**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<sup>-3</sup> is 4.6 meter, while in scenario II the farthest

distance using 4-PPM modulation with BER 10<sup>-3</sup> 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.

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