ABSTRACT

The city of Semarang has a geographical location in the form of mountains and cities with quite high rainfall which can affect the pathloss value or the signal reception value obtained by the receiver, pathloss analysis is needed to determine the quality of the telecommunications network in the city of Semarang. Pathloss is the attenuation or loss of receiving power which results in a decrease in the value of the receiving power of electromagnetic waves as they pass through the transmission medium. To determine the pathloss value, propagation models can be used. One of the propagation models used is ABG (Alpha, Beta, Gamma). This research was conducted by comparing the results of the ABG pathloss calculation (Alfa, Beta, Gama) with the results of the NYUSIM simulation. This study analyzes the pathloss value in environmental conditions in the city of Semarang with the character of urban micro outdoor cells. This study uses a working frequency of 2.1 GHz and 2.3 GHz with a bandwidth of 800 MHz. The analysis was carried out by comparing the pathloss values calculated by the ABG model and the simulation results using NYUSIM at a distance of 20m, 40m, 60m, 80m, 100m, 120m, 140m, 160m, 180m, 200m. pathloss ABG, with an average pathloss value with a margin value of 138 dB for the 2.1 GHz frequency and 136 dB for the 2.3 GHz frequency. The working frequency of 2.1 GHz has a higher pathloss value than the frequency of 2.3 GHz by 3.8 dB. The results of the ABG pathloss calculation with the NYUSIM simulation results show similarities to the trend of increasing values according to the distance and have differences in several pathloss values due to the distance and use of different frequencies.

Keyword : *Pathloss*, Micro Cell, NYUSIM, LOS, NLOS