Abstracts

Propagation Characteristics of Dielectric-Rod-Loaded Waveguides

E.J. Rothwell and L.L. Frasch. "Propagation Characteristics of Dielectric-Rod-Loaded Waveguides." 1988 Transactions on Microwave Theory and Techniques 36.3 (Mar. 1988 [T-MTT]): 594-600.

A general technique is presented for calculating the propagation characteristics of a waveguide with arbitrary cross-sectional shape loaded with a circular dielectric rod. The waveguide fields, which are represented as a sum of functions satisfying the homogeneous Helmholtz equation and the boundary conditions at the rod surface, are point-matched at the surface of the waveguide. Numerical examples of a rod centered in a square guide and off center in a circular guide are given, and results for a rod centered in a rectangular cavity are compared with measured data.

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