World Academy of Science, Engineering and Technology
International Journal of Electrical and Computer Engineering
Vol:10, No:01, 2016

Performance Analysis and Comparison of Various 1-D and 2-D Prime Codes for OCDMA Systems

Authors : Gurjit Kaur, Shashank Johri, Arpit Mehrotra

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 OCDMA system on a single platform. Results shows that 1D Extended Prime Code (EPC) can support more number of active users compared to other codes but at the expense of larger code length which further increases the complexity of the code. Modified Prime Code (MPC) supports lesser number of active users at λc=2 but it has a lesser code length as compared to 1D prime code. 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
Conference Title : ICECECE 2016 : International Conference on Electrical, Computer, Electronics and Communication Engineering
Conference Location : Zurich, Switzerland
Conference Dates : January 12-13, 2016

Open Science Index, Electrical and Computer Engineering Vol:10, No:01, 2016 publications.waset.org/abstracts/35194/pdf