Optics & Photonics

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Analysis of Single-Mode Fiber Loss

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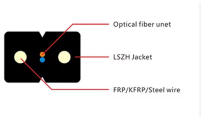
	Loss Analysis of Single-Mode Fiber Splices By D. MARCUSE (Manuscript received November 10, 1976)
	Wang derives the macro-bending loss formula for single-mode fiber with multiple cladding or coating layers based on Renner''s formula and the field continuous boundary conditions.
	A new approach for the bending losses of coated optical single-mode fibers is developed based on a modified fiber geometry model, and the result is a simple formula.
	A mathematical model of single-mode optical fibers splice loss affected by altitude is established in this paper.
	This paper explains the underlying causes of microbending, identifies the factors that influence fiber sensitivity, and shows how advanced fiber design and cable architecture can mitigate their effects.

Besides, a mathematical model for reducing the splicing loss of single-mode fiber at high altitude is established by combining the effects of temperature, humidity, oxygen content, ...

Single mode fiber link is modeled for analyzing attenuation, chromatic dispersion, polarization mode dispersion and nonlinearity effects in the link. Then dispersion and attenuation compensation ...

Abstract: This paper analyses losses caused by the misalignment of two fibers joined in a splice. We consider the possibility that the two fibers of different dimensions are separated in longitudinal ...

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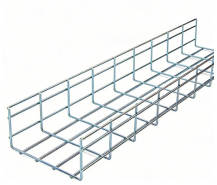

Fiber splices are surprisingly tolerant of longitudinal misalignment. We begin our discussion by showing that the fields of single-mode, step-index fibers are very nearly gaussian in shape.

optical fiber connections with a gap between the fiber ends. An analysis of the reflection coefficient caused by a gap between fiber ends is based on multiple reflections behaving like a Fabry-Perot interfer

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