Abstracts

Characterization of Radiation Loss from Microstrip Discontinuities Using a Multiport Network Modeling Approach

A. Sabban and K.C. Gupta. "Characterization of Radiation Loss from Microstrip Discontinuities Using a Multiport Network Modeling Approach." 1991 Transactions on Microwave Theory and Techniques 39.4 (Apr. 1991 [T-MTT]): 705-712.

This paper presents a convenient method for evaluating radiation loss from microstrip discontinuities. The multiport network model is used to find voltage distributions around discontinuity edges, and an equivalent magnetic current model is used to compute the resulting radiation fields. As an example, the results show that for a 90° bend in a 50 Omega line on a 10-mil-thick substrate with epsilon/sub r/spl ap/2.2, the radiation loss is 0.1 dB at 30 GHz. Typical power levels radiated by several other discontinuities are reported. The analysis model is verified experimentally by fabricating microstrip resonators with discontinuities incorporated therein and making measurement of Q factors of these resonators.

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