Abstracts

Effects of anti-aliasing filters in feedback path of adaptive predistortion

Adaptive predistortion is one of the most promising methods to linearize RF power amplifiers (PAs). Its linearity performance is, however, limited by various memory effects existing in the system. In this paper, we study the effects of anti-aliasing filters in the feedback path of adaptive predistortion. Different filter approximations are examined with a class AB power amplifier by means of simulations. Of the filters studied, Butterworth filters perform better than Chebyshev filters when they have the same noise-equivalent bandwidth (NEB). Simulation results also show that the cut-off frequency of the anti-aliasing filter affects both the convergence speed of the adaptation algorithm and the level of mean square error (MSE) between the desired and the feedback signals. To a certain degree, the higher the cut-off frequency of the filter, the less the number of iterations needed by the adaptation process.

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