



Street Lighting Agenda for Thailand

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Street Lighting Agenda for Thailand

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- Product certification
- Light distribution and perception
- Economic evaluation

Product Certification

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- Lack of report
 - Testing expense vs. number of sales and stock
- Reliability
 - Number of sampling

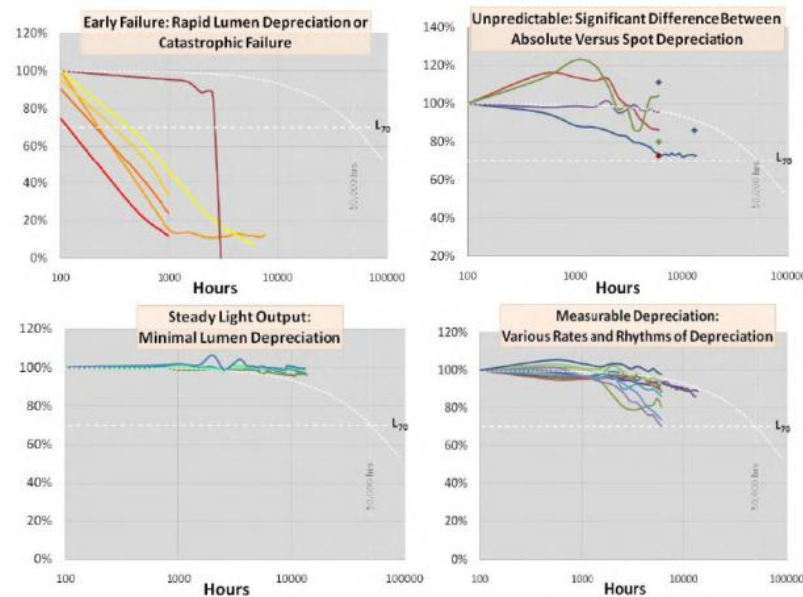
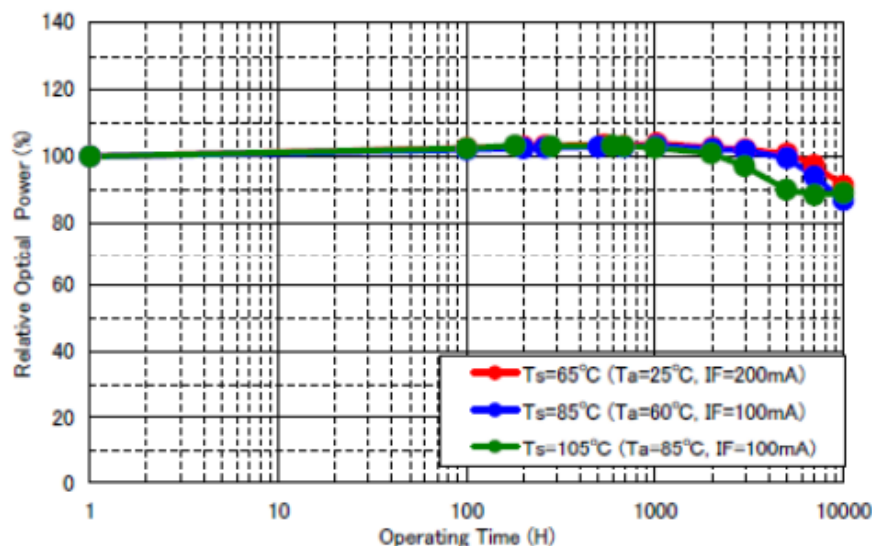


Figure 13. Lumen Depreciation Behaviors Observed During Long-Term Continuous Operation

Product Certification (cont.)

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- Luminaire performance - Chip LM-79 LM-80 TM-21
- Testing
 - Driver Endurance Test (rarely tested)
 - Integrated LM79 Aging 1,000 2,000 3,000 6,000 hrs. and / or warranty 7 yrs.
- Efficacy of luminaire
 - No specified tolerance for testing



Product Certification (cont.)

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- Safety
 - Electrical clearance
 - Wind load $V = 45 \text{ m/s}$ (163 km/h) for heights up to 8 m
IEC 60598-2-3
 - Hazard spectrum IEC 62471-2006

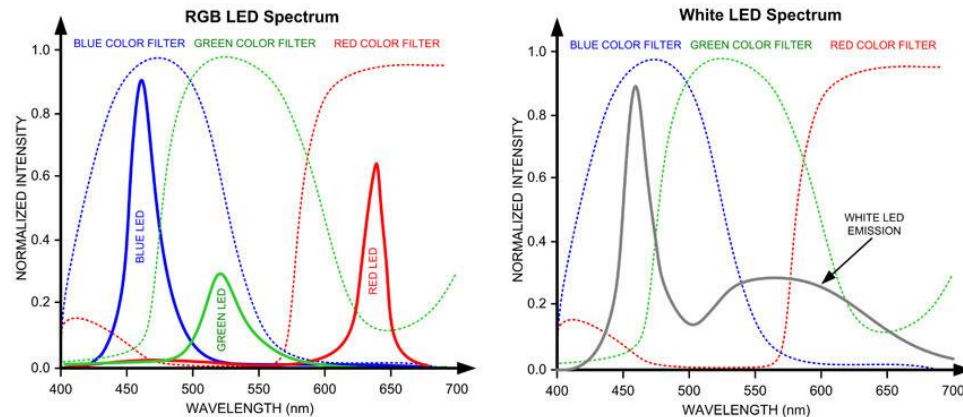


Fig. 2. Typical color-filter transmission spectrums illustrate how the RGB-LED spectrum (a) has peaks for red, green and blue, while the white-LED spectrum (b) has a dominant peak at about 450 nm and a lower peak from 500 nm to 600 nm.

Light Distribution and Perception

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- White light - Effect of fog and hard raining

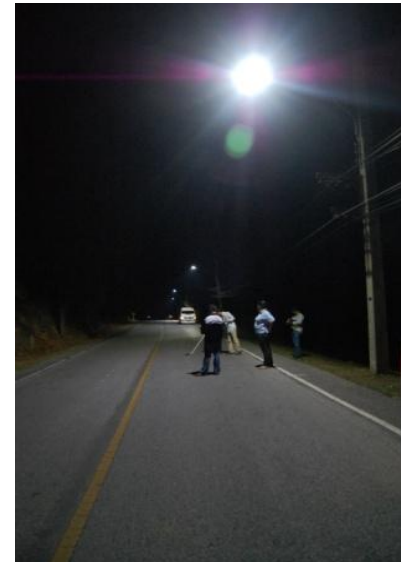


Light Distribution and Perception (cont.)

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CIE 115:2010

- Zebra effect & uniformity
 - Different spectrum results on the road surface illumination and luminance
 - Various span and road width



Less user stimulation vs. glare - Higher luminance of light sources

Economic Evaluation

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- Pre- and Post- vs. standard level of lighting
 - Luminance
 - Illumination



Pre: Street light at EGAT's dam



Post: Street light at EGAT's dam

- ESCO concept application, considering ESCO company credits;
 - ➡ Financial ➡ Experiences
 - ➡ Services ➡ Network

Economic Evaluation (cont.)

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- Energy saving > 50 %

Pilot Site	Number of street lamps	Energy saving (KWh)	CO ₂ reduction (kg)
1. Srinagarind Dam	606	575,424.14	294,214.4
2. Vajiralongkorn Dam	345	201,719.12	103,139
3. Bhumibol Dam	437	170,895.23	87,378.73
4. Sirikit Dam	323	114,523.44	58,555.83
Total	1,711	1,062,561.93	543,287.9

**Thank you
for your attention**

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