Abstracts

EM-simulator based parameter extraction and optimization technique for microwave and millimeter wave filters

A novel hybrid optimization technique for microwave and millimeter wave filters is presented. The technique is based on a surrogate model represented by a minimum prototype filter network All characteristic filter parameters like frequency shifts of and couplings between resonators are included. Accurate prototype parameters are extracted from S-parameter computation of the physical filter. In the best case only n+1 electromagnetic (EM) field simulations are necessary, where n is the number of geometry parameters. Optimization is performed in the parameter space of the surrogate model with the parameters of the ideal transfer function as target. This approach is very fast and requires only few field simulations.

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