ABSTRACT

This final task conducts a study of visible Light Communication (VLC) using the communication of visible and aerial light as the media of the vine. VLC offers a wide range of advantages, one of them from data transfer speeds, and excellent security because it uses light as its media of interest. VLC also does not cause radiation that interferes with human health.

This final task performs the VLC analysis to look for the distance coverage of visible light communication. The modulation techniques used are On-Off Keying Null Return to Zero (OOK-NRZ), On-Off Keying Return to Zero (OOK-RZ) and Quardature Aplitude Modulation (4-QAM), with the addition of a mirror in a closed room measuring 5 m $\times$ 5 m $\times$ 4 m. In the VLC system it is influential in the modulation scheme to determine the communication coverage of visible light by using the LED power of 2 watts with a height of 4 meters right in the middle of the room.

Modulation OOK-NRZ gets the distance between the reflector with the receiver as far as 4.77424 meters, OOK-RZ as far as 3.81927 meters and 4-QAM as far as 5.00069 meters with a limit of Error Rate (BER) of 10^{-3}. The area of coverage resulting from light communication was seen by using OOK-NRZ modulation of 18.84 m^2, OOK-RZ getting the area coverage of 16 m^2 and 4-QAM getting at 23 m^2.

Keywords: *Visible Light Communication*, *OOK-NRZ*, *OOK-RZ*, *4-QAM*