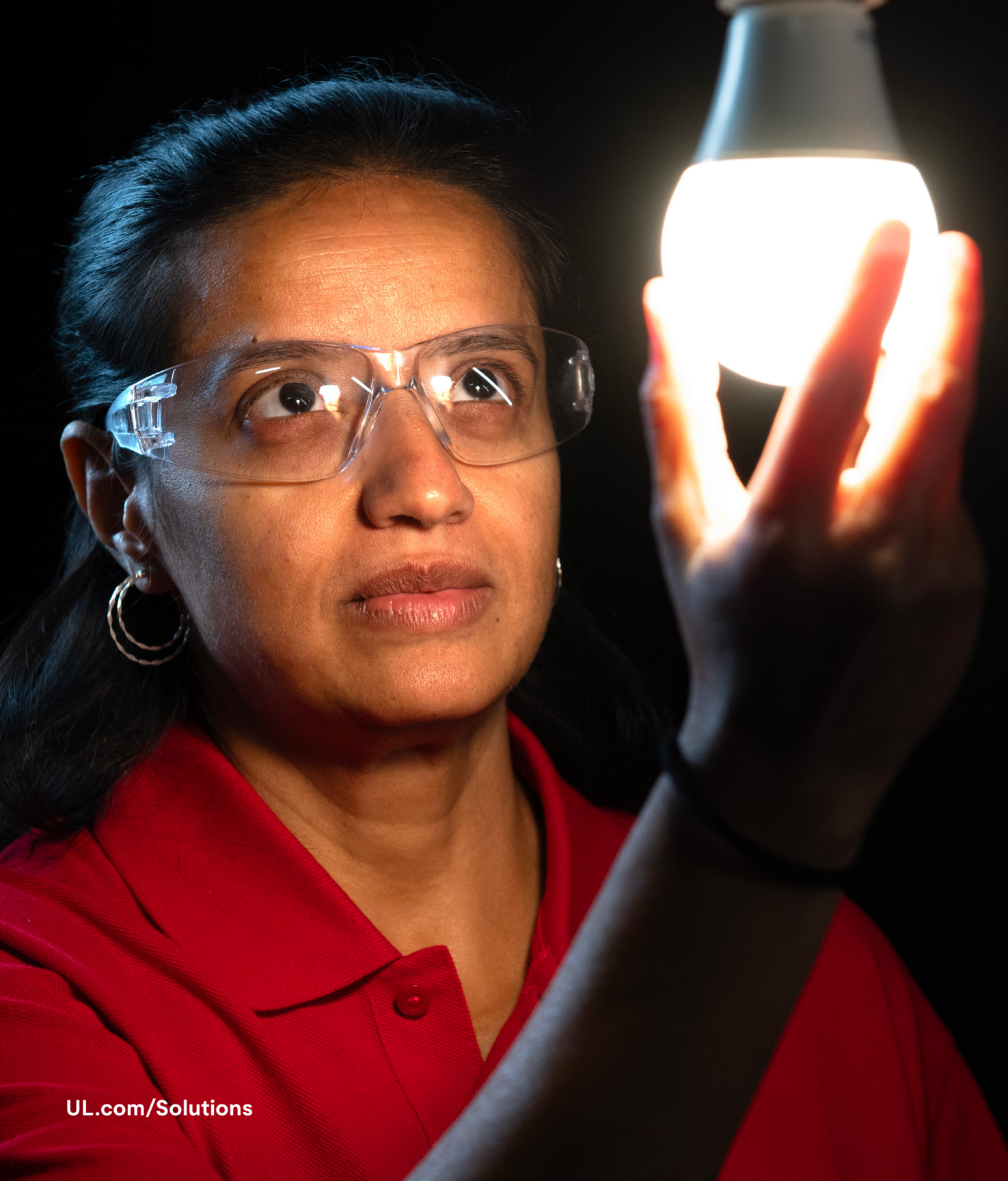




# Trusted expertise in the lighting industry

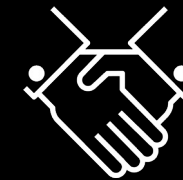
Global lighting solutions





# Meeting supply chain demands through responsiveness, expertise, and integrity

UL Solutions works closely with the entire lighting supply chain providing solutions for designers, manufacturers, government agencies, regulatory authorities, showrooms, consumers and more.



**Knowledge you can trust**



**Speed & efficiency**



**Single-source provider**



**Global reach & access**

## Our services

### Safety testing and certification

- Luminaire testing and certification
- Component certification
- UL Data Acceptance Program (DAP)
- Field inspection service
- Hazardous location certifications
- Pre-certification review

### Performance testing and certification

- Airtightness testing
- Accelerated aging
- Benchmark testing
- Energy efficiency testing and certification
- Reliability testing
- Vibration testing
- Field measurement services

### Global Market Access

- Bundled testing with UL Standards
- IEC/CEC/CB Scheme
- CCC
- NOM
- INMETRO
- SASO
- More national and international standards

### Connected and Smart lighting

- Cybersecurity
- Interoperability
- Testing to protocols like DALI, Bluetooth®, Matter
- Wireless Device EMC Testing and Certification

### UL Marketing Claim Verification

## Product categories

### Residential and consumer lighting

- Indoor and decorative
- Outdoor and landscape
- Portable luminaires
- Seasonal

### Commercial and professional lighting

- Office and industry
- Stores and hospitality
- Hazardous location luminaires
- Horticultural lighting
- Stage and studio lighting
- Electric signs and retrofit kits
- Healthcare lighting
- Emergency lighting
- Ultraviolet/Germicidal lighting
- Circadian field measurement and luminaire testing

### Infrastructure lighting

- Roadway lighting
- Pole mounted luminaires
- Tunnel and bridge lighting
- Photovoltaic lighting

### Automotive lighting

- Automotive headlamps and luminaires
- LED/ VCSEL Reliability testing
- Component testing

## UL Solutions services help companies



Demonstrate Safety



Confirm Compliance



Enhance Sustainability



Manage Transparency



Deliver Quality & Performance



Protect Brand Reputation



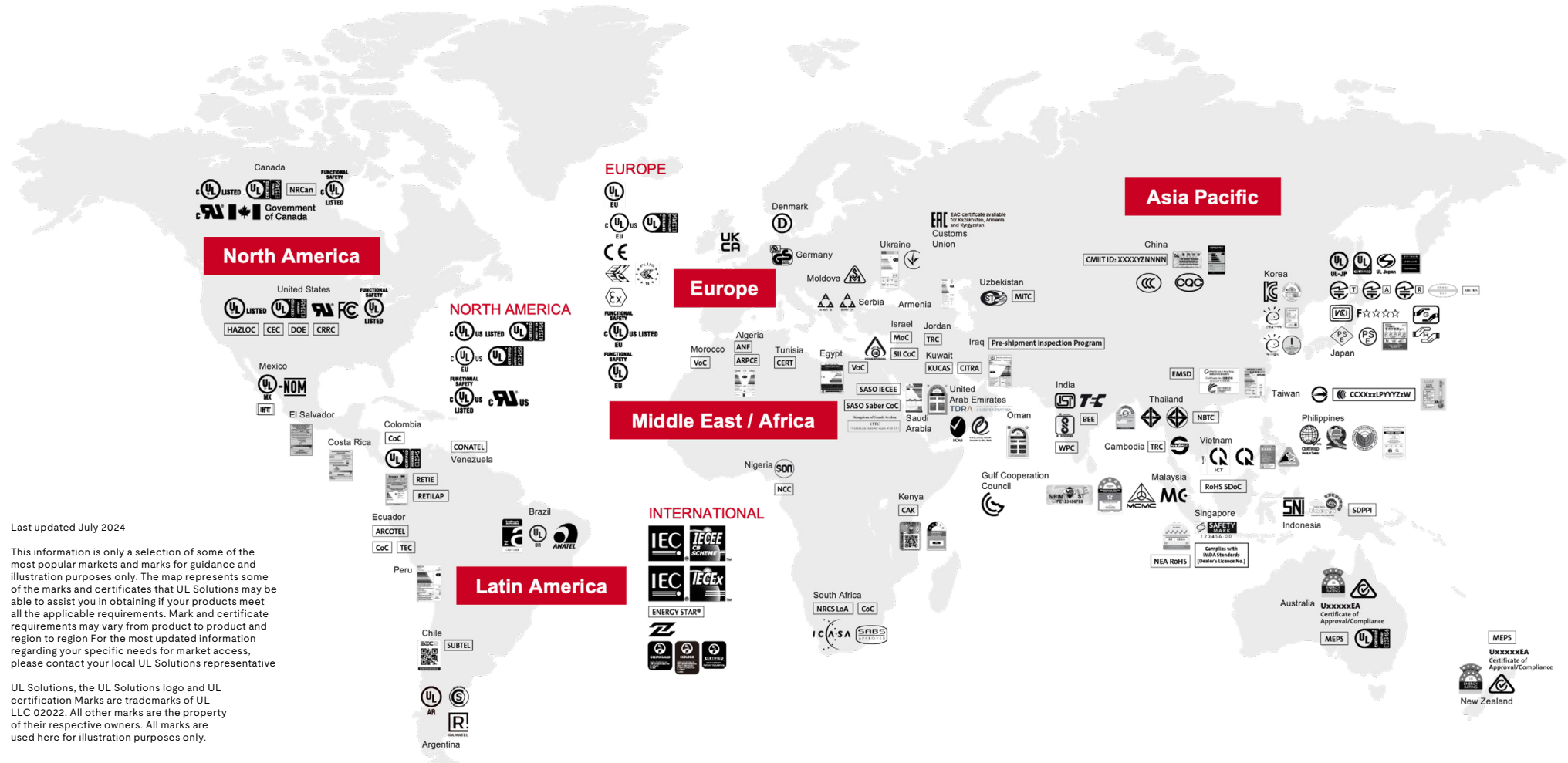
Build Workplace Excellence



Strengthen Security



Advance Societal Wellbeing



Last updated July 2024

This information is only a selection of some of the most popular markets and marks for guidance and illustration purposes only. The map represents some of the marks and certificates that UL Solutions may be able to assist you in obtaining if your products meet all the applicable requirements. Mark and certificate requirements may vary from product to product and region to region. For the most updated information regarding your specific needs for market access, please contact your local UL Solutions representative.

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**Global Market Access**  
 Receive the latest updates on [UL.com/global-market-access](https://www.ul.com/global-market-access)

Market	Certification/Mark
--------	--------------------

North America	cULus
Europe	ENEC15
IECEE	CB scheme*
China	CCC
Mexico	NOM
Korea	KC Mark

\*54 member countries

Market	Certification/Mark
--------	--------------------

Japan	PSE
Australia/New Zealand	CoA-CoS/ RCM mark
India	BIS CRS
Brazil	INMETRO
Saudi Arabia	SASO CoC

# Safety testing on a global scale

Fully equipped laboratories for electrical safety testing intended to obtain access to the global market.

Navigating the regulatory landscape of global markets is a complex and challenging task. By collaborating with UL Solutions to handle your global market access needs, you can tap into our experts and facilities throughout the world.

This information is for guidance and illustration purposes only. The map represents some of the marks and certificates that UL Solutions may be able to assist you in obtaining if your products meet all the applicable requirements.



# Lighting safety testing and certification

For both simple and complex projects, partner with us for your lighting safety testing needs, for LED lighting and beyond. As a widely recognized lighting certifier in the U.S., and an issuer of IECEE CB Certificates worldwide, UL Solutions helps lighting designers and your customers identify high quality products and provides an important differentiator in a crowded market with the UL Mark, which has global recognition and acceptance with code authorities.

***Our testing and certification options include, but are not limited to:***

- Common North American lighting standards such as UL 1598, UL 8750, UL 153, UL 924, UL 48
- Common IECEE/CB Scheme and ENEC standards such as 60598, 61347, 62471
- Other regional, national, and international safety standards
- Specialty lighting categories for horticultural, photovoltaic, germicidal and more

Our extensive lighting technical knowledge comes from our engineers, who are committed to partnering with our customers throughout the project to explain the certification process. As lighting technology and systems grow in complexity, our knowledgeable engineering team is uniquely positioned to help you meet certification requirements.

From sconces, pendants, downlights, track lighting, electric signs and retrofits to connected lighting systems and beyond, leverage our expertise and experience to help you bring your products to market across the world.



## Energy efficiency

***The growing emphasis on sustainability means you need to meet demanding efficiency benchmarks in order to bring products to the global market.***

Our energy efficiency testing services can confirm your compliance to current energy efficiency requirements in your target markets. Our global team actively participates in standards development and can help keep you ahead of the curve on new and evolving regulations and industry standards.

UL Solutions is accredited to test the following energy efficiency programs:

- California Energy Commission (CEC) Title 20, 24
- Department of Energy (DOE)
- DesignLights Consortium® (DLC)
- ENERGY STAR®
- ENEC Plus (ENEC+) scheme
- European Energy Efficiency (ErP)
- Lighting Facts®
- Natural Resources Canada (NRCan)
- Other global energy efficiency programs



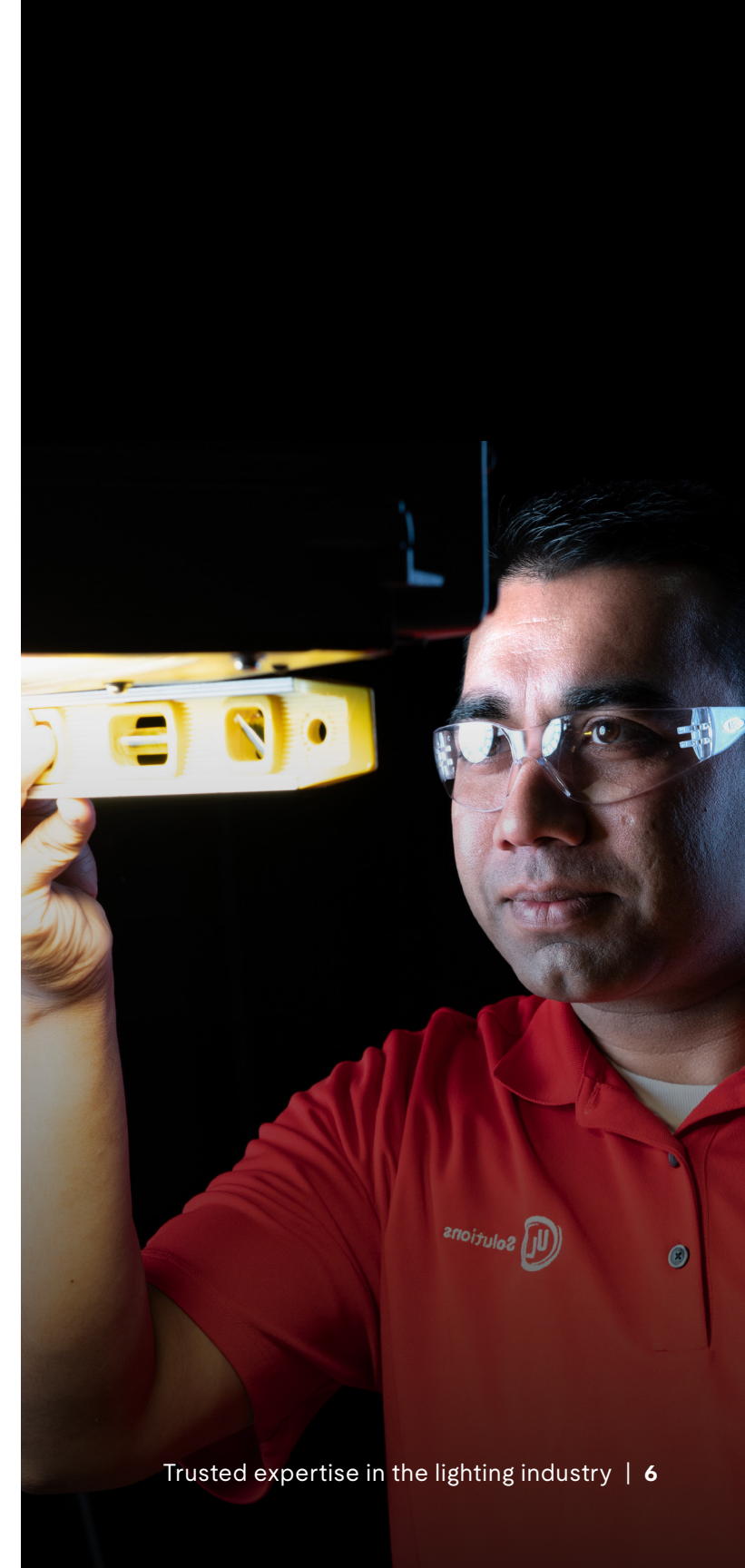
## Performance solutions

***Our performance tests help you demonstrate compliance with industry, national and international standards by using data from an objective, independent source.***

We test performance by simulating anticipated everyday usage in controlled laboratory settings, providing objective confirmation of lighting product performance claims.

Our capabilities include:

- Accelerated stress testing
- Circadian Field Measurement Testing
- Circadian Luminaire Testing
- Claims Validation
- Competitive Benchmarking
- Corrosion and Salt Fog
- Design Verification
- Electrical
- Environmental
- Flicker Testing
- Horticultural
- IP/IK Testing
- LED Product Failure Testing
- LED Product Reliability Testing
- Lifetime
- Mechanical
- Photobiological (IEC62471/IESNARP-27)
- Photometry (IESNA, EN, UNI)
- R&D Testing
- Reliability Testing
- Thermal Shock
- Ultraviolet (UV)
- Vibration Testing



# Connected and Smart Lighting

UL Solutions has committed to focusing on connected lighting as the technologies converge and will meet the new demands emerging around Li-Fi, smart homes and buildings and the growing emphasis on lighting as a component of a connected ecosystem.

**We test end products, components and gateways of building control systems that connect electronic devices, including:**

- Lighting and appliances
- Electromagnetic compatibility (EMC) testing
- Wireless testing such as Bluetooth®, Zigbee®, Matter, Thread®
- Digital Addressable Lighting Interface (DALI) protocols

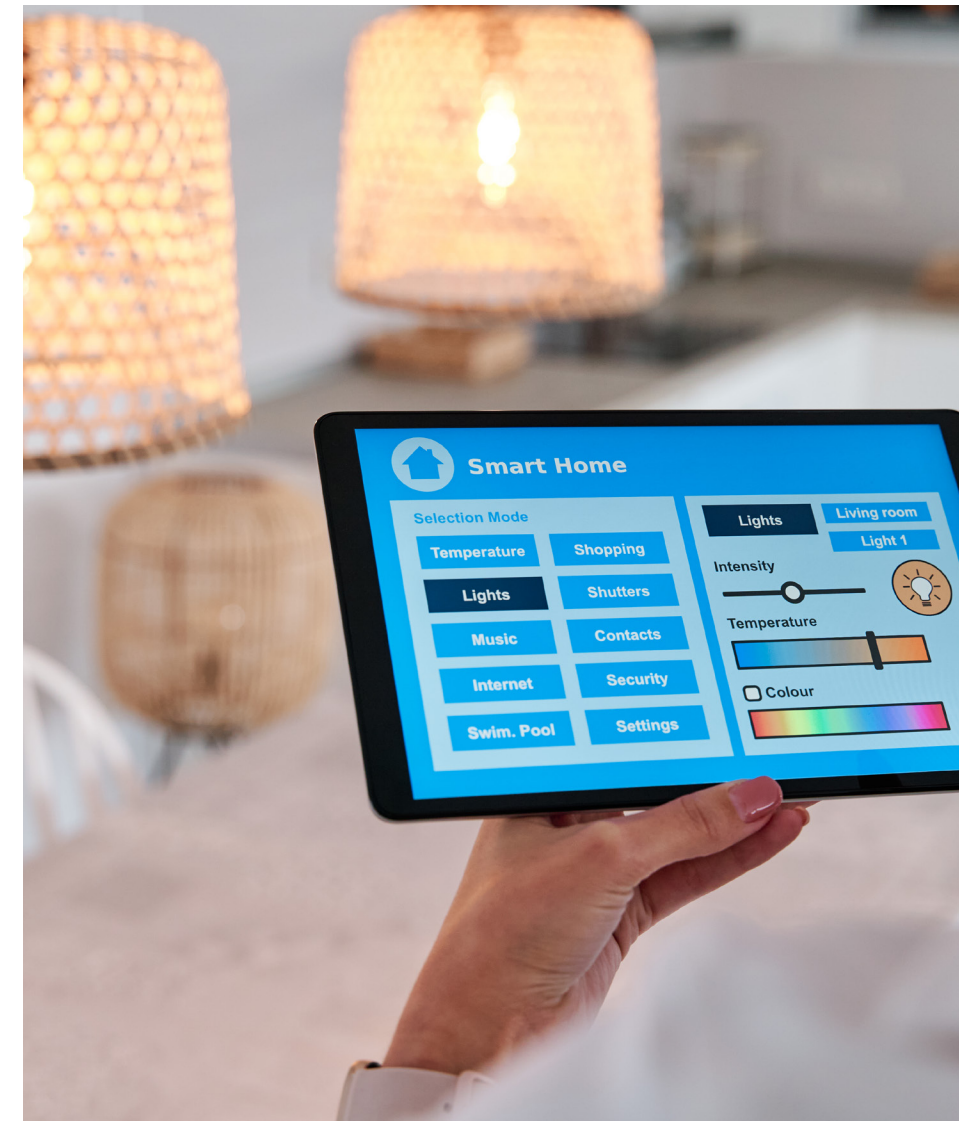
# UL Marketing Claim Verification

Learn more about ways to differentiate your lighting products in a crowded market with UL Verify. The UL Verified Mark demonstrates verification by an independent, objective, science-based assessment and delivers the confidence to consumers that a brand's marketing claim is accurate, truthful, and credible.

UL Solutions provides a searchable database of Verified claims by brand, company name, product name and the claim's unique identifier that help differentiate lighting products in a crowded market.

**Benefits of verification:**

- Elevate your brand
- Build credibility
- Quickly bring innovative products to market
- Leverage a Mark recognized worldwide



# Building on our deep industry knowledge

With our rich industry expertise and commitment to customer satisfaction, we are confident in our ability to support you in enhancing the quality and performance of your lighting products.

## ***Benefits of working with UL Solutions engineers:***

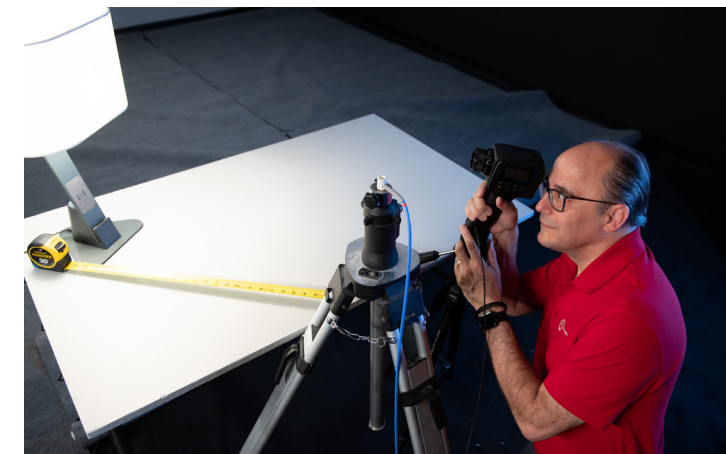
- Extensive experience in product verification and validation
- Deep understanding of lighting market dynamics and competition
- Customized services to meet your specific needs
- Commitment to quality and performance excellence



## **Circadian field measurement for commercial spaces**

Measurements for circadian effectiveness are taken with state-of-the-art, patent-pending test and measurement equipment.

Using algorithms to analyze the test data, UL Solutions can determine the current circadian effectiveness according to the three current published models: the International WELL Building Institute, UL DG 24480, Design Guideline for Promoting Circadian Entrainment with Light for Day-Active People, and DIN TS 67600.



## **Circadian luminaire testing**

Measure the spectral power distribution (SPD) at the vertical plane of the observer's retina with algorithms to report the circadian score of the luminaire.

Our performance measurement service and UL Marketing Claim Verification program measure photometric characteristics for luminaire categories such as:

- Recessed troffers
- Wall sconces
- Pendants
- Downlights
- Wall washers
- Desk lamps





# LED/ VCSEL Reliability testing

UL Solutions offers automotive lighting manufacturers reliability testing of LED/ VCSEL products for use, lifetime performance, endurance and electrical characteristics under various environmental conditions, in line with solid-state and semiconductor industry standards.

## **Environmental and climate reliability**

- Moisture sensitivity level test.
- High-temperature lighting test.
- High-temperature and high-humidity lighting test.
- Temperature cycling test.
- Power supply temperature cycling test.

- Low-temperature lighting test.
- Condensation test.
- Salt spray test.
- Industrial gas (SO<sub>2</sub>/H<sub>2</sub>S/NO<sub>2</sub>/Cl<sub>2</sub>) testing.
- Optical quality assessment.

## **Mechanical reliability**

- External assessment.
- Vibration/sinusoidal/random vibration testing.
- Mechanical shock test.
- Drop test.
- Ball/die shear test.
- Hermeticity test.
- Reflow test.
- Solderability test.

## **Electrical operation reliability**

- High-temperature forward/reverse bias test.
- High-temperature/low-temperature operating life test.
- High-temperature and high-humidity bias test.
- High-temperature and high-humidity reverse bias test.
- High-temperature and high-humidity operating life test.
- Electrical test before and after stress.
- Electrostatic discharge human body model/charged device model.

## **LED/VCSEL module reliability**

- UV testing.
- Luminous intensity and chromaticity maintenance.
- Mechanical shock test.
- Vibration test.
- Electromagnetic compatibility testing.
- Power supply temperature cycling test.
- Module weight test.
- Maximum power test.
- Overvoltage test.
- Reverse voltage test.
- Transient voltage test.
- Static testing.
- Pulse test.

## **Headlight reliability**

- Optical colorimetric testing.
- High-temperature test.
- Vibration test.
- Water resistance test.
- Humidity test.
- Dust resistance test.
- Corrosion resistance (salt spray) test.
- Abrasion test.
- Temperature cycling test.
- Internal heat test
- Electromagnetic compatibility testing.

**Contact your local UL Solutions team:**

In the Americas: [LightingInfo@UL.com](mailto:LightingInfo@UL.com)

In Europe: [AppliancesLighting.EU@UL.com](mailto:AppliancesLighting.EU@UL.com)

In GC: [GC.LightingSales@UL.com](mailto:GC.LightingSales@UL.com)

In ANZ: [CustomerService.ANZ@UL.com](mailto:CustomerService.ANZ@UL.com)

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