

The Impact of Varying the Detector and Modulation Types on Inter Satellite Link (ISL) Realizing the Allowable High Data Rate

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Abstract— This paper investigates the dependence of the transmission speed and the system performance of an inter satellite link (ISL) on the modulation technique and the type of detector used. In ISL links, the modulation technique used in transmission and the type of detector used for reception are significant factors that directly affect the quality of transmission between satellites. The paper proposes a transmission link model to obtain the maximum allowable data rate over different orbits. In this study, the Q-factor and the bit error rate (BER) are measured and analyzed for all scenarios in order to optimize the ISL performance.

Keywords- free space optics (FSO), field of view (FOV), inter satellite link (ISL), optical wireless communication (OWC)