

# ASSIST Performance Metrics

## Solid-state lighting needs metrics to ensure its success in the general illumination market.

The ability for solid-state lighting to save energy and reduce maintenance costs has made it a promising lighting technology for the future. The light-emitting diode (LED), the primary solid-state lighting technology, has evolved rapidly to become a highly efficient source for exit signs, traffic signals, task lighting, and certain niche applications of general lighting.

Yet in order for solid-state lighting to be a success in the general illumination marketplace, measurement methods and testing protocols for evaluating the performance of LEDs and LED luminaires are essential. Unbiased, independent information about LED technology during its development will significantly benefit its market impact, help end-users save energy, and assist lighting manufacturers and specifiers in developing more effective lighting solutions.



### The Need for LED Performance Metrics

High efficiency, long life, durability, dynamic control, and safety are the key reasons for the growing popularity of LEDs. Given the benefits of this technology, progressive lighting manufacturers, specifiers, and end-users are interested in using LEDs to develop innovative and energy-efficient lighting products and installations. However, because LEDs are still a relatively new technology, careful steps are needed to ensure that the lighting community has the necessary information to make informed decisions about how to select and apply this LED lighting effectively. Early failures in market introduction can negatively affect the entire LED industry.

Presently, several standards for LED measurement have been published and many more are in progress. Yet there is still a void of unbiased, independent information about LED performance. Metrics used for traditional light sources and luminaires generally are not relevant because of radical differences between LEDs and traditional lighting. As such, manufacturers are left to decide how to test their products and report performance, leaving end-users baffled as to how to meaningfully compare similar products.

To meet these needs, the **Alliance for Solid-State Illumination Systems and Technologies (ASSIST)** has built itself as an international resource for recommendations and guidelines on LED lighting performance, metrics, and testing procedures.



**Lighting  
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## **ASSIST recommends . . . Guidelines for Performance Testing**

ASSIST publishes formal recommendations about issues important for the reliable performance of LED lighting and its comparison to other light sources. The publications include recommendations for LED life definition, testing and measurement, best practice guides for different lighting applications, and how to select LED lighting. Unlike traditional procedures that require products to be tested under standardized, ideal conditions, *ASSIST recommends* calls for testing products under conditions similar to those found in the application environment, where the light source could experience many different temperatures and may perform poorly as a result. Testing products by intended application also allows for apples-to-apples comparisons of products because test methods have been developed from a technology-neutral standpoint.



## **Projects**

ASSIST has published recommendations for metrics and testing of LED life, under-cabinet and directional lighting, LED light engines, outdoor lighting, supermarket freezer display case lighting, light source color and glare.

**Download ASSIST recommends at**

[www.lrc.rpi.edu/programs/solidstate/assist/recommends.asp](http://www.lrc.rpi.edu/programs/solidstate/assist/recommends.asp)



## **About ASSIST**

ASSIST was established in 2002 by the Lighting Research Center as a collaboration between researchers, manufacturers, and government organizations. ASSIST's mission is to enable the broad adoption of solid-state lighting by providing factual information based on applied research and by visualizing future applications. On behalf of ASSIST, the LRC conducts research, demonstration and educational activities. Sponsors include Acuity Brands Lighting, Amerlux, Bridgelux, China Solid State Lighting Alliance, Cirrus Logic, Cree, Everlight, Federal Aviation Administration, GE Lighting Solutions, ITRI – Industrial Technology Research Institute, Intematix, LG Electronics, LG Innotek, Lighting Science Group, Lite-On, NeoPac Lighting, New York State Energy Research and Development Authority, OSRAM Sylvania/OSRAM Opto Semiconductors, Philips, POSCO LED, Seoul Semiconductor, Sharp Laboratories of America, U.S. EPA, WAC Lighting, and WattStopper.

## **About the Lighting Research Center**

The Lighting Research Center at Rensselaer Polytechnic Institute is the world's leading university-based research and educational institution devoted to lighting. Based in Troy, New York, the LRC's staff of more than 30 researchers, designers, and educators is working to advance the effective use of lighting to create a legacy of positive change for society and the environment. Since 1988, the LRC has collaborated with industry, government, academia, and public advocacy groups to make a positive impact on lighting manufacturing, design, specification, installation, and use through research, application, education, and market transformation.

## **For More Information**

<http://www.lrc.rpi.edu/assist>

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