

ABSTRACT

This thesis evaluates the effect of sunlight interference on Visible Light Communication (VLC) technology applying Pulse Width Modulation (PWM) modulation. This thesis considers the distance between transmitter to the receiver and using a single Light Emitting Diode (LED) with 10 watts of power. Size of the room model simulated in this thesis is 5 m x 5 m x 3 m.

This thesis also conducts a performance evaluation of VLC exposing interference from sunlight in terms of Bit Error Rate (BER) with and without sunlight interference. The parameter is Signal to Noise Power Ratio (SNR) and Signal to Interference plus Noise Ratio (SINR) calculated with computer for BER performance evaluation.

The result of this thesis shows that sunlight interference weakens the performance of VLC system from BER performance. Using the room used in this research, the sunlight causes the decreasing of SNR as much 1.28 % from 33.629 dB to 37.931 dB. The decrease of performance is insignificant because the BER decreases from 3×10^{-13} to 7.39×10^{-11} , which is for below 10^{-5} meaning that the sunlight interference in VLC communication is in general can be ignored.

Keyword : VLC, PWM, Interference, SNR, SINR, BER.