# Comparison Study of Channel Models for Indoor Visible Light Communication

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**Abstract**

Visible Light Communication (VLC) is an emerging technology that has many beneficial applications. Even though there is an expanding interest in VLC applications, channel modelling is an issue in the system design of VLC systems. Several channel modelling schemes have been developed such as line-of-sight (LOS), multiple reflections, integrating-sphere (IS) including components that are different from each other. However, the difference between these developed schemes hasn't been compared sufficiently. This paper is focused on presenting a comprehensive study of channel modelling on indoor VLC. In addition to that, we discuss possible future research topics on VLC channel models, including the establishment of a general VLC channel model combining the effects of transmitter Light Emitting Diodes (LEDs) and room size, improvement in measuring channel reflection characteristics, and any other related features using MATLAB based simulations. For a better understanding, we provide analyzation of some prevailing relevant channel models and compare their characteristics from different aspects to put forward a comparative discussion on prevailing VLC channel modelling related advantages and disadvantages.

**Keywords**: Visible Light Communication (VLC), Channel models, Line-of-sight (LOS), Bit Error Rate (BER), Signal to Noise Ratio (SNR).