Abstracts

Approximation Techniques for Planar Periodic Structures

R.C. Compton and D.B. Rutledge. "Approximation Techniques for Planar Periodic Structures." 1985 Transactions on Microwave Theory and Techniques 33.10 (Oct. 1985 [T-MTT] (Special Issue on Numerical Methods)): 1083-1088.

The rigorous calculation of electromagnetic properties of periodic meshes using moment methods requires considerable algebraic work and computer resources. In this paper, a number of easy to use approximation techniques for analyzing thin structures with square, rectangular, and circular holes are presented. Formulas for the effective impedante of these meshes are described which can easily take into account oblique incidence and the presence of a dielectric substrate. In addition, techniques for analyzing more complex-shaped apertures such as a cross are discussed. These methods are more accurate than existing approximation techniques and can be applied to a wide range of situations that could not be handled before.

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