

论文

DS-QPSK相位误差检测算法改进与数字化实现

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摘要:

根据直接序列扩频通信系统中伪随机序列(PN码)的相关特性,提出一种适合于直接序列扩频四相相移键控调制(DS-QPSK)系统的载波相位误差检测方法。PN码具有很好的相关特性,可以简化DS-QPSK信号中的一路信号,进而借鉴二相相移键控(BPSK)信号的正切鉴相方式完成鉴相。完成了计算机仿真与数字化实现。结果表明,采用该方法,可以降低对接收信噪比的要求,提高接收灵敏度。

关键词: 载波恢复 四相相移键控 相位误差检测 数字化实现 carrier recovery Quarter Phase Shift Keying (QPSK) phase error detection digital implementation

Improved algorithm for DS-QPSK phase error detection and its digital implementation

Abstract:

According to the correlation orthogonality of Pseudorandom Noise (PN) code used in the direct sequence spread spectrum and QPSK modulation (DS-QPSK) system, a carrier phase error detection algorithm for DS-QPSK signal was proposed. One channel of the DS-QPSK signal could be simplified by the high correlation orthogonality of PN code, and then phase error detection was implemented through the reference of detecting phase error for BPSK signal with arc tangent function. This method was simulated and implemented in computer. Experimental results indicate that the phase error detection algorithm can decrease Signal Noise Ratio (SNR) of the receiver and improve the receive sensitivity of the system.

Keywords:

收稿日期 2008-12-23 修回日期 2009-03-03 网络版发布日期 2009-06-10

DOI:

基金项目:

国家自然科学基金(60872038); 国家863计划(2008AA01Z202); 国家级基金

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