ABSTRACK

Communication technology is a very fast growth technology, including also with wireless technology. On this occasion, the technology of Free Space Optical (FSO) is being continuously developed mainly to meet the needs of the community and especially students, FSO technology is chosen because it has better efficiency than previous wireless technology And the cost of the required counting is more affordable.

At this final project the author conducts simulations and analysis of Pulse Position Modulation (PPM) modulation performance in FSO with the channel Kim and Kruse models. In the test will be used two wavelengths is 850 nm and 1550 nm with a variation of M value on the PPM modulation.

The results were then compared to the results of modulation On-Off Keying Return to Zero (OOK-RZ) and On-Off Keying Non Return to Zero (OOK-NRZ) using similar channel parameters namely Kim and Kruse model. The value of using the PPM modulation is better with the 3.15×10^{-173} on the Kim and 2.50×10^{-129} on the Kruse channel at wavelength of 1550 nm. As opposed to using OOK-RZ modulation with an BER 3.17×10^{-22} channel on the Kim and 5.37×10^{-17} channel on the Kruse channel also OOK-NRZ The value BER 8.10×10^{-12} on the Kim Channel and 3.17×10^{-9} on the Kruse channel at a wavelength of 1550 nm is better than the wavelength of 850 nm on 2 kilometre visibility. The main objective of this final task is to solve the problem of communication especially FSO.

Key Words: *Free Space Optical* **(FSO),** *Pulse Position Modulation* **(PPM),** *Kim* **model,** *Kruse* **model,** *Bit Error Rate* **(BER),** *On Off Keying* **(OOK)**