Abstracts

Full-Wave Analysis of Microstrip Open-End and Gap Discontinuities

R.W. Jackson and D.M. Pozar. "Full-Wave Analysis of Microstrip Open-End and Gap Discontinuities." 1985 Transactions on Microwave Theory and Techniques 33.10 (Oct. 1985 [T-MTT] (Special Issue on Numerical Methods)): 1036-1042.

A solution is presented for the characteristics of microstrip open-end and gap discontinuities on an infinite dielectric substrate. The exact Green's function of the grounded dielectric slab is used in a moment method procedure, so surface waves as well as space-wave radiation are included. The electric currents on the line are expanded in terms of longitudinal subsectional piecewise sinusoidal modes near the discontinuity, with entire domain traveling-wave modes used to represent incident, reflected, and, for the gap, transmitted waves away from the discontinuity. Results are given for the end admittance of an open-ended line, and the end conductance is compared with measurements. Results are also given for the reflection coefficient magnitude and surface-wave power generation of an open-ended line on substrates with various dielectric constants. Loss to surface and space waves is calculated for a representative gap discontinuity.

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