

Abstract

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SAC-OCDMA system performance using MDW signature codes with different photodiodes: A comparative study

This paper demonstrates a performance comparison for spectral amplitude coding optical code division multiple access (SAC-OCDMA) using different detectors at different transmission distances. The single photodiode detection (SPD) technique is used to reduce phase induced intensity noise (PIIN). Modified double weight (MDW) codes are used as signature codes. Simulation results show that the system using avalanche photodetector (APD) achieves 10 km longer transmission distances than that using PIN at both 1Gbps and 2 Gbps, with enhanced bit error rate (BER).