Abstracts

A Full-Wave Boundary Contour Mode-Matching Method (BCMM) for the Rigorous CAD of Single and Cascaded Optimized H-Plane and E-Plane Bends

J.M. Reiter and F. Arndt. "A Full-Wave Boundary Contour Mode-Matching Method (BCMM) for the Rigorous CAD of Single and Cascaded Optimized H-Plane and E-Plane Bends." 1994 MTT-S International Microwave Symposium Digest 94.2 (1994 Vol. II [MWSYM]): 1021-1024.

A new full-wave boundary contour mode-matching (BCMM) method is presented for the efficient and rigorous calculation of the modal scattering matrix of mitered H-plane and E-plane bends 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 yields the modal scattering matrix of the corresponding key-building block directly. The usefulness of the method is demonstrated at the design of optimum mitered H-plane and E-plane corners, a circular H-plane bend and of a structure of cascaded mitered H- and E-plane corners. The theory is verified by measurements.

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