

Status of the L Prize Entry: May 2011



The first entry in the L Prize competition is a 60-watt replacement lamp submitted by Philips Electronics. Philips has developed an LED replacement for the most common incandescent light bulb. The product is currently being tested in a rigorous evaluation process, including performance and lifetime measurements, stress testing conducted by independent laboratories, and field assessments conducted in collaboration with L Prize partners.

Field Assessments Measure Performance in Real Applications

More than 1,300 Philips entry samples were installed in more than 40 sites across North America to measure and evaluate their performance in real applications. Fourteen L Prize partners used site measurements and user surveys to evaluate the sample products for energy efficiency, performance, reliability, and customer acceptance. Field testing was completed in October 2010 and partners submitted their results reports to DOE in December.



Chicago Merchandise Mart
Urban Archeology, a high-end lighting, bath, and tile manufacturer and retailer, participated in field testing the Philips entry in one of these ceiling fixtures. Can you tell which one has the Philips samples? We can't!



It's the one at the top left.

L Prize Partner	Field Assessment Applications
BC Hydro	Municipal building sconces, table lamps, boardroom ceiling fixtures
Cape Light Compact	Kitchen, bath, and table lamps in single-family residences
Commonwealth Edison	Elevator and office lobby can downlights, retail lightbars, cafeteria downlights, box office table lamps
DTE Energy	Hospital lamps, hotel hallways and reception area, car dealership ceiling fixtures
Efficiency Vermont	Housing authority wall fixtures
Eugene Water & Electric Board	Art museum downlights
Midwest Energy Efficiency Alliance	Pendants and sconces in office building, commercial retail ceiling fixtures
National Grid	Apartment building common areas and hallways, restaurant pendants
Platte River Power Authority	Residential chandeliers, table lamps, restaurant waiting area, hotel lobby, commercial lighting showroom
Progress Energy	Hospital waiting room, chapel, and control rooms, residential ceiling fixtures and table lamps, restaurant dining and bar area pendants
Puget Sound Energy	Customer homes, multi-family housing common areas, coffee shops/cafés
Sacramento Municipal Utility District	Grocery store pendants, catwalk, utility technology center, home and garden show
Southern California Edison	Hotel common areas and sleeping rooms, table lamps, wall and ceiling fixtures
Wisconsin's Focus on Energy program	Restaurant pendants, hotel meeting ballroom and dining room, senior living facility community room, office lobby floor lamps



Clockwise from upper left:

Municipal boardroom, Vancouver, British Columbia. Pendants with L Prize entry samples in center and front; the unchanged pendants in rear have CFL lamps. *Courtesy of BC Hydro*

Raley's Supermarket, Sacramento, California. Customers in the deli department received a cookie when they completed a survey. *Courtesy of Sacramento Municipal Utility District*

Fort Collins, Colorado resident Jay Barnish reads by a sample L Prize bulb in his home. *Courtesy of Platte River Power Authority*

Orange Lake Resort, Orlando, Florida. The Legacy Sports Bar & Grill tested Philips samples at the bar in several pendant fixtures. *Courtesy of Progress Energy*



Dorian Ford in Clinton Township, Michigan, took the Philips entry for a spin in the showroom. *Courtesy of DTE Energy*

TRC Meets to Review Entry Criteria and Viability

A Technical Review Committee (TRC) has been assembled to review all reports, test results, findings, and documentation for the L Prize entries, in order to determine whether they meet the competition requirements. The eight TRC members represent diverse areas of expertise, including lighting technology, semiconductor manufacturing, market development, and energy conservation programs. The TRC meets regularly and has reviewed a wide range of data as well as the commercial manufacturing plan submitted by Philips, describing its plans for mass production and distribution of the proposed product.

Lab Testing Measures Performance and Lifetime

DOE conducts extensive lab testing to ensure that the L Prize entries meet requirements in areas including exceptional efficacy, long life, form factor, and suitability for mass manufacturing.

In Spring 2010, the first stage of the evaluation process, comprehensive photometric testing was conducted on the Philips 60W replacement entry. More than 200 samples of the product were subjected to LM-79 procedures measuring luminous flux, intensity distribution, correlated color temperature and chromaticity, color rendering index, and power factor. Instrumentation used in the testing included an integrating sphere and goniophotometer. Testing was conducted at two CALiPER-qualified labs: Independent Testing Laboratories, Inc., in Boulder, Colorado, and OnSpeX/CSA International in Atlanta.

In June 2010, the next stage of evaluation began: long-term lumen maintenance testing. The 200 samples were sent to Pacific Northwest National Laboratory to be tested in a new high-temperature testing apparatus specifically designed for the L Prize competition and built with assistance from Orb Optronix. The test bed is maintaining 45°C to simulate actual operating conditions and will operate for a minimum of 6,000 hours. Long term lumen maintenance testing was completed in Spring 2011.

In March 2011, stress testing was conducted to subject sample products to extreme conditions such as high and low temperatures, humidity, vibration, high and low voltage, and various electrical waveform distortions.



Long-term testing of the L Prize entry is being conducted in a specially designed high-temperature test bed.



For more information on L Prize, see www.lightingprize.org.

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