

ABSTRACT

OFDM (Orthogonal Frequency Division Multiplexing) is a modulation technique with the working principle of OFDM itself is the data stream sent divided into several data which then simultaneously on some subcarrier. Coherent communication systems are systems that work by connecting signals coming with local oscillators. The incorporation of a form called Coherent Optical Orthogonal Frequency Division Multiplexing (CO-OFDM) has many benefits and advantages.

CO-OFDM has the advantage of coherent and OFDM systems that multiply from ideal fit sensitivity, resistant to various dispersions such as chromatic dispersion and polarization, more flexibility in spectral running, etc.

In this final project will be done simulation system by doing variation on transmitter bitrate, variation of number on subcarrier, and also influence of variation of modulator type so that happened a system with maximum capacity after that simulation.

The results obtained by CO-OFDM system work maximally at 17Gbit / s bitrate with 512 subcarrier number on 16-QAM modulation with value $Q = 7.05$ & $BER = 1.13 \times 10^{-12}$ while in 4-QAM modulation at 14 bit / s bitrate with Subcarrier 512 with value $Q = 30.9805$ & $BER = 0$

Keywords: Bit error rate, CO-OFDM, modulator type, number of subcarrier.