

Glossary

Attenuation: The loss of average optical power. Attenuation results from absorption and scattering in the optical fiber.

Bandwidth: Measure of information-carrying capacity; the greater the bandwidth, the greater the information-carrying capacity.

Channel count: The number of channels, or wavelengths, in an optical network.

Dense Wavelength Division Multiplexing: Key enabling technology that increases bandwidth capacity by combining beams of light of slightly different wavelengths through a single fiber, with each fiber carrying its own stream of information.

Dispersion: Signal distortion caused by a spreading of an optical pulse in time as it propagates along the length of the fiber. Such spreading can arise from several different physical phenomena. The end result is that it limits the bandwidth that can be transmitted through the fiber.

Erbium-doped fiber amplifier (EDFA): An optical amplifier based on an optical fiber doped with a small amount of the rare-earth element erbium. When this fiber is illuminated with an appropriate laser source ("pump laser"), it serves to boost or amplify optical signals.

Laser: Acronym for Light Amplification by Stimulated Emission of Radiation. Source of highly coherent light via stimulated emission. Semiconductor lasers find widespread use in the fiber-optic industry.

Noise: In the context of optical fiber communications, any optical energy not serving to transmit a signal or an optical carrier. Noise can also be induced via the electronics and detectors used to detect the optical signals.

Optical spectrum analyzer: An instrument that produces a graphical representation of power versus wavelength for one or a number of optical signals. Useful for measuring key parameters of each wavelength in a DWDM system.

Polarization mode dispersion (PMD): A physical phenomenon inherent to optical fiber and other optical components that causes a spreading of light pulses as they travel along a fiber. As a result, this degrades the transmission signal.

Reflection: In the context of optical fiber communications, a location along a fiber where a fraction of the light signal reverses direction and returns to the source. Reflections are generally undesirable and can lead to degradation of a network, either by inducing loss and/or by causing instabilities in the optical sources.

Remote Fiber Test System (RFTS): A permanently installed fault surveillance system in which test equipment is connected to a communications network. Strategically located remote test units continually check optical links and send test data to a centralized test system controller. Upon detecting a problem, the system sends out an alarm to a repair crew.

Transmission rate: Rate at which data is sent along an optical network.

Variable optical attenuator: An instrument used in network simulation setups to provide calibrated variable reduction of the strength of an optical signal.

Widely tunable laser source: An instrument that can produce single-color light across a broad range of wavelengths. Used to test DWDM components and value-added optical modules.