Abstracts

A New Method for Obtaining the Shape Sensitivities of Planar Microstrip Structures by a Full-Wave Analysis

J. Ureel and D. De Zutter. "A New Method for Obtaining the Shape Sensitivities of Planar Microstrip Structures by a Full-Wave Analysis." 1996 Transactions on Microwave Theory and Techniques 44.2 (Feb. 1996 [T-MTT]): 249-260.

We present the principles and the derivation of a new mixed potential integral equation for the derivative of the surface current with respect to a geometrical parameter for planar microstrip structures embedded in a multilayered substrate. This new integral equation is solved together with the original integral equation with the method of moments by using the same set of test and basis functions. Expressions for the matrix elements as a function of the basis and test functions are given. From the geometrical derivatives of the surface currents, geometrical derivatives of the S-parameters are obtained. In the examples a geometrical parameter is swept over some interval, and the derivative, obtained with the new integral equation, is compared with estimates calculated by using finite differences. Very good agreement is found between these estimates.

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