OLiD: DIAMOND'S FBG NETWORK MONITORING SYSTEM

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Abstract: Network stability and high levels of network productivity are the preconditions necessary for achieving economic success in the operation of all networks. The aim in so doing is primarily to guarantee no failure during the roll-out of Fiber To The Home cables and while in operation to ensure a quick detection and rapid troubleshooting process. In its position as a global market leader in fibre-optic connection technologies, DIAMOND has developed a new network commissioning and monitoring system which is based on Fibre Bragg Grating (FBG) technology and is promoted under the name OLiD (Optical Line Identification).

Technologies and products

A Fibre Bragg Grating (FBG) is a Bragg reflector, which is incorporated into a fibre core and reflects specific light wavelengths and relay all others.
The Bragg reflector works with different wavelengths to those used for data transmission and is available in an specific SMF28 compatible fiber so that no interference with user data transmission and no loss in either direction occurs.
These FBGs are integrated into standard fiber optic connectors (typically pigtails) and transition adapters in order to facilitate their use in existing fiber distribution cabinets (BEP-building entry point) or outlets (OTO-optical termination outlet. The resulting products are known under the commercial name of OLiD, Optical Line Identification components.
The instrument to remotely read the reflected wavelength, also called interrogator, is a simple device which is operated by a PC or tablet through a specific software that enables to load/transfer network plans into or from a database for future network management.

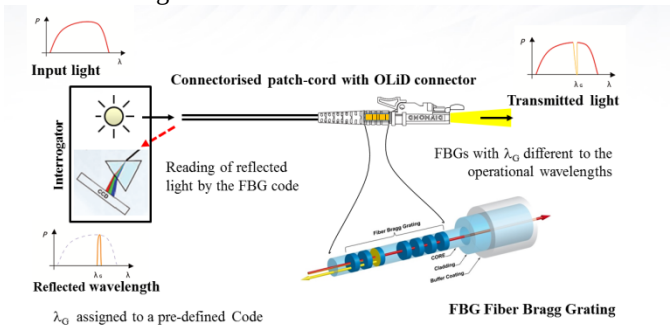

Figure 1: OLiD concept

The network analyser system

The sequence of different OLiD can be used as a fix element in the network to provide unique Optical Line Identifications both during the installation and the operation of the network. The OLiDs in the form of transition adapters are available as reusable plug and play elements that together with the interrogator form a suitable field analyser kit.

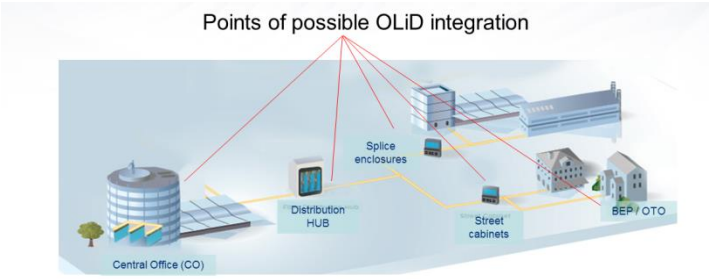

Figure 2: Possible OLiD integration points

Characteristics and benefits

Hereafter a list of the main characteristics and benefits of such system:

- Fast search and identification process for installation errors and outages.
- Queries and evaluations take place by means of an interrogator.
- Faults are quickly rectified.
- The FBG network is integrated in traditional components in a simple and cost-efficient manner with minimum space requirements.
- FBGs can be used directly in SOC as well as in pigtails/patch cables without any additional space required.
- Allows a unique address to be assigned to each client.
- Flexible coding in networks thanks to a wide range of wavelengths.
- Segmental monitoring.
- Fewer accesses to private premises required.

References

[1] http://www.diamond-fo.com/technologies/Optical-Line-Identification--OLID--.html

