ABSTRACT

Housing located in areas Sukaharja, Telukjambe East, Karawang district is an area of the upper middle residence, but Internet access network that is not available, it is considered highly inadequate housing rated medium keatas.Pihak housing and PT Telkom Indonesia are working together to connect to the internet in the housing.

At the end of this project, researchers will design the access network Fiber To The Home (FTTH) in *Technology Gigabit Passive Optical Network* (GPON). The location was used as a case study is the final Courtyard.Project Cluster Housing starts with the collection of data. Designing Fiber To The Home (FTTH), namely the determination of the device is a device specifications, layout and number of devices used and simulated using optysistem, BER (Bit Error Rate), Power Link Budget(PLB) and Rise Time Budget (RTB) that meets the standards of optical network with PT. Telkom.

From the design results showed that the design for residential use Cluster Courtyard 1 ODC, 30 pieces ODP, and 221 pieces of ONT using a splitter 1: 4 and splitter 1: 8.Jaringan GPON designed to have a transmission speed of 1.2 Gbps upstream and 2, 4 Gbps to downstream.Anilisis downlink network performance at 1310 nm long power value amounted to -22.038 dB link budget shows, Rise time budget and it amounted to 0.07696 ns at a wavelength of 1490 nm the value of the power link budget of - 7.334 and rise time budget of 0.0341 ns.

Keywords: FTTH, GPON and TRIPLE PLAY