

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 optical fiber network service provider is PT. Telkom.

In this Final Project has been done the design of Fiber To The Home (FTTH) network applied to the building in Permata Green Sentosa Housing. This housing is inhabited by customers who need fast internet access to meet the needs of access services on every home. The research conducted was testing system parameters from three distances at the nearest, intermediate and farthest ODP points. By using OLT from STO Sukmajaya and using 1: 4 and 1: 8 splitters. The discussion is the design of FTTH network and system feasibility analysis by performing empirical and simulation calculations, parameter calculation in the form of Link Power Budget (LPB), Rise Time Budget (RTB), BER. From this design will get results from STO to Permata Green Sentosa Housing.

Based on the results obtained from the simulation, then obtained the best LPB at a distance of 1.56 km located at the nearest ODP point of -16.54 dBm for the downstream direction, -18.99 dBm for the upstream direction; RTB is obtained from the empirical calculation of 0.25 in the downstream direction and 0.25 for the upstream direction. BER with the downstream direction gets $2,52 \times 10^{-45}$ while in the upstream direction $2,05 \times 10^{-16}$ is obtained.