

ABSTRACT

Many advantages possessed by the technology of Visible Light Communication (VLC), one of the shortcomings of *Visible Light Communication* (VLC) is that performance is still unstable if the transmission process passes through a *Non-Line of Sight channel* (NLOS) by using *On-Off Keying* (OOK) modulation. This can be overcome by using *Pulse Position Modulation* (PPM) modulation with level 2-PPM, 4-PPM, and 8-PPM on the sending side, so as to improve performance on the VLC system. This study uses 7 Watts of power at room specifications of $5 \text{ times } 5 \text{ times } 4 \text{ m}^3$.

Final Project examines the performance of *Visible Light Communication* (VLC) in visible light communication using *Multi-Level Pulse Position Modulation* (M-PPM) modulation with 2-PPM, 4-PPM, and 8- specifications PPM Test. This final project groups receivers into 2 channels, LOS and NLOS. To get the results of the test parameters, simulations are performed on simulation software with simulation specifications that focus on room dimensions, channel specifications, and modulation.

The results of the analysis prove that the M-PPM modulation can improve performance VLC system by increasing the value of *Bit Error Rate* (BER) coverage in each receiver. The scope of BER has increased from 64% with 2-PPM, 75% with 4-PPM, and 92% with 8-PPM. The change in PPM level value affects the extent of BER coverage in VLC, the greater the PPM level, the greater the resulting BER coverage

Keywords : *Visible Light Communication, LOS, NLOS, Pulse Position Modulation, Bit Error Rate.*