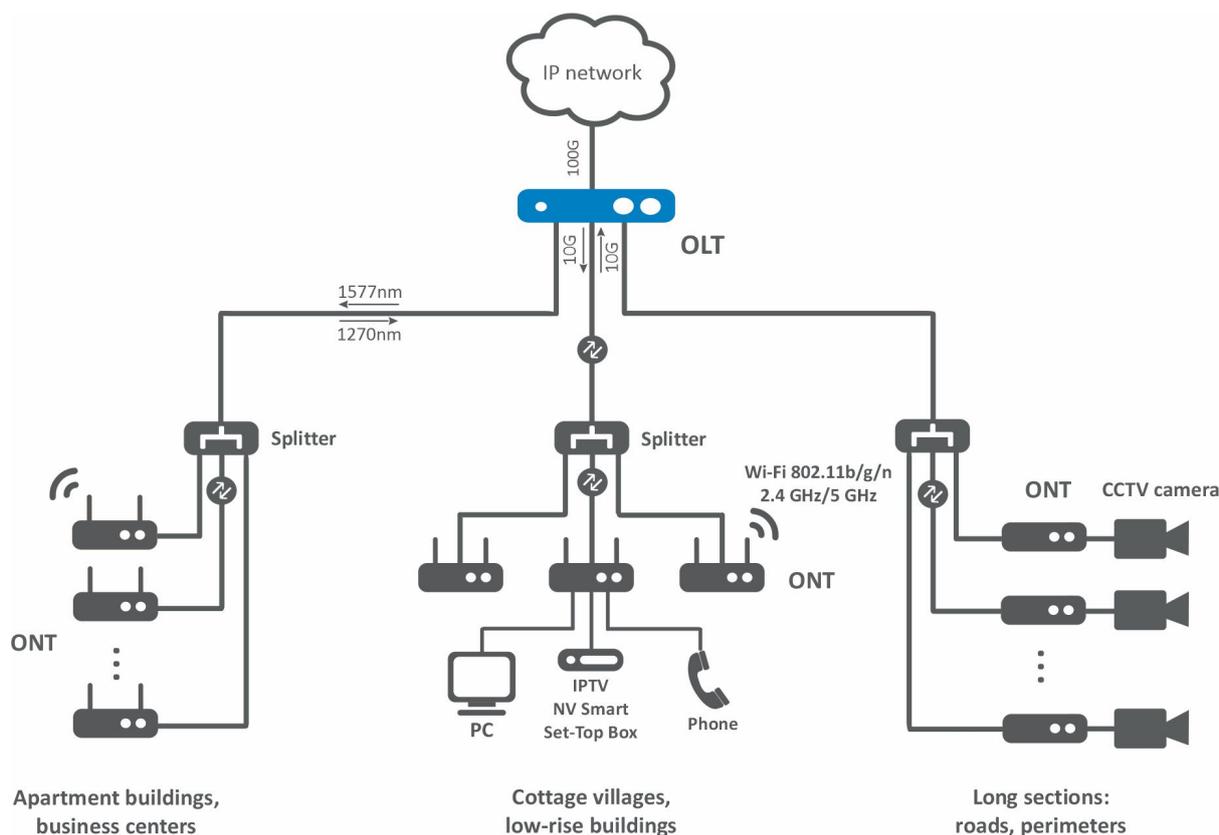


Figure 1. XGS-PON operation mode

Figure 1 shows:

- OLT – XGS-PON OLT LTX-8 / LTX-16;
- ONT – XGS-PON ONT NTX-1 / NTX-RG;
- Splitter – optical splitter with split ratio up to 1:256.

By default, PON ports of the LTX operate in XGS-PON mode. All ONTs connected to the PON tree in this scheme should comply with the ITU-T G.9807.1 XGS-PON standard. ONTs being connected can be configured both in Routed operation mode for provision of the Triple-play services (broadband access to the Internet, VoIP, IPTV), and in Bridged operation mode for transparent data transmission via ONT. For XGS-PON operation mode, compatible SFP transceivers that comply with XGS-PON standard and are recommended for installation by Eltex LTD should be used on the PON ports of the OLT. The recommended transceivers are listed in table below.

Table 1 – List of compatible transceivers for XGS-PON

SFP transceiver model	Class	DDMI
LTF7226B-BC+	B+	+
LTF7226B-BCB+	C++	+

GPON operation mode

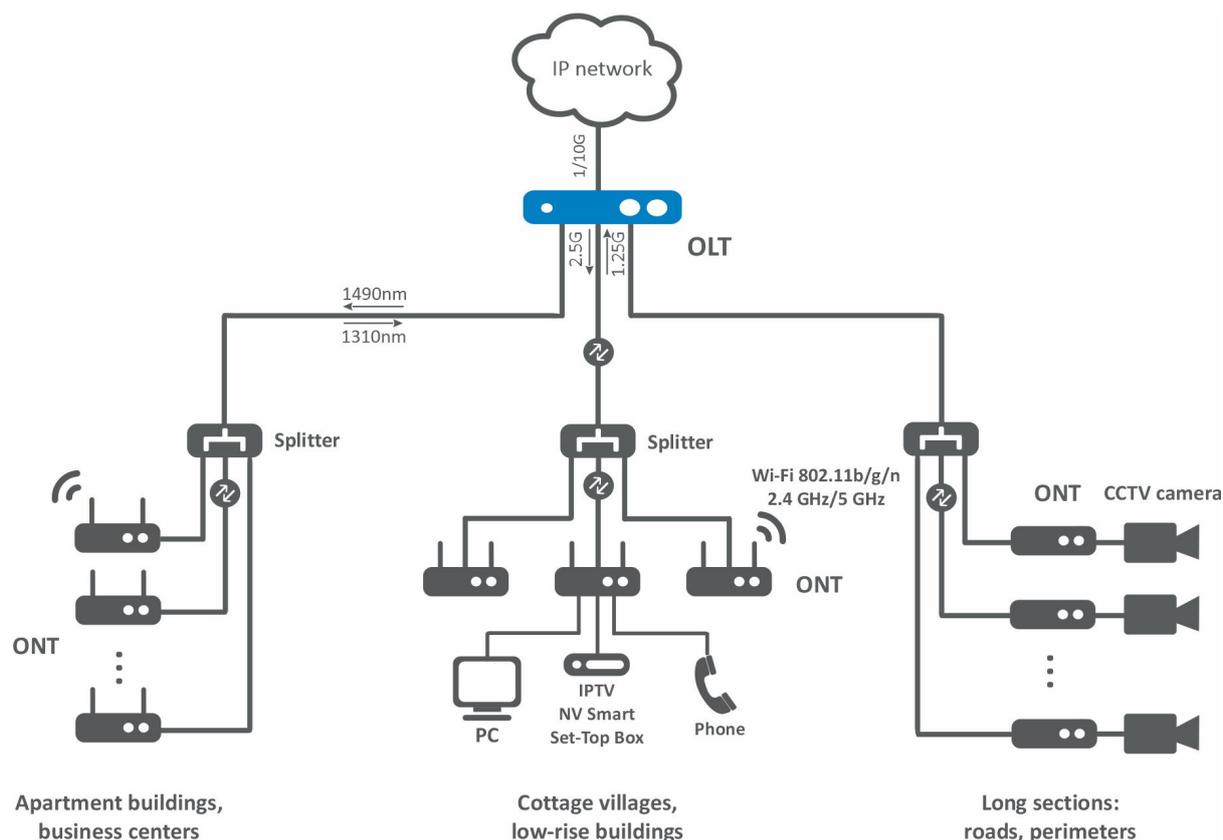


Figure 2 – GPON operation mode

Figure 2 shows:

- OLT – XGS-PON OLT LTX-8 / LTX-16;
- ONT – GPON ONT NTU-1 / NTU-52W / NTU-RG;
- Splitter – optical splitter with split ratio up to 1:128.

PON ports of the LTX support GPON operation mode. To enable this mode, the 'gpon' value must be specified for the 'pon type' parameter in the configuration of the OLT PON port. In this mode, only ONTs that support ITU-T G.984.x – GPON technology can be connected to the PON tree. Similar to the previous scheme, GPON ONTs can operate in Routed and Bridged modes. For GPON operation mode, compatible SFP transceivers that comply with GPON standard and are recommended for installation by Eltex LTD should be used on the PON ports of the OLT. The recommended transceivers are listed in table below.

Table 2 – List of compatible transceivers for GPON

SFP transceiver model	Class	DDMI
LTE3680M-BC+	B+	+
LTE3680P-BC+2	C++	+

GPON and XGS-PON simultaneous operation

Using an external optical adder WDM Coexistence Element (CEX), two ports operating in GPON and XGS-PON modes can be combined to connect different types of ONTs onto one optical line¹.

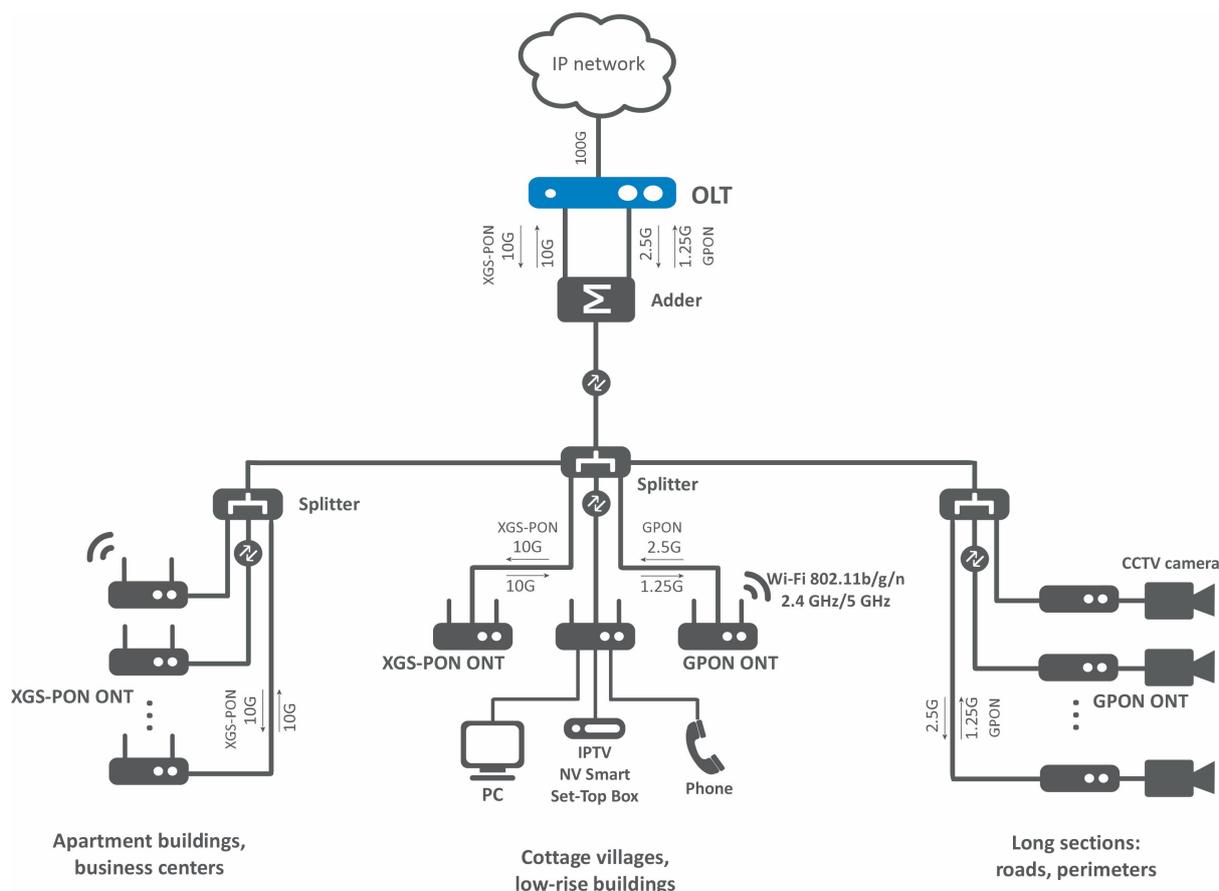


Figure 3 – Combining streams using a WDM adder

Figure 3 shows:

- OLT – XGS-PON OLT LTX-8 / LTX-16;
- GPON ONT – NTU-1 / NTU-52W / NTU-RG,
- XGS-PON ONT – NTX-1 / NTX-RG;
- Splitter – optical splitter with split ratio up to 1:256;
- Adder – optical WDM adder.

In this scheme, both GPON ONT and XGS-PON ONT can be simultaneously connected to one optical distribution network. The maximum number of connected ONTs for XGS-PON is 256, and for GPON, it is 128². The feature of this scheme is that, with the use of a WDM adder, a single PON tree containing both GPON ONT and XGS-PON ONT is simultaneously connected to two different OLT PON ports. One port operates in GPON mode, while the other operates in XGS-PON mode. This approach is feasible because GPON and XGS-PON technologies operate at different wavelengths. Consequently, GPON ONTs will be detected by the OLT on the PON port operating in GPON mode, while XGS-PON ONTs connected in the same tree will be accessible for management through the OLT port operating in XGS-PON mode.

¹ The attenuation introduced by the optical adder is ~0.5..1dB.

² The number of connected ONTs depends on the optical power budget in the line. It is essential to consider the SFP parameters of both the station SFP modules and the subscriber terminals (ONTs) being utilized.

Example of the WDM Coexistence Element (CEX) adder:

- [Gezhi WDM Module](#).

 All the connection schemes mentioned above can be applied both on a single station terminal, and on different OLTs.