

Abstract

Moustafa Hussein Aly

Power saving optimization of TWDM-PON system capacity over single bidirectional optical fiber

In this study, a bidirectional Time Wavelength Division Multiplexed-Passive Optical Network (TWDM-PON) system is simulated and optimized to consume less optical power. A power optimization process is carried out with acceptance bit error rate (BER). The presented scheme is a power saving passive optical network (PON), which can be used in one of the fiber to the home (FTTH) architectures. This TWDM-PON system has a symmetrical bit rate 10 Gbps for each one out of eight channels. Eight optical channel has eight time slots to optimize the link for more users easily. This scheme is simulated between 20 and 50 km transmission distances. At the end of this study, a detailed review is presented to show the tradeoff between different schemes.