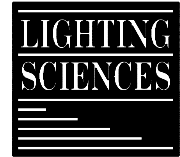


**Energy Star for SSL Qualification
Testing Requirements – May, 2009**



Required Test Data Required Provider Laboratory Equipment

Photometric & Electrical

Luminaire output	Total lumen output (LM 79)	LSI	Goniophotometer or integrating sphere
Luminaire efficacy	Lumens per watt (LM 79)	LSI	Goniophotometer or integrating sphere
Intensity distribution	Candlepower distribution at specified angles (LM 79)	LSI	Goniophotometer
Zonal lumen density	Lumen output in particular angular ranges (LM 79)	LSI	Goniophotometer
Analysis of light distribution by zones	DOE qualification report (LM 79)	LSI	Dedicated software
Power Factor Test	Electrical power factor	LSI	Power factor meter

Color

Color Rendering Index (CRI)	Rendering of nine standard colors (LM 79)	LSI	Integrating sphere
Correlated Color Temperature (CCT)	Kelvin temperature of colors (LM 79)	LSI	Integrating sphere

Additional

Lumen maintenance	LED life - depreciation over time (LM 80)	Option 1, Component Performance: data normally obtained from LED manufacturer Option 2, Luminaire Performance: Tests at 0 and ≥6000 hours, LSI	Life test rack and/or integrating sphere
Temperature	Power supply and LED temperatures (Addendum to ANSI/UL 1598)	Underwriters Laboratory (UL)*	Variety of thermal test equipment

Potentially Requested Test**

Data Required

Provider Laboratory

Equipment

Color spatial uniformity	Distribution of color at particular angles	LSI	Goniophotometer with spectrophotometer attachment
Color maintenance	Change of color over lifetime	LSI	Life test rack and integrating sphere
Output operating frequency	Luminaire operating frequency	LSI	Digital oscilloscope
Noise	Volume of sounds emitted	LSI	Noise meter

* As of May 2009, the DOE is considering a ruling change that will allow LSI to perform this test

** The DOE has signaled it may request these tests in the future