

# **Abstract**

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## **Parametric Study of the Multibeam Transmitter and Fly-eye Receiver**

This work aims to study the improvement that has been achieved when replacing the traditional single-element (SE) receivers by imaging (IMG) receivers in line of sight (LOS) links, which can reduce the received ambient light noise, multipath distortion and co-channel interference. Also in non-directed non-LOS, the replacement of diffuse (DIF) transmitters by multi-beam (quasi-diffuse) (QDIF) transmitters has been studied such replacement leads to reduction in the path loss. This study first based on making validation to a previous approximate and exact analysis to LOS and non-LOS links, and then a parametric study to some parameters has been made to check their effect on the link performance. We quantify the performance of the LOS and NLOS links using two main parameters the reduction in the required transmitter power and high improvement in the signal to noise ratio (SNR).