

### 分布式残余频偏信道中的Alamouti STBC-OFDM功率分配

孙科 唐友喜 邵士海\*

电子科技大学通信抗干扰技术国家级重点实验室 成都 611731

## On Power Allocation for Alamouti STBC-OFDM Systems with Distributed Transmit Antennas in the Presence of Residual Frequency Offsets

Sun Ke Tang You-xi Shao Shi-hai\*

National key Lab. of Science and Technology on Communications, University of Electronic Science and Technology of China, Chengdu 611731, China

摘要	参考文献	相关文章
----	------	------

Download: PDF (316KB) HTML 1KB Export: BibTeX or EndNote (RIS) Supporting Info

**摘要** 在具有不同残余频偏的分布发射天线多径瑞利衰落信道中, 该文使用Cholesky判决反馈检测的Alamouti STBC-OFDM链路, 提出了一种抑制残余频偏影响的发射功率分配方法: 以最小化残余频偏下链路的平均误比特率下界为准则, 为发射天线分配功率。首先推导了残余频偏下链路的平均误比特率下界, 然后给出了发射天线间最优功率分配因子的闭合解。仿真结果表明, 与传统的假设频率理想同步的功率分配方法相比, 在残余频偏对性能影响占主导作用的场景中, 该文方法提升了链路性能, 提升程度随着两根发射天线到接收机间平均信道功率增益之比的增加而增大。

**关键词:** 正交频分复用 空时分组码 分布式发射天线 发射功率分配 残余频偏

**Abstract:** In this paper, a transmit power allocation method is proposed for distributed transmit antenna Alamouti Space-Time Block Coded Orthogonal Frequency Division Multiplexing (STBC-OFDM) systems based on Cholesky-decision-feedback detector in multipath Rayleigh fading channels with multiple Residual Frequency Offsets (RFOs). The method is designed by minimizing the lower bound of the average Bit Error Ratio (BER) so as to reduce the influence of RFOs. Theoretical analysis of the lower bound on the average BER performance is presented and the closed-form expression of the optimal power allocation factor is derived. Simulation results show that in the scenario where the performance is dominated by the RFOs, the proposed method provides increasing performance gain compared with the conventional power allocation method ignoring the existence of RFOs as the ratio between the average channel gains from the two transmit antennas to receiver increasing.

**Keywords:** Orthogonal Frequency Division Multiplexing (OFDM) Space-Time Block Code (STBC) Distributed transmit antennas Transmit power allocation Residual Frequency Offsets (RFOs)

Received 2009-09-01;

本文基金:

国家自然科学基金(60832007, 60901018, 60902027), 国家重大科技专项基金(2009ZX03003-008-01)和中央高校基本科研业务费专项资金(ZYGX2009J008, ZYGX2009J010)资助课题

通讯作者: 唐友喜 Email: tangyx@uestc.edu.cn

引用本文:

孙科, 唐友喜, 邵士海. 分布式残余频偏信道中的Alamouti STBC-OFDM功率分配[J] 电子与信息学报, 2010, V32(12): 2935-2941

Sun Ke, Tang You-Xi, Shao Shi-Hai. On Power Allocation for Alamouti STBC-OFDM Systems with Distributed Transmit Antennas in the Presence of Residual Frequency Offsets[J], 2010, V32(12): 2935-2941

链接本文:

http://jeit.ie.ac.cn/CN/10.3724/SP.J.1146.2009.01152 或 http://jeit.ie.ac.cn/CN/Y2010/V32/I12/2935

Service

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ Email Alert
- ▶ RSS

作者相关文章

- ▶ 孙科
- ▶ 唐友喜
- ▶ 邵士海