Abstracts

Implementing Transmission Zeros in Inductive-Window Bandpass Filters

M. Guglielmi, F. Montauti, L. Pellegrini and P. Arcioni. "Implementing Transmission Zeros in Inductive-Window Bandpass Filters." 1995 Transactions on Microwave Theory and Techniques 43.8 (Aug. 1995 [T-MTT]): 1911-1915.

Transmission zeros are usually implemented in microwave filters as extracted poles, or with cross couplings between nonadjacent cavities. Recent work, however, indicates that, for inductive band-pass filters, higher order-mode excitation can be usefully exploited for the purpose of creating transmission zeros. In this paper we describe a new cavity configuration that can be used to introduce transmission zeros in the electrical performance of microwave filters based on thick inductive windows in rectangular waveguides using the higher order-mode interactions. One transmission zero per filter cavity can be introduced and its frequency location can be easily controlled adjusting suitable geometrical parameters. The basic principle is discussed in detail and a computer aided design procedure is also presented. Finally, several application examples are included indicating how the new cavity design can indeed be used to improve the performance of this class of filters.

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