

NATIONAL FORUM ON MALAYSIAN STANDARDS ON LIGHT EMITTING DIODES (LEDs)



Progress of LED Malaysian Standards

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NATIONAL FORUM ON MALAYSIAN STANDARDS ON LIGHT EMITTING DIODES (LEDs)



Paper 3

Progress of LED Malaysian Standards By Ir. Lee Kok Chong

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STANDARDS
MALAYSIA

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Regional Standards for LEDs

- ☐ **UK LED Specifications**
- ☐ **Italy LED Specifications**
- ☐ **USA LED Standards / Guidance**
- ☐ **European LED Standards**



UK LED Specifications

- EST Spec v2 2010 LED Requirements for Replacement Lamps and Modules
- EST Spec v3 2010 LED Luminaire Requirements
- ECA criteria 2010 White Light Emitting Diode Lighting Units for Amenity, Accent and Display

Italy LED Specifications

- UNI 11356:2010 Luce e illuminazione - Caratterizzazione fotometrica degli apparecchi di illuminazione a LED (Light and lighting - Protocol for the measurement of LED luminaires photometric data)





USA - LED Standards/Guidance

- IESNA LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid- State Lighting Products
- IESNA LM-80-08 Approved Method: Lumen Maintenance Testing of LED Light Sources
- IESNA RP-16-05 Nomenclature and Definitions for Illuminating Engineering
- IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
- ANSI C78.377:2008 Specifications for the Chromaticity of Solid State Lighting Devices
- UL 8750 Outline of Investigation for Light-Emitting Diode (LED) Light Sources for use in Lighting Products
- NEMA SSL 3:2010 High-Power White LED Binning for General Illumination
- IESNA TM-21 Life Estimation Test Method (Title to be confirmed)



European Standards

- EN 12464-1:2011 Light and lighting - Lighting of work places
Part 1: Indoor work places
- EN 12464-2:2007 Light and lighting - Lighting of work places
Part 2: Outdoor work places
- EN 12193:2007 Light and lighting - Sports lighting
CEN/TR 13201-1:2004 Road lighting - Part 1: Selection of
lighting classes
- EN 13201-2:2003 Road lighting - Part 2: Performance
requirements
- EN 13201-3:2003 Road lighting - Part 3: Calculation of
performance
- EN 13201-4:2003 Road lighting - Part 4: Methods of
measuring lighting performance



IEC Standards

LAMP/MODULE

- IEC 62031:2008 (EN 62031:2008) : LED Modules for General Lighting – Safety Specifications
- IEC/PAS 62717:2011 (No EN version) : LED Modules for General Lighting - Performance requirements
- IEC 62560:2011 (EN 62560: (awaited)) : Self-ballasted LED-lamps for general lighting services > 50 V – Safety Specifications
- IEC/PAS 62612:2009 (No EN version) : Self-ballasted LED lamps for general lighting services > 50 V - Performance requirements
- IEC 60061 series (EN 60061) : series Lamp caps and holders together with gauges for the control of interchangeability and safety
- IEC 60838-2-2:2006 (EN 60838-2-2:2006) : Miscellaneous lampholders - Part 2-2: Particular requirements - Connectors for LED-modules
- IEC/TR 61341:2010 (EN 61341: (awaited)) : Method of measurement of centre beam intensity and beam angle(s) of reflector lamps
- IEC 61231:2010 (EN 61231:2010) : International lamp coding system (ILCOS)
- IEC/PAS 62707-1:2011 (No EN version LED) : Binning - Part 1: General requirements and white grid



IEC Standards

CONTROLGEAR

- IEC 61347-1:2007 (EN 61347-1:2008) : Lamp controlgear - Part 1: General and safety requirements
- IEC 61347-2-13:2006 (EN 61347-2-13: (awaited)) : Lamp controlgear - Part 2-13 : Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules
- IEC 62384:2009 (EN 62384:2009) : DC or AC supplied electronic control gear for LED modules – Performance requirements
- IEC 62386-101:2009 (EN 62386-101:2009) : Digital addressable lighting interface – Part 101: General requirements - System
- IEC 62386-102:2009 (EN 62386-102:2009) : Digital addressable lighting interface – Part 102: General requirements - Control Gear
- IEC 62386-207:2009 (EN 62386-207:2009) : Digital addressable lighting interface – Part 207: Particular requirements for control gear – LED modules (device type 6)



IEC Standards

LUMINAIRE

- IEC 60598 series (EN 60598 series) : Luminaire safety
- IEC/PAS 62722-1:2011 (No EN version) : Luminaire performance - Part 1: General Requirements
- IEC/PAS 62722-2-1:2011 (No EN version) : Luminaire performance - Part 2-1: Particular requirements for LED luminaires



IEC Standards

SYSTEM

- IEC/TS 62504:2011 (No EN version) : Terms and definitions for LEDs and LED modules in general lighting
- IEC 62471:2006 (EN 62471:2008) : Photobiological safety of lamps and lamp systems
- IEC/TR 62471-2:2009 (No EN version) : Photobiological safety of lamps and lamp systems – Part 2: Guidance on manufacturing requirements relating to non-laser optical radiation safety



IEC Standards

MEASUREMENT

- CIE 127:2007 Measurement of LEDs (EN 13032-1:2004 Light and lighting) - Measurement and presentation of photometric data of lamps and luminaires - Part 1: Measurement and file format
- EN 13032-2:2004 Light and lighting - Measurement and presentation of photometric data of lamps and luminaires - Part 2: Lighting of indoor work places
- EN 13032-3:2007 Light and lighting - Measurement and presentation of photometric data of lamps and luminaires - Part 3: Presentation of data for emergency lighting of work places



IEC Standards

EMC

- IEC 61547:2009 (EN 61547:2009) : Equipment for general lighting purposes - EMC immunity requirements
- IEC 61000-3-2:2009 (EN 61000-3-2:2009) : Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
- CISPR 15:2008 (EN 55015:2009) : Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

IEC Standards

EMF

- IEC 62493:2009 (EN 62493:2010) : Assessment of lighting equipment related to human exposure to electromagnetic fields





MALAYSIAN STANDARD

MS 62717:2012 (P)

LED modules for general lighting -
Performance requirements

ICS: 29.140.99

Descriptors: LED modules, general lighting, performance requirement

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MALAYSIAN STANDARD

MS 62722-2-1:2012 (P)

Luminaire performance - Part 2-1: Particular
requirements for LED luminaires

ICS: 29.140.40

Descriptors: luminaire, performance, LED, requirement

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DEPARTMENT OF STANDARDS MALAYSIA



SIRIM Workgroup on LED

- **Formed in June 2011 under SIRIM Technical Committee (TC) on Lightings & Ballasts**
- **Progressively reporting to TC Chairman, Ir. Haizan Hussein (Jabatan Kerja Raya Malaysia)**
- **To develop Malaysian Standards for LED Testing & Performance**
- **Subsequently to promote the approved Malaysian Standards for LED to the industry players**



SIRIM Workgroup on LED

Organisation Chart

Chairman : Ir. Lee Kok Chong

SIRIM Secretary : Puan Nuriyati

Workgroup Members :

- 1)Cik Roslinah Abdullah – SIRIM Product Certification**
- 2)En. Mohd Azmeer Ahmad – SIRIM Electrical Testing**
- 3)En. Mohamad Abdullah Shaari – SIRIM Electrical Testing**
- 4)Dr. John K. S. See – Chairman, Sub-group #1 on LED Safety & Testing**
- 5)Cik Adibah Mohamed – Chairman, Sub-group #2 on LED Controlgears**
- 6)Mr. Tay Hooi Seng – Chairman, Sub-group #3 on LED Performance**
- 7)Mr. C. T. Siew**
- 8)Mr. Narendren**
- 9)Mr. Hwang Yi Feng**
- 10) Mr. Lim Choon Kim**
- 11) Mr. Geo Lim**
- 12) Mr. Chee Weng Keen**
- 13) Mr. William Ooi**
- 14) Mr. Sothi Lingan**



SIRIM Workgroup on LED

Milestone Progress

- **25th July 2011 – Called for 1st Meeting;**
- **Committee reviewed IEC Standards vs. LM79 & LM80 from August to October 2011;**
- **Committee started to prepare MS Framework from November to December 2011;**
- **1st Draft of MS completed in January 2012;**
- **Approved by SIRIM TC & Ministry in Feb. 2012;**
- **1st Forum organised in 5th April 2012;**
- **Subsequently, few more Forums will be organised before end of 2012.**



Malaysian Standards on LEDs

- ☐ **MS on LED Safety & Testing by Sub-group #1**
- ☐ **MS on LED Control-gears by Sub-group #2**
- ☐ **MS on LED Performance by Sub-group #3**



IEC Standards

Sub-group #1 – MS for LED Safety & Testing (Present by Dr. John K. S. See)

- **MS IEC 62031:2011 – LED Modules for General Lighting : Safety Specifications**
- **MS IEC 62560:2012 (P) – Self Ballasted LED Lamps for General Lighting Services by Voltage > 50V : Safety Specifications**
- **MS IEC 60598-1:2012(P) – Luminaires – Part 1: General Requirements & Tests**
- **MS IEC 60838-2-2:2008 – Miscellaneous lampholders : Part 2-2:Particular Requirements – Connectors for LED Modules**



IEC Standards

Sub-group #2 – MS for LED Controlgear (Present by Mr. Narendren)

- **MS IEC 61347-1:2012 (P) – Lamp Controlgear Part 1 :
General and Safety Requirements**
- **MS IEC 61347-2-13:2012 (P) – Lamp Controlgear Part 2-13
: Particular Requirements for d.c. or a.c. supplied
electronic controlgear for LED modules**
- **MS IEC 62384:2012 (P) – DC or AC Supplied Electronic
Controlgear for LED modules – Performance
Requirements**



IEC Standards

Sub-group #3 – MS for LED Performance (Present by Mr. Tay Hooi Seng)

- **MS 62504:2012 (P) – General Lighting : LEDs and LED Modules – Terms & Definitions**
- **MS 62717:2012(P) – LED Modules for General Lighting : Performance Requirements**
- **MS 62722-1:2012 (P) – Luminaires Performance : Part 1 – General Requirements**
- **MS 62722-2-1 (P) – Luminaires Performance : Part 2-1 : Particular Requirements for LED Luminaires**
- **MS 62612:2012 (P) – Self Ballasted LED Lamps for General Lighting Services : Performance Requirements**



THANK YOU

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