

## **ABSTRACT**

Public attention has shifted towards the development of fiber optic technology to provide fixed broadband services based on the triple play concept (voice services, Internet access, and IPTV). The increase in demand was not consistent with the network infrastructure provided by the service provider. Providers can only provide the best service if their ONT equipment is of a certain type, manufactured by a specific company, and easy to use by their customers. This study aims to solve this problem by analyzing the attenuation LPB and RTB parameters obtained from the design of a fiber-to-the-home (FTTH) network using Gigabit Passive Optical Network (GPON) technology. The parameter values are then compared with the standard of the Telkom company that will build the FTTH network at the research site. The results show that the Mangga Besar III area has an average sensitivity  $P_r$  for uplink (downlink), namely for uplink -17,295 dBm and for downlink -20,162 dBm then the resulting power margin is: for uplink 10,705 dBm and 7,838 dBm for downlink. Therefore, in this plan, the total rise time network development is 0.250098 ns for uplink and 0.251484 ns for downlink.

**Keyword: GPON, FTTH, Link power budget, Rise time budget**