Abstracts

Maximally flat quarter-wavelength-coupled transmission-line filters using Q distribution

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This paper presents a technique for accurately designing maximally flat quarter-wavelength-coupled transmission-line filters using arbitrary resonant elements. The design procedure currently used, which is based on the lumped-element low-pass prototype, yields a response that is only approximately maximally flat, In addition, the current procedure results in an inaccurate prediction of the total Q for the filter. The technique presented in this paper, herein called the Q-distribution (QD) method, corrects these problems. With the QD method, the designer chooses the number and type of resonant elements and the total Q desired. In turn, the designer is provided with the individual resonator QD, which gives the designer flexibility in selecting the resonator that is most appropriate.

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