Abstracts

Incorporating two-port networks with S-parameters into FDTD

X. Ye and J.L. Drewniak. "Incorporating two-port networks with S-parameters into FDTD." 2001 Microwave and Wireless Components Letters 11.2 (Feb. 2001 [MWCL]): 77-79.

A modeling approach for incorporating a two-port network with S-parameters in the finite-difference time-domain (FDTD) method is reported. The proposed method utilizes the time-domain Y-parameters to describe the network characteristics, and incorporates the Y-parameters into the FDTD algorithm. The generalized pencil-of-function technique is applied to improve the memory efficiency of this algorithm by generating a complex exponential series for the Y-parameters and using recursive convolution in the FDTD updating equations. A modeling example is given, which shows that this approach is effective and accurate. This modeling technique can be extended for incorporating any number of N-port networks in the FDTD modeling.

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