

### 基于信道转换的蓝牙微微网之间同频干扰抑制方法

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## Co-channel Interference Suppression Method Based on Channel Switching for Bluetooth Piconets

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摘要

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**摘要** 多个蓝牙微微网之间的同频干扰十分严重, 该文针对此问题提出一种基于信道转换的同频干扰抑制方法。该方法在蓝牙微微网重传时进行信道转换, 以同频不一定会产生干扰为前提, 综合考虑了返回分组、跳频保护间隔、3种时隙分组共存等多种情况, 使分析更加接近真实情况。对网络性能指标进行大量仿真, 由仿真分析可见, 该方法有效地降低了蓝牙微微网的分组错误率, 提高了微微网的吞吐量, 尤其当网络数量在14~57范围内时, 微微网吞吐量最大可增加260 kbps。

**关键词:** 蓝牙微微网 同频干扰 信道转换 返回分组

**Abstract:** Co-channel interference is serious when multiple Bluetooth piconets coexist in a limited area. Therefore, a co-channel interference suppression method based on the channels switching is proposed. With the method, channels may switch from one to another when a piconet carries out retransfer packets. In order to approach practical scenarios and considering that identical frequency channel in different piconets may not lead to co-channel interference, some issues are taken into account in the analysis process, such as the return packets, the frequency hopping guard time, and the coexistence of three packet sizes. Simulations are carried out on the network performance of piconets. The simulation consequence indicates that the methodology can reduce the PER, and the throughput of piconet is improved effectively. And particularly, when the range of piconet number is set from 14 to 57, the throughput can go up 260 kbps.

**Keywords:** Bluetooth piconets Co-channel interference Conversion of channel Return packets

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