

ABSTRACT

As the use of technology is increasing rapidly, innovation is also developing in the world of technology. *Visible Light Communication* (VLC) is a communication system that utilizes visible light as its transmission medium. VLC has the disadvantage of bandwidth modulation which is divided when using a large number of users. In transmitting data VLC can also experience interference from an object that blocks light from reaching directly to the user.

In this Final Project analyze *Non-Orthogonal Multiple Access* (NOMA) in overcoming the shortcomings of VLC. NOMA can balance bandwidth modulation using the *Static Power Allocation* SPA technique. The modulation used is *Pulse Position Modulation* (PPM). The simulation uses a large number of users that will increase and move randomly. The channels used are *Line of Sight* (LOS) and *Non-Line of Sight* (NLOS). System performance is evaluated using the parameters *Signal to Interference plus Noise Ratio* (SINR), Capacity, and *Bit Error Rate* (BER).

Based on this study it can be concluded the SINR results with LOS channel conditions are better than NLOS channel conditions. The scenario has two users has the highest SINR compared to other scenarios, with a value of 33.450dB for the LOS channel and 25.491dB for the NLOS channel. Meanwhile, BER means that the higher the level of PPM modulation used, the better the BER results.

Key Word : *Visible Light Communication, Non-Orthogonal Multiple Access, Pulse Position Modulation, Bit Error Rate, Signal to Interference plus Noise Ratio*