Implementation of ZigBee-VLC system to support light control network configuration

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Abstract—**In this paper, ZigBee-VLC Transmitter and Receiver are designed, implemented and tested.   By utilizing the ZigBee-VLC Transmitter and Receiver, commissioning procedures for light control network configuration are simplified and commissioning time is drastically reduced. With this configuration, lighting control network configured to use a maximum of 2^{16} lighting is possible. As a result of this research, the transmitter is complete with ZigBee-VLC features implemented in the Single MCU without rising production costs and the 1-board solution receiver including a ZigBee and VLC functions are implemented. In addition, as a result of the test work using the light control app, dramatically shortening commissioning time, easy lighting control is possible was confirmed.**

Keyword—**ZigBee-VLC, ZigBee Commissioning, LED, MCU, Light Control**

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Tae-Gyu Kang, Ph.D. has been LED Communication Research Section Director at ETRI for 23 years (or since 1989) with responsibility CCS No. 7 Intelligent Network, responsibility Voice over Internet Protocol, system lighting and responsibility LED Fusion technology Visible Light Communications. Visible Light Communication is a technology that LED illumination switches on and off repeatedly according to wireless communication media and its modulation schemes. System Lighting is a lighting that has system capabilities with wireless connection ZigBee, wired connection DALI, multi-sensor, active cooling, and processing/driving. He has been contributed international and domestic standard specification of Visible Light Communication as chairman of IEEE 802.15.7 VLC regulation subcommittee, chairman of TTA visible light communication service Working Group, and editor of TTA VLC roadmap. He is interested in fusion technologies: Visible Light Communication, Intelligent Information Technology LED illumination, system lighting, and networking protocols between LED lamps.