

## **A robust non-uniform indexation of a quadratically interpolated LUT predistorter for RF power amplifiers**

### **ABSTRACT**

A new companding function is proposed for non-uniform indexation of a quadratically interpolated LUT predistorter used in digital predistortion under wideband signals. In digital predistortion, lookup table (LUT) predistorters are the most frequently used technique in order to compensate the non-linear effects of a power amplifier. In this paper, a new companding function of a quadratically interpolated LUT predistorter is designed in order to reduce the approximation errors of quadratic interpolation which causes the intermodulation (IMD) distortion. Simulation result shows that the proposed technique provides a better rejection of intermodulation distortion compared to quadratic interpolated LUT, linear interpolated LUT and conventional non-linear interpolated LUT predistorters respectively.

**Keyword:** Digital predistortion (DPD); Linearization; Lookup table (LUT); Power amplifier (PA)