Abstracts

Calculation of Waveguide Junction and Diaphragm Interactions

L. Lewin. "Calculation of Waveguide Junction and Diaphragm Interactions." 1969 Transactions on Microwave Theory and Techniques 17.10 (Oct. 1969 [T-MTT]): 785-788.

It is shown that where the equation for a waveguide junction field can be expressed in the form of a singular integral equation, the use of a linear transformation of the variables enables the transformed equation to refer to the junction with an inserted diaphragm. The transformed equation is solved for two particular cases. In the first, a bifurcated waveguide, the solution to the diaphragm configuration can be written down almost by inspection. The equivalent circuit is not altered by the diaphragm though the values of the circuit elements are modified. In the second, a waveguide step, a more complicated and less obvious transformation is required. The method works for a diaphragm on one wall of the guide but not on the other, due to current limitations in the theory of singular integral equations.

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