**OFDM PAPR REDUCTION WITH DIGITAL AMPLITUDE PREDISTORTION**

**ABSTRACT**

The major drawback of orthogonal frequency division multiplexing (OFDM) systems is the high peak to average power ratio (PAPR), which results in signal distortion when the transmitter has nonlinear components. Even though the pre distortion is used to compensate for the high power amplifiers (HPA), some amount of input back-off (IBO) is required to remove nonlinear distortion completely since the PAPR is very high. In this paper, we propose the PAPR reduction methods of clipping and ACE (active constellation extension) to compensate for the nonlinear distortion. Then, the amount of required IBO is lowered so that power efficiency is improved than the only pre distortion case. Based on the memory less solid state power amplifier (SSPA) of Rapp model, computer simulations and analysis in this paper demonstrates that, especially when the HPA is working near or in the saturation region, a pre distorter will cease to be in effect. In such cases, PAPR reduction techniques may be resorted to help to improve the HPA efficiency.