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Optimal Experimental Designs for Testing of LED Lighting

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Due to the LED industry's rapid growth and the ease of manufacturing LED lights, the LED market is highly competitive, making good price-quality ratio and being first-to-market crucial for manufacturers. To that end, accurate and fast lifetime testing is one of the key aspects for LED manufacturers. Lifetime testing of LED lighting typically follows experimental and statistical techniques described in industry standards such as LM80 and TM-21.

In this presentation we take a critical look at the statistics behind these industry standards. We also critically examine the common practice of measuring LED lighting at equidistant points in time during lifetime testing from the point of view of optimal experimental designs.

Keywords

LED lifetime testing, optimal design of experiments, reliability

Classification

Both methodology and application

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