Abstracts

New Biorthogonality Relations for Inhomogeneous Biisotropic Planar Waveguides

A.L. Topa, C.R. Paiva and A.M. Barbosa. "New Biorthogonality Relations for Inhomogeneous Biisotropic Planar Waveguides." 1994 Transactions on Microwave Theory and Techniques 42.4 (Apr. 1994, Part I [T-MTT]): 629-634.

Using a linear operator formalism this paper presents new biorthogonality relations for the hybrid modes supported by planar waveguides inhomogeneously filled with general biisotropic media. In the special case of lossless biisotropic media, the linear operator is self-adjoint, the original and adjoint waveguides are identical and new orthogonality relations can be derived. As an example of application, the radiation modes of a grounded nonreciprocal and lossless biisotropic slab waveguide are analyzed in terms of a pair of incident transverse electric (ITE) and incident transverse magnetic (ITM) continuous modes, which have the advantage of being mutually orthogonal and of having a clear physical interpretation.

❑ Return to main document.