

ABSTRACT

Backbone network in West Java ring using a fiber-optic transmission media supported by using the technology of Dense Wavelength Division Multiplexing (DWDM) is capable of transmitting information with a large capacity by channel. But the fiber-optic backbone network is often experienced disturbance caused by the device and cable caused a break up (for cut), as well as a high damping capacity used is still small, so the need for increased capacity of large wavelengths. Use of DWDM technology is expected to be the solution over the problem, but applied to DWDM technology to do this testing both in terms of the availability of the system as well as the capacity of the information at transmission. Therefore conducted an analysis with descriptive method i.e., conducted the survey and case studies in PT Telkom Indonesia for 3 months in the month of June 2016 – August 2016. With several performance parameters for reference that link power budget, availability, capacity DWDM and any trouble that occurs. By doing the calculations and observe the causes and solutions of trouble. From the results of the evaluation of the calculations have been done by calculating the link power budget margin system in which the best use of power is accepted according to the standard PT. Telkom Indonesia amounted to -30 dB, then the average value of 89.98% Availability caused by fo cut off that as many as 61 times with a total time of 33 045 minutes, the trouble in the form of broken wires caused by a eksternal trouble 17 times, the fo cut off due to vandalism 5 times, the fo cut off by the disaster 15 times, the bad contact 2 times, signal degradation occurs 4 times, going core patch 14 times, and occurs modules damaged as many as four times. Then DWDM capacity that can be transmitted of 40λ the channels used with a capacity of 10 Gbps per wavelength and a total capacity value of 400 Gbps with spaces wavelength using the 100 GHz frequency of 0.8 nm.

Keywords: *Optical Fiber, Backbone Network, Network Analysis, Dense Wavelength Division Multiplexing, Power Link Budget, Availability*