IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 4, February 2024

A Review of Modern High-Speed Optical Communication Systems and their Spectral Efficiency

Kunal Suresh Patil[1] and Dr. Vinod Kumar Suman[2]
Research Scholar, Department of Electronic and Telecommunication[1]
Professor, Department of Electronic and Telecommunication[2]
Sunrise University, Alwar, Rajasthan, India

Abstract: *Recent developments in social networking, cloud computing, and smart gadgets are driving up data traffic needs that are quickly beyond the capacity of the optical fibre infrastructure. Recent projections indicate that annual internet traffic growth of around 30% is anticipated, rapidly overloading optical networks. The installed optical fibre network's total capacity has to be enhanced in order to prevent this capacity crisis. There has been constant effort to use different multiplexing technologies to enhance the capacity & data rate beyond Terabit/second. This study reviews the latest developments in wired and wireless technologies, such as OFDM, WDM, SDM, and Li-Fi, that are being employed in optical communication to improve bandwidth, spectral efficiency, data rate, and other aspects.*

Keywords: High-speed systems, Spectral efficiency, Fiber optics.

DOI: 10.48175/568