Abstracts

Scattering at an N-Furcated Parallel-Plate Waveguide Junction (Short Papers)

R.R. Mansour and R.H. MacPhie. "Scattering at an N-Furcated Parallel-Plate Waveguide Junction (Short Papers)." 1985 Transactions on Microwave Theory and Techniques 33.9 (Sep. 1985 [T-MTT]): 830-835.

Using the conservation of complex power technique (CCPT), this paper presents a solution to the problem of EM scattering at the junction of a parallel-plate waveguide and an N-furcated parallel-plate waveguide with arbitrarily spaced thick septa. Although this junction can be regarded as an (N + 1)-port configuration, the problem is formulated so that it is viewed mathematically as a generalized 2-port. This leads to very simple expressions for the scattering parameters of the junction. Convergent numerical results are presented for bifurcated, trifurcated, and 4-furcated structures, and the effects of varying the thickness of the septa are investigated. The formulation is directly applicable to N-furcated rectangular waveguide junctions having TE/sub n0/ excitation, with application in the design of E-plane filters.

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