ABSTRACT

The workings of Free Space Optic Communication (FSOC) is a system that utilizes the frequency of light as a transmission medium. The wavelength range used is the infrared region, so it can adjust to the optical devices used for fiber networks. This technology has several advantages including very wide bandwidth, so it can satisfy of high data rate requirements and does not require frequency usage permits. The communication is success between the transmitter to the receiver. In this research, two sites free space communication tool was designed by sending data to the transmitter that will be forwarded so it can be sent to the receiver side.

In addition, the calculation of the Bit Error Rate (BER) is to know the amount of damage data during shipping. This tool make it efficient a room in order that there are not too many messy cables by using 650nm lasers that contain infrared so as of produce visible light for near distances. Bit error rate calculation is based on the number of bit errors received divided by the bits received entirely. The result of bit error rate is based on each data transmission in the form of text.

Testing without noise at distances of 2, 4, 6, 8, 10, 15, 20, 25, 50, 75 meters produces the same BER value of 0.0. But at a distance of 100 meters there was damage in the third experiment with BER value is 0.059524. While testing with given noise in the form of water vapor / smoke with a distance of 2, 4, 6, 8, 10, and 15 meters has the same BER value is 0.0. But at a distance of 20 meters, no data was received.

Kata kunci : FSOC, BER, Laser