Abstracts

Direct Derivation of the TLM Symmetrical Condensed Node from Maxwell's Equations Using Centered Differencing and Averaging

H. Jin, R. Vahldieck and J. Huang. "Direct Derivation of the TLM Symmetrical Condensed Node from Maxwell's Equations Using Centered Differencing and Averaging." 1994 MTT-S International Microwave Symposium Digest 94.1 (1994 Vol. I [MWSYM]): 23-26.

This paper presents a direct derivation of the TLM symmetrical condensed node (SCN) model from Maxwell's equations by using centered differencing and averaging. Direct correspondence between the TLM and finite difference method is established. The node scattering matrix and field expressions are given for the general case with graded mesh and anisotropic materials including both electric and magnetic losses. It is found that the TLM SCN method always has 2nd-order accuracy regardless of a uniform or graded mesh discretization of the space.

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