

Linear Amplification Using Digital Pre-Distortion Technique for Improved Mobile Communication

Nirbhay Kumar Singh, Fouziya C, T.Venkatmuni,Devindra M C,Kalyani Murthy

Central Development & Engineering

Bharat Electronics Ltd, Bangalore, India

nirbhaykumar@bel.co.in

Abstract: With the changing environment, need for high speed data transfer for information the requirements of data rates for wireless communication systems are increasing monotonically. This can be feasible by using large bandwidth and more advanced communication techniques, such as QPSK, OFDMA and MIMO. At the same time, requirements for RF components in wireless data links such as power amplifiers and mixers etc. are becoming more stringent so that signal quality should not be greatly degraded by the transmitter for ensuring of high-speed data links. These RF components have nonlinear behavior that must be taken into consideration for proper and efficient design to cater the need of high data link communication system.

In this paper critical component of RF links which is responsible for nonlinear distortion has been studied and analyzed. Finally, for design of efficient RF data link, techniques for mitigation of distortion for catering needs of modern era of mobile communication system via feasible pre-distortion method has been implemented.