



Talk On “Understand the True Cost Of LED Choices In LED Lighting System. The best Practice on Led Lighting at Roadway Application”Generation”

by Dr Siow Chun Lim

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On 25th November 2017, a technical talk on “Understand the True Cost Of LED Choices In LED Lighting System. The best Practice on Led Lighting at Roadway Application” was successfully organised by the IEM Electrical Engineering Technical Division (EETD) at Wisma IEM. The speaker was Mr. Siew Choon Thye who was the founding Chairman of CIE and Lighting Council Malaysia (MyCIE & NCCIE) and is currently the Div 5 – Head. The talk was attended by more than 60 participants. Mr. Siew started his talk by giving an overview of the historical evolution of lighting technology from sole reliance on incandescent bulb all the way to the current LED technology. Within the LED lighting domain, the lumens has increased exponentially from a mere 0.001 lumens in 1926 to the present day of 1000 lumens or more. Note that lumen is a measure of the total quantity of visible light emitted by a source. Then, Mr. Siew explained the importance of standardisation for LED luminaires and has presented an overview of LED related IEC standards as tabulated below.

Table 1: IEC Standards for LED

LED component	Safety Standard	Performance Standard
Control gear	IEC 61347-13	IEC 62384
Lamps	IEC 62560	IEC 62612
Modules	IEC 62031	IEC 62717
Luminaires	IEC 60598	IEC 62722-2-1
Products	IEC TS 62504 Edition 1	

Mr. Siew then shed some lights into the lifespan of a typical LED and the critical parameters which affect LED lumens maintenance namely ambient air temperature, junction temperature, solder-point temperature and drive current. Lumen maintenance is required to address the gradual light degradation of LED light source over time. However, he argued that LED lifetime is irrelevant as system lifetime is what creates value. Controls, electrical connection, control gear and mechanical housing dictates the reliability of an LED system. Mr. Siew also pointed out that luminaire life claims must always be specified together with a specific ambient temperature, burning hours and associated switch cycles. He then quoted MS IEC 62717 to emphasise the importance of estimated time to failure functions for professionally trained customers in the lighting market to calculate for lighting installations including maintenance cycle estimations. After that, a comparison between mid and high power LED type of material was drawn whereby the former tends to be plastic while the latter tends to be ceramic.

Next, he presented on the revolution of luminaire technology. Starting with halogen in 1940, luminaire technology using HP sodium light solution was then invented in 1990. In 2010, crystal white solution was introduced and this year, the crystal OpticLED solution was introduced. In terms of the application of LED, the evolution is no less remarkable. Within less than a decade, LED applications has transformed from light bulb back in 2009 to outdoor professional lighting, stadium lighting and sport arena.

As concluding remarks, LED having high luminaire efficacy (measured in lumens/Watt) alone may not guarantee an optimum lighting installation. Instead, the design process is equally crucial.



Presenting memento to the speaker



Participants at the session