Abstracts

Mode-matching analysis of circular-ridged waveguide discontinuities

U. Balaji and R. Vahldieck. "Mode-matching analysis of circular-ridged waveguide discontinuities." 1998 Transactions on Microwave Theory and Techniques 46.2 (Feb. 1998 [T-MTT]): 191-195.

This paper describes a mode-matching algorithm for S-parameter computation of circular-ridged waveguide (CRW) discontinuities. The ridges are shaped like the cross section of a cone (pie-shaped) with a geometry that can he described in cylindrical coordinates. This idea avoids the use of a mixed-coordinate system in the analysis of the electromagnetic fields in the ridged sections, which can, therefore, be expressed in terms of modal functions. The resulting algorithm is fast and accurate and has been utilized to design and optimize a five-section double-ridge filter and a quadruple-ridge waveguide transformer. The measured response of the filter is in good agreement with the calculated data.

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