Abstracts

Modal Analysis of Arbitrarily Shaped Irises in Waveguides by a Hybrid Contour-Integral Mode-Matching Method

F. Giese, J.M. Reiter and F. Arndt. "Modal Analysis of Arbitrarily Shaped Irises in Waveguides by a Hybrid Contour-Integral Mode-Matching Method." 1995 MTT-S International Microwave Symposium Digest 95.3 (1995 Vol. III [MWSYM]): 1359-1362.

A hybrid contour-integral mode-matching (CIMM) technique is presented for the rigorous calculation of the modal scattering parameters of arbitrarily shaped irises in waveguides which combines the advantages of flexibility and high numerical efficiency. The fast contour-integral matching yields the eigen-modes in the iris cross-sections for calculating the generalized scattering matrix of the complete iris discontinuity by the efficient mode-matching technique. This combined method takes arbitrarily iris geometries, arbitrary rotation of the iris, and the effects of finite thickness or different waveguide ports rigorously into account. The method is verified by comparison with results calculated by the finite element method.

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