

Mission Statement

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.

HISTORY

In the early days of SSL technology, the lighting and semiconductor industries lacked knowledge of each other's respective terminology, definitions, and performance requirements. To address this concern, ASSIST was established in 2002 by the Lighting Research Center (LRC) as a collaboration among researchers, manufacturers, and government bodies to find solutions to the technical and market challenges facing SSL.



Two decades of industry partnership to advance research, education and demonstration for the broad adoption of SSL

ASSIST: Past and Future

In just two decades, solid-state lighting has gone from small indicator lamps to high-power, high flux light sources for general illumination. In 2002, the LRC formed ASSIST, an industry consortium to transform the lighting industry. Since then, ASSIST has contributed research, knowledge, and education that has helped shape the technology and transform the global lighting market. Moving forward, ASSIST is evolving to address new challenges faced by the industry and looking for greater value beyond energy savings.

Projects with Impact

LED Life – Early claims purported LED to last 100,000 hours. The LRC, however, showed that LED life could be far less depending on the drive current and the junction temperature. With ASSIST, the LRC developed a test method for estimating LED life for general lighting. ASSIST's first industry recommendation, released in 2005, defined the "useful" life of LED lighting at L70 and provided this estimation method, which later became the basis for the IES LM-80 standard. ASSIST went on to produce many "ASSIST recommends" publications to help inform the standards-setting process. In 2021, the LRC authored a report on behalf of the International Energy Agency's 4E SSL Annex summarizing life testing studies from around the world, including many ASSIST-funded projects.

Freezer and Refrigerated Case Lighting – In 2002, the LRC began investigating LED lighting for cooled display cases where linear fluorescent lamps were common. Initial studies in the lab and in-store showed that LEDs can better illuminate cooled display cases while demanding less energy. The LRC's initial ground work resulted in an 85% market transformation to LEDs in freezer cases by 2015, according to the U.S. DOE.



LED Lighting Institute – Education has always been a major activity for ASSIST. In 2001, the LRC offered the first university research-based, hands-on workshop for lighting stakeholders on how to build successful LED lighting products and applications. With help from ASSIST, more than 1,000 professionals from nearly 200 companies in more than 25 countries have learned about LED lighting through hands-on activities at the LRC laboratory in Troy, New York.

About the Lighting Research Center

The Lighting Research Center (LRC) at Rensselaer Polytechnic Institute is the world's leading center for lighting research and education.

The LRC was established in 1988 by the New York State Energy Research and Development Authority (NYSERDA) to provide objective, university-based lighting research and education. LRC lighting scientists have multidisciplinary expertise in research, technology, design, human factors, and laboratory testing. For more than 30 years, the LRC has collaborated with a global network of leading manufacturers and government agencies to develop innovative lighting solutions.

Boeing 787 Aircraft – In 2003, Boeing invited the LRC to partner on the development of innovative and efficient lighting solutions for use aboard the 787 Dreamliner jet, a next-generation commercial airplane with energy-efficiency and passenger experience in mind. At the time, LRC researchers had to look to the future of what could be possible for LEDs because the technology was not ready for primetime yet. The LRC conducted laboratory and mockup experiments, created lighting designs and thermal management solutions, and explored brightness, spectrum and timing sequences to help passengers with jet lag from transcontinental travel.



Photo credit: Boeing

Contact:

N. Narendran, LRC Director of Research
narenn2@rpi.edu | (518) 368-5818



Evolving to Meet the Future

In 2021, we know that the lighting industry requires a new revolution to keep us moving forward. In the future, LED lighting systems can benefit from rapidly evolving additive manufacturing technology, also known as 3D printing, which is already revolutionizing global manufacturing. 3D printing has the potential to meet the growing demand for custom components and products, and bring manufacturing jobs back to the U.S. Employing 3D printing for lighting would enable quick customization and meet the needs of the building design and construction industries without inflating costs, thus reversing the current trend of mass production that is leading to poor quality lighting products.

The use of 3D printing would allow custom lighting systems to be manufactured on-site, on demand, with unique features in a timely manner, and allow for rapid design changes to improve the quality, aesthetics, and performance of lighting.

For its next chapter, ASSIST will be transitioning to this new paradigm and become

ASSIST **3D Printing for Lighting.**

This new consortium began in 2019 and today is building its industry ties in order to conduct the research and education needed to advance this new technology and transform the lighting industry.

**Join the LRC to prepare for the
next industrial revolution:
3D printing for lighting**

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

**Lighting
Research Center**