



CALCULATION AND SIMULATION OF ELECTROMAGNETIC WAVE PROPAGATION PATH LOSS BASED ON MATLAB

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Abstract- In order to reliable data transmission of wireless sensor network (WSN) in indoor environment, the indoor field intensity distribution and transmission characteristics of electromagnetic wave were researched. First of all, the 3D model in specific indoor environment was built by the finite difference time domain method (FDTD). Then, layout of room, different furniture, position of field source and field source frequency had an influence on indoor field intensity distribution that were studied, and the field intensity distribution was simulated by MATALAB. According to simulation of three dimensional field intensity distribution, and it had directly shown that various factors had an influence on the indoor field intensity distribution, thus indoor wireless sensor network nodes can be reasonable deployed by it, the packet loss rate of WSN transmission was reduced from information source, and it provided theoretical basis for further improving WSN information transmission reliability.

Index terms: FDTD, Electromagnetic wave, Field intensity distribution, Reliability, WSN.