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OFDM系统中一种新的非线性补偿算法

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摘要 在频率选择性信道中, 正交频分复用（OFDM）技术以其独特的优点得到了人们的青睐。但高峰均功率比（PAPR）, 易使功率放大器（HPA）输出信号产生非线性失真。在OFDM系统中提出了一种新的非线性补偿算法, 该算法利用导频序列估计发射端HPA参数, 并由此计算非线性误差, 实现非线性补偿。计算机仿真结果表明, 该算法具有较好的补偿效果。

关键词 正交频分复用 高功率放大器 多项式 LS算法

分类号

Novel compensation method of nonlinear distortions in OFDM systems

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Abstract

In recent years,there has been increasing interest in Orthogonal Frequency Division Multiplexing（OFDM） applying to the mobile communication system in terms of considering its various advantages in combating the severe effects of the frequency selective fading. However,the OFDM system suffers from the strong sensitivity to the nonlinear distortions,introduced by the transmitting High Power Amplifier（HPA）,since the OFDM system has the high Peak-to-Average Power Ratio（PAPR）.The method proposed in this paper first is to use the training sequence to estimate the coefficient of the transmitting HPA model at the receiver,second to estimate nonlinear distortions and to cancel it at last. The results of computer simulation show that the algorithm is effective in OFDM systems.

Key words Orthogonal Frequency Division Multiplexing（OFDM） High Power Amplifier（HPA） polynomial LS algorithm

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