Abstracts

Design and analysis of iris-coupled and dielectric-loaded 1/8-cut TE/sub 01/-mode microwave bandpass filters

S. Amari, J. Bornemann, A. Laisne and R. Vahldieck. "Design and analysis of iris-coupled and dielectric-loaded 1/8-cut TE/sub 01/-mode microwave bandpass filters." 2001 Transactions on Microwave Theory and Techniques 49.3 (Mar. 2001 [T-MTT]): 413-421.

The design and analysis of iris-coupled and dielectric-loaded 1/8-cut TE/sub 01/-mode filters is performed using globalized local solutions of Maxwell's equations as basis functions. It is found that this set of basis functions outperforms other edge-conditioned basis functions. To reduce the size of the filter and increase the Q factor of the resonators, dielectric rings with high dielectric constant are employed in the same design technique. The dimensions of the resonators are determined to accurately take into account the effect of coupling on their resonant frequencies, thereby reducing the need of tuning. Numerical results are compared with those obtained from the finite-element method (HP HFSS) and the mode-matching technique. Good agreement is demonstrated.

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