Abstracts

Generalized Microstrip on a Dielectric Sheet

A.L. Holloway. "Generalized Microstrip on a Dielectric Sheet." 1988 Transactions on Microwave Theory and Techniques 36.6 (Jun. 1988 [T-MTT]): 939-951.

This paper describes a procedure for arriving at a close approximation to the capacitance between symmetrically placed conducting strips, possibly of different widths, on opposite sides of a dielectric sheet. The procedure is based on static methods, following Black and Higgins for total capacitance of the structure with vacuum dielectric everywhere, and employing Wheeler's method for determining the series component of dielectric capacitance. Dielectric polarization is included. Refraction at the vacuum/dielectric boundary is ignored in the derived method, but its effect is subsequently shown to be small. The derived equations are valid for all finite impedance, all values of relative dielectric constant, and all conductor widths. The maximum absolute error is estimated to be 0 (0.001·Z'), where Z' is the impedance of generalized microstrip on a dielectric sheet. The methods described have general application to open transmission lines on a dielectric sheet, for which the appropriate conformal transformations can be found.

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