

## ABSTRACT

Along with the development of telecommunications technology in Indonesia, technology is needed to access information quickly and efficiently, Visible Light Communication (VLC) is a technology that is able to meet those needs. VLC technology uses visible light to transmit data and currently VLC continues to experience growth. Dimming control in VLC is needed and needs to be developed. However, dimming control can have an adverse effects on the VLC system.

This Final Project, analyzes the VLC simulation with dimming of Light Emitting Diode (LED) in indoor with addition of a reflector. Room size is 5x5x4 meters with LED lamp on the Line of Sight (LOS) channel. System performance will be analyzed with a minimum Bit Error Rate (BER) value of  $10^{-3}$  using the Multi Pulse Position Modulation (MPPM) modulation technique.

The results of this research shows that using the smaller dimming level make performance of the VLC system is getting better. The additional of a reflector can affect the propagation distance. In scenario I the farthest distance using 4-PPM modulation with minimum BER  $10^{-3}$  is 4.6 meter, while in scenario II the farthest distance using 4-PPM modulation with BER  $10^{-3}$  when dimming 0% is 5.8 meter, dimming 20% is 5.7 meter, and dimming 40% is 5.63 meter.

**Keywords:** VLC, *Dimming*, MPPM, LED, LOS, BER, *Reflector*.