Abstracts

Rigorous Modal S-Matrix Analysis of the Cross-Iris in Rectangular Waveguides

R. Ihmels and F. Arndt. "Rigorous Modal S-Matrix Analysis of the Cross-Iris in Rectangular Waveguides." 1992 Microwave and Guided Wave Letters 2.10 (Oct. 1992 [MGWL]): 400-402.

A rigorous field theory analysis is presented for cross-irises in rectangular waveguides as well as for cross-iris coupled rectangular waveguide resonators. The theory is based on the full-wave mode-matching method for the key-building block discontinuity rectangular waveguide to crossed rectangular guide associated with the generalized S-matrix technique. Arbitrary iris location, unequal E- and H-plane cross size and finite thickness are rigorously taken into account. The scattering parameters of a cross-iris coupled one-resonator filter in the waveguide Ku-band (12-18 GHz) are presented as a calculation example. The theory is verified by comparison with available data for cut-off frequencies as well as with measurements.

❑ Return to main document.