Abstracts

Analysis of Guided Modes in Multilayer/Multiconductor Structures by the "Boundary Integral--Resonant Mode Expansion Method"

M. Bressan, G. Conciauro and P. Gamba. "Analysis of Guided Modes in Multilayer/Multiconductor Structures by the "Boundary Integral--Resonant Mode Expansion Method"." 1996 Transactions on Microwave Theory and Techniques 44.5 (May 1996 [T-MTT]): 659-667.

This paper describes a new method for the analysis of modes propagating in shielded waveguides consisting of many dielectric and perfectly conducting layers of different widths. The eigenvalue problem inherent to the mode determination is formulated subdividing the structure into layered elementary wave-guides (EWG's) and matching the fields generated in adjacent EWG's by unknown equivalent sources placed at the interfaces. The special representation of the EWG field, consisting of boundary integrals and mode expansions, leads to a linear matrix eigenvalue problem involving a limited number of variables. Thanks to the peculiarity the method permits to determine many modes in short computing times. The method was implemented in a flexible and fully automatic computer code, whose reliability and efficiency has been confirmed by many tests.

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