Abstracts

A New TLM Node for Berenger's Perfectly Matched Layer

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A new two-dimensional (2-D) transmission-line matrix (TLM) node for the modeling of perfectly matched layer (PML) media is presented. A rigorous field formulation of the 2-D TLM node allows one to construct a node that has a scattering matrix fully compatible with the standard 2-D hybrid node. This approach avoids the coupling of the TLM algorithm with a finite difference time-domain (FDTD) approximation of PML field differential equations. The simulation of a wideband matched load for a WR-28 rectangular waveguide is presented for validation. A return loss better than 60 dB is obtained over the 25-40 GHz-frequency band.

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