Abstracts

A Modified Method-of-Moments Technique for the Full-Wave Analysis of Imperfect Conductors on Lossy and Finite-Extent Substrates

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A modified method-of-moments technique with general field-solver capability is presented. The structure to be analyzed is subdivided into a number of thin-wall cells. Surface impedance concepts are used to represent the material characteristics of each cell. The outstanding advantages of this method include: the absence of absorbing boundary conditions, as material parameters are defined with respect to a surrounding environment, e.g., free-space, thus minimizing the computational domain; conductor and dielectric losses are readily incorporated via the surface impedance concept; and radiation into any direction, even below the ground-plane of a finite-extent substrate, is included. Several examples involving imperfect conductors as well as lossy and finite-extent dielectric substrates are presented. The method is compared with measured results and is found to be in good agreement.

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