Abstracts

Computer-aided diagnosis and tuning of cascaded coupled resonators filters

Heng-Tung Hsu, Hui-Wen Yao, K.A. Zaki and A.E. Atia. "Computer-aided diagnosis and tuning of cascaded coupled resonators filters." 2002 Transactions on Microwave Theory and Techniques 50.4 (Apr. 2002 [T-MTT]): 1137-1145.

A model for the determination of the individual resonant frequencies and inter-resonator couplings of a system consisting of cascaded coupled resonators is presented. Measuring or computing the phase of the reflection coefficient of short-circuit terminated networks synthesizes all the inter-resonator couplings and resonant frequencies. The loading effect on the last resonator due to the unknown position of the short-circuit reference plane is accurately accounted for by a systematic method. A deterministic finite steps tuning method based on the model is developed. The method is proven successful experimentally and the noniterative nature of the method makes fully automatic tuning of filters possible.

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