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Accredited Luminaire Testing Services

About United Thai Laboratories

United Thai Laboratories (UTL) is an independent, third-party testing facility specializing in comprehensive performance and safety testing for luminaires and lighting components. We offer a full suite of internationally recognized testing services in accordance with IEC, ANSI/IES, CIE, and ASTM standards.

Our laboratory is accredited by the Thai Industrial Standards Institute (TISI) under the National Accreditation Council (NAC) and is a signatory to the ILAC Mutual Recognition Arrangement (ILAC-MRA), ensuring global acceptance of our test reports.

Why Choose UTL?

TESTING LABORATORY

NSC-TISI-TIS 17025
TESTING 0532

- **Internationally Recognized Accreditation**
  All accredited tests are conducted under ILAC-MRA recognition, ensuring global acceptance and regulatory compliance in international markets.
- **Advanced Laboratory Infrastructure**
  Our facilities feature state-of-the-art measurement systems, automated environmental controls, and precision test setups—enabling highly accurate and repeatable results across diverse test scenarios.
- **Customized Service Packages**
  We design flexible, client-specific test plans to support R&D validation, compliance verification, quality assurance, and certification.
- **Confidential & Independent**
  As an independent third-party laboratory, we ensure full confidentiality and impartiality, providing objective data and trusted results for all stakeholders.

Service we offer

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01

Photometric Test

Photometric Testing Services

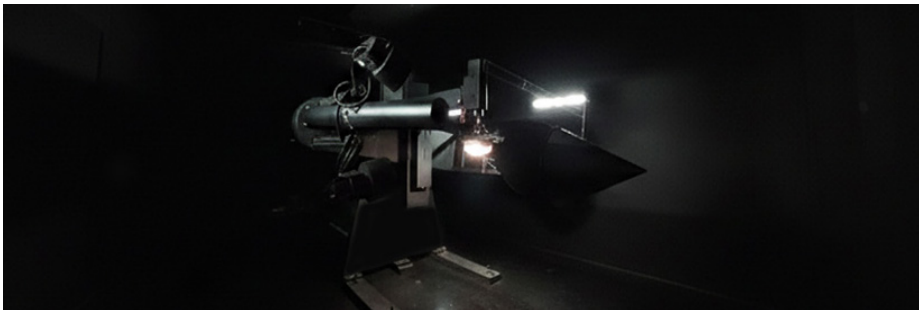
Accreditation:
Our laboratory is accredited by NAC (TISI) and operates under the ILAC-MRA framework, ensuring internationally recognized quality and reliability.

Scope of Evaluation:
We conduct comprehensive photometric evaluations to assess:
- Luminous Flux
- Luminous Intensity Distribution
- Luminous Efficacy
- Color Characteristics (CCT, CRI, Spectral Power Distribution)

Applicable Standards:
- CIE 121:1996
- IES LM-79-08
- ANSI/IES LM-79-19

Test Methods:
All measurements follow the most current IES protocols for absolute photometry, ensuring precise and standardized results.

Instrumentation:
- Type C Goniophotometer (GO-R5000)
- 2-meter Integrating Sphere equipped with a High-Precision Spectroradiometer



Goniophotometar Tester Type C (GO-R5000)

Spectroradiometer & Integrate Sphere Test System (Dia. 2 meter)

Deliverables:
Clients receive a complete LM-79 report including:

- Luminous intensity distribution curves
- Spectral power distribution data
- Correlated Color Temperature (CCT)
- Color Rendering Index (CRI)
- Electrical and optical performance metrics

Contact UTL for more information

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02

Thermal Test

Thermal Testing

Accreditation:
Accredited by NAC (TISI) and recognized under the ILAC-MRA mutual recognition framework, ensuring internationally accepted testing practices.

Objective:
To evaluate the thermal performance and safety of luminaires under elevated ambient temperatures, ensuring operational reliability, component protection, and regulatory compliance.

Test Conditions:
- Ambient Temperatures: Ta = 40°C and Ta = 50°C
- Test Mode: Continuous operation under normal electrical load
- The luminaire is operated for a specified duration to assess heat dissipation, thermal management, and sustained performance.

Applicable Standards:
- IEC 60598-1 Edition 8.0 (2014-05)
- IEC 60598-1 Edition 9.0 (2020-08)
- IEC 60598-2-1 Edition 2.0 (2020-01)
- IEC 60598-2-2 Edition 4.0 (2023-01)
- IEC 60598-2-3: 2002 + AMD1:2011
- IEC 60598-2-5 Edition 3.0 (2015-08)
- IEC 60598-2-13: 2006 + AMD1:2011 + AMD2:2016
- IEC 60598-2-18 Edition 3.0 (2022-08)

Scope of Evaluation:
Testing in accordance with Clause 12.4, focusing on:

- Thermal endurance
- Temperature rise of accessible parts
- Heat exposure effects on electronic components and safety-critical elements

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IP Test

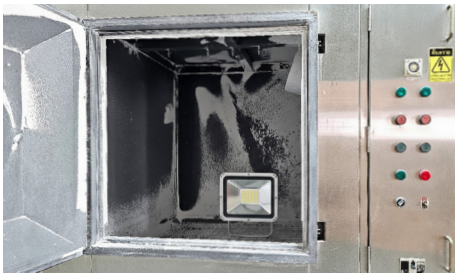
Ingress Protection (IP) Testing

Accreditation:
Accredited by NAC (TISI) and recognized under the ILAC-MRA mutual recognition framework, ensuring internationally accepted testing practices.

Objective:
To assess the degree of protection provided by luminaires against the ingress of solid objects (dust) and moisture (water jets, immersion), ensuring durability, safety, and compliance with international standards.

Test Conditions:
- Dust Protection: IP5X and IP6X tests conducted in a controlled dust chamber.
- Water Protection: IPX5 and IPX6 tests using water jet equipment; IPX7 and IPX8 tests performed with immersion and submersion equipment.

Applicable Standards:
- IEC 60598-1 Edition 8.0 2014-05
- IEC 60598-1 Edition 9.0 2020-08
- IEC 60598-2-1 Edition 2.0 2020-01
- IEC 60598-2-2 Edition 4.0 2023-01
- IEC 60598-2-3: 2002+AMD1: 2011
- IEC 60598-2-5 Edition 3.0 2015-08
- IEC 60598-2-13: 2006+AMD1: 2011+ AMD2: 2016
- IEC 60598-2-18 Edition 3.0 2022-08



Dustproof Tester For IP5X, IP6X

Waterproof Tester For IPX5, IPX6

Waterproof Tester For IPX7, IPX8

Scope of Evaluation:
Testing in accordance with Clause 9.2, focusing on:

- Degrees of protection provided by enclosures (IP Code)
- Resistance to ingress of dust and moisture under defined conditions

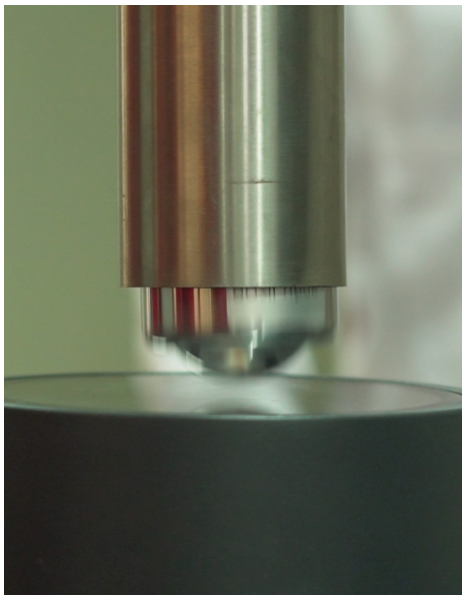
04

IK Test

Impact Resistance (IK) Testing

Accreditation:
Accredited by NAC (TISI) and recognized under the ILAC-MRA mutual recognition framework, ensuring internationally accepted testing practices.

Objective:
To determine the ability of luminaire enclosures to withstand mechanical impacts without compromising safety, functionality, or structural integrity — ensuring suitability for demanding environments.



Test Conditions:
Mechanical impact tests performed to evaluate resistance at various IK ratings (IK07, IK08, IK09, IK10, IK11) using calibrated equipment and specified impact energies.

Applicable Standards:
- IEC 62262: 2002-02(Ed.1.0) for IK07, IK08, IK09, IK10
- IEC 62262: 2002/AMD1:2021 (Ed.1.0) for IK11

Scope of Evaluation:

- Resistance to mechanical impact in compliance with IEC 62262
- Assessment of enclosure durability and continued safe operation after impact
- Applications include outdoor lighting, public area luminaires, and installations exposed to vandalism or mechanical stress

Contact UTL for more information

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05

Humidity Test

Humidity Resistance Testing

(Non-Accredited Test Method)

Objective:
Simulates prolonged exposure to high-humidity environments to evaluate the performance and reliability of luminaires when subjected to prolonged exposure in high-humidity environments, ensuring no electrical or mechanical failures occur and that insulation integrity is maintained under moisture-intensive conditions and insulation reliability of luminaires under moisture-prone conditions.

Applicable Standards:
- IEC 60598-1 Edition 9.0 (2020-08)
- IEC 60598-2 Series:
  - o Part 2-2 (Recessed luminaires)
  - o Part 2-3 (Luminaires for road and street lighting)
  - o Part 2-5 (Floodlights)
  - o Part 2-13 (Ground recessed luminaires)
  - o Part 2-18 (Luminaires for swimming pools and similar applications)

Use Case:
Intended for luminaires designed for tropical, coastal, or high-humidity environments where moisture ingress or condensation may affect performance and safety.

06

Eudurance Test

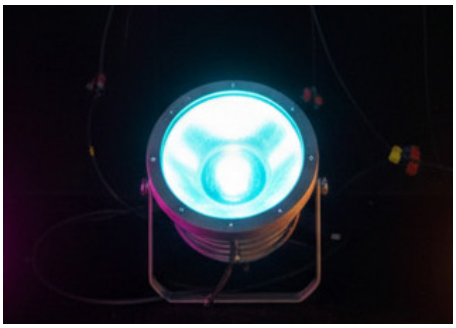
Endurance Testing – Thermal Cycling

(Non-Accredited Test Method)

Objective:
To evaluate the luminaire's durability and performance under repeated heating and cooling cycles, simulating long-term real-world environmental conditions and identifying potential points of failure.

Test Conditions:
Luminaires are subjected to controlled thermal cycling, alternating between elevated and reduced ambient temperatures for multiple cycles, to assess material stability and structural integrity over time.

Applicable Standards:
- IEC 60598-1 Edition 9.0 (2020-08)
- IEC 60598-2-2 (Recessed luminaires)
- IEC 60598-2-3 (Luminaires for road and street lighting)
- IEC 60598-2-5 (Floodlights)
- IEC 60598-2-13 (Ground recessed luminaires)
- IEC 60598-2-18 (Luminaires for swimming pools and similar applications)

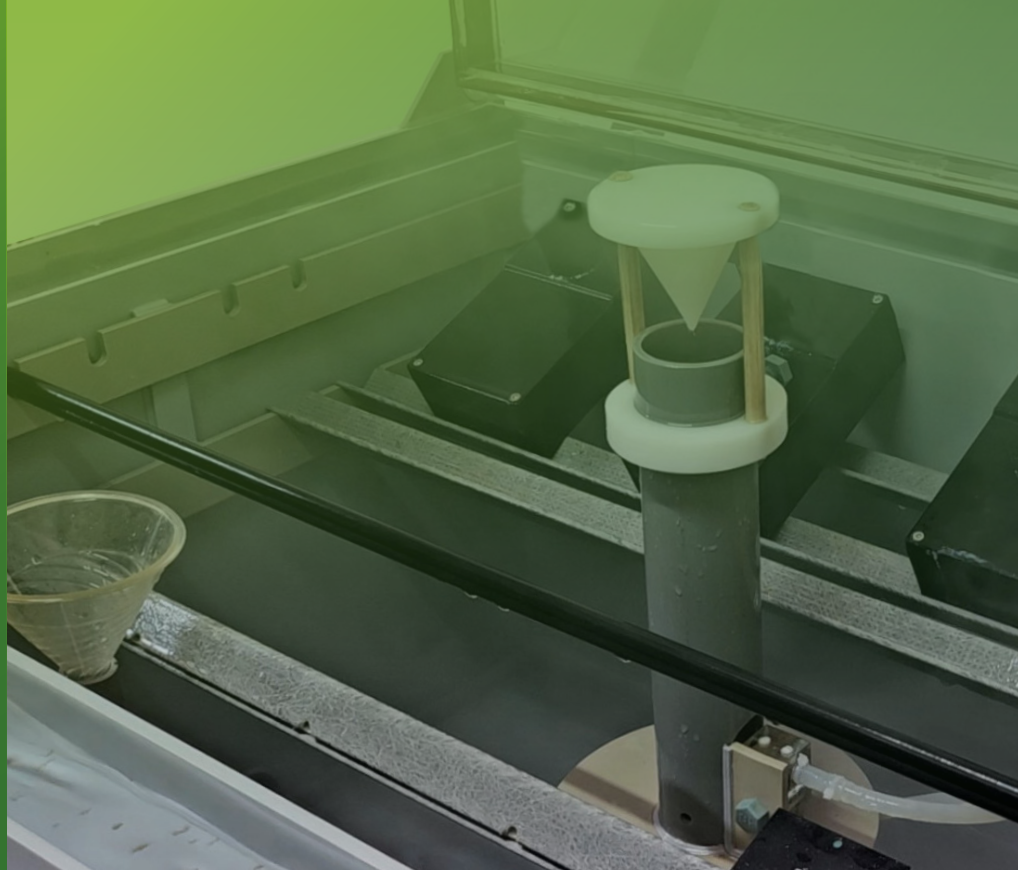


Scope of Evaluation:

- Detection of premature component failures
- Assessment of material degradation due to thermal stress
- Evaluation of structural fatigue and overall product endurance

07

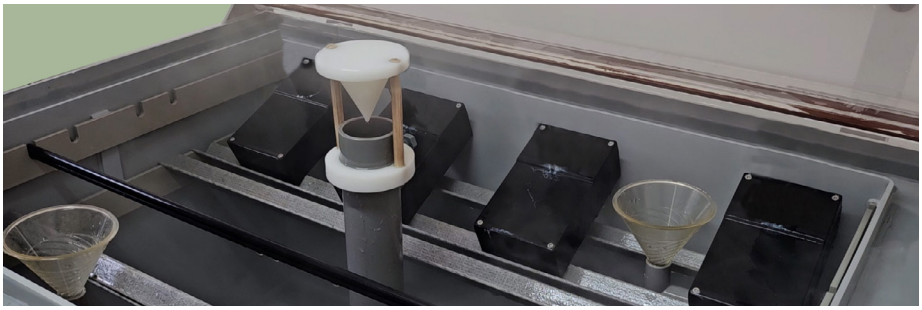
Salt Spray Test



Salt Spray (Corrosion) Testing

(Non-Accredited Test Method)

Objective:
To assess the corrosion resistance of exterior finishes and metal components in saline environments, ensuring suitability for use in coastal, marine, or other salt-rich atmospheres.



Test Conditions:
Accelerated corrosion testing conducted in a salt spray chamber, exposing luminaires and components to a controlled saline mist to simulate long-term exposure to salt-laden environments.

Applicable Standards:
- ASTM B117-73

Scope of Evaluation:

- Durability of protective coatings and finishes
- Corrosion resistance of metal components
- Suitability for coastal regions, marine vessels, and similar applications

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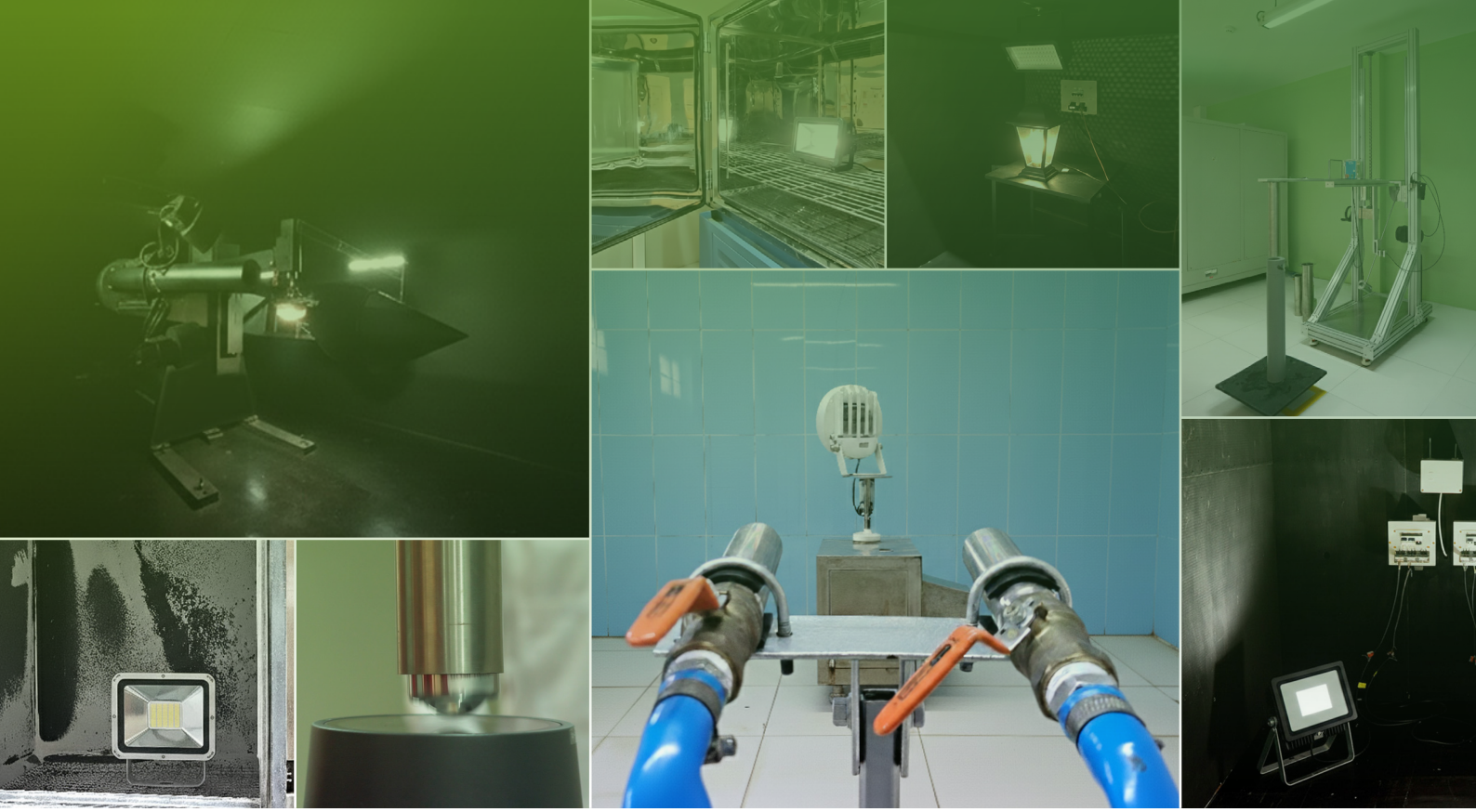

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Tailored Testing Solutions for Every Need

At **United Thai Laboratories (UTL)**, we offer customizable testing programs to suit a variety of technical objectives and budgetary needs. Whether you're pursuing regulatory certification, ensuring compliance, or conducting R&D validation, our thermal testing services provide the accuracy and reliability needed to support high-performance lighting solutions.

Ensure your luminaires meet global standards.
Contact us now to schedule your thermal testing with **UTL**.

Contact Us:

United Thai Laboratories (UTL)
Your Reliable Testing Partner for Luminaires
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