Abstracts

Near-ideal RF upconverters

N. Vasudev and O.M. Collins. "Near-ideal RF upconverters." 2002 Transactions on Microwave Theory and Techniques 50.11 (Nov. 2002 [T-MTT] (Mini-Special Issue on the 2002 IEEE Radio Frequency Integrated Circuit (RFIC) Symposium)): 2569-2575.

This paper presents experimental results on the application of a new quadrature modulator compensator, which allows existing quadrature modulators to achieve near-ideal RF upconversion over a wide bandwidth. A test setup using an arbitrary waveform generator and a spectrum analyzer shows that over 70 dB of spurious-free dynamic range may be obtained over a bandwidth of 1.2 MHz using an off-the-shelf Mini Circuits in-phase/quadrature modulator operating at 895 MHz. A conventional compensator provides only 45 dB of sideband suppression in the same experimental setup.

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