Abstracts

Optimal Design of Matching Networks for Microwave Transistor Amplifiers

F.E. Emery, M. O'Hagen and S.D. Nolte. "Optimal Design of Matching Networks for Microwave Transistor Amplifiers." 1966 G-MTT International Microwave Symposium Digest 66.1 (1966 [MWSYM]): 101-107.

The design of input and output matching networks for transistor microwave frequency amplifiers has been optimized by the use of an efficient computer program. Power amplifiers capable of 2.5 watts peak power output with a 400 MHz bandwidth at 2.25 GHz have been fabricated. The matching network problem was reduced to an equivalent non-linear programming problem by considering the filter elements as coordinates in an N-dimensional vector space. The optimal solution point in the vector space was found by the use of a "pattern search" routine which utilized randomly chosen orthogonal transformations of the search pattern to minimize an objective function. In this case, a suitable objective function was chosen to be the area under the curve of reflection coefficient versus frequency for the filter input. By use of multiple data input as many as six designs have been achieved in less than nine minutes on the 7044 computer.

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