Abstracts

Gain/phase imbalance-minimization techniques for LINC transmitters

X. Zhang, L.E. Larson, P.M. Asbeck and P. Nanawa. "Gain/phase imbalance-minimization techniques for LINC transmitters." 2001 Transactions on Microwave Theory and Techniques 49.12 (Dec. 2001 [T-MTT] (Special Issue on 2001 International Microwave Symposium)): 2507-2516.

Two simple calibration schemes for the correction of the path imbalance in a linear amplification with nonlinear components (LINC) transmitter have been demonstrated. In the foreground algorithm, a baseband digital signal processor (DSP) evaluates the gain and phase imbalance with a set of calibration signals, while in the background algorithm, the imbalance is characterized by exchanging the two LINC vector components. In both cases, the compensation of the path imbalance is accomplished within the DSP by introducing a predistortion term. A prototype LINC system has been tested for CDMA IS-95 baseband input, and -38 and -35-dBc adjacent channel interference were achieved for the foreground and background schemes, respectively. The quadrature errors of the in-phase/quadrature modulators set a limit on the overall performance of both algorithms.

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