Abstracts

Optimum design of multihole directional couplers with arbitrary aperture spacing

H. Oraizi. "Optimum design of multihole directional couplers with arbitrary aperture spacing." 1998 Transactions on Microwave Theory and Techniques 46.4 (Apr. 1998 [T-MTT]): 331-342.

A numerical procedure based on the method of least squares is presented for the optimum design of multihole directional couplers with a specified number of apertures and their arbitrary spacing in a desired frequency band for a given coupling coefficient (C) together with maximization of the mean value of isolation (I) or equivalently directivity (D) across the band and also specified values of (C) and (D) (or equivalently isolation I). An error function is constructed in the band for optimization of C and D or I, which after minimization gives the best values of the hole radii and spacing. The proposed method is quite suitable for computer-aided design (CAD) and has several advantages over common design methods for multihole directional couplers, such as simplicity of analysis and development of the numerical algorithm, flexibility of hole spacing, specification of the desired values of C and D or I, and actual optimization of the coupler design in the desired frequency band. The proposed method is potentially applicable to the design of other couplers.

❑ Return to main document.