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Experimental validation of indoor relay-assisted visible light communications for a last-meter access network

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Abstract

This paper provides experimental results for a relay-assisted visible light communications (VLC) link using a white light-emitting diode (LED) for a last-meter access network. We demonstrate that a relay-based VLC scheme improves the system performance, especially for link spans longer than 5 meters, in the presence of blocking and shadowing by redirecting the transmitted signal. We also demonstrate a multiband carrier-less amplitude and phase modulation (m-CAP) VLC link where the decode-and-forward (DF) relay scheme offers improvement in the data rate by 25% and 60% when compared to the amplify-and-forward (AF) relay-based link and single VLC link over a 7 m transmission distance respectively.

Keywords

Author Keywords: [Visible light communication \(VLC\)](#); [Amplitude-and-forward \(AF\)](#); [Decode-and-forward \(AF\)](#); [Multiband carrier-less amplitude and phase modulation \(m-CAP\)](#)

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