ABSTRACT

Optical Communication System is a communication system that is currently developing rapidly and becomes a matter that is being researched to make technology in the future, one of which is rapidly developing is called the technology of Visible Light Communication (VLC), where technology is in great demand to support the needs the development of an information and communication technology. VLC technology was chosen to reduce the dense problem of using radio spectrum as used in WiFi technology and cellular radio systems. This communication technology utilizes light sources namely Light Emitting Diode (LED) as a transmitter, light as a transmission medium, and photodetector as a receiver.

The author simulates and analyzes the visible light communication (VLC) system using On-Off-Keying Non Return to Zero (OOK-NRZ) modulation. Next, the writer made a comparison with Light Emitting Diode (LED), then used a multi-Bit Rate at the receiving angle orientation of 0˚, 15˚and 45˚ in a closed room measuring 5m × 5m × 3m.

In this Final Project, it can find out the effect of receiver angle orientation using Multi Bit Rate 1 Gbps, 2 Gbps and 3 Gbps on communication coverage, the largest communication coverage obtained with wide coverage of 15.4 m^2 for orientation angle 0˚ and the narrowest coverage of 2.76 m^2 for orientation angle 45˚.

Keywords : VLC, LED, OOK-NRZ, Angular Orientation