Abstracts

Field Theoretical Computer-Aided Design of Rectangular and Circular Iris Coupled Rectangular or Circular Waveguide Cavity Filters

U. Papziner and F. Arndt. "Field Theoretical Computer-Aided Design of Rectangular and Circular Iris Coupled Rectangular or Circular Waveguide Cavity Filters." 1993 Transactions on Microwave Theory and Techniques 41.3 (Mar. 1993 [T-MTT]): 462-471.

The rigorous CAD of a class of rectangular and circular waveguide cavity-filters is described which are coupled by rectangular and/or circular irises. The design theory is based on the full wave mode-matching method for three key-building block elements (asymmetric rectangular double-step, asymmetric rectangular-to-circular and circular-to-circular waveguide junction) associated with the generalized S-matrix technique for the composite structures. The waveguide filters may be arbitrarily composed of the key-building block elements and the rectangular or circular waveguide sections between them. Finite iris thicknesses, higher order mode interactions, as well as asymmetric structures are rigorously taken into account. The theory is verified by measurements.

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