# Abstracts

## Slit Coupled E-Plane Rectangular T-Junctions Using Single Port Mode Matching Technique (Short Papers)

*A. Abdelmonem, H.-W. Yao and K.A. Zaki. "Slit Coupled E-Plane Rectangular T-Junctions Using Single Port Mode Matching Technique (Short Papers)." 1994 Transactions on Microwave Theory and Techniques 42.5 (May 1994 [T-MTT]): 903-907.*

A new simple mode matching method, called single port mode matching technique (SPMMT) for modeling rectangular waveguide T-junctions is presented. The reflection coefficient at port 2 (side arm of the T-junction) is computed with both ports 1 and 3 shorted. The three-port scattering matrix of the T-junction is obtained from nine reflection coefficient computations using different short circuit lengths in ports 1 and 3. This method is rigorous, simple, reduces the computational effort significantly and can be applied to other structures. Comparison of S-parameters with classical equivalent circuit in Marcuvitz and new equivalent circuit given by Lampariello and Lampariello is presented. Dependence of S-parameters on the slit thickness is also given. Open T-junctions are analyzed as a special case of the slit T-junction, and the results are in good agreement with experimental measurements.

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