Abstracts

Full-wave analysis of cross-aperture waveguide couplers

Zhihua Jiang and Zhongxiang Shen. "Full-wave analysis of cross-aperture waveguide couplers." 2002 Microwave and Wireless Components Letters 12.7 (Jul. 2002 [MWCL]): 267-269.

This paper presents a full-wave analysis of coupling between rectangular waveguides through a cross-aperture. The rigorous mode-matching method is used to derive the generalized scattering matrix of a waveguide T-junction having a crossed waveguide as the side arm. Two three-port T-junctions are then cascaded together to form a number of cross-aperture couplers. The analysis method can handle both broad-wall and narrow-wall, both parallel and crossed coupling structures. Our numerical results for a variety of couplers are in good agreement with those obtained by Ansoft's HFSS.

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