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Impact of Weather Conditions on Generalized Frequency Division Multiplexing over Gamma Gamma Channel

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Abstract : The technique called as Generalized frequency division multiplexing (GFDM) used in the free space optical channel can be a good option for implementation free space optical communication systems. This technique has several strengths e.g. good spectral efficiency, low peak-to-average power ratio (PAPR), adaptability and low co-channel interference. In this paper, the impact of weather conditions such as haze, rain and fog on GFDM over the gamma-gamma channel model is discussed. A Trade off between link distance and system performance under intense weather conditions is also analysed. The symbol error probability (SEP) of GFDM over the gamma-gamma turbulence channel is derived and verified with the computer simulations.

Keywords : free space optics, generalized frequency division multiplexing, weather conditions, gamma gamma distribution
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