# Abstracts

## Computer-Oriented Synthesis of Optimum Circuit Pattern of 3-dB Hybrid Ring by the Planar Circuit Approach

*T. Okoshi, T. Imai and K. Ito. "Computer-Oriented Synthesis of Optimum Circuit Pattern of 3-dB Hybrid Ring by the Planar Circuit Approach." 1981 Transactions on Microwave Theory and Techniques 29.3 (Mar. 1981 [T-MTT]): 194-202.*

A fully computer-oriented synthesis of the optimum circuit pattern of a 3-dB hybrid ring based upon the planar circuit concept is described. In the synthesis process, the contour-integral method, and Powell's method are used for the circuit analysis, the optimization, respectively. The synthesized optimum patterns are given in normalized curves, parameters which can directly be used in practical circuit design. The validity of the theory is confirmed by experiment. It is shown both theoretically, experimentally that the planar circuit approach can, not only prevent the deterioration of the hybrid characteristics due to the widening of the circuit, but bring forth hybrid characteristics somewhat better than the distributed constant model. It is also shown that the obtained optimized characteristics can further be improved by addition of simple external circuits.

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