ABSTRACT

Visible light is currently used as a medium for delivering information. Technology in communication systems that use visible light is commonly known as visible light communication (VLC). One example of its development is tsunami detection using VLC. The development of VLC technology is currently believed to increase the weaknesses contained in the previous technology was radio frequency (RF) waves. VLC is considered more effective than the two technologies. VLC has a bandwidth of$>$ 400 THz while RF has a bandwidth of $<$300 THz.

In this Final Project a performance analysis is performed related to visible light communication (VLC) system using LASER which has a wavelength of 550 nm as a source of visible light, which is placed on the ocean floor. Performance parameters used are bit error rate and signal to noise ratio. The modulation used in this Final Project is a Pulse Position Modulation (L-PPM) with 3 level values namely 2-PPM, 4-PPM, and 8-PPM.

The analysis results obtained using the L-PPM modulation technique whose level of changeable L value is at a depth of 10 meters, 8 meters, and 6 meters in accordance with sea water subsidence during a tsunami potential. BER values at 4-PPM and 8-PPM reach the reference used is 10^{-3}, at a depth of 10 meters the BER value is 5.844×10^{-3}, while at 8 meters the BER =$6.517.62\times10^{-3}$, and at 6 meters the resulting BER value =5.5844×10^{-3}. The level value at L-PPM greatly influences depth, the greater the level value at L-PPM, the more optimum the value of BER at each depth.

Keywords: Visible Light Communication, LASER, L-PPM, Bit Error Rate