BUREAU OF STREET LIGHTING
Requirements for Solid State Lighting LED Roadway Luminaires
200 W Equivalent without control
Issue Date: 03/2012

Luminaire Requirements:	
Correlated Color Temperature (CCT)	Nominal CCT (°K) 4000 ± 275K
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 140 W (not including optional monitoring/control device).
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. Reduction of lighting output by more then 10% of the LED package within 6 years constitutes luminaire failure.
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 15” wide x 6” 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.
Lighting Controls	NA
IESNA Luminaire Classification	Cutoff or using TM-15: B2 U1 G2
Mounting Arm Connection	Luminaires shall mount on 2.375” O.D. horizontal tenon with no more than four 9/16-inch 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.

Equipment Identification Requirements:	
Bar Code (Recommended)	Each Luminaire must have a Bar Code identifying its Catalog number, Wattage and Current settings of 700 mA, 525mA, or 350mA. Bar code to be attached on the inside of housing door and must be easily visible once door is opened.
Lighting Facts	Sticker is desirable as recommended by the DOE/SSL. Information on the sticker should follow recommendations as described in the Label Reference Guide at www.lightingfacts.com

LED Module/Array Requirements:	
Lumen Depreciation of LED Light Sources and Ingress Protection	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 III Lighting Distribution.
LED S/P Ratio	The S/P ratio for the specific color temperature, as specified by the LED chip manufacturer, used in this fixture shall be the same as the one provided during evaluation, testing and approval of the unit

Power Supply/Driver Requirements:	
Power Factor	Power supply should have a minimum Power Factor of 0.90.
Max amperage at LED	Maximum rating DC Forward Current at T_A 25˚ C should be 1,500 mA. Maximum amperage at LED must not exceed driver current to meet Lumen Depreciation value described above but shall not exceed 1,000 mA per mm^2 of chip. Standard factory setting shall be 700 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.
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.

Roadway Application Requirements:	
Minimum Light Output	Luminaire shall deliver a minimum of 9,909 lumens (initial).
Luminaire Efficacy	$= \frac{\text{Luminaire Light Output(includes fixture efficiency and thermal effects)}}{\text{Luminaire Input Power}}$
Minimum Luminaire Efficacy	65 lm/W

Measurement/Performance/Safety Standards:	
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 • **1598** Luminaires • **1012** Power Units Other Than Class 2 • **1310** Class 2 Power Units • **2108** Low Voltage Lighting Systems • All components shall be UL approved

Pre-qualifications for Bidding:

1. The following fixtures have been pre-approved in the City's LED Pilot Project: General Specification.
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.
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

Delivery & Ordering:

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) 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.