Abstracts

Image Parameter Design of Noncommensurate Distributed Structures: An Application to Microstrip Low-Pass Filters

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The direct application of the image parameter method (IPM) to distributed structures is suggested in order to overcome some limitations of classical design methods for microwave filters. Several advantages are pointed out: 1) Wider degrees of freedom are obtained using noncommensurate structures. 2) The IPM can be applied directly to a microwave structure without any use of lumped prototypes. 3) Possible technological constraints can be easily incorporated in the design procedure. 4) Filters designed according to the IPM can be cascaded together in order to improve their characteristics. An application to the design of a class of microstrip low-pass filters, which have been previously designed on a low-frequency approximation basis, is illustrated in detail. The IPM is shown to provide an effective control of both the passband and stopband, leading to filters with improved characteristics, as demonstrated by the experimental results.

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