Abstracts

Full-Wave Design and Realization of Multicoupled Dual-Mode Circular Waveguide Filters

J.R. Montejo-Garai and J. Zapata. "Full-Wave Design and Realization of Multicoupled Dual-Mode Circular Waveguide Filters." 1995 Transactions on Microwave Theory and Techniques 43.6 (Jun. 1995 [T-MTT]): 1290-1297.

A new full-wave method for the design and realization of dual-mode circular waveguide filters is presented. The rigorous CAD is a combination of the mode-matching and the finite-element techniques, which permits obtaining the Generalized Scattering Matrix for all the blocks that compose the structure (rectangular slots, cross-irises, and screws). The finite thickness of the irises, the higher order mode interaction, as well as the coupling and tuning screws are rigorously taken into account. A systematic design process for the different elements will be described. A full prediction of resonant out-of-band spurious is accomplished prior to the filter construction. Special attention is devoted to the circuital model in order to save a great deal of computational effort in the final adjustment. A four-pole elliptic circular waveguide cavity filter has been designed and constructed. The experimental filter results show excellent agreement with theory.

❑ Return to main document.