Abstracts

A microwave communication link with self-heterodyne direct down conversion and system predistortion (2002 Vol. II [MWSYM])

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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. With the SHDDC scheme, the need of any local oscillators at the receive ends is eliminated, and the spectrum usage is minimized; however, the transmitter power efficiency is low, and there exists 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 6.83 dBc overall improvement in the signal-to-intermodulation ratio (SIMR) by applying a simple second-order predistortion technique. Further, successful transmission of a digitally modulated signal is also demonstrated.

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