Abstract

In this paper, an optical network model is presented where ISI is reduced considerably. The input to the network is optical orthogonal frequency division multiplexed (OFDM) signal. Optimization of all optical components in the network is done to reconfigure the bandwidth, to minimize the bit error rate (BER). While modeling, the advantages and disadvantages of OFDM system are considered to ensure minimum distortion. The transmitter in the proposed model
consists of 16 Laser sources with frequency ranging from 193.035 THz to 193.785 THz; the channel spacing is set to 50 GHz. The optical signal is launched onto a 200 km fiber link. Along the fiber link, after 100 km, a 4-channel optical add drop multiplexer (OADM) is used to select and to add channels. The dropped channels are detected by the receiver with an appropriate electrical filtering. Erbium doped fiber amplifier (EDFA) is being used in the link. All three types of compensation techniques such as pre post and symmetric using dispersion compensation fiber (DCF) is employed to enhance the network performance.

References

- S. Jean Armstrong, “OFDM for Optical Communications”, Journal of Light

Index Terms

Computer Science

Applied Electronics

Keywords
Oofdm  Isi  Edfa  Soa  Dcf.