

Coverage Probability Analysis of WiMAX Network under Additive White Gaussian Noise and Predicted Empirical Path Loss Model

Authors : Chaudhuri Manoj Kumar Swain, Susmita Das

Abstract : This paper explores a detailed procedure of predicting a path loss (PL) model and its application in estimating the coverage probability in a WiMAX network. For this a hybrid approach is followed in predicting an empirical PL model of a 2.65 GHz WiMAX network deployed in a suburban environment. Data collection, statistical analysis, and regression analysis are the phases of operations incorporated in this approach and the importance of each of these phases has been discussed properly. The procedure of collecting data such as received signal strength indicator (RSSI) through experimental set up is demonstrated. From the collected data set, empirical PL and RSSI models are predicted with regression technique. Furthermore, with the aid of the predicted PL model, essential parameters such as PL exponent as well as the coverage probability of the network are evaluated. This research work may assist in the process of deployment and optimisation of any cellular network significantly.

Keywords : WiMAX, RSSI, path loss, coverage probability, regression analysis

Conference Title : ICWCN 2019 : International Conference on Wireless Communications and Networks

Conference Location : San Francisco, United States

Conference Dates : June 06-07, 2019