Abstracts

Transverse Scattering Matrix Formulation for a Class of Waveguide Eigenvalue Problems

Z. Ma, E. Yamashita and S. Xu. "Transverse Scattering Matrix Formulation for a Class of Waveguide Eigenvalue Problems." 1993 Transactions on Microwave Theory and Techniques 41.6 (Jun./Jul. 1993 [T-MTT]): 1044-1051.

Based on the mode-matching procedure, a unified transverse scattering matrix formulation is presented for the characterization of a class of waveguide eigenvalue problems, which include not only closed but also open structures. As examples, calculations are carried out on the dispersion characteristics of ridged waveguides and its variations, nonradiative dielectric (NRD) waveguides, groove guides, microstrip lines, finlines, and coplanar waveguides, Comparisons with published data are made, which verify the versatility and accuracy of this method. Besides its generality, this approach is also superior to some other techniques in simplicity and numerical efficiency.

❑ Return to main document.