Abstracts

Rigorous and efficient fabrication-oriented CAD and optimization of complex waveguide networks (Dec. 1997, Part II [T-MTT])

F. Alessandri, M. Dionigi, R. Sorrentino and L. Tarricone. "Rigorous and efficient fabrication-oriented CAD and optimization of complex waveguide networks (Dec. 1997, Part II [T-MTT])." 1997 Transactions on Microwave Theory and Techniques 45.12 (Dec. 1997, Part II [T-MTT] (1997 Symposium Issue)): 2366-2374.

A sophisticated computer-aided design (CAD) and optimization tool of complex microwave networks, incorporating fabrication and realizability constraints has been developed. Rigorous full-wave models based on the mode matching technique are adopted along with specific algorithms to speed up both the analysis and optimization of the entire microwave structure. A number of beamforming Butler matrices in waveguide technology characterized by about 240 geometrical parameters have been designed and globally optimized. A full-wave analysis requires less than 1 s per frequency point, while the entire optimization can be performed in less than 1 h, using a PC Pentium 133 MHz.

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