

## 低空信道对无线传感器网络的影响分析

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基金项目:

摘要:

无线通信系统的性能很大程度上受到无线信道特性的影响。随着通信技术的发展, 近地环境中电波传播特性的研究已成为研究无线通信系统的重要课题之一。在室外开阔地、天线低空架设的环境下, 针对2.4GHz频段的无线信号传播特性进行了实测研究, 并利用最小二乘法对数据进行了拟合分析。研究表明, 地表无线信道同传统微蜂窝无线信道存在较大差别, 但仍可采用对数距离路径损耗模型进行表征。所得结果有助于研究近地无线信道的传播规律并为地表无线传感器网络设计提供依据。

关键词: 无线传感器网络; 地表无线传播; 无线链路损耗建模; 最小二乘法拟合

## The impact analysis of wireless sensor network in Low-level channel

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**Abstract:**

The wireless communication system's performance is greatly constrained by the wireless channel characteristics. With the rapid development of communication technology, the exploration of wave's propagation characteristics of wireless communication systems have become one of the important issues at the Near-Earth environment. In this paper, the characteristics of wireless signal propagation on 2.4GHz band were experimentally measured and researched outdoors with the antenna set in low-altitude environment, and the data were analyzed by least-squares. The results show that there's a big difference between the surface of wireless channel and traditional cellular radio channel, but can still use the log distance path loss model to characterize. The outcome gained can help study the propagation of Near-Earth wireless communication and provide the evidence of design for the wireless sensor networks.

**Keywords:** Wireless sensor networks; Surface wireless communication; Wireless link loss model; Least-squares fitting

投稿时间: 2010-06-18