

## Narrow Wall Axial-Slot-Coupled T Junction Between Rectangular and Circular Waveguides

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*B.N. Das, P.V.D.S. Rao and A. Chakraborty. "Narrow Wall Axial-Slot-Coupled T Junction Between Rectangular and Circular Waveguides." 1989 Transactions on Microwave Theory and Techniques 37.10 (Oct. 1989 [T-MTT]): 1590-1596.*

This paper presents an analysis of a T junction between rectangular and circular waveguides coupled through a long axial slot in the narrow wall of the rectangular waveguide. A moment method with entire orthogonal basis functions is used for deriving the expressions of the elements of the scattering matrix. The effect of the wall thickness is taken into account by treating the coupling slot as a short section of a rectangular waveguide and matching the boundary conditions at the interfaces. The conditions satisfied by the scattering matrix of the junction are verified. A comparison between the theoretical and experimental results on variation of coupling with frequency is presented.

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