Abstracts

Truncated Parabolic-Index Fiber with Minimum Mode Dispersion

M. Geshiro, M. Matsuhara and N. Kumagai. "Truncated Parabolic-Index Fiber with Minimum Mode Dispersion." 1978 Transactions on Microwave Theory and Techniques 26.2 (Feb. 1978 [T-MTT]): 115-119.

The use of a parabolic-index fiber as an optical transmission line has been receiving extensive attention because of its excellent mode dispersion characteristics. In the present paper, the modal dispersion in the optical fiber with truncated parabolic index distribution is analyzed theoretically in detail by using a variational method. Taking the influence of the cladding upon the propagating modes into consideration, it is found that there exists an optimum index distribution for which the modal dispersion is minimized. The standard deviation of the normalized group delay of propagating modes is used to estimate the modal dispersion behavior of the fiber.

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