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Abstract

As multimedia domains develop, metro access networks are desired to allow for flexible configuration changes as well as higher speed and capacity. An optical network configuration that combines optical add/drop multiplexers (OADMs) with wavelength division multiplexing (WDM) system began to be introduced in these networks for its suitability. This paper presents the performance analysis of the optical add/drop multiplexer (OADM) on the Q-factor, and eye opening of the eye diagram over wide range of varying parameters. The transmission Performance over fiber transmission system is considering impact of: add/drop channels, transmitted and received power, fiber length, and frequency spacing. Among the important results obtained is the fact that as the received power increases, the Q factor also increases; until a certain level the Q factor reaches the saturation and would be constant no matter how much the power is increased. Thus, any power added after this point is a wasted power. In addition, the performance characteristics of the OADMs, which are capable of dealing with one to several channels arbitrarily selected, were analyzed.

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Index Terms

Computer Science

Communications

Keywords

Wavelength division multiplexing (WDM) optical add/drop multiplexer (OADM)
Quality factor (Q factor)
Bit error rate (BER)
Metro access network
Transmission performance.

