Abstracts

A New Global Finite Element Analysis of Microwave Circuits Including Lumped Elements (Dec. 1996, Part II [T-MTT])

K. Guillouard, M.-F. Wong, V. Fouad Hanna and J. Citerne. "A New Global Finite Element Analysis of Microwave Circuits Including Lumped Elements (Dec. 1996, Part II [T-MTT])." 1996 Transactions on Microwave Theory and Techniques 44.12 (Dec. 1996, Part II [T-MTT] (1996 Symposium Issue)): 2587-2594.

A new fullwave global analysis of complex inhomogeneous microwave structures including passive or active, linear or nonlinear lumped elements is presented. For a given structure, only one electromagnetic simulation of the distributed part, by a three-dimensional (3-D) finite element method using edge elements, is needed correspondhg to the insertion of variable lumped elements placed at the same position. Simulation results of various test cases, containing either resistor, diode, or active component, are compared with those provided by a commercial circuit analysis software or with measurements results. Our validated electromagnetic simulator is then used for analyzing a planar balanced mixer operating in the millimetric range.

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