Abstracts

A new termination condition for the application of the TLM method to discontinuity problems in closed homogeneous waveguide

L. Pierantoni, C. Tomassoni and T. Rozzi. "A new termination condition for the application of the TLM method to discontinuity problems in closed homogeneous waveguide." 2002 Transactions on Microwave Theory and Techniques 50.11 (Nov. 2002 [T-MTT] (Mini-Special Issue on the 2002 IEEE Radio Frequency Integrated Circuit (RFIC) Symposium)): 2513-2518.

In this paper, we propose exact transmission-line matrix (TLM) boundary conditions for closed homogeneous waveguides. This approach is based on applying mode matching at the absorbing boundaries to the time-domain TLM algorithm. The absorbing condition in the time domain is achieved by the convolution of the modal characteristic impedances following inverse Fourier transform. The method is demonstrated for thick inductive irises in rectangular waveguide, showing excellent wide-band match of the fundamental mode, as well as of higher order modes excited by the discontinuity.

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