

ABSTRACT

Along with the times, communication technology is also experiencing rapid development. The communication system that continues to be developed is wireless communication. Visible Light Communication (VLC) is a wireless communication system that conveys information about the visible spectrum. However, it is unavoidable in every communication process there is always interference that affects system performance. There are two types of interference in the VLC system, which is natural interference from the sun and ambient light interference from fluorescent or incandescent lamps.

In this final project, a simulation is made about the effect of fluorescent lamp interference on the performance of the VLC system. This simulation is carried out in a closed room assuming a Line Of Sight (LOS) channel. There are two scenarios carried out in this Final Project. The first scenario is the delivery of information using the VLC system without interference, while the second scenario is the delivery of information with interference from fluorescent lights. The modulation technique used in this simulation is Multiple Pulse Position Modulation (MPPM).

The final results of the simulations show that the VLC system in scenario I has a better performance compared to the VLC system in scenario II. This is evidenced by the results of the distribution maximum SNR in scenario I amounted to 41.46 dB SNR distribution and maximum results in scenario II amounted to 41.1 dB. While the BER value obtained in scenario I with 2-PPM modulation obtained a value of 0.416, in 4-PPM modulation obtained a value of 0.335, and with 8-PPM modulation obtained a value of 0.231. In scenario II the BER value obtained with 2-PPM modulation is 0.466, in 4-PPM modulation is 0.432 and with 8-PPM modulation is 0.384. It also shows that 8-PPM modulation is the best modulation to transmit data compared to 2-PPM and 4-PPM modulation.

Key Words : VLC, MPPM, BER, SNR, LED, fluorescent lamp.