

## 铝电解工业中 ZigBee 无线传感器网络及其 QoS 研究

作者：刘玉芳, 王绍源, 吴免利

单位：威胜集团

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摘要：

针对目前铝厂计算机控制采用的有线网络成本高、维护不方便等问题，提出了在铝厂强电场、强热场、强磁场环境下 ZigBee 无线传感器网络（WSN）解决方案并对其连通性覆盖和服务质量(QoS)问题，提出了覆盖唤醒方法；采用基于积压数据确定上界的速率调整算法改善链路吞吐量和降低积压数据。仿真结果表明，醒方法有效保证了网络连通性覆盖，而速率调整算法明显改善了网络 QoS 性能。

关键词：无线传感器网络；连通；服务质量；唤醒方法；速率调整

## Research of ZigBee WSN and Its Qos in Aluminum Electrolytic Industry

**Author's Name:**

**Institution:**

**Abstract:**

Considering the problems of high cost and difficult maintenance in aluminum factory computer control system which uses wire network, this paper proposed a solution of ZigBee WSN delivered in aluminum factory where are strong electric field, strong temperature field and strong magnetic field environment. The key feature of this arousir method is attaining the demand of network coverage and QoS. Furthermore, the backlog data deterministic upper bound is given to enhance link throughout and backlog in the means of a rate adjustment algorithm. The experiment results illustrate this approach not only can maintain network connectivity in high efficiency, but also significantly improves the performance of the network QoS.

**Keywords:** wireless sensor network; connectivity; quality of service; arousing method; rate adjustment

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