
Lighting Laboratory

Ensuring the performances and compliance
of your lamps and luminaires

- > Accredited tests and calibrations
- > Independent approach, neutral results
- > Compliance with all relevant standards
- > For a wide range of light sources and applications



01

Accurate measurements Testing the performances of your lamps and luminaires

The Lighting Laboratory is equipped to carry out performance measurements on all commercially available lamps and luminaires. Our experts undertake performance tests using advanced equipment. Additional ageing tests are carried out when necessary or requested. Results are compiled in detailed test reports.



Wide range of measurements

Our lighting experts have the equipment to measure any type of lamp and luminaire. More specifically, we can measure the following parameters:

- > Luminous flux (lumen)
- > Luminous intensity distribution
- > Power (W)
- > Energy efficiency (lm/W)
- > European Energy Label
- > Power factor and harmonics
- > Colour Rendering Index (CRI, Ra)
- > Colour temperature
- > Spectral distribution including UV
- > Start-up and warm-up time



Ageing tests

Our experts are able to carry out additional ageing tests in compliance with the ISO 9001 standard:

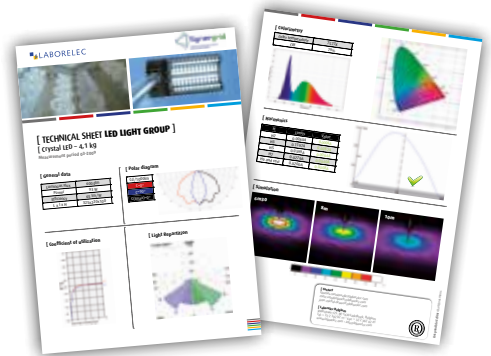
- > Lamp survival factor
- > Fast switching test
- > Lumen maintenance factor



Precise measurements lead to sound recommendations

Laborelec provides clients with a report that compiles all test results. This report is available either as a paper document or in an electronic format (PDF).

The report comes with a photometric file (in LDT or CIB format) containing all test results. This file can be used in simulation tools to simulate the lighting of a specific light source in a given environment.



The Lighting Laboratory performs tests on lamps and luminaires according to the following standards:

- > EC N°244/2009 and 245/2009 European Ecodesign directive
- > 1998/11/EC European Energy Label of lamps
- > 2000/55/EC Efficiency of ballasts
- > EN 13032 Measurement of lamps and luminaires
- > IES-LM79 Measurement of LED products
- > IES-LM80 Lumen maintenance of LEDs
- > IEC 62612 Self-ballasted LED lamps
- > IEC 62384
- Performance of LED control gear
- > IEC 60064 Tungsten Filament lamps
- > IEC 60357 Tungsten Halogen lamps
- > IEC 60969 Fluocompact lamps
- > IEC 60081, IEC 60901 Fluorescent lamps
- > IEC 60662 High pressure sodium lamps
- > IEC 61167 Metal Halide lamps
- > CIE 63, CIE 84, CIE 121 Measurement methods

02

Specific application tests For every type of lighting device and material

Laborelec is equipped to perform almost any photometric and radiometric measurement. Our Lighting Laboratory experts can test a wide range of devices, including emergency lighting, signalling lights, and materials.

Emergency lighting devices

Our experts check the following parameters in the laboratory:

- > Emergency lighting autonomy
- > Ballast lumen factor

Signalling lights

Certain devices, for instance those used for roads and airports, must meet specific requirements. Our Lighting Laboratory experts test:

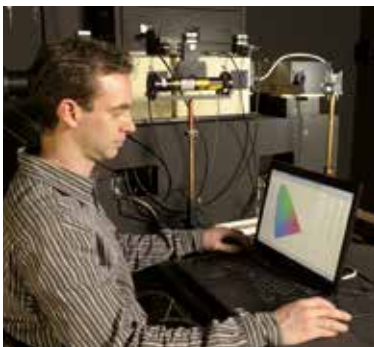
- > Colorimetry
- > Durability
- > Luminance
- > Luminous intensity

Reflective materials

Laborelec measures the optimal angle of vision of reflective materials that are used on roads (i.e. cat's eyes) or on traffic signs.

Transparent materials

Our Lighting Laboratory experts test the efficiency and spectral characteristics of coloured filters and other devices designed to protect against UV rays (such as specific eye protection glasses).



Photobiological and UV measurements

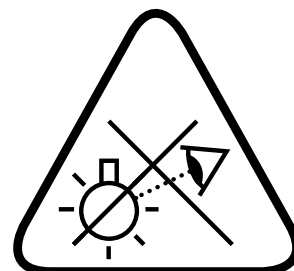
The new IEC 62471 safety standard regulates hazardous radiation emissions from lighting devices. The standard defines a maximum limit for each type of hazard. It determines, for instance, the maximum exposure time of personnel to UV radiation, blue light hazard, and infrared radiation. The goal is to identify products posing a potential hazard and requiring specific marking or safety systems.

Laborelec offers a complete assessment of lighting products according to this standard. To do so, our experts use reference sources of radiation calibrated in an authorized laboratory, as well as measuring equipment that is regularly recalibrated and recertified. Our Lighting Laboratory also provides the official safety markings that are required on certain products. This marking indicates the hazard level of the lighting source.



The Lighting Laboratory performs specific application tests according to the following standards:

- > CIE S020, IEC 60598-2-22
Emergency lighting
- > CIE 15
Colorimetry
- > CIE 38
Measurement of materials
- > CIE 54
Retroreflection
- > UNECE vehicles regulations
- > 2006/25/EC European directive exposure of workers to artificial radiation
- > IEC 60335, IEC 61228
UV lamps
- > IEC 62471
Photobiological safety of lamps



03

Accredited calibrations Keeping your measurement equipment in top shape

In order to ensure accuracy, measurement tools must be calibrated regularly. Laborelec has all the accredited equipment necessary to check the output of your devices and establish their measurement uncertainty.

Reliability requires regular calibration

Laborelec is able to calibrate devices so that you can perform accurate and reproducible measurements.

- > Best practices require devices used on site to be calibrated once a year
- > Based on our experience, we recommend tools used in laboratories to be calibrated every two years

Precise calibration of your equipment

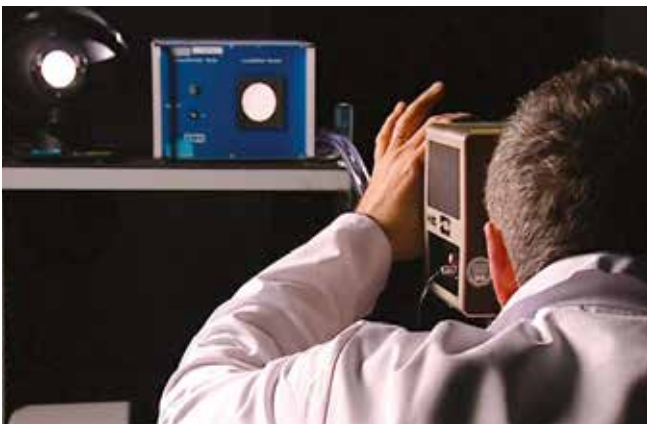
Our Lighting Laboratory calibrates the following equipment:

- > Lux meters and UV meters
- > Luminance meters
- > Lamps



The Lighting Laboratory performs accredited calibrations according to the following standards:

- > CIE 53
Radiometers and photometers
- > CIE 69
Illuminance meter and luminance meter
- > CIE 84
Luminous flux



04

Full range of measurements on any type of light source or application

Based on its official accreditations and years of experience, Laborelec's Lighting Laboratory provides you with quality tests. We independently test every type of light source or application and provide you accurate information on their performance and compliance with regulations.

Independent and neutral

You need to rely on the unbiased opinion of a renowned expert. This is precisely what Laborelec provides. We are independent from manufacturers and have no commercial gain resulting from recommendations to clients.

Accredited tests and calibrations

Only an accredited laboratory can guarantee quality tests. Laborelec's Lighting Laboratory is accredited to carry out tests in compliance with the ISO 17025 standard. We are also accredited for the calibration of lamps and measuring equipment.



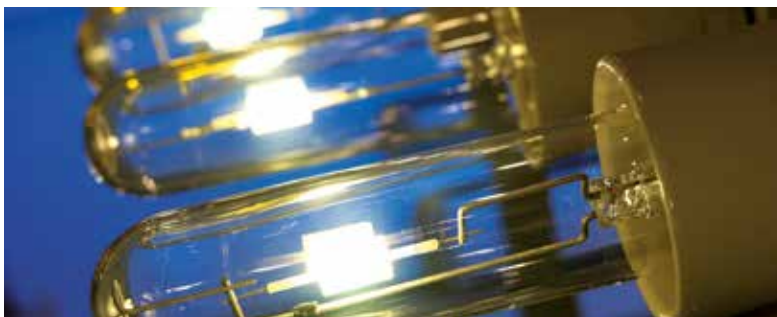
002 - TEST
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European
co-operation for
Accreditation

Wide range of light sources

Technological evolutions are occurring at an accelerating pace. Our Lighting Laboratory has extensive knowledge of all types of lighting technologies, including LEDs, OLEDs, HIDs, incandescent lamps, and fluorescent lamps.



For buyers and manufacturers

We carry out tests for all players in the lighting market. As a buyer or project developer, you may question whether certain lighting products meet your specifications. As a manufacturer or importer, you need objective proof that your equipment meets all performance requirements.

Compliance with the latest standards

Standards and regulations are constantly changing. You need to make sure that your lamps and luminaires comply with the latest legal requirements. Our Lighting Laboratory is equipped with state-of-the-art testing equipment that enables us to accurately verify this compliance.

Wide range of measurements

Our experts carry out a wide range of tests. Whether it is performance measurements of lamps and luminaires, emergency lighting and signalling tests, photobiological measurements of lighting devices, or measurement device recalibrations, our laboratory provides expert service and advice.

Five reasons for you to choose Engie Laborelec

- > Wide range of technical competencies in Electricity Generation, Grids and End-Use
 - > Increased profitability and sustainability of your energy processes and assets
 - > Unique combination of contract research and operational assistance
 - > Independent advice based on certified laboratory and field analyses all over the world
 - > More than 50 years of experience
-



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