

HANDOVER DECISION IN VISIBLE LIGHT COMMUNICATIONS

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ABSTRACT

VLC is a promising communication technology in which visible light sources such as white Light Emitting Diode (LED) can be utilized as a signal transmitter, the transmission medium is spatial environment, and the appropriate photodiode can be used as a signal receiving component. Despite of many potentially advantages such as: low cost, high speed, power efficient, green communication as well as secure data communication, VLC must deal with the difficulty of distributing LEDs for smooth handover in mobility scenarios and maximize both illumination and communication aspects.

In this thesis, we recommend a method to calculate the overlapped area required for smooth handover by sum of the area to make initiation handover occurs and additional area to handover successfully. This thesis is also an efficient configuration method that based on calculated overlapped areas combined with some system constraints such as: sufficient room illumination level, Field of View angle and communication aspects, those are, High Signal to Noise Ratio (SNR), high received power. By transmitting data at different frequencies for each LED lamp, this configuration method can choose the best LED lamp layout setting that gives best performance at both SNR and received power corresponding to that given parameters of room dimension and mobile terminal.

Keywords: *Visible Light Communication, Light Emitting Diode*