Abstract

Two main forces behind a lot of interest in the OCDMA techniques are the ability to support asynchronous, bursty data transmission and data access security. To achieve high speed connectivity with a large bandwidth, OCDMA is a highly flexible technique. This paper describes a simulated system for an incoherent OCDMA system using high performance 2-D codes. In this paper we have designed an OCDMA system for 1 Gbps and 1.25 Gbps using (8×4) wavelength hopped-time spreaded 2-D optical codes. The analysis takes into account the effect of data rate for increasing number of users at different length of fibers. The system performance is evaluated by Q-Factor analysis and timing diagram at different data rates i.e. 1 Gbps and 1.25 Gbps. Results show that the designed system provides adequate BER (10⁻⁹) for 1 Gbps up to 10 users.

References

Simulation and Performance Analysis of 2-D Codes at 1 Gbps and 1.25 Gbps Data Rate for OCDMA LAN Applications


**Index Terms**

Computer Science  Communications

**Keywords**

- Optical Orthogonal Codes (OOC's)
- Multiple Access Interference (MAI)
- Optical Code Division Multiple Access (O-CDMA)
- Q-Factor