Dual-Path Digital Linearization of Wideband Radio Receivers Using a Non-linear Auxiliary Path

by

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Abstract: Cognitive radio (CR) communications arise as a solution to access the spectrum intelligently by detecting vacant channels in order to avoid interference and congestion. CR transceivers operate in a wideband regime that establishes stringent linearity requirements across every component in the front-end. In this seminar, a new digital dual-path calibration and cancellation technique for wideband LNAs will be presented. It is implemented by adding a non-linear auxiliary path along with two adaptively calculated coefficients used to cancel out the third order nonlinearities from the main LNA. In addition, two phase-correction methods are presented to account for the phase mismatch between the paths. Simulation results are shown to evaluate and compare the performance of the proposed technique with previous work.

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