

ABSTRACT

In this research, an analysis and optimization of the FTTH network will be carried out in Ciganitri Indah Residence housing in Bandung Regency based on data from customer complaints and also includes calculation of network feasibility parameters, namely Power Link Budget, Rise Time Budget, and Bit Error Rate (BER) with the help of Optisystem software. The FTTH network in Ciganitri housing in Bandung Regency has a centralized GPON device installed at STO Telkom Cijaura and has 1 ODC device with 1:32 passive splitter and 123 ONT.

The link test results prove that the network that has been implemented by FTTH has not met the network standards set by PT. Telkom. At a wavelength of 1550 nm (Downstream) it has a BER value of 0.000203179, a power link budget value with a manual calculation of -26,425 dBm, a calculation with Optisystem of -34,901 dBm and a rise time budget of 0.2681 ns. At a wavelength of 1310 nm (Upstream) it has a BER value of 0, a value of a power link budget with a manual calculation of -26,803 dBm, an Optisystem calculation of -29,247 dBm, and a rise time budget of 0,2505 ns. Based on data from several customer reports that complain about the poor performance of the access network, it is necessary to analyze and optimize at several distribution points, and also need to change the configuration on the FTTH network.

The link test results after optimization proved that the network that has been implemented by FTTH has met the network standards set by PT. Telkom. At a wavelength of 1550 nm (Downstream) it has an BER value of 8.13489×10^{-35} , a power link budget value with a manual calculation of -26,605 dBm, a calculation with Optisystem of -20,772 dBm and a rise time budget of 0.2681 ns. At a wavelength of 1310 nm (Upstream) it has a BER value of 0, a value of the power link budget with a manual calculation of -26,983 dBm, an Optisystem calculation of -3,431 dBm, and a rise time budget of 0,2505 ns.

Keywords: FTTH, Power Link Budget, Rise Time Budget, Bit Error Rate.