Abstracts

Combination of generalized admittance matrices in the form of pole expansions

P. Arcioni and G. Conciauro. "Combination of generalized admittance matrices in the form of pole expansions." 1999 Transactions on Microwave Theory and Techniques 47.10 (Oct. 1999 [T-MTT]): 1990-1996.

This paper describes a novel algorithm for the determination of the wide-band mathematical model of a waveguide component, segmented into elementary blocks of known characteristics. Starting from the Y-matrices of the blocks, given in the form of pole expansions in the frequency domain, the algorithm yields the overall Y-matrix in the same form. Therefore, it can be applied iteratively to find the pole expansion of the Y-matrix of larger and larger waveguide structures. The algorithm is particularly useful if the Y-matrix of the blocks are obtained by the boundary-integral-resonant-mode-expansion (BI-RME) method, which yields the Y-parameters just in the desired form. Two examples show that the joint use of the BI-RME method and of the algorithm described in this paper results in a very accurate and fast numerical code, well-suited for the wide-band modeling of complex waveguide structures.

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