

## ABSTRACT

The capacity of the cable homes in the residential area batununggal currently only 960 of the connection. While forecasting the results of internet subscribers in 2012 will reach 986 subscribers. Planned in 2012 so this will PT.TELKOM batununggal residential access network design to access fiber to the home by using GPON technology (*Gigabit-capable Passive Optical Network*).

This design will begin with a forecast number of customers who will use GPON technology in residential areas Batununggal. Then from the results of forecasting of the FTTH network will be designed to the customer central to determining the use, placement, spacing, and specifications of the device. After that will be analyzed the results of the FTTH network architecture based on LPB, RTB, packet loss and delay.

After doing a design show that the design for the Housing Batununggal use 6 pieces of ODC, 408 and 2484 pieces of fruit ODP ONT with 104 pieces and 408 pieces of splitter 1:4 1:8 splitter. While the feasibility of systems based on the calculation of link power budget available on the total attenuation of 24.9 dB farthest distance to 25.37 dB for downlink and uplink. It is still within the tolerance specified by ITU-T G.984 28dB.

Keyword : FTTH, GPON, *Power Link Budget, Rise Time Budget, Packet loss, delay*