Abstracts

A Boundary Contour Mode-Matching Method for the Rigorous Analysis of Cascaded Arbitrarily Shaped H-Plane Discontinuities in Rectangular Waveguides

A rigorous boundary contour mode-matching (BCMM) method is presented for the efficient calculation of the modal scattering matrix of cascaded, arbitrarily shaped H-plane discontinuities, junctions and/or obstacles in rectangular waveguides. For the inhomogeneous waveguide region with general contour, the field is expanded in the complete set of cylindrical wave functions. At the boundary to the ports with homogeneous waveguide sections, the mode-matching technique is applied that yields the modal scattering matrix of the corresponding key-building block directly. To show the usefulness of the method, the filter design of inductive iris coupled resonators with rounded corners is presented. The theory is verified by comparison with results obtained by other methods.

❏ Return to main document.