Abstracts

FD-FD GSM technique for the CAD and optimization of combline filters

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A combined frequency domain finite difference (FD-FD) generalized scattering matrix (GSM) technique is presented for the design and optimization of filters including 3D resonator structures, such as circular posts of partial waveguide height. This combination unites advantageously the flexibility of the FD method with the efficiency of the GSM technique. The formulation for the FD algorithm is based on the advanced combination of a direct subgrid technique with a locally conformal grid for modeling curved metallic boundaries. The flexibility and efficiency of the method is demonstrated at the example of the CAD of combline filters that are optimized using a genetic algorithm. The theory is verified by measurements.

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