

SAFE GUARDS

SGS CONSUMER TESTING SERVICES

ELECTRICAL & ELECTRONIC

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LASER AND LED RADIATION CLASS TEST

As the latest developed lighting technology, LED does not only embody its advantage on luminescence, but also excel incandescence, fluorescence and other traditional light sources in terms of production, manufacturing and usability.

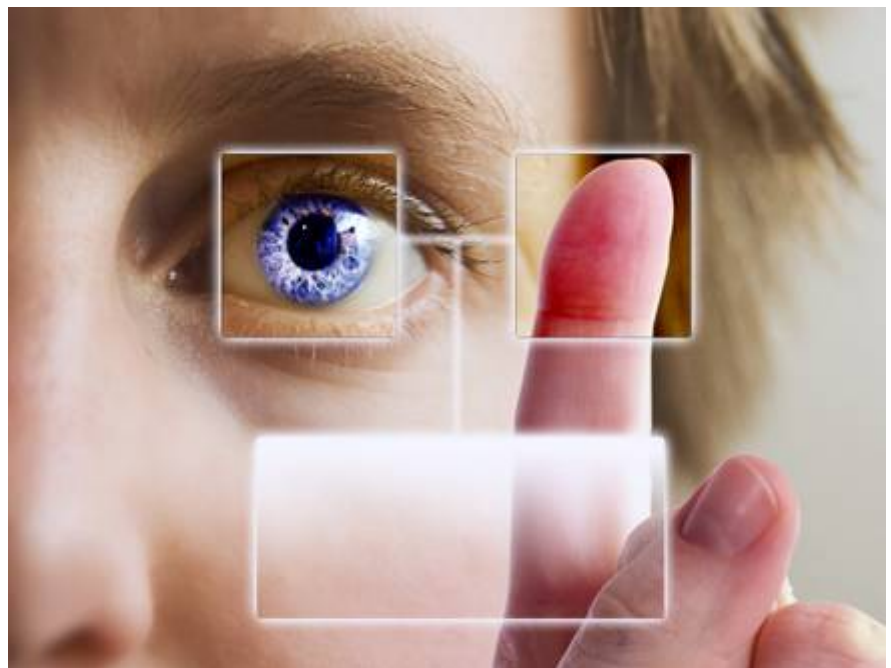
Background

Since its invention in the 1960s, LED has seen a considerable development.

However, LED emits photo-biological radiation. If radiant intensity exceeds certain degree, it can be harmful to the human body; possible consequences can be the destruction of living cells or retinal damage, etc.

Therefore, the global organizations (IEC, CIE, to name just a few) have organized corresponding research and formulated relevant standards, the European Union have even clearly defined radiation classes for different products.

For example, radiation class for toys with laser or LED function have to meet Class 1 as per EN 60825-1.



Scope

- Products with laser or laser module
- LED or products with LED

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Test standard

- IEC 60825-1
Safety of laser products – Part 1: Equipment classification and requirements
- IEC 62471 (eqv. CIE S 009)
Photo-biological Safety of Lamps and Lamp Systems

Laser and LED have been tested and classified according to IEC 60825-1. However, from September 2011 on LEDs will not be comprised in IEC 60825-1:2007. LEDs will be classified as per IEC 62471 (eqv. CIE S 009). Until then, both the old version IEC 60825-1 and the new standard IEC 62471 can be used to classify LED. IEC 60825-1 shall still be used for laser products.

Classification in IEC 62471

- Exempt group
- Risk Group 1 (Low-Risk)
- Risk Group 2 (Moderate-Risk)
- Risk Group 3 (High-Risk)

Classification in IEC 60825-1

- Class 1 Laser Product (Safe for any application)
- Class 1M Laser Product
- Class 2 Laser Product
- Class 2M Laser Product
- Class 3R Laser Product
- Class 4 Laser Product

Label

Radiation class should be shown on the label for the products tested and classified according to IEC 60825-1.



SGS service capacity

Accredited by CNAS, SGS lab has the most advanced testing equipments and experts to carry out testing for LED and laser products. The test report is recognized globally under the agreement of iLAC-MRA.

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