Simulation of time-spreading wavelength-hopping OCDMA systems

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Abstract

This paper analyzes the performance of the traditional and balanced time-spreading wavelengthhopping (TW) optical code division multiple access (OCDMA) receivers associated with their appropriate codes. Several 2-D TW codes with different properties are simulated in this work. The experimental simulations are implemented by Optisystem software to demonstrate the performance of a three-user OCDMA system operating at 10 Gb/s. The simulation results reveal that the traditional receiver employing zero cross-correlation (ZCC) codes has better performance if compared to the balanced scheme. In addition, for ZCC codes, the assigned wavelengths to each user highly affect the system performance.

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