Abstracts

An Approximate Dynamic Green's Function in Three Dimensions for Finite Length Microstripline

Y.L. Chow. "An Approximate Dynamic Green's Function in Three Dimensions for Finite Length Microstripline." 1980 Transactions on Microwave Theory and Techniques 28.4 (Apr. 1980 [T-MTT]): 393-397.

A spatial Green's function in 2-D for straight and infinite microstriplines has been shown to be accurate at frequencies that the dynamic effects cannot be neglected. It is reasonable, therefore, to expect that a similarly accurate spatial Green's function in 3-D can be constructed for finite and curved microstriplines. Based on the same image model of charges and currents as in 2-D, this paper constructs the 3-D Green's function. The Green's function is then applied, through Harrington's moment rnethod, to calculate the input impedance of a few microstriplines, viz., a matched microstripline, straight and hairpin open-ended stubs. The input impedance of a microstrip stub always has a small resistive component indicating the radiative loss. This resistive component agrees with that calculated from the Lewin's formula. Finally, as expected, the imaginary part of the input impedance agrees with that calculated from the TEM approach.

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