ABSTRACT

Demand channels with a wide bandwidth for data transmission at high speed and high quality multimedia transmission causes the radio frequency spectrum usage is higher. LMDS is a communication system in line of sight (LOS), point to multipoint millimeter wave operating at between 20 to 50 GHz. While the frequency above 10 GHz attenuation is particularly vulnerable to rain attenuation and Indonesia is a country with high rainfall. To reduce the influence of rain attenuation and interference adaptive modulation performed by convolutional coding and Reed Solomon code combined with equal gain diversity combining techniques. This study uses path length of 1-4 km from the BS to the TS for the observation of the maximum BER $10^{-6}$ and $10^{-11}$ to reach 99.99% link availability.

Based on the results of the analysis conducted shows that the use of adaptive coded modulation has reached 99.99% link availability at a distance of 1 km between the main BS with the customer on the observation of Bit Error Rate (BER) maximum of $10^{-6}$ and $10^{-11}$. For analysis using the adaptive coded modulation with equal gain combining diversity the largest increase in link availability at distances of 1 km between the BS with the customer on the observation of Bit Error Rate (BER), the maximum that is equal to 2.1735% $10^{-11}$.

Kata Kunci: LMDS system, Adaptive Coded Modulation, equal gain combining and Rain Attenuation.