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Performance Evaluation of One and Two Dimensional Prime Codes for Optical Code Division Multiple Access Systems

Authors : Gurjit Kaur, Neena Gupta

Abstract : In this paper, we have analyzed and compared the performance of various coding schemes. The basic ID prime sequence codes are unique in only dimension, i.e. time slots, whereas 2D coding techniques are not unique by their time slots but with their wavelengths also. In this research, we have evaluated and compared the performance of 1D and 2D coding techniques constructed using prime sequence coding pattern for Optical Code Division Multiple Access (OCDMA) system on a single platform. Analysis shows that 2D prime code supports lesser number of active users than 1D codes, but they are having large code family and are the most secure codes compared to other codes. The performance of all these codes is analyzed on basis of number of active users supported at a Bit Error Rate (BER) of 10-9.

Keywords : CDMA, OCDMA, BER, OOC, PC, EPC, MPC, 2-D PC/PC, λc, λa
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