

电子技术

一种基于信噪比估计的自适应伪码捕获算法

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**摘要:** 军事扩谱通信一般都以突发信号帧的形式进行通信,通信时间短、可靠性要求高、信号动态范围大。固定门限捕获方法不能提供满意的性能,门限选得太高会使高信噪比时虚警概率过高,而门限过低会使得低信噪比时漏检概率高,检测概率低,因此需要利用自适应捕获方法。提出一种适合突发短帧模式的自适应伪码捕获方法,该方法可适用于A/D转换前加自动增益控制(AGC)的情况。提出的自适应捕获方法基于接收信号信噪比的估计,推导出根据采样点统计值的比值得到信噪比估计的实用算法,并对该算法进行多项式拟合以适合工程实现,并对算法进行了仿真分析。

**关键词:** 自适应捕获 信噪比估计 曲线拟合

Adaptive acquisition algorithm of PN codes based on SNR estimate

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**Abstract:** The missile control and guide command link generally uses burst short frames.This kind of link possesses short communication time,high reliabiliy and a large dynamic scope of signals.A fixed threshold is not suitable for this kind of communications.The higher threshold will lead to the virtual alarm probability too high in high SNR,and the lower threshold will lead to the miss detect probability too high and the detect probability too low in low SNR.So an adaptive acquisition algorithm of PN codes for burst short frames is presented.The algorithm is suitable for the condition that AGC is applied before the ADC.The adaptive acquisition is based on the SNR estimate.An applied algorithm by which the SNR can be obtained from the statistical ratio samples is presented.The polynomial fitting method is carried out for realization in practice.Simulation results verify that the proposed algorithm is effective.

**Keywords:** adaptive acquisition signal-to-noise ratio estimate curve fitting

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