ABSTRACT

Optic communication system is a communication system currently developed quite rapidly and become something that researched for future technology. One the example of optic communication system is Free Space Optics (FSO), FSO is a communication system that used the atmosphere as a transmission media. Therefore, there are several factors that can reduce or interfere with the signal such as the number of molecules in the air, the distance from transmitter to reciever and the conditions in the atmosphere.

This final project calculates and analyzes the performance of the FSO system using 16-Phase Shift Keying (PSK) modulation on the Kim and Kruse model channels. Tested against changes in visibility, wavelength, transmit power and distance from transmitter to receiver. The final result is the bit error rate (BER) value in each scenario.

The results show that the higher the value of the wavelength and transmittance used to test the distance obtained farther and produce BER values with good quality. At a long wave of 1550 nm with a transmitting power of 1 Watt, when the atmospheric conditions of thick fog on the Kim channel can reach a distance of 0.8 km and have a BER value of 7.03E-14 and on the Kruse channel 4.46E-14. Meanwhile, in the atmospheric conditions the light fog on the Kim canal can reach a distance of 1.6 km and has a BER value of 2.28E-09 on the Kruse channel reaching a distance of 1.5 km with a BER value of 4.49E-09 and when the atmospheric conditions of haze on the Kim canal can reach a distance of 2.28 km with a BER value of 4.49E-09 and the Kruse canal can reach a distance of 2.7 km with a BER value of 4.45E-08

Keywords: FSO, 16-PSK, Kim and Kruse, BER, Visibility