

网络、通信、安全

## CAZAC序列的OFDM改进同步算法

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收稿日期 2008-7-4 修回日期 2008-10-14 网络版发布日期 2009-12-4 接受日期

**摘要** 利用CAZAC (Constant Amplitude Zero Auto Correlation) 序列良好的特性, 通过改变IEEE 802.11a系统标准前导结构, 重新设计了用于分组检测的短训练序列, 并提出新的分组检测算法。新算法避免了分组检测训练序列与结构中的其他重复短训练之间的相关干扰, 同时增加了用于粗频率同步的短训练序列的个数, 因此增加了粗频率同步的准确度, 但不改变整个前导符号序列的个数, 也没有增加算法的复杂度。在突发模式下, 使用瑞利时延多径衰减信道进行仿真, 与传统方法比较能得到4 dB的增益。

**关键词** [CAZAC序列](#) [分组检测](#) [粗频率同步](#)

**分类号** [TN911](#)

## Improved frame synchronization algorithm by using CAZAC sequence

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### Abstract

A new packet detection algorithm is proposed using the good character of CAZAC (Constant Amplitude Zero Auto Correlation) sequence, which avoids the interference from other short training sequences by changing the standard preamble structure of the IEEE 802.11 and redesigning the short training sequence for packet detection. Since the number of the short training sequence for coarse frequency synchronization is added, the accuracy of coarse frequency synchronization is improved. On the other hand, the number of preamble is not changed, and the complexity of the algorithm is not increased. In the burst mode, simulation shows that 4 dB gain is achieved compared with traditional methods under the condition of the Rayleigh fading frequency selective multi-path channel.

**Key words** [Constant Amplitude Zero Auto Correlation \(CAZAC\) sequence](#) [packet detection](#) [coarse frequency synchronization](#)

DOI: 10.3778/j.issn.1002-8331.2009.33.031

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