# BUREAU OF STREET LIGHTING
# General Specifications for Solid State Lighting LED Roadway Luminaires

## Issue Date: 01/29/2010

| **Luminaire Requirements:** | |
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| Correlated Color Temperature (CCT) | Nominal CCT (°K)<br><br>4300 +/-300 |
| Color Rendering Index (CRI) | Luminaires shall have a minimum CRI of 70. |
| Off-state Power Consumption | The power draw of the luminaire (including PE or remote control devices) shall not exceed .50 watts when in the off state. |
| On-state Power Consumption | Shall not consume more than (not including optional monitoring/control device):<br>- 58 W for Equivalent Replacement of 70 W HPS<br>- 85 W for Equivalent Replacement of 100 W HPS |
| Warranty | A warranty must be provided for the full replacement of the luminaire due to any failure for five (5) 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.) | 30” long x 16” wide x 7” tall |
| Housing | Shall be primarily constructed of metal.<br>Finish shall be gray in color, powder coated and rust resistant.<br>Driver must be mounted internally and be replaceable.<br>Driver must be accessible without tools.<br>All screws shall be stainless steel.<br>Captive screws are needed on any components that require maintenance after installation.<br>No parts shall be constructed of polycarbonate unless it is UV stabilized (lens discoloration shall be considered a failure under warranty). |
| IESNA Luminaire Classification | Cutoff or Semi-Cutoff in accordance with absolute photometric tests. |
| Mounting Arm Connection | Luminaires shall mount on 2.375” O.D. horizontal tenon with no more than four 9/16-inche 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. |

| LED Module/Array Requirements: | |
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| 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. |
| Light Distribution | Should be in accordance with IESNA Type II Lighting Distribution. Should also be commercially available in a Type III Distribution. |

| Power Supply/Driver Requirements: | |
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| Power Factor | Power supply should have a minimum Power Factor of .90 |
| Max amperage at LED | Two methods are acceptable; the first is for step increments on current to the driver:<br>- 350 mA (with option of 525 mA and 700 mA) for Equivalent Replacement of 70 W HPS<br>- 525 mA (with option of 350 mA and 700 mA) for Equivalent Replacement of 100 W HPS<br>The second method is driver adjustment for multi-current input operation:<br>Standard factory for Equivalent Replacement of 70 W HPS and 100 W HPS setting shall be 21 mA, as delivered from the factory. Adjustment shall not exceed 700 mA. |
| Transient Protection | Per IEEE C.62.41-1991, Class A operation. The line transient shall consist of seven strikes of a 100k HZ ring wave, 6 kV level, for both common mode and differential mode. |
| 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 | Power supply shall have a Class A sound rating per ANSI Standard C63.4. |

| Roadway Application Requirements: | |
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| Minimum Light Output | - For Equivalent Replacement of 70 W HPS, luminaire shall deliver a minimum of 3100 lumens (initial)<br>- For Equivalent Replacement of 100 W HPS, luminaire shall deliver a minimum of 3700 lumens (initial) |
| Luminaire Efficacy | $= \frac{\text{Luminaire Light Output(includes fixture efficiency and thermal effects)}}{\text{Luminaire Input Power}}$ |
| Minimum Luminaire Efficacy | 50 lm/W |

| Measurement/Performance/Safety Standards: | |
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| **ANSI C78.377.2008** | Specifications for the Chromaticity of Solid State Lighting Products. |
| **IESNA LM-79-08** | IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products. |
| **IESNA LM-80-08** (Recommended) | IESNA Approved Method for Measuring Lumen Maintenance of LED Lighting Sources. |
| **UL Standards** (Latest Approved) | • **8750** Light-Emitting Diode (LED) Light Sources for Use in Lighting Products<br>• **1598** Luminaires<br>• **1012** Power Units Other Than Class 2<br>• **1310** Class 2 Power Units<br>• **2108** Low Voltage Lighting Systems |

## Pre-qualifications for Bidding:

1. The following fixtures have been pre-approved in the City's LED Pilot Project: (This information will not be display at this time)
2. Upon intent to purchase, the City has the right to request that the manufacturer provide three production samples at no cost to the City for final testing.
3. Upon intent to purchase, the City has the right to conduct a site visit at the manufacture facility. In the event that the City exercises this right, the manufacturer shall be responsible for all costs associates with this visit.
4. 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).

## Delivery Requirements:

Subsequent orders placed in response to this bid must comply with the following deliveries and quantities:

<u>Delivery time after orders are placed must not exceed 8 weeks</u>

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.

## Penalties:

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.