

ABSTRACT

Buah Batu Regensi located in South Bandung is the concept of a complete and modern housing. PT. Telkom has a discourse that in 2013 around Bandung have been using optical fiber as transmission media, not to mention the Buah Batu Regensi. Technology that can be applied to carry out such discourse is FTTH (Fiber To The Home) using GPON technology (Gigabit Passive Optical Network) which can support triple play service.

In the final project design has been carried out FTTH network with GPON technology by looking at parameters such as the Power Link Budget, Rise Time Budget, and attenuation. The value of the FTTH network parameters will be compared with the standard value that is owned by PT. Telkom Indonesia as a company that will build a FTTH network in Buah Batu Regensi. This final project design has been made forecasting demand for the next few years.

The results show that for the design of Buah Batu Regensi using 2 pieces of ODC and 87 pieces of ODP by the ONT 653 number of customers. Link Power Budget of test results of the total attenuation resulting in the uplink of 24.2494 dB, and the resulting total attenuation on the downlink at 23.6268 dB, the attenuation is still below the standard GPON according to ITU-T G.984 standard of 28 dB or Telkom issued by 26 dB. The test results Rise Time Budget is for the downlink with a bitrate of 2.4 Gbps, customers farthest generate total time = 0.2504 ns. This total time is below than the value of time system = 0.2917 ns. For the uplink with the bitrate by 1.2 Gbps, customers farthest generate total time = 0.2504 ns. This total time is below than the value of time system = 0.5833 ns. Forecasting the needs of the future demand in this case for packet 384Kbps use quadratic model with bandwidth needed is 15881.1264 Kbps. For packet 512Kbps use linear model with bandwidth needed is 31908.5568 Kbps. For packet 1Mbps use linear model with bandwidth needed 46.1429 Mbps. For packet 2Mbps use linear model with bandwidth needed 55.6 Mbps. So the total bandwidth requirement in the Buah Batu Regensi in 2021 is 149.5309 Mbps.

Keyword : Buah Batu Regensi, FTTH, GPON, *Power Link Budget*, *Rise Time Budget*, *demand*