Abstracts

Synthesis of advanced microwave filters without diagonal cross-couplings (Dec. 2002 [T-MTT])

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Asymmetric filtering characteristics are frequently used for the design of microwave filters for the cellular telephony industry, particularly for the transmit/receive diplexers for base stations. Typically, such filters have to be manufactured in large quantities at the lowest possible cost. However, due to the asymmetric filtering characteristics, the designs often include diagonal cross-couplings between nonadjacent resonators in addition to the usual "straight" couplings. Diagonal couplings tend to be mechanically difficult to manufacture and assemble and can be electrically awkward to tune and be sensitive to temperature, vibration, etc., all of which drives up unit costs. This paper introduces the methods for the synthesis of two novel filter network configurations that do not require diagonal couplings, but nonetheless are able to realize asymmetric filtering functions.

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