

# Enhancing Security Measures in Li-Fi Networks: Challenges, Solutions and Innovations

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**Abstract:** *Security in Li-Fi networks is of paramount importance as this emerging technology gains prominence. This research delves into the unique security challenges and opportunities posed by Li-Fi communication. It explores novel encryption techniques, key management strategies, and authentication protocols tailored for the visible light spectrum. Additionally, the study investigates vulnerabilities specific to Li-Fi and offers countermeasures to safeguard data transmission against eavesdropping and tampering. The findings provide a comprehensive understanding of security concerns in Li-Fi networks, ensuring their resilience in critical applications, such as IoT, healthcare and industrial environments. As Li-Fi continues to revolutionize wireless communication, this research serves as a crucial resource for secure deployment and adoption.*

**Keywords:** Li-Fi, Networks, Security, Encryption, Authentication