Abstracts

Finite-Difference Analysis of Structures Consisting of Roundly and Rectangularly Shaped Domains

H. Klingbeil, K. Beilenhoff and H.L. Hartnagel. "Finite-Difference Analysis of Structures Consisting of Roundly and Rectangularly Shaped Domains." 1996 Microwave and Guided Wave Letters 6.8 (Aug. 1996 [MGWL]): 295-297.

A new method is presented that allows the analysis of a combination of both circularly and rectangularly shaped subdomains in the same structure. The method is based on the use of polygonal grids in connection with the finite-difference method in the frequency domain. The convergence behavior of this new efficient algorithm is analyzed and compared to conventional stair-case approximations for a circular waveguide. Finally, the dispersion characteristic of a square waveguide with a circular dielectric rod is presented.

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