Abstracts

Calculation of Coefficients of Capacitance of Multiconductor Transmission Lines in the Presence of a Dielectric Interface

W.T. Weeks. "Calculation of Coefficients of Capacitance of Multiconductor Transmission Lines in the Presence of a Dielectric Interface." 1970 Transactions on Microwave Theory and Techniques 18.1 (Jan. 1970 [T-MTT]): 35-43.

A method is given for the numerical determination of the coefficients of capacitance for a class of multiconductor transmission-line systems. This class includes systems without ground planes, or with one or two ground planes, with the lines embedded in one or two layers of dielectrics. The conductors can be of any cross section that can be approximated adequately by polygons. The method is a refinement of the subareas method in which the assumption of a "staircase function" surface charge density, that is, constant charge density over each subarea, is replaced by the assumption of a piecewise linear charge density over the conductor surfaces, and the charge density parameters are determined by making a least-squares fit to the potential to the boundary conditions of the problem.

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