ABSTRACT

Optical fiber communication system is one of technology that able to fulfill necessity for data distribution with high speed and capacity. With the life of optical fiber network which is going older, the distance of transmission that is far, and capacity of transmission that is big, so it needed some evaluation toward performance of optical fiber transmission network.

In this last project the system transmission has been evaluated from optical fiber at Java island broad link. The parameters that had evaluated are flexibility system, availability system, contingency, Link power budget, loss, Rise time budget, and Bit Error Rate (BER). Evaluations have done by getting the data from PT. Telkom, and then it is compared between theory and actual result. The result in this final project in availability range is 99.56%, less than PT. Telkom's standard 99.85%. Maintainability range is 8.955 hours, it is fulfill PT. Telkom's standard maximal 18 hours per month. Reliability range is 99.473 % because all of the failure that happened is calculated. There are 8 sub link from broad ring Java Island which is not fulfill of margin standard 6 dB. Rise time range is 0.1472 ns, system fulfill the standard because the general standard rise time for STM-16 NRZ type is 0.2813. BER value is 10^{-11}, the system capacity was available more than standard BER 10^{-9}

Based on the data, generally the optical fiber transmission system at Java Island broad ring is good enough, although there are some parameters which is not fulfill on standards condition but it can still be tolerated. Furthermore, fiber optic communication system at Java Island broad ring is still in good condition.