

ABSTRACT

In the current era of telecommunications technology development in Indonesia is increasing, the need for technology to be able to access information quickly and efficiently. Visible Light Communication (VLC) is a communication technology that utilizes visible light. The technology used in VLC comes from lighting Light Emitting Diode (LED) used as a light source on indoor positioning systems. Until now there has been no established standard for the use of VLC itself.

This final project analyzes the impact of indoor multipath reflection on visible light communication (VLC) systems. The proposed light communication system is an LED lamp as a transmitter and a photodiode (PD) as a receiver. This research uses On-Off-Keying (OOK) modulated LED. Using a photodiode type P-I-N. The scenario used in this research simulation uses 4 LED light transmitters, as well as a photodetector that will be placed in the middle of the room. The coverage of visible light communication with a room of 6 m x 6 m x 3.5 m using OOK modulation by investigating the received power from different LED emitters in each reflection sequence for three locations.

The results of this final project simulation show that the propagation distance generated by using 4 LED light transmitters with a power of 30 mW each using an amplifier from reflection interference with a base plane height of 2.15 m from the receiver, then the output power received is getting better with receptivity is -30 dBm at the receiver. Also, the ratio of the signal obtained is of very good quality for the signal channel because the resulting SNR gets 120 dB from the transmitter to the receiver.

Keywords: Optical Wireless Communication, Visible Light Communication, Light Emitting Diode, reflection multipath