Abstracts

Modeling Rectangular Waveguide Junctions by the Eigenfunction Method

A.H. Nalbandoglu. "Modeling Rectangular Waveguide Junctions by the Eigenfunction Method." 1977 Transactions on Microwave Theory and Techniques 25.8 (Aug. 1977 [T-MTT]): 688-694.

A method to determine the impedance and admittance matrices of a certain class of rectangular waveguide junctions is presented. First, general matrices are obtained relating all of the modes that may exist in the waveguides connected to the ports, The expressions for the matrix entries are given in terms of the eigenfunctions of the volume occupied by the junction and the fields at the ports. Second, to obtain a relationship between the propagating modes of the connecting waveguides, a numerical iterative procedure is developed to eliminate the evanescent modes from the general matrices. Practical applications have shown that the results agree well with the previous ones, and the method can readily be used to analyze different types of junctions in any required frequency range.

❑ Return to main document.