

## ABSTRACT

*Fiber To The Building (FTTB) is a network architecture of fiber optic cables that distributing fiber optic cables to a building. The development of FTTB itself is inseparable from the progress of the development of fiber optic technology that can replace the use of conventional cables (copper) and also driven by the desire to improve services known as Triple Play Services, namely services that will access fast internet, voice (VoIP) and video in one infrastructure in the customer unit.*

*The aim of this study to do a comparison of the implementation of passive splitter technology both on one stage and two stages which is good to be applied to FTTB networks in Ujungberung Town Square. The parameters used in this comparison are the Power Link Budget (PLB), Rise Time Budget (RTB), and Bit Error Rate (BER).*

*Based on the results of calculations and simulations that have been done, in the first scenario using a 1:32 splitter, the PLB calculation of power detector sensitivity results are -26,6393 dB, and the simulation results in the system are -19,626 dB from the downstream direction. The PLB calculation of power detector sensitivity results are -12,6173 dB, the simulation results in the system of -5,105 dB from the upstream direction. RTB value is less than 0.562 ns for NRZ coding and less than 0.281 ns for RZ coding. BER with a downstream direction gets a value of  $3,56002 \times 10^{-76}$  while in the upstream direction value of 0 is obtained.*

**Key Words:** FTTB, Multi Ratio Passive Splitter, GPON.