Abstracts

Automated computer-controlled tuning of waveguide filters using adaptive network models

P. Harscher and R. Vahldieck. "Automated computer-controlled tuning of waveguide filters using adaptive network models." 2001 Transactions on Microwave Theory and Techniques 49.11 (Nov. 2001 [T-MTT] (Special Issue on the 2000 Asia-Pacific Microwave Conference)): 2125-2130.

This paper describes a method for computer-controlled tuning of waveguide filters. The tuning algorithm is based on approximate filter network models, which take into account the effects of input/output coupling. Based on measurements of an initial filter design, the approximate network model is then corrected by optimizing the element values such that they minimize the mean square error between the measured and simulated response. The sensitivities of the tuning screws are determined directly from the sensitivities of the element values. Filter tuning is accomplished by gradient optimization of the corrected computer model rather than its physical realization. Only as a final step are the tuning screws of the physical model turned to the position determined by the optimization process.

❑ Return to main document.