Abstracts

Analysis and Experimental Validation of a Type of Three-Microstrip Directional Coupler

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This paper presents an efficient analysis of a semi reentrant microstrip coupler section. The structure provides tight coupling while maintaining all connections at the same plane. The scattering parameters of this coupler were obtained in the past using the even-odd mode theory. This paper shows that three, rather than two, fundamental modes should be considered in a general situation, since the even-odd mode theory is inaccurate in certain cases. The coupler quasi-TEM parameters are computed by using an enhanced version of the spectral domain technique. Thus, the synthesis of the coupler is carried out in seconds using a personal computer. A rigorous full-wave analysis has also been implemented to ensure that dispersion is negligible. Experimental validation of theoretical conclusions is included.

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