Abstracts

Design of an interdigital hairpin bandpass filter utilizing a model of coupled slots

A.N. Deleniv, M.S. Gashinova, I.B. Vendik and A. Eriksson. "Design of an interdigital hairpin bandpass filter utilizing a model of coupled slots." 2002 Transactions on Microwave Theory and Techniques 50.9 (Sep. 2002 [T-MTT]): 2153-2158.

A design methodology of an interdigital hairpin filter based on a full-wave model of coupled slots is developed and discussed. It is applied to design a five-pole bandpass filter centered at 1.7 GHz; with 1.75% relative bandwidth. A low level of in-band insertion loss is achieved using high-temperature superconductor electrodes. Experimental data are presented and compared with the simulated response. A model of coupled slots embedded in a layered lossy media is developed on the basis of the spectral-domain approach. The multiport admittance (impedance) matrix of the coupled slots is formulated using the E-H duality principle. It is successfully applied in the design of the filter.

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