Abstracts

Explicit Design Formulas for Waveguide Single-Sided Filters

J.D. Rhodes. "Explicit Design Formulas for Waveguide Single-Sided Filters." 1975 Transactions on Microwave Theory and Techniques 23.8 (Aug. 1975 [T-MTT]): 681-689.

Explicit formulas are given for the design of optimum single-sided waveguide filters. Using a uniform waveguide with iris-coupled series stubs irregularly spaced along the waveguide, this class of filter results in a significant reduction in the number of resonators required to meet single-passband and single-stopband specifications over conventional techniques. Design information is given for both the Chebyshev and elliptic function cases from which the required structure may be obtained without recourse to synthesis procedures. Computer simulations of the response characteristics of both the quarter- and modified three-quarter-wave coupled quasi low-pass and the quasi high-pass designs are given. Experimental results on fifth-degree Chebyshev filters operating in X band for the former case are presented showing close agreement with theory.

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