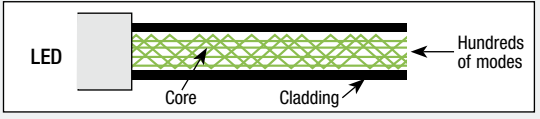
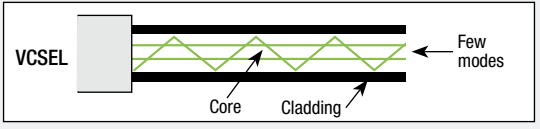
Tip *What's the difference between regular and 10 Gig Multimode fiber?*



62.5/125 and 50/125 Multimode fiber is typically attached to communications equipment that use LED (Light-Emitting Diode) transceivers. LED transceivers output hundreds of modes or rays of light into the cable.



10 Gbps Vertical Cavity Surface Emitting Lasers (VCSEL's) use only a specific set of modes, not the hundreds of modes that traditional Multimode fiber LED's use.

A fiber cable's bandwidth is dictated by the combined performance of all the modes, if only several modes fall behind or get ahead it has little influence or effect on the cables total bandwidth handling capabilities. So traditional Multimode cable works fine when used with LED transceivers.

When transmitting light through a fiber cable a phenomenon known as Modal Dispersion occurs. Modal Dispersion causes different modes of light to arrive at the receiving end of the cable at different times. The degree of Modal Dispersion is a result of a fiber's refractive index, which is a property of the fiber that affects the speed of light transmitted through the fiber's core. The refractive index of a fiber is defined during the fiber manufacturing process.

As the need for speed and bandwidth grew, 10 Gbps Vertical Cavity Surface Emitting Lasers (VCSEL's) were developed. These low cost lasers use only a specific set of modes. Because of this there can be very little Modal Dispersion since a fiber cable's bandwidth is dictated by the combined performance of all the modes. If only a few modes fall behind or get ahead when using VCSEL technology, it has a great impact on the cables total bandwidth handling capacity.