Abstracts

Absorbing and Connecting Conditions for the TLM Boundary Method

Z. Chen, M.M. Ney and W.J.R. Hoefer. "Absorbing and Connecting Conditions for the TLM Boundary Method." 1993 Transactions on Microwave Theory and Techniques 41.10 (Nov. 1993 [T-MTT]): 2016-2024.

Absorbing and connecting boundary conditions are implemented for the transmission-line matrix (TLM) method. The approach is based on an equivalence previously established between the finite-difference-time-domain (FD-TD) method and the TLM method. Boundary conditions presently used for the FD-TD algorithm can be transformed into conditions that can be interfaced with two-and three-dimensional (2D and 3D) TLM schemes. Additional conditions are introduced for 3D-TLM symmetrical condensed node simulations to suppress instabilities caused by spurious modes, inherent to the model, and which are amplified by absorbing boundaries. Numerical results and the comparison with other methods show the good performance of the proposed algorithms.

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