# Abstracts

## A fast spatial-domain method for the suppression of excitation-induced spurious modes in SCN TLM

*S. Lindenmeier, B. Isele, R. Weigel and P. Russer. "A fast spatial-domain method for the suppression of excitation-induced spurious modes in SCN TLM." 1997 Transactions on Microwave Theory and Techniques 45.11 (Nov. 1997 [T-MTT]): 1998-2006.*

An efficient method for the suppression of excitation-induced spurious modes in the symmetrical condensed node (SCN) transmission-line matrix (TLM) method is presented for the general case of dielectric, anisotropic, or lossy media in planar structures. A special mapping of the field-excitation onto the wave amplitudes of the TLM algorithm completely prevents the emanation of the spurious modes. The application of the mapping in the k-/spl omega/ space can be done for waveguides with low computational effort. The method is generalized for planar structures with high spatial frequencies of the field at the discontinuities. We use precomputed field templates at the entrance of the three-dimensional (3-D) structures. The mapping is mainly done in the space domain based on the quasi-TEM propagation of the guided waves to keep the computational effort low. Instead of the four-dimensional (4-D) k-/spl omega/ transformation, only independent one-dimensional (1-D) transformations to the wave coefficient of the conductors direction and /spl omega/ are necessary. In the case of propagation with low dispersion, the expenditure can be further reduced to 1-D transformations with respect to /spl omega/. The efficiency of the present method is demonstrated by investigation of a coplanar waveguide and a triplate waveguide.

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