

Abstracts

Analysis of a Waveguide Hybrid Junction by Rank Reduction

D.N. Zuckerman and P. Diament. "Analysis of a Waveguide Hybrid Junction by Rank Reduction." 1977 Transactions on Microwave Theory and Techniques 25.9 (Sep. 1977 [T-MTT]): 768-773.

Exact equations characterizing a waveguide hybrid junction traversed by a dielectric sheet are formulated by waveguide field-equivalence decomposition. A new reduced-rank spectral expansion technique avoids inversion of a large ill-conditioned matrix in the calculation of the scattering matrix. Arbitrary sheet thicknesses and permittivities are treated, accounting fully for waveguide boundaries and offset. For illustrative purposes, numerical results are presented for a rectangular waveguide hybrid, when only the dominant mode propagates.

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