

**PERFORMANCE OF TRANSMISSION SYSTEM TECHNOLOGY WDM IN 10 Gbps
& 40 Gbps, CASE OF BACKBONE LINE PRISTINA-SKOPJE**

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ABSTRACT

Transmissions systems with optical fiber nowadays are very important. Optical fibers offer the possibility of transmission speeds with higher capacities and fulfilled the needs and requirements of customers in the field of telecommunications. This trend is present in Kosovo also. The overall backbone transmission technology in Kosovo is based on fibred optic and some areas in microwave technology. Problems related to the signals losses such as attenuation, dispersion etc. are expressed also in optical fiber transmissions too. But with the development of advanced technologies, such as transmitting technology WDM / DWDM and different amplifiers make significant improvements to increased transmission performance. The main focus in this case at my paper would be aimed to achieve an improvement in performance in transmission systems with optical fiber in the transmission backbone line Pristina – Skopje, using OptiSystem 13.0, which is a simulator device. Optical cable length is ~ 107.56 km. My aim in this paper is to analyzes two cases of the transmission system 10 Gbps and 40 Gbps. The first transmission cases will be without EDFA (Erbium Doped Fiber amplifier) amplifier, and in the second case I will use EDFA amplifier. From these two cases we will see the difference between transmission line with EDFA and without EDFA amplifier in the transmission system 10 Gbps and 40 Gbps. The comparisons will clearly show the impact of amplifiers in increasing the quality of the transmitted signal by using the EDFA amplifiers.

Keywords: Optical fiber, WDM technology, EDFA amplifier.