



CIE DRAFT INTERNATIONAL STANDARD

**Test method for LED lamps,
luminaires and modules**

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Commission Internationale de l'Eclairage (CIE)



Who is the CIE???

2

- The CIE is about...
 - LIGHT & VISION & COLOUR
 - SCIENCE & STANDARDS
 - KNOWLEDGE TRANSFER & QUALITY ASSURANCE

The CIE...

3

- ✓ **Founded in 1913** – celebrating 100 years!
- ✓ **Has:**
 - ✓ **> 1400 Experts** (Scientists, Lighting Designers
Standardisation Officers)
 - ✓ **51 National Committees** in all Continents
 - ✓ **15 Industry Members**
 - ✓ **7 Divisions**
 - ✓ **129 Scientific Project Groups** (Technical
Committees)

Role in Standardisation

4

- The ISO has delegated standardisation in lighting and colour to CIE
 - IEC develops PRODUCT STANDARDS (IEC TC34)
 - CIE develops FUNDAMENTAL AND APPLICATION STANDARDS
- This gives our standards and other publications relevance and weight for National standards organisations

CIE Divisions

5

- The CIE has seven divisions:
 - D1: Vision and Colour
 - **D2: Measurement of Light and Radiation**
 - D3: Interior Environment and Lighting Design
 - D4: Lighting and Signalling for Transport
 - D5: Exterior Lighting and Other Applications
 - D6: Photobiology and Photochemistry
 - D8: Image Technology

Division 2 Technical Committee: TC2-71

6

- TC2-71 is a CIE Division 2 Technical Committee
- It is creating a CIE International Standard Test Method for LED Lamps, luminaires and modules
- The TC has 37 members from 16 countries in 5 continents
- Working closely with CEN-TC169-WG7
- Finalising now
- Will be released in draft form (and therefore able to be used) ~September 2013

CIE International Standard Test Method for LED Lamps, luminaires and modules

7

- Currently there are many different test methods used in different areas around the world:
 - IESNA LM-79-08
 - EN test methods
 - IEC 62722, IEC 62612, IEC 62717
 - JIS C 7801 Amendment 1: 2012, JIS C 8152-2
 - Chinese CQC and GB standards
 - etc.
- Aim: A unified global standard for harmonisation of testing of LEDs and SSL products

CIE International Standard Test Method for LED Lamps, luminaires and modules

8

- The draft Standard defines standard test conditions and requirements for equipment
- It covers electric, photometric and spectral/colorimetric properties
- It covers testing of LED lamps, luminaires and modules
- Testing should ideally be performed according to the standard test conditions

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9

- Some of the standard test conditions have tolerances to take into account practical laboratory situations
- Example 1:
 - The ambient test temperature should be 25°C
 - In practice it can be in the range 25 ± 1 °C
- Example 2:
 - The air should be still
 - In practice it is allowed to be up to 0.2 m/s

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10

- If the standard test conditions are not met, then a correction must be made
- For example:
 - A test is made with ambient temperature of 23°C
 - This is outside the range 25 ± 1 °C
 - An additional test must be made, eg: with the device in a temperature controlled chamber, to correct the measured value to what it would be if the test were performed at 25°C

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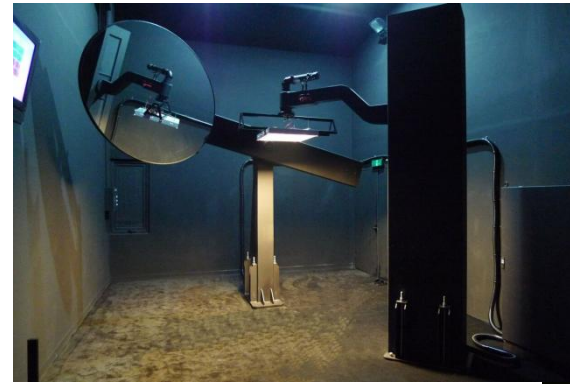
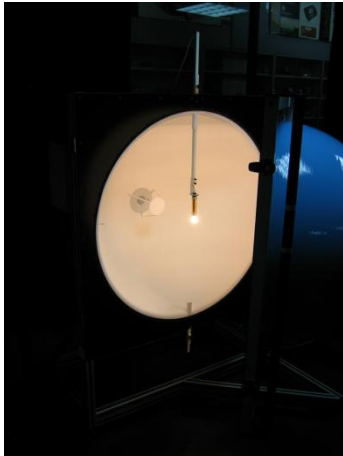
11

- The equipment and electrical supply also has tolerances
- Example 1:
 - The test voltage at the supply terminals shall be the rated circuit voltage appropriate to the device
 - Tolerance interval: $\pm 0.2 \%$ for RMS AC ; 0.1% for DC.
- Example 2:
 - The total harmonic content of the voltage waveform from the power supply shall not exceed 3% of the fundamental.

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12

- The standard covers measurement using both integrating spheres and goniophotometers



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13

- Measurements must be traceable
 - Equipment must be properly calibrated
 - Traceability chain must be maintained back to a national laboratory (National Measurement Institute)
- All test reports must contain a statement of uncertainty of measurement
 - The standard gives a guide for factors to consider when making an uncertainty budget

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14

CIE Lighting Quality & Energy Efficiency & CIE Expert Workshop OLED & D2 meetings

Kuala Lumpur, Malaysia, 23 to 30 April 2014

More information will be available
later this year at <http://www.cie.co.at/>

Thank you for your kind attention

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