An indoor path loss model for wireless sensor networks

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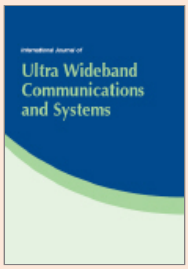
Abstract

In this paper, path loss measurements were conducted and a path loss model was proposed for wireless sensor networks (WSNs) operating in indoor environment. This is done with a view to study transmit power requirements in indoor application of WSNs. The proposed model is a hybrid of the two-ray ground reflection model and the log-normal model and considers frequency and three-dimensional link trajectory as key parameters in evaluating path loss. The study highlights the effect of height on path loss exponent by means of various measurements taken in indoor environment. Comparison with the empirical data and other models in the literature was conducted and had very favourable results for the proposed model.

Keywords: channel models, indoor environments, path loss exponent, ZigBee, empirical models



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