Abstracts

Microwave I-Q vector modulator using a simple technique for compensation of FET parasitics

M. Chongcheawchamnan, S. Bunnjaweht, D. Kpogla, D. Lee and I.D. Robertson. "Microwave I-Q vector modulator using a simple technique for compensation of FET parasitics." 2002 Transactions on Microwave Theory and Techniques 50.6 (Jun. 2002 [T-MTT]): 1642-1646.

The analysis and design of an improved technique for the realization of vector modulators using analog reflection-type circuits are presented. The analysis focuses on the detrimental effect that the parasitic elements of the FET variable-resistance elements have on the 360/spl deg/ phase and amplitude control. It is shown that a simple circuit technique can be used to compensate for the parasitic effects and achieve a near-ideal constellation. Compared with the balanced structure, the proposed technique leads to a much smaller circuit area and does not require additional complementary control signals. This makes it better suited to commercial wireless applications where low cost is paramount. Simulation and experimental results for an L-band prototype are presented.

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