

**BUREAU OF STREET LIGHTING**  
**General Specifications for Solid State Lighting LED Roadway Luminaires**  
**LED Equivalent Replacement for 150 W HPS**  
**Issue Date: 1/28/2011**

<b>Luminaire Requirements:</b>	
Correlated Color Temperature (CCT)	<u>Nominal CCT (°K)</u>  4000 +/-275
Color Rendering Index (CRI)	Luminaires shall have a minimum CRI of 65.
Off-state Power Consumption	The power draw of the luminaire (including PE or remote control devices) shall not exceed 2.50 watts when in the off state.
On-state Power Consumption	Shall not consume more than (not including optional monitoring/control device): - 115 W for Equivalent Replacement of 150 W HPS
Warranty	A warranty must be provided for the full replacement of the luminaire due to any failure for six (6) years. The warranty shall provide for the repair or replacement of defective electrical parts (including light source and power supplies/drivers) for a minimum of eight (8) years from the date of purchase.
Weight	Luminaire shall not weigh more than 22 pounds.
Operating Environment	Luminaire shall be able to operate normally in temperatures from -20° C to 50° C.
Cooling System	Shall consist of a heat sink with no fans, pumps, or liquids, and shall be resistant to debris buildup that does not degrade heat dissipation performance.
Dimensions (Approx.)	26" long x 16" wide x 7" tall
Housing	Shall be primarily constructed of metal. Finish shall be gray in color, powder coated and rust resistant. Driver must be mounted internally and be replaceable. Driver must be accessible without tools. All screws shall be stainless steel. Captive screws are needed on any components that require maintenance after installation. No parts shall be constructed of polycarbonate unless it is UV stabilized (lens discoloration shall be considered a failure under warranty). Ingress Protection shall be rated a minimum of IP54.
IESNA Luminaire Classification	Using TM-15: B2 U2 G2
Mounting Arm Connection	Luminaires shall mount on 2.375" O.D. horizontal tenon with no more than four 9/16" hex bolts and two piece clamp with vertical tilt adjustment range of +/- 5%.
PE Cell Receptacle	Luminaires shall have a 3-prong twist-lock photo-control receptacle in accordance with ANSI C136.10. The PE socket needs to be able to rotate, so that the PE window can always be positioned to face the North direction.
House Shield	Shall provide option for house side light control.

<b>LED Module/Array Requirements:</b>	
Lumen Depreciation of LED Light Sources	LED module(s)/array(s) shall deliver at least 70% of initial lumens, when installed for a minimum of 50,000 hours. Assembly shall be rated a minimum of IP66.
Light Distribution	Should be in accordance with IESNA Type II Medium Lighting Distribution.

<b>Power Supply/Driver Requirements:</b>	
Power Factor	Power supply should have a minimum Power Factor of .90
Max amperage at LED	Maximum rating DC Forward Current at T <sub>A</sub> 25° C should be 1000 mA. Maximum amperage at LED must not exceed driver current to meet Lumen Depreciation value described above and initial lumen values required below, and shall not exceed 700 mA per mm <sup>2</sup> of chip. Standard factory setting shall be 525 mA, as delivered from the factory. The Driver and LED arrays shall be designed for multi-current input operation, with switchable ratings at 350 mA, 525 mA and 700 mA.
Transient Protection	Per IEEE C.62.41-2-2002, Class A operation. The line transient shall consist of seven strikes of a 100k HZ ring wave, 10 kV level, for both common mode and differential mode. It should also meet test procedure in accordance with IEEE C62.45.
Operating Temperature	Power Supply shall operate between -20° C and 50° C.
Frequency	Output operating frequency must be ≥ 120 Hz (to avoid visible flicker) and input operating frequency of 60 Hz.
Interference	Power supplies shall meet FCC 47 CFR Part 15/18 (Consumer Emission Limits).
Noise and Ingress Protection	Power supply shall have a Class A sound rating per ANSI Standard C63.4. Assembly or compartment shall be rated a minimum of IP54.

<b>Roadway Application Requirements:</b>	
Minimum Light Output	For Equivalent Replacement of 150 W HPS, LED luminaire shall deliver a minimum of 5950 lumens (initial)
Luminaire Efficacy	$= \frac{\text{Luminaire Light Output (includes fixture efficiency and thermal effects)}}{\text{Luminaire Input Power}}$
Minimum Luminaire Efficacy	55 lm/W

<b>Measurement/Performance/Safety Standards:</b>	
<b>ANSI C78.377.2008</b>	Specifications for the Chromaticity of Solid State Lighting Products.
<b>IESNA LM-79-08</b>	IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.
<b>IESNA LM-80-08</b> (Recommended)	IESNA Approved Method for Measuring Lumen Maintenance of LED Lighting Sources.
<b>UL Standards</b> (Latest Approved)	<ul style="list-style-type: none"> <li>• <b>8750</b> Light-Emitting Diode (LED) Light Sources for Use in Lighting Products</li> <li>• <b>1598</b> Luminaires</li> <li>• <b>1012</b> Power Units Other Than Class 2</li> <li>• <b>1310</b> Class 2 Power Units</li> <li>• <b>2108</b> Low Voltage Lighting Systems</li> <li>• All components shall be UL approved</li> </ul>

<b>Pre-qualifications for Bidding:</b>
<ol style="list-style-type: none"> <li>1. The following fixtures have been pre-approved in the City's LED Pilot Project: (This information will not be displayed at this time)</li> <li>2. Before the contract can be awarded, the winning bidder shall provide three production samples to the City at no cost for final testing.</li> <li>3. Upon delivery, quality control testing will be performed by the Bureau of Street Lighting. Testing will be done in accordance with the City's "Special Specifications for the Construction of Street Lighting Systems" (The Blue Book).</li> </ol>

<b>Delivery Requirements:</b>
<p>Subsequent orders placed in response to this bid must comply with the following deliveries and quantities:</p> <p><u>Delivery time after orders are placed must not exceed 8 weeks</u></p> <p>The City of Los Angeles reserves the right to order additional fixtures (up to 20,000 units) with this contract, with the option to renegotiate the unit price as the cost of LED fixtures are reduced in the market place.</p>

<b>Penalties:</b>
<p>If the units are not delivered per the above delivery requirements, a penalty of \$100 per day per unit will be assessed. If the bidder cannot deliver, the City will have the right to cancel the contract and go to the next qualified bidder.</p>