

ELENCO 1

1. Spiegare cosa è e come funziona un OTDR
2. Attenuazione in una fibra ottica di silice: cause e tecniche di misura

TESTO IN LINGUA INGLESE

In electrical engineering, a transmission line is a specialized cable or other structure designed to conduct electromagnetic waves in a contained manner. The term applies when the conductors are long enough that the wave nature of the transmission must be taken into account. This applies especially to radio-frequency engineering because the short wavelengths mean that wave phenomena arise over very short distances (this can be as short as millimetres depending on frequency). However, the theory of transmission lines was historically developed to explain phenomena on very long telegraph lines, especially submarine telegraph cables.

Transmission lines are used for purposes such as connecting radio transmitters and receivers with their antennas (they are then called feed lines or feeders), distributing cable television signals, trunklines routing calls between telephone switching centres, computer network connections and high speed computer data buses. RF engineers commonly use short pieces of transmission line, usually in the form of printed planar transmission lines, arranged in certain patterns to build circuits such as filters. These circuits, known as distributed-element circuits, are an alternative to traditional circuits using discrete capacitors and inductors.

ELENCO 2

1. Differenze tra diodi laser Fabry-Perot e DFB
2. Giunzione di fibre ottiche: modalità e criticità

TESTO IN LINGUA INGLESE

A light-emitting diode (LED) is a semiconductor light source that emits light when current flows through it. Electrons in the semiconductor recombine with electron holes, releasing energy in the form of photons. The color of the light (corresponding to the energy of the photons) is determined by the energy required for electrons to cross the band gap of the semiconductor. White light is obtained by using multiple semiconductors or a layer of light-emitting phosphor on the semiconductor device.

Appearing as practical electronic components in 1962, the earliest LEDs emitted low-intensity infrared (IR) light. Infrared LEDs are used in remote-control circuits, such as those used with a wide variety of consumer electronics. The first visible-light LEDs were of low intensity and limited to red. Modern LEDs are available in visible, ultraviolet (UV), and infrared wavelengths, with high light output.

LEDs have many advantages over incandescent light sources, including lower energy consumption, longer lifetime, improved physical robustness, smaller size, and faster switching. LEDs are used in applications as diverse as aviation lighting, fairy lights, automotive headlamps, advertising, general lighting, traffic signals, camera flashes, lighted wallpaper, horticultural grow lights, and medical devices.

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