

ABSTRACT

Pondok Indah Plaza 1 that located in South Jakarta is a concept house-shop in the middle of modern and self-contained city which is a pilot project as a result of the implementation of triple play services in Indonesia. The initiative which began in late 2008 by the Access Division of Telkom agreed to the use of FTTH (Fiber To The Home) technology using GPON (Gigabit Passive Optical Network) that can support triple play service. Pondok Indah Plaza 1 South Jakarta implements FTTH (Fiber To The Home) in which the optical fiber will reach the homes of customers.

This final project will be evaluating the results of FTTH network design by looking at the parameters such as the Link Power Budget and Rise Time Budget and *demand* need forecast for 10 years forward.

Link Power Budget test result shows the total damping that was produced on the uplink is 21.26 dB, and the total damping that was produced on the downlink is 21.53 dB, both attenuations are still under the appropriate standard GPON ITU-T G.984 standard of 28 dB or the standard issued by Telkom of 26 dB. Rise Time Budget test result is for the downlink with bitrate of 2.4 Gbps, farthest customers produce $T_{total} = 0250$ ns. T_{total} is still below the value of T_{sistem} as much as 0.2917 ns. For the uplink direction with a bitrate of 1.2 Gbps, farthest customers produce $T_{total} = 0250$ ns. T_{total} is below the value of T_{sistem} as much as 0.5833 ns. The demand forecast of bandwidth use Quadratic model for Socialia package, Load, Familia, Executive, and Biz sequencely are 0 Mbps, 26.5874 Mbps, 61.4286 Mbps, 62.7142 Mbps, 93.4287 Mbps. So the total bandwidth used up in 2021 is 244.1589 Mbps.

Keywords: GPON, Pondok Indah Plaza 1 South Jakarta, Link Power Budget, Rise Time Budget