ABSTRACT

High bit rate and wide bandwidth are a part that have to reach to get satisfying in Telecommunication service. So to handle that problem has developed new technology of multiplexing such as Dense Wave length Division Multiplexing which specialty in how to use space of channel which stay to use fiber optic. And use error correction technique such as Low Density Parity Check (LDPC) codes which expected to help to increase the quality which given by Telecommunication provider.

In this mini thesis do analysis which concerning use space of channel which use in DWDM technology and LDPC codes performances to increase performance of communication of fiber optic. Parameter which used such as Distributed Feedback (DFB) laser as source of light and external modulator such as Mach-Zehnder and with add error correction method such as LDPC codes as a detector and a error corrector and use DWDM device which use for to multiplex the data which in from different channel. Analysis which done with change space of channel and ability of error detection with change the code rate which simulated with MATLAB R2009a software and compare the output with system which has no Low Density Parity Check Codes.

The result showed that with use narrow space of channel will give effect the lower BER that we get, this problem caused by the disperse parameter which related with space of channel. Use LDPC codes very help because it can give coding gain to the communication system. Higher code rate which used, it will give the higher coding gain too to get the target is BER 10^{-6}.

Key words : Bit rate, bandwidth, DWDM, error correction, LDPC, fiber optic, BER