

## ABSTRACT

Regional Metro West Java is an optical fiber communication systems transmission network that connect existing areas in West Java and has an important role in communication activities. Along with customer needs for communication is increasing, especially in West Java, one of which has a high population density in Indonesia, the evaluation and improvement of performance will always be needed both in terms of the transmission network and the ability of the device so the customer needs are always met.

This final project evaluates the performance of optical fiber communication systems in Regional Metro West Java, where the multiplexing technology used is Dense Wavelength Division Multiplexing (DWDM). Evaluation and analysis is based on some parameter, that is link power budget, rise time budget, maintainability, availability, reliability. Analyze the bit error rate, observe details and interference mitigation.

From the evaluation results during the period June 1st, 2012 – March 31st, 2013, conclude that the performance of Regional Metro West Java was not good enough, because the average availability system is 97.88% that calculated does not meet the minimum standards set by Telkom Indonesia, which is 99.95%, while the average value MTTRrepair is 3,05 hours (meets standard), the value MTTRrecovery average is 1,5 hours (meets standard), and the value of his average reliability is 0.9727.

Keywords : *Dense Wavelength Dense Multiplexing, Evaluation, Performance.*