Abstracts

The Electrostatic Field of Conducting Bodies in Multiple Dielectric Media

S.M. Rao, T.K. Sarkar and R.F. Harrington. "The Electrostatic Field of Conducting Bodies in Multiple Dielectric Media." 1984 Transactions on Microwave Theory and Techniques 32.11 (Nov. 1984 [T-MTT]): 1441-1448.

A method for computing the electrostatic fields and the capacitance matrix for a multiconductor system in a multiple dielectric region is presented. The number of conductors and the number of dielectrics in this analysis are arbitrary. Some of the conductors maybe of finite volume and others may be infinitesimally thin. The conductors can be either above a single ground plane or between two parallel ground planes. The formulation is obtained by using a free-space Green's function in conjunction with total charge on the conductor-to-dielectric interfaces and polarization charge on the dielectric-to-dielectric interfaces. The solution is effected by the method of moments using triangular subdomains with piecewise constant expansion functions and point matching for testing. Computed results are given for some finite-length conducting lines, compared to previous results obtained by two-dimensional analysis.

❑ Return to main document.