Abstracts

Computer-Aided Design of Evanescent Mode Waveguide Bandpass Filter with Nontouching E-Plane Fins

K.-S. Kong and T. Itoh. "Computer-Aided Design of Evanescent Mode Waveguide Bandpass Filter with Nontouching E-Plane Fins." 1989 Transactions on Microwave Theory and Techniques 37.12 (Dec. 1989 [T-MTT] (1989 Symposium Issue)): 1998-2004.

This paper presents an efficient computer-aided design procedure for an evanescent mode waveguide bandpass filter with nontouching E-plane fins. The design procedure systematically utilizes a look-up table containing the scattering parameters from differently dimensioned E-plane fins. The main idea is to achieve an optimal combination of the filter parameters with proper selections of the E-plane fins from the look-up table and appropriate determinations of the other filter structure elements in order to satisfy the given filter specifications. The technique of selecting the proper fin from the look-up table is explained. The relationship between the desired center frequency of the filter and the approximate resonant frequency of the single fin in the table is shown. Also, the relationship between each design parameter and the filter characteristic is presented. Mean square error multiplied by the selected weight function in the range of 1.0 dB bandwidth is calculated to obtain better optimized design parameters.

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