Abstracts

Analysis of Arbitrarily Oriented Microstrip Transmission Lines in Arbitrarily Shaped Dielectric Media Over a Finite Ground Plane

J. Venkataraman, S.M. Rao, A.R. Djordjevic, T.K. Sarkar and Y. Naiheng. "Analysis of Arbitrarily Oriented Microstrip Transmission Lines in Arbitrarily Shaped Dielectric Media Over a Finite Ground Plane." 1985 Transactions on Microwave Theory and Techniques 33.10 (Oct. 1985 [T-MTT] (Special Issue on Numerical Methods)): 952-960.

A numerical analysis is presented for a multiconductor transmission line in multilayered lossy, dielectric regions where the ground plane is of finite extent. The transmission fines are infinitely long and vary in cross section from finite to infinitesimally thin. The Green's function for such a two-dimensional transmission line involves an arbitrary constant. If the ground plane is infinite, the method of images could be used where this constant cancels out. However, in the case of a finite ground plane, the constant has to be evaluated. Here a numerical method is presented where the constant could be eliminated rather than evaluated by imposing the condition for the total charge to be zero. The transmission lines, dielectric regions, and the ground plane can have arbitrary cross sections.

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