



*Florida Department of Transportation*

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JIM BOXOLD  
SECRETARY

December 9, 2016

Khoa Nguyen  
Director, Office of Technical Services  
Federal Highway Administration  
3500 Financial Plaza, Suite 400  
Tallahassee, Florida 32312

Re: State Specifications Office  
Section: **992**  
Proposed Specification: **9920102 Highway Lighting Materials.**

Dear Mr. Nguyen:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Chester Henson of the State Roadway Design Office to update the language.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to [dan.hurtado@dot.state.fl.us](mailto:dan.hurtado@dot.state.fl.us).

If you have any questions relating to this specification change, please call me at 414-4130.

Sincerely,

Signature on file

Dan Hurtado, P.E.  
State Specifications Engineer

DH/dt

Attachment

cc: Florida Transportation Builders' Assoc.  
State Construction Engineer

**HIGHWAY LIGHTING MATERIALS.**  
**(REV 10-11-16)**

SUBARTICLE 992-1.2 is deleted and the following substituted:

**992-1.2 Luminaires, Driver, etc.:** All luminaires shall be one of the products listed in the Department's Approved Product List (APL). Manufacturers seeking evaluation of their product shall submit an application in accordance with Section 6.

The light source for luminaires shall be either light emitting diodes (LED), magnetic induction or plazma induction.

The luminaire shall be constructed of precision cast aluminum with a corrosive resistant polyester powder coat finish. The standard color shall be gray. The housing must shall have an electrical terminal block to attach the luminaire cable and a hinged door which provides direct access to internal parts. All hardware on the exterior of the housing shall be stainless steel. ~~The housing shall have an electrical terminal block to attach the luminaire cable.~~ The refractor and lens shall consist of glass or an optical grade polymer. The manufacturer shall place a permanent tag in the luminaire housing imprinted with: the manufacturer name, luminaire voltage, lamp wattage, and provide a blank area for the Contractor to inscribe the installation date.

Luminaires shall meet the following requirements: UL 1598 listed and labeled for installation in wet locations by an OSHA recognized "Nationally Recognized Testing Laboratory" (NRTL), be capable of maintaining 94.1% intensity at 10,000 hours with an ambient temperature of 25°C (IES LM-80) and have IESNA light distribution curves (IES LM-79) by an EPA recognized laboratory.

The driver shall be rated for 100,000 hours and have a power factor greater than or equal to 90% at full load with a total harmonic distortion less than or equal to 20% at full load. The fixture shall accommodate a circuit voltage of 480V.

Luminaires shall be provided with a minimum 10kV/10kA internal surge suppression module meeting UL 1449/ANSI C62.41.2 Category C.

The manufacturer shall submit a five year non-prorated full warranty on all components of the luminaire to the Department. The warranty shall begin on the project acceptance date and include all components of luminaire.

SUBARTICLE 992-2.4 is deleted and the following substituted:

**992-2.4 Luminaires:** The luminaires shall meet the requirements shown in the Plans and the following additional requirements.

a. A maximum correlated color temperature (CCT) of 4000°K meeting ANSI C78.377A (3985°K, plus or minus 275°K).

b. The optical portion of the housing shall be sealed to provide an IP 66 rating.

The luminaire mounting assembly shall be a slipfitter type designed to accommodate a nominal 2 inch pipe size (2-3/8 inch O.D.) arm or a pole top mounting assembly designed to accommodate a 2-3/8 inch pole top tenon.

For APL qualification, the manufacturer must have a fixture with an IESNA light distribution curve (IES LM-79) by an EPA recognized laboratory, meeting a minimum pole spacing of ~~215~~240 feet using the AGi32 lighting optimization tool with the following settings:

Setting	Requirement
Roadway Standard	IES RP-8-200
R-Table	R3 (Q0=0.07)
Roadway Layout	Two Rows Opposite, With Median, 2R OPP w/M
Roadway Width	40 feet
Median Width	22 feet
Number of Lanes in Direction of Travel	3
Driver's Side of Roadway	Right
Calculation Area	Bottom
Mounting Height	As per manufacturer's recommendation
Setback	12 feet
Tilt	0°
Optimization Criteria	Avg. Illuminance = 1.5 fc Avg./Min. Ratio = 4 Max./Min. Ratio= 10 Lv Max./L Avg. Ratio= 0.3
Arm Length	Pole top fixtures – as provided by the IES file Arm mounted fixtures – 12 feet

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The light source for luminaires shall be either light emitting diodes (LED), magnetic induction or plazma induction.

The luminaire shall be constructed of precision cast aluminum with a corrosive resistant polyester powder coat finish. The standard color shall be gray. The housing shall have an electrical terminal block to attach the luminaire cable and a hinged door which provides direct access to internal parts. All hardware on the exterior of the housing shall be stainless steel. The refractor and lens shall consist of glass or an optical grade polymer. The manufacturer shall place a permanent tag in the luminaire housing imprinted with: the manufacturer name, luminaire voltage, lamp wattage, and provide a blank area for the Contractor to inscribe the installation date.

Luminaires shall meet the following requirements: UL 1598 listed and labeled for installation in wet locations by an OSHA recognized "Nationally Recognized Testing Laboratory" (NRTL), be capable of maintaining 94.1% intensity at 10,000 hours with an ambient temperature of 25°C (IES LM-80) and have IESNA light distribution curves (IES LM-79) by an EPA recognized laboratory.

The driver shall be rated for 100,000 hours and have a power factor greater than or equal to 90% at full load with a total harmonic distortion less than or equal to 20% at full load. The fixture shall accommodate a circuit voltage of 480V.

Luminaires shall be provided with a minimum 10kV/10kA internal surge suppression module meeting UL 1449/ANSI C62.41.2 Category C.

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The luminaire mounting assembly shall be a slipfitter type designed to accommodate a nominal 2 inch pipe size (2-3/8 inch O.D.) arm or a pole top mounting assembly designed to accommodate a 2-3/8 inch pole top tenon.

For APL qualification, the manufacturer must have a fixture with an IESNA light distribution curve (IES LM-79) by an EPA recognized laboratory, meeting a minimum pole spacing of 240 feet using the AGi32 lighting optimization tool with the following settings:

Setting	Requirement
Roadway Standard	IES RP-8-200
R-Table	R3 (Q0=0.07)
Roadway Layout	Two Rows Opposite, With Median, 2R OPP w/M
Roadway Width	40 feet
Median Width	22 feet
Number of Lanes in Direction of Travel	3
Driver's Side of Roadway	Right
Calculation Area	Bottom
Mounting Height	As per manufacturer's recommendation
Setback	12 feet
Tilt	0°
Optimization Criteria	Avg. Illuminance = 1.5 fc Avg./Min. Ratio = 4 Max./Min. Ratio= 10 Lv Max./L Avg. Ratio= 0.3
Arm Length	Pole top fixtures – as provided by the IES file Arm mounted fixtures – 12 feet