Abstracts

Design of CT and CQ filters using approximation and optimization (Dec. 2001 [T-MTT])

R. Levy and P. Petre. "Design of CT and CQ filters using approximation and optimization (Dec. 2001 [T-MTT])." 2001 Transactions on Microwave Theory and Techniques 49.12 (Dec. 2001 [T-MTT] (Special Issue on 2001 International Microwave Symposium)): 2350-2356.

A new design technique for cascaded triplet (CT) filters has been derived commencing from the well-known Chebyshev all-pole prototype filter. One or more finite frequency poles may be introduced by cross coupling across sets of three nodes, and the filter rematched by a reasonably accurate approximate compensation of the element values. Any general optimizer may then be used to obtain a nearly perfect result without undue concern over convergence failures. A previous similar theory for cascaded quadruplet sections is generalized and may be combined with the CT theory to form filters having both types of sections. The theory is applied to both singly and doubly terminated filters and may include poles on the real axis of the s-plane for delay equalization.

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