

ABSTRACT

Dense Wavelength Division Multiplexing (DWDM) is a WDM technology in which communication channels use different wavelengths. To maximize the performance of optical transmission over long distances required the presence of an optical amplifier (optical Amplifier) so that the message can be received properly on the receiving side. The optical amplifying device can confirm the optical signal and receive it directly without converting the optical signal into an electrical signal or vice versa, so that the signal does not suffer from loss of quality due to electrical-optical conversion. DWDM network topology that uses amplifiers placed on each HUB that serves as an optical amplifier Pre and Booster. The optical amplifier consists of an OBA module (optical Booster Amplifier) as an optical signal amplifier with a max Gain capacity of 22 dBm and an OPA module (Optical Pre Amplifier) with a maximum Gain capacity of 22 dBm to send the signal to the next HUB. The main purpose of this study was to examine the results of the quality of Power Received -6 dBm to - 9 dBm , Q Factor ≥ 6 , BER $\leq 10^{-9}$, OSNR 13.5 dB with Pin Photodetector as an optical signal receiver and will convert into electrical signals. The method used is to compare the placement of Optical amplifiers as Pre Amplifier and Booster Amplifier with a distance of 66 km, 96 km, 106 km, 160 km, 172 km in accordance with the position of the HUB of each city with a working system on the C Band & L band. Band.

Keywords : DWDM, Optic Fiber, Pre Amplifier, Booster Amplifier.