Abstracts

Finite-Element Analysis of Dielectric-Loaded Waveguides

M. Hano. "Finite-Element Analysis of Dielectric-Loaded Waveguides." 1984 Transactions on Microwave Theory and Techniques 32.10 (Oct. 1984 [T-MTT]): 1275-1279.

A finite-element analysis in which nonphysical spurious solutions do not appear has been established to solve the electromagnetic field problem of the closed waveguide filled with various anisotropic media. This method is based on the approximate extremization of a functional, whose Euler equation is the three-component curlcurl equation derived from the Maxwell equations, with a new conforming element. Specific examples are given and the results are compared with those obtained by exact solutions and longitudinal two-component finite-element solutions. Very close agreement was found and all nonzero eigenvalues have been proved to have one-to-one correspondence to the propagating modes of the waveguide.

❑ Return to main document.