Abstracts

Rigorous Modal Analysis of the Asymmetric Rectangular Iris in Circular Waveguides

R. Keller and F. Arndt. "Rigorous Modal Analysis of the Asymmetric Rectangular Iris in Circular Waveguides." 1993 Microwave and Guided Wave Letters 3.6 (Jun. 1993 [MGWL]): 185-187.

The rigorous field theory analysis is presented for the rectangular iris in circular waveguides as well as for rectangular iris coupled circular waveguide resonators. The theory is based on the full-wave mode-matching method for the key-building block discontinuity circular waveguide to a concentric smaller rectangular waveguide, associated with the generalized S-matrix technique. Arbitrary iris location and finite thickness are rigorously taken into account. The scattering parameters of a single transition and of a rectangular iris coupled one-resonator filter of about 12 GHz resonance frequency are presented as calculation examples. The theory is verified by comparison with measurements.

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