Abstracts

A microwave communication link with self-heterodyne direct down conversion and system predistortion (Dec. 2002 [T-MTT])

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A novel design of a microwave communications link operating at 5.8 GHz is presented based on self-heterodyne direct downconversion (SHDDC) and system predistortion. Utilizing the SHDDC scheme eliminates the need of any local oscillators at the receive ends and minimizes spectrum usage; however, the transmitter power efficiency is low, and there exist high mixer intermodulation levels in the receiver. To overcome these drawbacks, a system predistortion approach is proposed. A two-tone measurement is performed to validate the idea. It shows 12.67 dBc of overall improvement in the signal-to-intermodulation ratio by applying a fourth-order predistortion technique. Further, successful transmission of a digitally modulated signal is also demonstrated.

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