Abstracts

Rigorous Boundary Integral Equation Solution for General Isotropic and Uniaxial Anisotropic Dielectric Waveguides in Multilayered Media Including Losses, Gain and Leakage

F. Olyslager and D. De Zutter. "Rigorous Boundary Integral Equation Solution for General Isotropic and Uniaxial Anisotropic Dielectric Waveguides in Multilayered Media Including Losses, Gain and Leakage." 1993 Transactions on Microwave Theory and Techniques 41.7 (Aug. 1993 [T-MTT]): 1385-1392.

Bounded and leaky eigenmodes of arbitrary shaped polygonal dielectric waveguides embedded in a multilayered medium are determined based on a rigorous full-wave analysis. The dielectric waveguides consist of isotropic or uniaxial anisotropic material. Losses and gain inside the layers and the waveguides are allowed. The eigenmodes are determined with a boundary integral equation technique in conjunction with the method of moments. Results for the propagation constants are presented for a number of waveguides and, where possible, compared with published data. Special attention is devoted to the transition from a dielectric waveguide to a perfectly conducting waveguide when the loss tangent of the waveguide material changes from zero to infinity.

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