Abstract

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FSO System Performance Enhancement: Receiver Impact

The atmospheric conditions such as fog and humidity are the main causes of attenuation of the free space optical (FSO) communication link. This leads to a reduction in the received power which can cause a in the performance of FSO link. This paper investigates the performance of an FSO system at different wavelengths 850, 950and 1550 nm at a distance up to 1 km under the effect of fog and humidity. Different transmitter divergence angles and receiver aperture diameters are studied using PIN photodiode and avalanche photodiode (APD). The obtained results show a remarkable improvement achieving maximum power received, data rate and signal to noise ratio (SNR) and minimum bit error rate (BER) for nonreturn-to-zero on-off keying(NRZ-OOK) modulation technique.