Abstracts

Analysis of Arbitrarily Shaped Two-Dimensional Microwave Circuits by Finite-Difference Time-Domain Method

W.K. Gwarek. "Analysis of Arbitrarily Shaped Two-Dimensional Microwave Circuits by Finite-Difference Time-Domain Method." 1988 Transactions on Microwave Theory and Techniques 36.4 (Apr. 1988 [T-MTT]): 738-744.

The paper presents a version of the finite-difference time-domain method adapted to the needs of S matrix calculations of microwave two-dimensional circuits. The analysis is conducted by simulating the wave propagation in the circuit terminated by matched loads and excited by a matched pulse source. Various aspects of the method's accuracy are investigated. Practical computer implementation of the method is discussed and an example of its application to an arbitrarily shaped microstrip circuit is presented. It is shown that the method in the proposed form is an effective tool of circuit analysis in engineering applications. The method is compared to two other methods used for a similar purpose, namely the contour integral method and the transmission-line matrix method.

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