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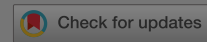
Research Articles

# BER evaluations for multimode beams in underwater turbulence

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## Abstract

In underwater optical communication links, bit error rate (BER) is an important performance parameter. This paper presents a theoretical analysis of the BER for a laser beam propagating through underwater turbulence. The analysis is based on the mean square theorem of the perturbation theory. The mean square theorem is driven by the parameters of the turbulence, such as the refractive index structure constant, the inner scale, the outer scale, the dissipation of the mean squared temperature and the rate of dissipation of the mean squared temperature and

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Kolmogorov microscale length improve the  $\langle \text{BER} \rangle$ . Moreover, lower  $\langle \text{BER} \rangle$  values are obtained for the increasing wavelength of operation and the rate of dissipation of the turbulent kinetic energy in underwater turbulence.

Keywords: Oceanic optics oceanic propagation turbulence bit error rate underwater optical communication links

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## Disclosure statement

No potential conflict of interest was reported by the authors.

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