Abstracts

FDTD characterization of evanescent modes-multimode analysis of waveguide discontinuities

E.A. Navarro, T.M. Bordallo and J. Navasquillo-Miralles. "FDTD characterization of evanescent modes-multimode analysis of waveguide discontinuities." 2000 Transactions on Microwave Theory and Techniques 48.4 (Apr. 2000, Part I [T-MTT]): 606-610.

In this paper, a finite-difference time-domain numerical dispersion relation for evanescent waves is derived, and its impact on the modeling accuracy is studied. The numerical evanescent constant is found to differ from the analytical one. As a result, a correction must be used to compute discontinuity parameters. This influences the reference plane chosen for the analysis of propagating modes. Moreover, on calculating multimode transmission and reflection coefficients, the dispersion for evanescent higher order modes is determinant. The dispersive relation is derived, discussed, and used to correct the evanescent constants for the multimode analysis of a waveguide discontinuity.

❑ Return to main document.