ABSTRACT

Optical wireless communication that using visible light is a Visible Light Communication (VLC) system which is in high demand for development. VLC is an emerging technology in wireless communications that use visible light or the light from the lamp Light Emitting Diode (LED) as a medium for communication in inside room.

In this final project the writer analyze comparison the ratio of the number of LEDs with any amount of light using different coordinate (X, Y, Z). In 1 LED using the coordinate point (0, 0, 0) while in 2 LEDs are in the coordinates (-1,25 1,25 0) (1,25 -1,25 0) for 4 LED lamps are in the coordinates (1,25 1,25 0) in a closed room measuring $5m \times 5m \times 3m$ using the OOK-NRZ modulation. The effect of the number of LED lights on the wide communication coverage with a minimum reference of BER 10^{-3}.

This Final Project gets the result that is how much the widest scope or the farthest distance obtained for each number of LED lights based on the value of the BER used is 10^{-3}. On 1 LED, the coverage area covers 23,56 m^2, on 2 LEDs 24,76 m^2, while on 4 LEDs an area of 24,2 m^2.

Keywords : *Visible Light Communication, Light Emitting Diode, Coverage Area, Bit Error Rate, OOK-NRZ.*