Abstracts

The Resonant Frequency of Interdigital Filter Elements (May 1967 [T-MTT])

D.D. Khandelwal. "The Resonant Frequency of Interdigital Filter Elements (May 1967 [T-MTT])." 1967 Transactions on Microwave Theory and Techniques 15.5 (May 1967 [T-MTT]): 322-324.

In a recent correspondence Nicholson has described a method of predicting the center frequency of a bandpass interdigital filter. On the basis of existing techniques the design of this type of filter usually results in an error in the center and bandedge frequencies of the filter. The most important reason for this is the arbitrary manner in which the lengths of the fingers (i.e., center conductor) must be shortened at the open end. By using Nicholson's method, it is possible to predict fairly accurately the distance between the end of the finger and the opposite end plate. The improved accuracy follows from the proper treatment given to the capacitances associated with the end of the finger. Gandhi and Khandelwal and Khandelwal have shown that these capacitances can also be included in the form of the effective length of a conductor (finger) in transverse TEM structures with an arbitrary conductor cross section. The interdigital structure is a special case of the transverse TEM structures.

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