

Abstracts

The Generalized Interdigital Linear Phase Filter

J.D. Rhodes. "The Generalized Interdigital Linear Phase Filter." 1970 Transactions on Microwave Theory and Techniques 18.6 (Jun. 1970 [T-MTT]): 301-307.

The design theory is presented for narrow-band generalized interdigital linear phase filters which consist of a pair of identical cross-coupled interdigital lines. The procedure for the determination of the characteristic admittances of the elements which describe the structure based upon the element values of the low-pass linear phase prototype network is given, from which the physical dimensions of the filter may readily be obtained. The measured performance characteristics of two filters are presented. The first is a 2.5 percent bandwidth 14-element filter based upon the maximally flat prototype operating in L-band, and the second is a 1 percent bandwidth 18-element version based upon the finite band prototype in S-band. Both filters are shown to be in excellent agreement with theory, with the latter exhibiting transfer characteristics considerably superior to those obtainable from any form of conventionally equalized filter of similar overall degree.

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