

ABSTRACT

PON (Passive Optical Network) is one of the new technologies that become solutions for the needs of people who want fast and efficient technology. PON developed into Gigabit Passive Optical Network (GPON) which can send data with speed with downstream bit rate of 2.5 Gbps and upstream of 1.25 Gbps. One of fiber optic network service provider is PT. Telkom.

In this Final Project has been done the design of Fiber To The Building (FTTB) network that is applied to the building at Mall Cihampelas Walk. By testing remotely parameters system at the nearest ODC-B point, and farthest. By using OLT from STO Hegarmanah and using splitter 1: 4 and 1: 8. The discussion will be done is network design and system feasibility analysis analysis by empirical and simulation calculation, Power Budget Link (LPB), Rise Time Budget (RTB), Q-Factor and BER. From this design will get results from STO to Cihampelas Walk.

Based on the results obtained from the simulation, the best LPB results at a distance of 2.18 km at the nearest ODC-B point of -17.31 dBm for the downstream direction, -19.75 dBm for the upstream direction; RTB empirical calculations of 0.25 in the downstream direction and 0.25 for the upstream direction. Q-Factor of 13.89 for downstream and 8.19 for upstream direction. BER downstream gets $3,4 \times 10^{-44}$ while upstream produces $8,1 \times 10^{-15}$.

Keywords: Optical Fiber, GPON, FTTB, LPB, RTB

