Abstracts

Synthesis of advanced microwave filters without diagonal cross-couplings (2002 Vol. III [MWSYM])

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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 lowest possible cost. However, because of the asymmetric filtering characteristics, the designs often include diagonal cross couplings between non-adjacent resonators In addition to the usual 'straight' couplings. Diagonal couplings tend to be mechanically difficult to manufacture and assemble, can be electrically awkward to tune and be sensitive to temperature, vibration etc. all of which drives up unit costs again. This paper introduces the methods for the synthesis of two novel filter network configurations which do not require diagonal couplings, but which nonetheless are able to realize asymmetric filtering functions.

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