Abstracts

Method for the acceleration of transmission-line coupling calculations

B. Van Thielen and G.A.E. Vandenbosch. "Method for the acceleration of transmission-line coupling calculations." 2000 Transactions on Microwave Theory and Techniques 48.9 (Sep. 2000 [T-MTT] (Mini-Special Issue on Research Reported at the 8th Topical Meeting on Electrical Performance of Electronic Packaging (EPEP) 1999)): 1531-1536.

In this paper, a fast method for the calculation of mutual coupling between transmission lines is described. Starting from the general method of moments, which can handle random shapes, the calculations are speeded up for the specific case of coupling between lines. This is accomplished by assuming that all lines are terminated in their characteristic impedance and using the traveling current waves on these matched lines. Only first-order coupling between the lines is taken into account. This means that only the current induced by the source line is taken into account and all currents resulting from induction by this induced current are discarded. This results in a much faster method because only the inverse of the Z-matrix for the observation line is involved.

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