Abstracts

An Efficient Approach to Modeling of Quasi-Planar Structures Using the Formulation of Power Conservation in Spectral Domain

T. Wang and K. Wu. "An Efficient Approach to Modeling of Quasi-Planar Structures Using the Formulation of Power Conservation in Spectral Domain." 1995 Transactions on Microwave Theory and Techniques 43.5 (May 1995 [T-MTT]): 1136-1143.

An enhanced spectral domain approach (SDA) is developed for analysis of complex quasi-planar transmission lines. The method is based on a combination of spectral domain formulation and power conservation theorem. The relationship between electric and magnetic fields is established inside dielectric layers by using the conventional SDA while characteristic equation related to interface conditions is derived throngh the power conservation theorem. Maintaining the inherent advantages of the SDA, this technique is able to easily handle more complex quasi-planar structures. Generalized power formulation is also presented to calculate characteristic impedance. Convergence behavior is discussed considering the nature of power conservation. Various finlines with finite thickness of conductors are analyzed to demonstrate its applications.

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