ABSTRACT

Visible Light Communication (VLC) is a technology in the communication that uses visible light as its transmission medium. One of the Application of VLC communication is vehicle to vehicle communication. VLC-based communication applied to communication between vehicles is more compared to other wireless communications such as radio frequency (RF), infrared and fiber-optic. VLC is free from regulation, has a coverage of greater bandwidth, resistant to electromagnetic interference, delivery of information is safer, and safer for health.

This study used 4 scenarios. The first scenario is on the night sunny days, second scenario at night but added interference vehicles around. Scenarios 3 and 4 repeat simulations in scenario 1 and 2, but adds channel noise to each scenario. On the receiver side bit error rate(BER) and Signal to Noise Ratio (SNR) measured on each scenario.

Based on the results of the study showed that vehicle interference and the fog can affect VLC system performance. At the same distance of 10 m with the scenario different, Scenario 1 returns an SNR value of 23.6524 dB, Scenario 2 returns value of SNR 11.1435 dB, Scenario 3 has a value of 16.1475 and Scenario 4 is of value -7,78326. As for the BER value to determine the optimal distance of communication produces an optimal distance of 14.5 m for consecutive scenarios 1, 13m for scenarios 2, 11.5m scenarios 3 and 11m for scenario 4.

Kata Kunci : *Bit Error Rate* ,*VLC*, *V2V Communication*,*OOK-NRZ*, *SNR*, *SINR*