Abstracts

Direct synthesis of microwave filters using inverse scattering transmission-line matrix method

R. de Padua Moreira and L.R.A.X. De Menezes. "Direct synthesis of microwave filters using inverse scattering transmission-line matrix method." 2000 Transactions on Microwave Theory and Techniques 48.12 (Dec. 2000 [T-MTT] (Special Issue on 2000 International Microwave Symposium)): 2271-2276.

This paper proposes a new design procedure for planar microwave filters based on the inversion of the one-dimensional transmission-line matrix (TLM) method. The essence of the technique is the solution of the inverse scattering problem using a TLM-based algorithm instead of using equivalent circuits. The procedure consists of determining the geometry of the obstacle that generates the desired scattered field. In the case of filters, this field is the time-domain input reflection coefficient, and the geometry is the impedance profile of the filter. The procedure was validated with the design of low-pass and bandstop filters. It can be used to create filters with arbitrary characteristics.

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