Abstracts

Efficient Modal Analysis of Waveguide Filters Including the Orthogonal Mode Coupling Elements by an MM/FE Method

R. Beyer and F. Arndt. "Efficient Modal Analysis of Waveguide Filters Including the Orthogonal Mode Coupling Elements by an MM/FE Method." 1995 Microwave and Guided Wave Letters 5.1 (Jan. 1995 [MGWL]): 9-11.

An efficient hybrid mode-matching finite element (MM/FE) method is applied for the rigorous analysis of waveguide filters composed of homogeneous standard waveguide cavities together with waveguide coupling sections of nearly arbitrary cross-section. To demonstrate the efficiency of the method, a simple two-pole circular waveguide dual-mode filter is analyzed where the orthogonal modes are coupled by obliquely positioned rectangular post elements with rounded edges and the coupling to the rectangular port waveguides is provided by rectangular irises with rounded corners, Moreover, a four-pole filter is shown where the dual-mode coupling is achieved by asymmetrically located irises. The theory is verified by excellent agreement with measurements.

❑ Return to main document.