Performance Analysis of Multichannel OCDMA-FSO Network under Different Pervasive Conditions

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Abstract : To meet the growing need of high data rate and bandwidth, various efforts has been made nowadays for the efficient communication systems. Optical Code Division Multiple Access over Free space optics communication system seems an effective role for providing transmission at high data rate with low bit error rate and low amount of multiple access interference. This paper demonstrates the OCDMA over FSO communication system up to the range of 7000 m at a data rate of 5 Gbps. Initially, the 8 user OCDMA-FSO system is simulated and pseudo orthogonal codes are used for encoding. Also, the simulative analysis of various performance parameters like power and core effective area that are having an effect on the Bit error rate (BER) of the system is carried out. The simulative analysis reveals that the length of the transmission is limited by the multi-access interference (MAI) effect which arises when the number of users increases in the system.

Keywords : FSO, PSO, bit error rate (BER), opti system simulation, multiple access interference (MAI), q-factor

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1