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Coding signals transmission scheme using visible light communication with dimming and color control

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Recently, light emitting diode (LED) is the spot-light in the information technology and green technology industries. Visible Light Communication (VLC) system uses LED technology for illumination and data transmission at same time. Therefore, VLC system provides the environment of illumination to the user, which can provide the high quality multi-media service and various application services to the user. The main concerns of VLC systems are illumination and BER performance. Consequently, it is necessary to analyze the illumination control and method of transmit multimedia data in the VLC system. In this paper, we propose how to transmit effectively a video signal to RGB three-color LED while dimming and color controlling from the VLC system. In VLC System, LED can generate various colors of light by controlling the mixing ratio of each individual RGB color element. Thus, each RGB channel will have a different signal power, and each channel will have different performance. Therefore, we present a novel resource allocation using the RGB channels state information to allocate the video multi-layers in VLC system. The conventional system allocated the fixed channel to the Scalable Video Coding (SVC). However, the proposed system allocated the high priority of channel to the SVC signals. As a result, the proposed system can be improving the performance of BER than the conventional system following the simulation result.

Biography

Doohee Han received his MS degrees from the Department of Electronics and Radio Engineering at Kyung Hee University, Korea. Currently, he is pursuing his PhD degree at Kyung Hee University. His research interests include OFDM, MC-CDMA, MIMO, resource allocation, and visible light communication systems.

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