ABSTRACT

DWDM (Dense Wavelength Division Multiplexing) is a technology that can transmit a lot of information in a single channel fiber optic lines. DWDM performance can be seen from the Bit Error Rate (BER) is received at the receiver side, if the value of the received BER below the standard established to ensure that network quality is not good enough. The decline in the value of BER in DWDM networks can be caused by many things such as dispersion and polarization in optical fibers, Four Wave Mixing caused by the nonlinearity of the optical and the techniques in optical fiber that allows the falling value of the BER in the network. One way to minimize the value of BER error correction algorithm is used as decoder at receiver. One method of error correction used is Forward Error Correction (FEC).

Simulation is done by collecting data and information on disorders and conditions in the field about genuine regional DWDM Metro West Java. After the elements are simulated in software Matlab2009a disorders using BCH forward error correction codes using state of the network is designed as closely as possible to the DWDM network in the field. This research purpose is to see if the performance of BCH codes are used as error correction on DWDM. It is intended to improve the efficiency and performance of the network by looking BER obtained when using BCH error correction codes.

From the simulation results showed that BCH codes can reduce bit of damage due to noise generated trending. BCH codes can work in SNR is relatively small, but can generate on target BER 10^{-6} is different from the simulated network without BCH codes can achieve 10^{-6} BER at SNR greater.

Keywords : *Dense Wavelength Division Multiplexing, Bit Error Rate, Forward Error Correction, BCH codes.*