Abstracts

Simple CAD Procedure for Microwave Filters and Multiplexers

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The design of microwave filters and multiplexer requires a common step before actual hardware implementation, namely, the identification of a number of specific ideal electrical components with actual waveguide discontinuities. In the past, this step was accomplished semi-analytically using approximate single-mode discontinuity models. The complete filter or multiplexer could then be assembled, but additional final tuning or optimization with a large number of parameters was generally required. In this paper, we propose an alternative technique for the design of microwave filters or multiplexer that directly uses a full-wave electromagnetic simulator and that effectively decomposes the complex design task into a series of simple sub-tasks with clearly identified objectives. The procedure described only involves a limited number of actual physical parameters at each step so that it is computationally very efficient and rapidly convergent.

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