Abstracts

Modeling Dispersive Dielectrics for the 2-D TLM Method

I. Barba, A.C.L. Cabeceira, J. Represa, M. Panizo and C. Pereira. "Modeling Dispersive Dielectrics for the 2-D TLM Method." 1996 Microwave and Guided Wave Letters 6.4 (Apr. 1996 [MGWL]): 174-176.

The transition line matrix (TLM) method, since it is a time-domain method, cannot deal directly with dispersive media. We propose a way for modeting such media, starting from the causality relationship between field vectors D and E, which is discretized over the same space-time mesh as the two-dimensional TLM mesh. This leads to adding a voltage sonrce at each node, its value depending on the previous instants. The method is validated by computing the reflection coefficient at an air-water interface and the cutoff frequencies of a rectangular waveguide containing a Debye dielectric.

❑ Return to main document.