Abstracts

Accurate Full-Band Equivalent Circuits of Inductive Posts In Rectangular Waveguide

T. Rozzi, F. Moglie, A. Morini, W. Gulloch and M. Politi. "Accurate Full-Band Equivalent Circuits of Inductive Posts In Rectangular Waveguide." 1992 Transactions on Microwave Theory and Techniques 40.5 (May 1992 [T-MTT]): 1000-1009.

Inductive posts of finite dimensions are currently employed for the precise realization of millimeter wave filters in waveguide. Although this structure constitutes a classical problem, no true wideband equivalent circuit seems to be available, that is, with elements dependent only on post geometry and, at the same time, capable of describing higher order mode interaction. The availability of such an equivalent circuit is a prerequisite for efficient CAD. We develop a rigorous wide-band model, inclusive of near neighbor interaction, suitable for accurate filter synthesis and CAD by means of a desk-top computer. Three actual applications to the design of multipost filters are presented with practical results in excellent agreement with computer predictions. Computation times are such that the analysis can be effected in real time.

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