

ABSTRACT

In 2012, PT Telkom Indonesia implement the modernization program access by replacing copper network and implementing FTTH access network to Cipageran Indah Residence Cimahi. FTTH access network in Cipageran Indah Residence still new and there has been no specific analysis for the performance of optical networks that have been implemented in the residential.

This final project aims to determine the performance of FTTH network in STO Telkom Cimahi to Cipageran Indah Residence on the basis of calculation parameters network feasibility namely *Power Link Budget*, *Rise Time Budget*, and *Bit Error Rate* (BER) and based on the analysis of measurements on distribution links. FTTH network in Cipageran Indah Residence Cimahi has installed GPON devices with STO Telkom in the central and have 1 ODC, 28 ODP and 224 ONT devices by using passive splitter 1: 8.

The link test results proved that the network that has implemented this FTTH network meets the standards prescribed by PT.Telkom with the BER value is equal 7.7014×10^{-13} , In the 1550 nm wavelength the power value of link budget is -23.16 dBm and rise time budget amounted to 0.26 ns at a wavelength of 1310 nm the power value of link budget is -23.45 dBm and rise time budget amounted to 0.26 ns. Based on analysis of measurements and calculations in the distribution link contained high attenuation value in the distribution of the two due low attenuation at the connection point 2 is problematic and needs to be optimized on two distribution networks.

Keywords: *Fiber To The Home (FTTH), GPON, Link power budget, Rise time budget, BER, Distribution Links*