# Abstracts

## Optimum Design of 3-dB Branch-Line Couplers Using Microstrip Lines (Short Papers)

*M. Muraguchi, T. Yukitake and Y. Naito. "Optimum Design of 3-dB Branch-Line Couplers Using Microstrip Lines (Short Papers)." 1983 Transactions on Microwave Theory and Techniques 31.8 (Aug. 1983 [T-MTT]): 674-678.*

A computer-aided design is described that makes it possible to reduce the internal impedance levels of branch-line couplers so that they may be physically constructed by microstrip lines, where the Fletcher-Powell search method has been used to optimize the design. Because microstrip lines are severely restricted in their usable impedance range, the 3-dB couplers presented here should be useful for numerous balanced-type components such as balanced mixers. The validity of the design has been experimentally verified in the microwave and millimeter-wave region.

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