

Abstracts

Design of Broad-Band Dielectric Waveguide 3-dB Couplers

P.K. Ikalainen and G.L. Matthaei. "Design of Broad-Band Dielectric Waveguide 3-dB Couplers." 1987 Transactions on Microwave Theory and Techniques 35.7 (Jul. 1987 [T-MTT]): 621-628.

It is shown how 3-dB couplers with bandwidths on the order of 30 percent can be designed by appropriately taking advantage of the dispersion and the frequency dependence of coupling per unit length between two dielectric waveguides with asymmetrical cross sections. Theoretical methods for computing frequency responses of such couplers are discussed. It is shown how the phase response can be simply compensated to give approximately symmetrical-coupler-type or "magic tee" coupler-type phase-difference responses over comparable bandwidths. Experimental results confirming theoretical calculations are presented.

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