ABSTRACT

In this final project, it will discuss the combination of two types of modulation, namely carrierless amplitude phase (CAP) and minimum shift keying (MSK) to the bit error rate (BER) in optical communication systems. The research will focus on the combination of CAP and MSK modulation on the sender and demodulation on the receiver side. This final project will be analyzed by calculating the bit error rate and several parameters to determine the performance of the combination of these two modulations.

The method used starts from the background which focuses on BER performance on optical communication which is sometimes not good, where the BER level is still high which indicates that some information is damaged, causing information that sometimes does not match the original information sent on the transmitter side. This final project will be designed with simulation using Simulink software.

The system specifications that will be used in this simulation are on the transmitter side using 10 Watts of power, AWGN transmission channel, Eb/N0 variation of 1-20 dB, number of data transmissions 10^6, gain 3/18.3, number of bits per symbol 4 and transmission time 61000000 s.

In this final project, the results obtained are a decrease in the bit error rate where the lowest Eb/N0 variation is 1 dB, the bit error rate value is 0.3895 and at the highest eB/N0 is 20 dB the bit error rate value is 0.

Keywords: Modulation, CAP, MSK, BER, AWGN, Simulink.