Abstracts

A novel technique for analysis of electromagnetic scattering from microstrip antennas of arbitrary shape

S. Uckun, T.K. Sarkar, S.M. Rao and M. Salazar-Palma. "A novel technique for analysis of electromagnetic scattering from microstrip antennas of arbitrary shape." 1997 Transactions on Microwave Theory and Techniques 45.4 (Apr. 1997 [T-MTT]): 485-491.

A new numerical procedure is developed for the solution of the electric field integral equation (EFIE) for arbitrary-shaped microstrip structures. This approach is superior over conventional EFIE techniques particularly in the low-frequency region or where the structure to be analyzed is electrically small. A pair of new basis functions is presented which are essential to the solution in the entire frequency range of interest. The new basis functions decompose the surface current density into divergenceless and curl-free parts which essentially get decoupled at the very low end of the frequency spectrum. Typical numerical results are presented for certain examples to illustrate the difference in the results between the two methods.

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