Abstracts

On Higher Order Mode Cutoff Frequencies in Elliptical Step Index Fibers

S.R. Rengarajan. "On Higher Order Mode Cutoff Frequencies in Elliptical Step Index Fibers." 1989 Transactions on Microwave Theory and Techniques 37.8 (Aug. 1989 [T-MTT]): 1244-1248.

Cutoff frequencies of several higher order modes in two-layer step index elliptical fiber are computed from a rigorous analysis of the boundary value problem. Cutoff characteristics of modes in rectangular and elliptical fibers in the literature are reviewed. Mode correspondence, field symmetries, and physical considerations are invoked to establish confidence in previously published results on the first higher order mode cut off in elliptical fibers. Very large birefringence fibers are shown to have low values for the first higher order mode cut off; hence, their usefulness in single-mode applications is limited.

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