Abstracts

Finite-Element Analysis of Waveguide Modes: A Novel Approach that Eliminates Spurious Modes

T. Angkaew, M. Matsuhara and N. Kumagai. "Finite-Element Analysis of Waveguide Modes: A Novel Approach that Eliminates Spurious Modes." 1987 Transactions on Microwave Theory and Techniques 35.2 (Feb. 1987 [T-MTT]): 117-123.

An efficient finite-element method for analyzing the propagation characteristics of a wide variety of waveguides is presented. A variational expression suited for the finite-element method is formulated in terms of the transverse electric and magnetic field components. In this approach all guided-mode solutions are real, while the spurious-mode solutions are not real. Therefore, discrimination of the spurious-mode solutions can be achieved merely by imposing the simple condition that guided-mode solutions be real. Three numerical examples, two for the isotropic case and the other for the magnetic anisotropic case, are carried out.

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