Abstracts

Application of Spectral Estimation Techniques to Correct the Reflection from Imperfect Absorbing Boundaries in the FDTD Simulation of Microwave Circuits

K. Naishadham and X.P. Lin. "Application of Spectral Estimation Techniques to Correct the Reflection from Imperfect Absorbing Boundaries in the FDTD Simulation of Microwave Circuits." 1994 MTT-S International Microwave Symposium Digest 94.1 (1994 Vol. I [MWSYM]): 361-363.

Residual reflection from absorbing boundaries that truncate the computational mesh in the finite-difference time-domain method introduces significant error in the characterization of transmission lines and discontinuities employed in microwave and millimeter-wave integrated circuits. We apply the least squares Prony's method to accurately estimate the complex reflection coefficient in the frequency domain by representing the sampled electric field of a microstrip transmission line as a plane wave superposition of incident and reflected waves. This estimate is used to correct the effective dielectric constant of the line over a wide frequency range, which corroborates well with published results.

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