Measuring circadian-effective lighting in the field

Circadian heat mapping and UL Marketing Claim Verification options

UL Solutions

Advancements in connecting lighting and health

The link between the lighting to which we are exposed each day and its effect on our circadian rhythm has been an issue of increasing interest in TIC. Building owners, lighting designers and architects can benefit from demonstrating that their spaces adequately utilize lighting to maintain healthy circadian rhythms for their occupants.

In response, UL Solutions has developed patent-pending technology capable of measuring the circadian effectiveness of installed lighting in commercial real estate settings. This technology provides consistent, measurable data that can accurately assess and depict circadian effectiveness for a particular space, which is projected to be an increasingly important differentiator in the occupancy of commercial spaces.

Key industry drivers

Through extensive feedback from professionals within the industry, UL Solutions recognized that lighting designers and building owners needed an offering to quickly and efficiently map the circadian health of a designated space.

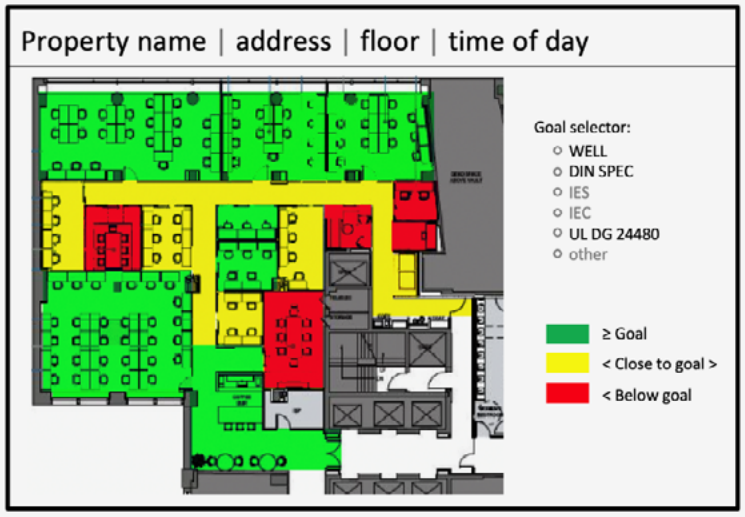
- Outlining the procedure for conducting the measurements was not enough.
- Manual gathering of the data was unrealistic at the necessary scale.

By automating processes and creating a framework for analysis, our field measurement services provide a path to adoption and a way to differentiate spaces as circadian-effective.

Opportunities across the real estate ecosystem

Real estate stakeholders seek to increase the value of their portfolio and reduce vacancy rates. From new construction to retrofits, the potential of lighting in the built environment can be used as a differentiator.

Like other features that building owners tout for renters and leasers, such as proximity to public transportation and on-site amenities, the healthfulness of an indoor environment is of interest to current and prospective tenants.



UL Solutions circadian-effective field measurement service

Our circadian-effective field measurement service involves gathering on-site measurements in an indoor space and reporting the results on a circadian heat map.

This involves measuring the actual light that impacts the eyes of building occupants, including reflectance off the floor, ceiling, walls, furniture and other surfaces. Measurements consider both ambient sunlight and electrical lighting, recorded at specific times and seasons, depending on building owners' specific needs.

The field measurement part of the process uses state-of-the-art robotic automation to gather and process large amounts of data throughout a building. This data is then run through an algorithm using criteria and methodology set out in any or all of these published models:

- International WELL Building Institute: Equivalent Melanopic LUX (EML).
- UL 24480, Design Guideline for Promoting Circadian Entrainment with Light for Day-Active People.
- DIN/TS 67600: Melanopic Equivalent Daylight Illuminance (MEDI).

The resulting test report and heat map can help building owners, designers and specifiers with analysis of existing lighting conditions, or alternatively, as a planning tool for retrofits and new construction.

Sample UL Verification Marks based on the EML, MEDI and CS units of luminance.

Verified space for promoting circadian entrainment with light

UL Marketing Claim Verification offers building owners a unique way to promote a building's performance characteristics. A building with verified performance characteristics can display a Mark indicating that the total lighting in a designated space, such as a lobby, conference room or entire building, has been verified to meet circadian measurement requirements.

Our technicians use the same technology to capture the circadian heat map to measure the lighting of the designated space on-site, ensuring that factors such as reflectance, wall coloring, and layout are taken into consideration as the space is verified as achieving circadian entrainment goals for the benefit of its occupants.

What is UL Marketing Claim Verification?

We developed the UL Marketing Claim Verification program to provide manufacturers with a reliable way to verify the accuracy of specific claims, which can help differentiate their brands in the marketplace. Verification is based on an objective, science-based assessment that confirms the accuracy of marketing and performance claims. We issue a UL Verification Mark upon successful verification of a marketing claim through testing, auditing or inspection. The UL Verification Mark use authorization expires one year after the original Mark issuance date, with an option to renew annually.

Lighting specifiers looking for particular performance characteristics can search the UL Verify database for brands and manufacturers with verified claims.

UL Solutions

Start the conversation about your UL Marketing Claim Verification project or visit us online at UL.com/circadian for more human-centric resources. Connect with local experts in your region today.

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