Digital Distortion with Low Precision ADCs

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Abstract—The abstract goes here.

I. INTRODUCTION

The power amplifier (PA) is a component of wireless systems that has a nonlinear transfer function. The nonlinearities are undesirable in that they lead to distortions such as spectral regrowth around the main carriers and intermodulation distortions (IMDs) in scenarios with multiple, noncontiguous carriers. This is exacerbated with modern signals such as OFDM with high PAPR.

Digital predistortion (DPD) is a method for linearizing a power amplifier (PA). With DPD, the nonlinearities are estimated so that they can be corrected before the PA with their inverse. To do this, we must train our predistorter by observing the signal after the PA. In practical situations, we need a feedback bath after the PA that has a downconverter and an ADC. For wide bandwidth signals, the sampling rate of the ADC must be fast. In mobile applications where power and cost are a concern, one option for reducing the complexity of the system is to use a low precision ADC.

This is a common thing being explored in MMWave and massive MIMO

In this paper, we test the performance of our previous DPD solutions for varying ADC precision.

II. SUBBAND DPD

TEXT

III. FULLBAND DPD

IV. WARPLAB TESTING

V. CONCLUSION

The conclusion goes here.

REFERENCES

[1] H. Kopka and P. W. Daly, *A Guide to LaTeX*, 3rd ed.   Harlow, England: Addison-Wesley, 1999.