Abstracts

Wide-band equal-ripple filters in nonuniform transmission lines

Da-Chiang Chang and Ching-Wen Hsue. "Wide-band equal-ripple filters in nonuniform transmission lines." 2002 Transactions on Microwave Theory and Techniques 50.4 (Apr. 2002 [T-MTT]): 1114-1119.

In this paper, a novel method to realize equal-ripple filters over microwave frequencies is presented. All networks are implemented by using cascade serial and shunt transmission-line sections having the same electrical length. The transfer functions of such networks are formulated in the Z domain. In particular, it can be shown that some shunt components are able to contribute zeros locating on the unit circle if the components are open circuited. Due to the feature of transfer-function zeros locating on the unit circle, we may use an optimization procedure to implement equal-ripple filters. Both low-pass and bandpass filters are realized in the form of microstrip lines and their frequency responses are measured to validate this novel method.

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