Abstracts

A design procedure for bandstop filters in waveguides supporting multiple propagating modes

C.A.W. Vale, P. Meyer and K.D. Palmer. "A design procedure for bandstop filters in waveguides supporting multiple propagating modes." 2000 Transactions on Microwave Theory and Techniques 48.12 (Dec. 2000 [T-MTT] (Special Issue on 2000 International Microwave Symposium)): 2496-2503.

The method utilizes a cascade arrangement of resonant "block structures" to stop propagation of a number of modes across a specific band. These filters find particular application in dielectric heating facilities. The design is a two-step process: first, all the necessary block structures are assembled, and then they are cascaded to realize an optimally small filter that fulfills specifications. Two examples of designed filters are discussed. Both achieve better than 40-dB attenuation over a 5% bandwidth in the presence of five propagating modes. The measured results of one filter, realized at 19.1 GHz in WR-90, are shown to agree well with the predicted performance from the mode-matching-based analysis technique.

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