Neural Network Based Path Loss Prediction for Global System for Mobile Communication in an Urban Environment

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Abstract : In this paper, we measured GSM signal strength in the Dnepropetrovsk city in order to predict path loss in study area using nonlinear autoregressive neural network prediction and we also, used neural network clustering to determine average GSM signal strength receive at the study area. The nonlinear auto-regressive neural network predicted that the GSM signal is attenuated with the mean square error (MSE) of 2.6748dB, this attenuation value is used to modify the COST 231 Hata and the Okumura-Hata models. The neural network clustering revealed that -75dB to -95dB is received more frequently. This means that the signal strength received at the study is mostly weak signal

Keywords : one-dimensional multilevel wavelets, path loss, GSM signal strength, propagation, urban environment and model
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