



# LumenINSIGHTS®

Shedding Light on Compliance

Issue 3: 2010



## The ABCs of Photometric Testing

**Goniophotometer:** A photometer for measuring the directional light distribution characteristics of sources, luminaires, media, and surfaces\*.

Goniophotometers are used in Energy Star, Lighting Facts, and IES-LM-79 Evaluations. There are three primary types of goniophotometers, however; **Only 'C' type goniophotometers are approved under IES standards.** The three types are:

**Type A** — The lightsource is swung in both X and Y directions at a photodetector, allowing for measurement. Because many Solid State Lighting devices are highly sensitive to heat, turning the lightsource upside down can negatively impact performance. Inconsistent readings can occur as the air movement and orientation are constantly changed throughout the evaluation. Type A goniophotometers are not approved for LM-79 testing.

**Type B** — Similar to a type A goniophotometer, although the entire arm is moved around the X axis. It presents the same heat challenges as the Type A. Type B goniophotometers are not approved for LM-79 testing.

**Type C** — In the swinging mirror configuration, the lightsource is fixed in its intended position, and a large mirror on an arm is rotated around the lightsource, reflecting the output to a photodetector. Type C goniophotometers are required for LM-79 testing, because the lightsource is installed in the same way it will be installed in the field. This provides the most accurate readings, as the light source isn't tilted, and thus the heat profile isn't constantly changing throughout the measurement cycle.

### Integrating Spheres

**Integrating Sphere** — An important aspect of Integrating Sphere testing is 'Self Absorption Correction'. This Requires the use of an auxiliary lamp.

Self absorption correction is important for testing luminaires in an integrating sphere. This develops a correction factor to account for the difference in light absorption that occurs when the luminaire is tested inside the integrating sphere\*.

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\* From ANSI/IESNA RP-16-05

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## Photometric Testing (continued)

### What's measured by what?

- Total Luminous Flux, Luminaire Efficacy (Integrating Sphere or Goniophotometer)
- Luminous Intensity Distribution (IES File, Polar Plot of Candela, Zonal Lumens) (Goniophotometer)
- Spacing Criterion (Goniophotometer)
- Isoilluminance Plot (Goniophotometer)
- Spectral Power Distribution (Integrating Sphere)
- Chromaticity (x,y; u',v') (Integrating Sphere)
- CCT (Correlated Color Temp (K)) (Integrating Sphere)

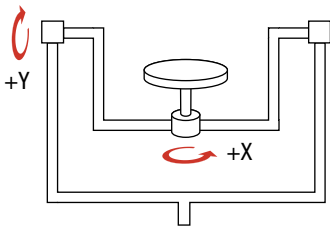
- CRI (Color Rendering Index) (Integrating Sphere)

UL has Type C goniophotometers and Imaging Spheres and we can perform photometric testing globally to:

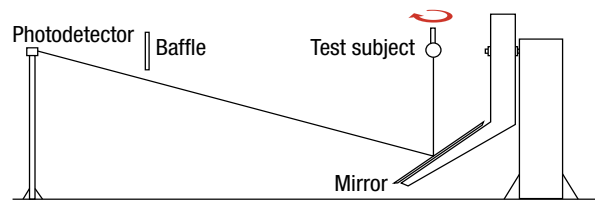
- Energy Star (Integral Lamp Test Package and Luminaire Test Package)
- Lighting Facts Label Test Package
- Integrating Sphere/Type C Goniophotometry Evaluations to IESNA-LM79

 [Contact us today to request a quote \*\*www.ul.com/lighting\*\*](http://www.ul.com/lighting)

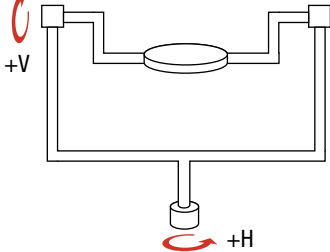
Type 'A' Goniophotometer



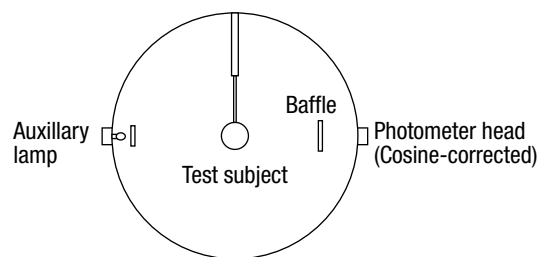
Type 'C' Swinging Mirror Goniophotometer



Type 'B' Goniophotometer



Integrating sphere (4-pi geometry)

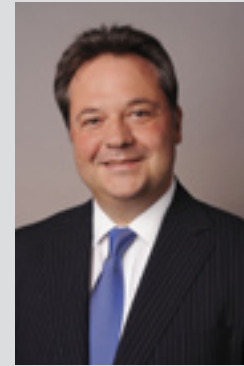


## UL Lighting Remembers a Colleague

James (Jim) Richards passed away on Saturday, September 4th. He is survived by his wife, mother, sister, five children and ten grandchildren.

"I am, as I know many others are, surprised and saddened by Jim's sudden passing," said Erik Swerrie, Site Manager, Silicon Valley. "I've known Jim for so long, and he has been such an integral part of the fabric of UL and the Lighting Industry,

it's hard to think of Jim not being with us. We share these feelings with Jim's family and his many friends and associates. And with these feelings, we have good memories and appreciate the knowledge, insight and good humor that Jim brought to our work together. I feel fortunate to have been able to share a good portion of my journey at UL with such a fine person. Jim Richards will be missed."



As we enter into back-half of 2010, I can see that the Lighting industry has come a long way in a very short time. UL is prepared for the changes that are

occurring and we are working with our customers to provide global solutions and support.

You've told us that controlling your evaluation costs is important, so we are introducing two new, low-cost services that can help lower your costs — both your money and your time — titled Conditions of Acceptability, and Component Replacement.

UL has been actively working with the US Environmental Protection Agency (EPA) and the US Department of Energy (DOE) to develop common-sense energy efficiency programs that are developed with our customers' best interests in mind. We are opening a new photometric testing facility in Guangzhou China, able to evaluate to IESNA LM-79, Lighting Facts, and Energy Star programs. We are hosting the Next Generation Lighting Competition, and we'd like to invite you to attend.

Finally, I'd like to personally thank you for your input and suggestions, and I'd welcome you to continue providing your feedback to us on what programs are important and how we can help better serve the Lighting industry in this exciting time of great change.

**Alberto Uggetti**  
Vice President &  
General Manager —  
Global Lighting



# ENERGY EFFICIENCY

## State of Energy Programs

With increased scrutiny of the efficiency performance of products qualified under the United States voluntary Energy Efficiency Program, Energy Star®, the US Environmental Protection Agency (EPA) and the US Department of Energy (DOE) are taking robust actions to reform the program and introduce mandatory independent testing and verification requirements for products that bear the Energy Star label.

In late March 2010, the EPA announced a series of significant reforms that are intended to elevate the integrity of

efficiency claims for products across its product categories. The EPA will now be requiring testing by EPA-recognized, ISO/IEC 17025-accredited labs for initial product testing for qualification to the program across all products categories.

Then by January 1, 2010, all products will be required to be reviewed through a third party certification body, who will verify compliance and submit qualified products

to the EPA for program participation. UL has submitted its application to be recognized by the EPA as a qualified

certification body and stands ready to assist manufacturers in complying with these enhanced program requirements.

For additional questions, please contact David Edwards, [david.edwards@ulenvironment.com](mailto:david.edwards@ulenvironment.com)



## Lighting Performance Testing: Now in China

UL's Verification Services provides high quality commercial testing, inspection, and audit work that are recognized and respected around the world.

Early this year, UL invested in the establishment of a Verification Services lab in Guangzhou, China. The lab is located in the Nansha Technology Innovation Center and the initial size of the lab is over 3,000 sqm, covering 2 floors. Out of this total floor area, around 1,000 sqm is dedicated to Lighting/LED testing. In this lab, we provide customized reliability, performance, and energy efficiency testing of products based on regulatory, industry, and retail requirements or customer-specific protocols. This facility houses several state-of-the-art testing equipment including multiple goniophotometers and integrating spheres of varying sizes. To support various customer requirements,

we have just completed the IAS audit and are also in the process of completing other essential global accreditations for this lab including NVLAP and CNAS:

- Energy Star Integral Lamp Test Package
- Energy Star Luminaire Test Package
- Lighting Facts Label Test Package
- Integrating Sphere / Type C Goniophotometry to IESNA-LM79, IESNA-LM80
- Lighting Performance Testing

We'd like to welcome you to come visit our facility at an Open House, October 27 — please RSVP with us today!

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## Conditions of Acceptability



We are pleased to introduce our latest service offering, Conditions of Acceptability. This low-cost service was developed based directly upon lighting industry feedback. UL University's Conditions of Acceptability (COA) service allows manufacturers to request conditions of acceptability for Recognized Components.

This service is designed to save you time and money during the product evaluation process.

To submit your components for Conditions of Acceptability review please call UL University at +1.888.503.5536 or e-mail [ULUniversity@us.ul.com](mailto:ULUniversity@us.ul.com).

 [Learn More...](#)

## Component Replacement



In an effort to respond to customer feedback about Alternate Construction pricing being too high for known safe, recognized components, the Component Replacement service has been created.

Component Replacement service provides for the replacement or substitution of components having the same or better rating than the components currently in an active UL File. Assumes that the new components are currently UL listed or recognized,

have the same safety profile or rating than the current file components. The most commonly substituted components include: relays, switches, lamp holders, fuses, fuse holders, internal connectors, internal wiring or varistors.

This provides an avenue for customers to include an unlimited number of Recognized components that have the same safety profile to components currently in their UL file for a low flat price.

## Designing for Compliance: UL8750



This one-day technical training course will provide an in-depth exposure to UL processes and requirements for LED luminaries. The first half-day will focus on the UL submittal and Certification processes, the results of certification and ongoing Follow-Up Service (FUS). The second half-day will provide an in-depth review of how UL 1598 Standard requirements must be supplemented with specific requirements of UL 8750 to ensure compliance for LED luminaire design. Several case studies will be used to provide examples.

Participants should have a solid understanding of UL 1598 before taking this course.

Dates and locations:

**November 10, 2010**  
Northbrook, IL


**December 1, 2010**  
Research Triangle Park, NC

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## EVENT SPOTLIGHT

## Next Generation Lighting Event

You are cordially invited to preview the next generation of LED commercial lighting products. The event is scheduled for December 2, 5pm – 7pm at the UL RTP Office located at 12 Laboratory Drive in RTP, NC. We are taking this opportunity to reach out to our local authorities and

specifiers who might be interested in seeing what the future of energy efficient lighting holds. If you would like to join us for some seminars, appetizers and a reception for this event, please RSVP by Monday, November 30 to Shari Hunter from UL's RTP office at [Shari.L.Hunter@us.ul.com](mailto:Shari.L.Hunter@us.ul.com).



## Singapore Technical Summit a Success

Lighting industry representatives and decision makers from China, Taiwan and Hong Kong attended the summit in June, to meet with UL's experts on lighting business and principal engineers. A variety of topics were discussed: LED trends, technical information about UL8750 and UL48, US DOE SSL, Energy Star programs and new verification services. Participants also exchanged opinions with the UL representatives for how to make the lighting business a great success. Thanks to everyone for their attendance!



Thanks to everyone who attended the 2010 UL Technical Summit in Singapore.

## UL Connect

## UL Regulatory Support Goes Mobile!

UL Regulatory Services is proud to present – **UL Connect** for the iPhone™ and iPod touch® delivering instant access to UL.

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## COMESSEEUS

**October 27**  
**Nansha Lab Open House**  
Guangzhou, China

**November 10**  
**Designing for Compliance**  
Northbrook, IL

**December 1**  
**Designing for Compliance**  
Research Triangle Park, NC

**December 2-3**  
**Next Generation Lighting Event**  
Raleigh, North Carolina

**January 6-9 2011**  
**Consumer Electronics Show**  
Las Vegas, Nevada

**February 22-24**  
**Strategies in Light North America**  
Santa Clara, California

## Share Your Insights

Let us know what you think – send your comments, feedback and suggestions to [Lumen.Insights@us.ul.com](mailto:Lumen.Insights@us.ul.com).

Managing Editor: [Matthew Sallee](#)

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