

ABSTRACT

LED lights are known as media lighting devices. Aside from being a media for LED lighting it turns out that it can also be used as a medium for data transmission. This technology is an alternative that can serve the increasing needs of data, where when the allocation of radio frequency spectrum that has been very dense is used. transmitter on Visible Light Communication (VLC) technology. This research is based on the importance of using the appropriate number of transmitters. This Final Project Discussion is a comparison of receive data from the number of transmitters to BER and refers to the resulting coverage area.

The number of transmitters used is 2 lights, 3 lights, and 4 lights and uses DC-Biased Optical OFDM (DCO-OFDM) modulation. The modulation technique was chosen because it has greater power efficiency than OOK modulation. Related to the number of transmitters that will be used, this Final Project will discuss the coverage area, and the Bit Error Rate (BER) of each number of transmitters analyzed.

The number of transmitters being the best proposals for use in VLC technology in a closed room using DCO-OFDM modulation is a number of 4 transmitters. By using a standard BER value of 10^{-3} , The BER value at the optimum propagation distance when using 4 transmitters is 0. The BER value means that the coverage area is getting wider, that is 25 m^2 . As for the minimum propagation distance, the BER value is 0.00015119. Comparison between the number of transmitters is presented in this Final Project. The results in this Final Project are expected to be a reference in the development of VLC technology for the future.

Keyword: *VLC, DCO-OFDM, Multi-Transmitter, 2 Lamps, 3 Lamps, 4 Lamps, Bit Error Rate, Coverage Area.*