



## **Joint CELMA / ELC Guide on LED related standards**

***2<sup>nd</sup> Edition, April 2010***

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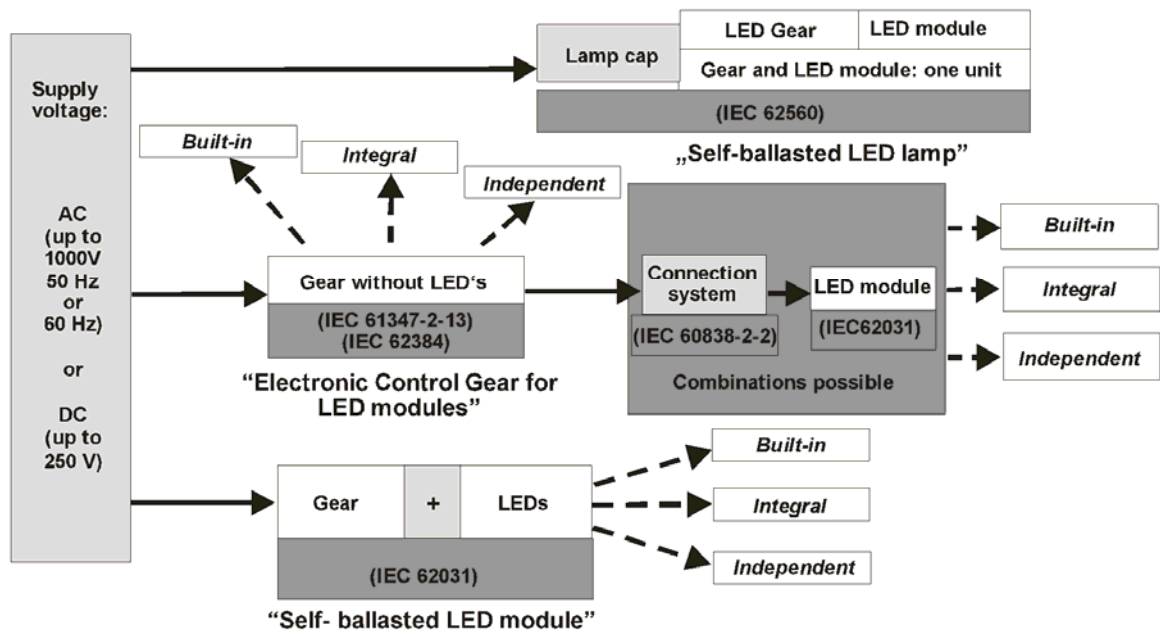
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## 1. Key Standards – Safety & Performance

Product type	Safety Standard	Performance Standard
LED Drivers	IEC 61347-2-13 Published 2006	IEC 62384 Published 2006
LED Modules	IEC 62031 Edition 1 Publication 2008	Draft Standard expected for April 2010  Public Available Specification (PAS) expected in 2010
LED self ballasted lamps (>50V)	IEC 62560 Edition 1 Publication expected 2010	IEC/PAS 62612 Publicly Available Specification published 2009 Publication of IEC 62612 standard expected 2011
LED luminaires	IEC 60598-1 Edition 7 2008	IEC/PAS expected in 2010
LED products	IEC TS 62504 Terms and <b>Definitions</b> for LED's and LED modules in general lighting To be published in 2010	

Overview of systems composed of LED modules and control gear



## 2. Key Standards – Photometric Measurement

EN13032-1, EN 13032-2 and EN 15193

## 3. Standards related to LED products

**IEC TC 34 (Lighting)**, Split into Sub committees (Lamps, Caps & Control Gear)  
**CIE Div 2**, 2007 Publication CIE127 (Methods of measurement)  
**CIE Div 6 and IEC TC 76**, IEC62471 Photobiological safety / Optical radiation

**TABLE 1 list of standards related to LED products**

IEC/EN 60598	Luminaire requirements
IEC/EN 62031	LED Modules for General Lighting – Safety Specifications
IEC XXXXX	LED Module for General Lighting - Performance
Pr. IEC 62560	Lamps - Self-ballasted LED-lamps for general lighting services by voltage > 50 V - Safety specifications 34A/1354/CDV
Pr. IEC 62612	Lamps – Self-ballasted LED-lamps for general lighting services >50 V - Performance requirements 34A/1343/CD
IEC/TR 61341 ed. 2	Method of measurement of centre beam intensity and beam angle(s) of reflector lamps
IEC 61231	International lamp coding system (ILCOS)
Pr. IEC 62504	LED Terms & Definitions - 34A/1355/DTS
IEC/EN 60061	Lamp Caps and holders
IEC/EN 60838-2-2	Connectors for LED-modules
IEC/EN 61347-1	Lamp control gear - Part 1: General and safety requirements
IEC/EN 61347-2-13	Lamp control gear - Part 2-13: Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules
IEC/EN 62384 + A1	DC or AC supplied electronic control gear for LED modules - Performance requirements
IEC 62386-207	Digital addressable lighting interface - Part 207: Particular requirements for control gears; led modules (device type 6):
IEC/EN 60825-1	Safety of laser products (see Annex A)
IEC/EN 61000-3-2:	EMC - Limits for harmonic current emissions
IEC/EN 61000-3-3:	EMC - Limitation of voltage changes, voltage fluctuations and flicker
IEC/EN 61547:	EMC - Immunity requirements
EN 55015:	EMC - Radio disturbance characteristics
EN 62471: 2008 (IEC 62471:2006 modified) (CIE S 009:2002)	Photobiological safety of lamps and lamp systems (see Annex A to the Guide)
IEC TR 62471-2	Photobiological safety of lamps and lamp systems - Part 2: guidance on manufacturing requirements relating to non-laser optical radiation safety (see Annex A to the Guide)

#### 4. Standards under development

##### PRESCO

**Pr. IEC 62560**

Self-ballasted LED-lamps for general lighting services by voltage > 50 V - Safety specifications: doc 34A/1354/CDV

**Pr. IEC 62612**

Self-ballasted LED-lamps for general lighting services >50 V - Performance requirements: doc 34A/1343/CD

**Pr. IEC XXXXX**

Non-ballasted single capped LED lamps for general lighting (< 50V) - Safety requirements doc: 34A/1352/NP

**Pr. IEC XXXXX**

Non-ballasted single capped LED lamps for general lighting (< 50V) – performance requirements: doc 34A/1353/NP

**IEC/TS 62504**

Terms and definitions for LEDs and LED modules in general lighting: 34A/1355/DTS

##### COMEX

**Pr. IEC 61347-2-13/2<sup>nd</sup> edition**

Deletion of SELV equivalent: 34C/901/A/DC

#### 5. Key Regional Standards for the Application of LED Based Luminaires (excluding Emergency Lighting)

EN 12464: Light and lighting - Lighting of work places is published in 2 parts:

Part 1: Indoor work places; Part 2: Outdoor work places

CIBSE Society of Light & Lighting - Code for Lighting 2006

CIBSE Society of Light & Lighting – Lighting Guide 2 - Lighting for Hospitals & Healthcare Buildings

LM-79-08: IES Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products

LM-80-2008: IESNA, Approved Method for Measuring Lumen Maintenance of LED Light Sources