

IEC/IEEE 62582-5 Optical time domain reflectrometry

- Scope and what we measure

Scope and object

This international standard contains methods for monitoring the attenuation condition of optical fibres and cables in instrumentation and control systems using optical time domain reflectometer (OTDR) measurements in the detail necessary to produce accurate and reproducible measurements.

Detailed description of methods for OTDR measurement of the quality and functionality of fibre optic cables are given in IEC 61280-4-1 for multimode attenuation, IEC 61280-4-2 for single-mode attenuation

Condition indicator

Attenuation is a measure of the decreasing optical power in a fibre at a given wavelength. It depends on the nature and length of the fibre and is also affected by measurement conditions. The definition is

$$A(\lambda) = | 10 \log^{10} (P1(\lambda)/P2(\lambda)) |$$

where

$A(\lambda)$ is the attenuation, in dB, at wavelength λ ;

$P1(\lambda)$ is the optical power traversing cross-section 1;

$P2(\lambda)$ is the optical power traversing cross-section 2.

Attenuation per unit length is defined as

$$a(\lambda) = A(\lambda)/L \quad \text{in dB/km}$$

Condition indicator

