

ABSTRACT

The optical fiber network at STT Telkom had installed since 1996. Since the acceptance test, it had never been remeasured yet. Measurement of each link was performed by using OTDR (Optical Time Domain Reflectometer) and optical powermeter. The optical network will be developed to all buildings at STT Telkom.

Optical powermeter is used to measure transmitted power of each link. The received power is calculated by using measured transmitting power. And optical link loss based on optical fiber and connector specification. OTDR was used to measure the optical link loss and length of link. Measurement by using OTDR result inaccurate since the length of link are not same with the real one. Therefore, measurement of Numerical Aperture (NA) is performed to obtain the real value of fiber refraction index. Then this fiber refraction index was used to analyze rise time system. Utilization analysis compares theoretical and measured utilization by MRTG software. Throughput analysis uses data from MRTG software.

The results of optical powermeter measurement show that some of the existing link transmitted power was being degraded. Measurement result by using OTDR are not accurate because of the assumed refraction index. The performance of existing network is reasonable to be defended and developed. The design results show that bit rate had reached only about 82.733 Mbps. The occurred utilization is about 5.9% of maximum utilization. But the network had good throughput, i.e. 100%.