

ABSTRACT

Visible Light Communication (VLC) is one type of communication that using 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. But in the process, VLC can experience interference by ambient light, one of which is sunlight.

In this final project a simulation of VLC design will be made, the modulation techniques used are On-Off Keying Non Return to Zero (OOK-NRZ) in a room measuring 5m x 5m x 3m. Using 4 Light Emitting Diode (LED) power of 4W, 6W, 8W and two scenarios used in this study, the first scenario is the VLC system in the room without any interference from sunlight while for the second scenario assumes that there is experience sunlight interference. The system performance is evaluated using BER and SNR parameters.

The final results show that the VLC system in scenario I is better than the scenario II. This is evidenced for scenario II, transmitted power 4W with the interference 40%, 60%, 80% causes the decreasing of SNR as much 4,86%, 11,96%, 22,01% for 6W causes the decreasing of SNR as much 4,90%, 11,25%, 20,27% for 8W causes the decreasing of SNR as much 4,54%, 10,47%, 18,89%. For comparison BER value with transmitted power 4W, 6W, 8W between scenario with sunlight interference as much 40% which is 7,67%, 7,64%, 7,66%. For 60% is 5,38%, 5,39%, 2,32% and for 80% is 3,22%, 3,27%, 3,31%. This proves that the interference increases the BER value because the greater the sunlight interference higher BER value.

Keywords: VLC, OOK NRZ, OOK RZ, Interference, SNR, BER.