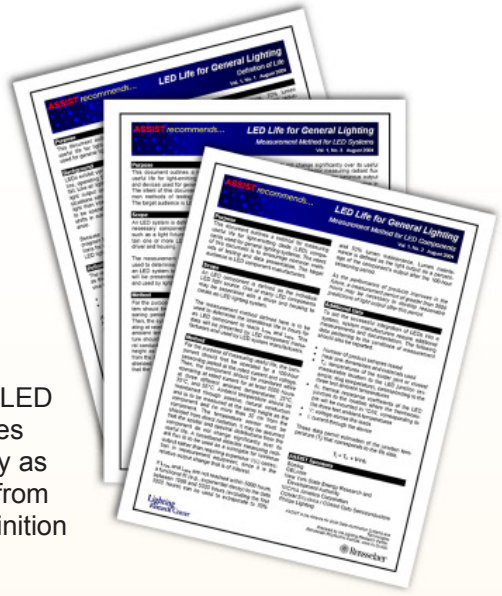
ASSIST recommends:
LED Life for General Lighting

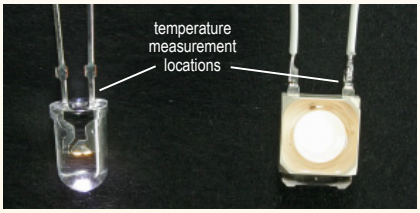


The Alliance for Solid-State Illumination Systems and Technologies (ASSIST) has proposed new guidelines for defining and measuring LED life, as a first step toward establishing standards. **ASSIST recommends**, a new publication from the ASSIST program at the LRC, outlines these guidelines and gives step-by-step instructions for measuring LED component and system life.

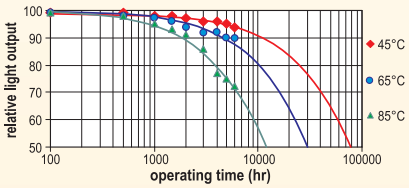
Why guidelines?

Presently, there is no standard or agreed-upon definition for LED life. LEDs do not fail completely; rather, their light output fades over time. This has led to confusion in the lighting community as to how long LED lighting will last, as well as long-life claims from manufacturers without the proof of measured data. A life definition is necessary if LEDs are to succeed in mainstream general illumination applications.

The purpose of **ASSIST recommends** is to help manufacturers present life information in a consistent manner, which in turn will help lighting professionals compare products and conduct lifecycle cost estimates. ASSIST emphasizes that LED component and fixture manufacturers must conduct their own product life-testing. Integrating LEDs into a fixture without an appropriate amount of heatsinking could negatively affect LED life; therefore, a fixture's life cannot be assumed to be the same as that of the bare LEDs it uses.



ASSIST suggests testing LEDs at three different operating temperatures. The photo shows recommended points that allow for easy temperature measurement without disassembly.



Sample life graph for an LED tested at three temperatures. The graph shows measured light output and extrapolated life to 70% and 50% lumen maintenance values (not actual data).

Recommendations for LED life

ASSIST recommends defines LED life as the time it takes for an LED component or system to reach:

- 70% lumen maintenance for general lighting applications
- 50% lumen maintenance for decorative lighting applications

Manufacturers should measure a product's depreciation in light output over time by operating the component or system at rated current for a minimum of 6,000 hours. If necessary, manufacturers can extrapolate the number of hours to 70% and 50% lumen maintenance by applying a mathematical fit to the data collected between 1,000 and 6,000 hours.

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These recommendations were developed from studies of LED life and light level acceptance conducted at the LRC and by others, as well as from input provided by more than a dozen major LED and traditional lighting manufacturers and government agencies.

For more information

Visit the **ASSIST** Web site:

www.lrc.rpi.edu/programs/solidstate/assist

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