



Appendix 2: Luminaire and Controller Specifications



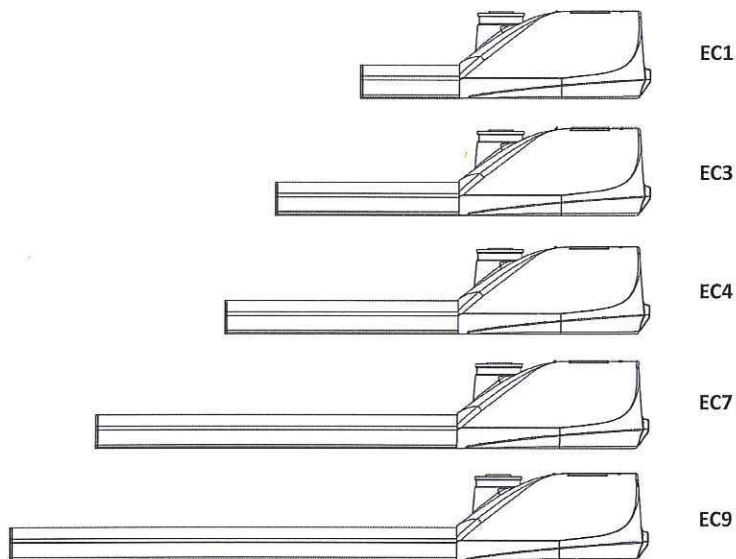
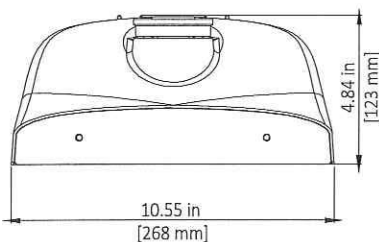
Appendix 2.1: Proposed Roadway/Cobra-head Luminaire

ECobra-head™ LED Street Light EC

Project
Type
Catalog No.

Luminaire Data

	L	Weight	EPA
EC1	16.1 in [409 mm]	10.8 lb [4.9 kg]	0.40 ft ²
EC3	20.8 in [528 mm]	12.7 lb [5.8 kg]	0.45 ft ²
EC4	23.5 in [597 mm]	14.0 lb [6.3 kg]	0.48 ft ²
EC7	30.6 in [777 mm]	19.3 lb [8.8 kg]	0.57 ft ²
EC9	35.4 in [899 mm]	21.3 lb [9.7 kg]	0.63 ft ²



Ordering Information

Sample Catalog No. EC1 4M MV NW 2 GY 700 PCR5 WL

Product & No. & Type of LEDs	Voltage	Nominal Color Temperature	Distribution	Finish ¹	Drive Current ²	Options
EC1 4M	MV 120-277V	WW 3000K	2 Type 2	GY Gray	350 350mA	FDC ⁴ Fixed Drive Current
EC1 6M	HV 347-480V	NW 4000K	3 Type 3	DB Dark	530 530mA	LPSCR Less Photocontrol Receptacle
EC3 10M		CW 5000K	4 Type 4	Bronze	700 700mA	PCR5 ⁵ 5-wire PC Receptacle
EC4 14M			5 Type 5	BK Black	1A ³ 1A	PCR7 ⁵ 7-wire PC Receptacle
EC7 18M						PCR5-CR ⁶ Control Ready 5-wire PC Receptacle
EC7 20M						PCR7-CR ⁶ Control Ready 7-wire PC Receptacle
EC7 24M						SC PCR Shorting Cap
EC9 30M						WL Utility Wattage Label
						DSC Door Safety Cable

Notes:

- Gray, Dark Bronze, and Black standard finish; consult factory for other finishes.
- Factory set drive current, field adjustable standard. Refer to performance data on page 2. Consult factory if wattage limits require a special drive current.
- 1A drive current available with EC1 4M only.
- Non-field adjustable, fixed drive current. Specify required drive current. Not available with PCR5CR or PCR7CR options.
- Field-adjustable current selector included. Wireless node dimming is disabled, field changeable connectors included to enable dimming with PCR5/7
- Control-ready wiring at factory for wireless node dimming. Default maximum drive current (700mA or 1A) must be specified.
- Flush mounted house side shield. Shield cuts light off at 1/2 mounting height behind luminaire.
- Flush mounted cul-de-sac shield. Shield cuts light off at 1/2 mounting height behind luminaire and 1-1/2 mounting height on either side of luminaire.
- Specify Color (GY, DB, BK)
- Specify MV (120-277V) or HV (347V-480V)

Accessories*

HSS ⁷	House Side Shield, Snap-On
CSS ⁸	Cul-De-Sac Side Shield, Snap-On
SPB ⁹	Square Pole Horizontal Arm Bracket
RPB ⁹	Round Pole Horizontal Arm Bracket
PTB ⁹	Pole Top Tenon Horizontal Arm Bracket
WB ⁹	Wall Horizontal Arm Bracket
BSK	Bird Deterrent Spider Kit
PC ¹⁰	Twist Lock Photocontrol
LLPC ¹⁰	Long-Life Twist Lock Photocontrol
SC	Twist Lock Shorting Cap

*Accessories are ordered separately and not to be included in the catalog number

Luminaire Specifications

Housing

Die cast aluminum housing with universal two-bolt slip fitter mounts to 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter mast arm. Aluminum housing provides passive heat-sinking of the LEDs and has upper surfaces that shed precipitation. Mounting provisions meet 3G vibration per ANSI C136.31-2001 Normal Application, Bridge & Overpass. Mounting has leveling adjustment from +5° to -5° in 2.5°. Electrical components are accessed without tools and are mounted on removable power door with stainless steel latches. Standard rubber wildlife guard conforms to mast arm with no gaps.

Light Emitting Diodes

Hi-flux/Hi-power white LEDs produce a minimum of 90% of initial intensity at 100,000 hours of life based on IES TM-21. LEDs are tested in accordance with IES LM-80 testing procedures. LEDs have correlated color temperature of 3000K (WW), 4000K (NW), or 5000K (CW) and 70 CRI minimum. LEDs are 100% mercury and lead free.

Optical Systems

Micro-lens optical systems produce IESNA Type 2, Type 3, Type 4 or Type 5 distributions and are fully sealed to maintain an IP66 rating. Luminaire produces 0% total lumens above 90° (BUG Rating, U=0). Optional house side shield (HSS) cuts light off at 1/2 mounting height behind luminaire. Optional Cul-de-sac shield (CSS) cuts light off at 1 mounting height on each side of luminaire. Both HSS and CSS can be field installed without tools.

Electrical

Rated life of electrical components is 100,000 hours. Uses isolated power supply that is 1-10V dimmable. Power supply is wired with quick-disconnect terminals. LED drive current can be changed in the field to adjust light output for local conditions (not available with PCR5-CR or PCR7-CR options). Power supply features a minimum power factor of .90 and <20% Total Harmonic Distortion (THD). EMC meets or exceeds FCC CFR Part 15. Terminal block accommodates 2 to 14 gauge wire. Surge protection complies with IEEE/ANSI C62.41 Category C High, 20kV/10kA.

Controls

3-Wire photocontrol receptacle is standard. ANSI C136.41 5-wire (PCR5) or 7-wire (PCR7) photocontrol receptacles are available. All photocontrol receptacles have tool-less rotatable bases. Wireless control module is provided by others.

Finish

Housing receives a fade and abrasion resistant polyester powder coat finish. Finish tested to withstand 3000 hours in salt spray exposure per ASTM B117. Finish tested 500 hours in UV exposure per ASTM G154 and meets ASTM D523 gloss retention. Aluminum extruded components are anodized.

Listings/Ratings/Labels

Luminaires are UL listed for use in wet locations in the United States and Canada. DesignLights Consortium™ qualified 120-277V product. International Dark Sky Association listed. Luminaire is qualified to operate at ambient temperatures of -40°C to 40°C. Assembled in the U.S.A

Photometry

Luminaires photometrics are tested by certified independent testing laboratories in accordance with IES LM-79 testing procedures.

Warranty

10-year limited warranty is standard on luminaire and components.

Performance Data

See next page

Performance Data

All data nominal, consult factory for IES files or LM-79 reports.

No. of LEDs & Type	Drive Current (mA)	System Wattage (W)	Type 2			Type 3		
			Delivered Lumens (Lm)	Efficacy (Lm/W)	BUG Rating	Delivered Lumens (Lm)	Efficacy (Lm/W)	BUG Rating
EC1 4M	350*	19	1900	100	B1 U0 G1	1800	95	B1 U0 G1
	450	23	2300	100	B1 U0 G1	2200	96	B1 U0 G1
	530	27	2700	100	B1 U0 G1	2500	93	B1 U0 G1
	700	35	3300	94	B1 U0 G1	3100	89	B1 U0 G1
	1000	55	4700	86	B1 U0 G1	4900	89	B1 U0 G1
EC1 6M	350	29	3000	103	B1 U0 G1	2900	100	B1 U0 G1
	530	42	4100	98	B1 U0 G1	4000	95	B1 U0 G1
	700	54	5000	93	B1 U0 G1	5000	93	B1 U0 G1
EC3 10M	350	40	4700	118	B1 U0 G1	4500	113	B1 U0 G1
	530	63	6500	103	B2 U0 G2	6500	103	B1 U0 G1
	700	87	8300	95	B2 U0 G2	8300	95	B2 U0 G1
EC4 14M	350	65	6800	105	B2 U0 G2	6800	105	B1 U0 G1
	530	98	9400	96	B2 U0 G2	9400	96	B2 U0 G2
	700	130	11700	90	B2 U0 G2	11700	90	B2 U0 G2
EC7 18M	350	82	8700	106	B2 U0 G2	8600	105	B2 U0 G2
	530	122	12000	98	B2 U0 G2	11900	98	B2 U0 G2
	700	163	15000	92	B2 U0 G2	14800	91	B2 U0 G2
EC7 20M	350	90	9700	108	B2 U0 B2	9600	107	B2 U0 G2
	530	137	13300	97	B3 U0 G3	13200	96	B2 U0 G2
	700	180	16700	93	B3 U0 G3	16500	92	B3 U0 G2
EC7 24M	350	109	11600	106	B3 U0 G3	11500	106	B2 U0 G2
	530	165	16000	97	B3 U0 G3	15800	96	B2 U0 G2
	700	215	20000	93	B3 U0 G3	19700	92	B3 U0 G3
EC9 30M	350	130	14000	108	B3 U0 G3	13800	106	B3 U0 G2
	530	198	19300	97	B3 U0 G3	19100	96	B3 U0 G2
	700	260	24000	92	B3 U0 G3	23700	91	B3 U0 G3

Note:

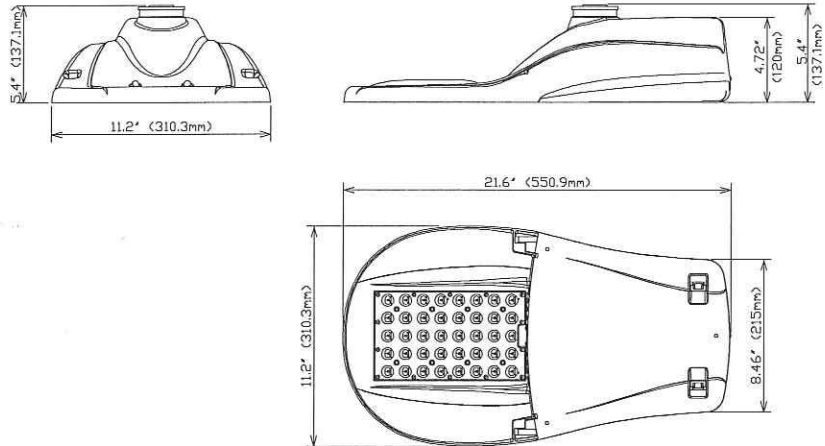
* DLC qualification for EC1 4M at 350mA limited to 120-240V



GreenCobra™ Midsize LED Street Light GCM

Luminaire Data

Weight 10 lbs [4.6 kg]
EPA 0.44 ft²



Ordering Information

Sample Catalog No. GCM1 30F MV NW 2 GY 700 PCR7 WL

Product	LED No. & Type	Voltage	Color Temperature	Distribution	Finish	Drive Current ¹	Options
GCM1 30F@ 350 to 700mA	30F	MV 120-277V HV 347-480V	WW 3000K NW 4000K CW 5000K	2 Type 2 3 Type 3	GY Gray DB Dark Bronze BK Black	350 ² 350mA 530 ² 530mA 700 700mA 1A ³ 1A	FDC ⁴ Fixed Drive Current LPCR Less Photocontrol Receptacle PCR5 ⁵ ANSI 5-wire Photo-control Receptacle PCR7 ⁵ ANSI 7-wire Photo-control Receptacle PCR5-CR ⁶ Control Ready 5-wire PC Receptacle PCR7-CR ⁶ Control Ready 7-wire PC Receptacle WL Utility Wattage Label 4B 4-Bolt Mounting Bracket DSC Door Safety Cable RWG Rubber Wildlife Guard
GCM2 30F@ 700mA to 1A, 40F @ 700mA to 1A	40F						

Notes:

- Factory set drive current, field adjustable standard. Refer to Performance Data Table. Consult factory if wattage limits require a special drive current.
- 350mA and 530mA drive current available with GCM1 only.
- 1A drive current available with GCM2 only.
- Non-field adjustable, fixed drive current. Specify required drive current. Not available with PCR5-CR or PCR7-CR options.
- Field adjustable current selector included. Wireless node dimming is disabled, field changeable connectors included to enable dimming with PCR5/7.
- Control-ready wiring at factory for wireless node dimming. Default maximum drive current (700mA or 1A) must be specified.
- Flush mounted house side shield. Shield cuts light off at 1/2 mounting height behind luminaire.
- Flush mounted cul-de-sac shield. Shield cuts light off at 1/2 mounting height behind luminaire and 1-1/2 mounting height on either side of luminaire.
- Specify Color (GY, DB, BK)
- Specify MV (120-277V) or HV (347V-480V)

Accessories*

HSS ⁷	House Side Shield, Snap-On*
CSS ⁸	Cul-De-Sac Side Shield, Snap-On*
SPB ⁹	Square Pole Horizontal Arm Bracket
RPB ⁹	Round Pole Horizontal Arm Bracket
PTB ⁹	Pole Top Tenon Horizontal Arm Bracket
WB ⁹	Wall Horizontal Arm Bracket
BSK	Bird Deterrent Spider Kit
PC ¹⁰	Twist Lock Photocontrol
LLPC ¹⁰	Long-Life Twist Lock Photocontrol
SC	Twist Lock Shorting Cap

*Accessories are ordered separately and not to be included in the catalog number. For factory installed HSS, CSS specify as option in luminaire catalog number.

GreenCobra™ Midsize LED Street Light

GCM

Luminaire Specifications

Housing

Die cast aluminum housing with universal two-bolt slip fitter mounts to 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter mast arm. One-piece aluminum housing provides passive heat-sinking of the LEDs and has upper surfaces that shed precipitation. Four-bolt mounting bracket is available. Mounting provisions meet 3G vibration per ANSI C136.31-2001 Normal Application, Bridge & Overpass. Mounting has leveling adjustment from ± 5° in 2.5° steps. Electrical components are accessed without tools via a high-strength, non-conductive polycarbonate door with quick-release latches. Polycarbonate material meets UL 746C for outdoor usage. Available rubber wildlife guard (RWG option) conforms to mast arm with no gaps.

Light Emitting Diodes

Hi-flux/Hi-power white LEDs produce a minimum of 90% of initial intensity at 100,000 hours of life based on IES TM-21. LEDs are tested in accordance with IES LM-80 testing procedures. LEDs have correlated color temperature of 3000K (WW), 4000K (NW), or 5000K (CW) and 70 CRI minimum. LEDs are 100% mercury and lead free.

Optical Systems

Micro-lens optical systems produce IESNA Type 2 or Type 3 distributions and are fully sealed to maintain an IP66 rating. Luminaire produces 0% total lumens above 90° (BUG Rating, U=0). Optional house side shield cuts light off at 1/2 mounting height behind luminaire. Cul-de-sac shield provides back and side light control for end of cul-de-sac applications. Both shields are field installable without tools.

Electrical

Rated life of electrical components is 100,000 hours. Uses isolated power supply that is 1-10V dimmable. Power supply is wired with quick-disconnect terminals. LED drive current can be changed in the field to adjust light output for local conditions (not available with PCR5-CR or PCR7-CR options). Power supply features a minimum power factor of .90 and <20% Total Harmonic Distortion (THD). EMC meets or exceeds FCC CFR Part 15. Terminal block accommodates 2 to 14 gauge wire. Surge protection complies with IEEE/ANSI C62.41 Category C High, 20kV/10kA.

Controls

3-Wire photocontrol receptacle is standard. ANSI C136.41 5-wire (PCR5) or 7-wire (PCR7) photocontrol receptacles are available. All photocontrol receptacles have tool-less rotatable bases. Wireless control module is provided by others.

Finish

Housing receives a durable, fade-resistant polyester powder coat finish. Finish tested to withstand 3000 hours in salt spray exposure per ASTM B117. Finish tested 500 hours in UV exposure per ASTM G154 and meets ASTM D523 gloss retention.

Listings/Ratings/Labels

Luminaires are UL listed for use in wet locations in the United States and Canada. DesignLights Consortium™ qualified 120-277V product.² International Dark Sky Association listed. Luminaire is qualified to operate at ambient temperatures of -40°C to 40°C. Assembled in the U.S.A

Photometry

Luminaires photometrics are tested by certified independent testing laboratories in accordance with IES LM-79 testing procedures.

Warranty

10-year limited warranty is standard on luminaire and components.

Performance Data

All data preliminary.

No. of LEDs & Type	Drive Current (mA)	System Wattage (W)	Delivered Lumens (Lm)	Efficacy (Lm/W) ¹	Type 2	Type 3
					BUG Rating	BUG Rating
GCM1 30F	350	36	3900	108	B1 U0 G1	B1 U0 G1
	530	57	6000	105	B1 U0 G1	B2 U0 G2
	700	69	7000	100	B2 U0 G2	B2 U0 G2
GCM2 30F	700	69	7000	100	B2 U0 G2	B2 U0 G2
	1000	104	9200	88	B2 U0 G2	B2 U0 G2
GCM2 40F	700	88	9000	102	B2 U0 G2	B2 U0 G2
	1000	138	12000	87	B2 U0 G2	B2 U0 G2

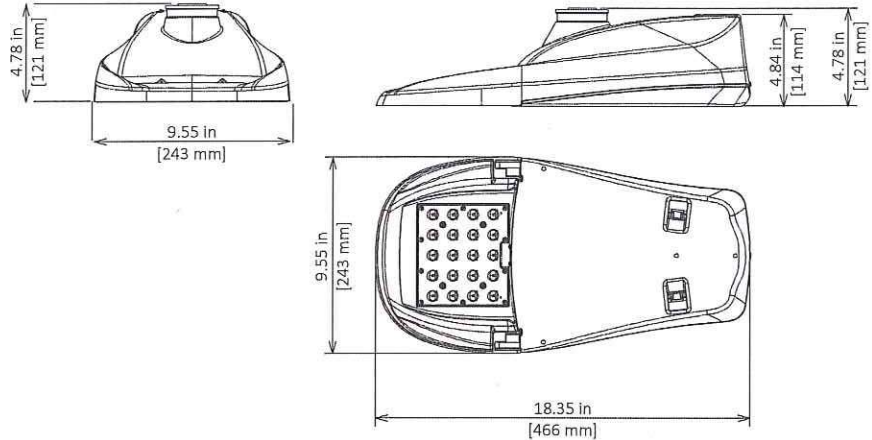
Notes:

- 1 Nominal lumens. Normal tolerance ± 10% due to factors including distribution type, LED bin variance, and ambient temperatures.
- 2 Not all versions DLC qualified. Consult qualified product list at www.designlights.org for latest product listing.

GreenCobra™ Jr. LED Street Light GCJ

Luminaire Data

Weight 7 lbs [3.2 kg]
EPA 0.39 ft²



Ordering Information

Sample Catalog No. GCJ1 20G MV NW 2 GY 580

Product	LED No. & Type	Voltage	Color Temperature	Distribution	Finish	Drive Current ¹	Options
GCJ1	350mA to 700mA	20G	MV 120-277V	WW 3000K NW 4000K CW 5000K	2 Type 2 3 Type 3	GY Gray DB Dark Bronze 700 1A ³	FDC ⁴ Fixed Drive Current LPCR Less Photocontrol Receptacle PCR5 ⁵ ANSI 5-wire Photocontrol Receptacle PCR7 ⁵ ANSI 7-wire Photocontrol Receptacle PCR5-CR ⁶ Control Ready 5-wire PC Receptacle PCR7-CR ⁶ Control Ready 7-wire PC Receptacle WL Utility Wattage Label 4B 4-Bolt Mounting Bracket DSC Door Safety Cable RWG Rubber Wildlife Guard
GCJ2	700mA to 1A						

Notes:

- Factory set drive current, field adjustable standard. Refer to Performance Data Table. Consult factory if wattage limits require a special drive current.
- 350mA and 580mA drive current available with GCJ1 only.
- 1A drive current available with GCJ2 only.
- Non-field adjustable, fixed drive current. Specify required drive current. Not available with PCR5-CR or PCR7-CR options.
- Field adjustable current selector included. Wireless node dimming is disabled, field changeable connectors included to enable dimming with PCR5/7.
- Control-ready wiring at factory for wireless node dimming. Default maximum drive current (700mA or 1A) must be specified.
- Flush mounted house side shield. Shield cuts light off at 1/2 mounting height behind luminaire.
- Flush mounted cul-de-sac shield. Shield cuts light off at 1/2 mounting height behind luminaire and 1-1/2 mounting height on either side of luminaire.
- Specify Color (GY, DB, BK)

Accessories*

HSS ⁷	House Side Shield, Snap-On*
CSS ⁸	Cul-De-Sac Side Shield, Snap-On*
SPB ⁹	Square Pole Horizontal Arm Bracket
RPB ⁹	Round Pole Horizontal Arm Bracket
PTB ⁹	Pole Top Tenon Horizontal Arm Bracket
WB ⁹	Wall Horizontal Arm Bracket
BSK	Bird Deterrent Spider Kit
PC	Twist Lock Photocontrol
LLPC	Long-Life Twist Lock Photocontrol
SC	Twist Lock Shorting Cap

*Accessories are ordered separately and not to be included in the catalog number. For factory installed HSS, CSS specify as option in luminaire catalog number.

GreenCobra™ Jr. LED Street Light GCJ

Luminaire Specifications

Housing

Die cast aluminum housing with universal two-bolt slip fitter mounts to 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter mast arm. One-piece aluminum housing provides passive heat-sinking of the LEDs and has upper surfaces that shed precipitation. Four-bolt mounting bracket is available. Mounting provisions meet 3G vibration per ANSI C136.31-2001 Normal Application, Bridge & Overpass. Mounting has leveling adjustment from ± 5° in 2.5° steps. Electrical components are accessed without tools via a high-strength, non-conductive polycarbonate door with quick-release latches. Polycarbonate material meets UL 746C for outdoor usage. Available rubber wildlife guard (RWG option) conforms to mast arm with no gaps.

Light Emitting Diodes

Hi-flux/Hi-power white LEDs produce a minimum of 90% of initial intensity at 100,000 hours of life based on IES TM-21. LEDs are tested in accordance with IES LM-80 testing procedures. LEDs have correlated color temperature of 3000K (WW), 4000K (NW), or 5000K (CW) and 70 CRI minimum. LEDs are 100% mercury and lead free.

Optical Systems

Micro-lens optical systems produce IESNA Type 2 or Type 3 distributions and are fully sealed to maintain an IP66 rating. Luminaire produces 0% total lumens above 90° (BUG Rating, U=0). Optional house side shield cuts light off at 1/2 mounting height behind luminaire. Cul-de-sac shield provides back and side light control for end of cul-de-sac applications. Both shields are field installable without tools.

Electrical

Rated life of electrical components is 100,000 hours. Uses isolated power supply that is 1-10V dimmable. Power supply is wired with quick-disconnect terminals. LED drive current can be changed in the field to adjust light output for local conditions (not available with PCR5-CR or PCR7-CR options). Power supply features a minimum power factor of .90 and <20% Total Harmonic Distortion (THD). EMC meets or exceeds FCC CFR Part 15. Terminal block accommodates 2 to 14 gauge wire. Surge protection complies with IEEE/ANSI C62.41 Category C High, 20kV/10kA.

Controls

3-Wire photocontrol receptacle is standard. ANSI C136.41 5-wire (PCR5) or 7-wire (PCR7) photocontrol receptacles are available. All photocontrol receptacles have tool-less rotatable bases. Wireless control module is provided by others.

Finish

Housing receives a durable, fade-resistant polyester powder coat finish. Finish tested to withstand 3000 hours in salt spray exposure per ASTM B117. Finish tested 500 hours in UV exposure per ASTM G154 and meets ASTM D523 gloss retention.

Listings/Ratings/Labels

Luminaires are UL listed for use in wet locations in the United States and Canada. DesignLights Consortium™ qualified 120-277V product.² International Dark Sky Association listed. Luminaire is qualified to operate at ambient temperatures of -40°C to 40°C. Assembled in the U.S.A

Photometry

Luminaires photometrics are tested by certified independent testing laboratories in accordance with IES LM-79 testing procedures.

Warranty

10-year limited warranty is standard on luminaire and components.

Performance Data

All data nominal, consult factory for IES files or LM-79 reports.

Product	Drive Current (mA)	System Wattage (W)	Delivered Lumens (Lm) ¹	Efficacy (Lm/W)	Type 2	Type 3
					BUG Rating	BUG Rating
GCJ1	350	24	2400	100	B1 U0 G1	B1 U0 G1
	580	38	3700	97	B1 U0 G1	B1 U0 G1
	700	48	4400	92	B1 U0 G1	B1 U0 G1
GCJ2	700	48	4400	92	B1 U0 G1	B1 U0 G1
	1000	74	5900	80	B1 U0 G2	B2 U0 G2

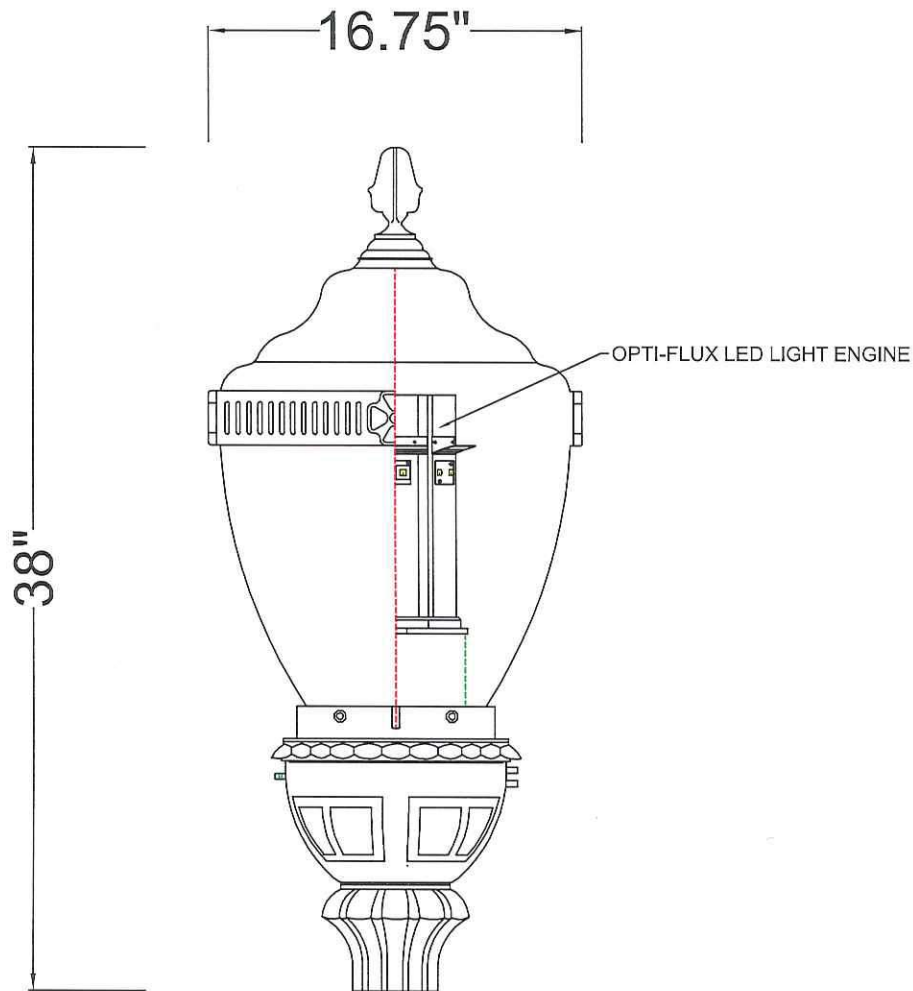
Notes:

1. Nominal lumens. Normal tolerance ± 10% due to factors including distribution type, LED bin variance, and ambient temperatures.

2. Not all versions DLC qualified. Consult qualified product list at www.designlights.org for latest product listing.



Appendix 2.2: Proposed Special / Ornamental / Decorative Luminaire



CATALOG PART NUMBERS

LUMINAIRE:	<i>HUN-PA102-PLC8-DECA2</i>	
LUMINAIRE:	"TRADITIONAL" HUNTINGTON SERIES	
GLOBE/LENS:	STIPPLE ACRYLIC OR POLYCARBONATE	
DISTRIBUTION:	IES TYPE 3 OR 5	
LIGHT SOURCE:	TBD	
VOLTAGE:	UNIVERSAL (AUTO-SENSING)	
FINISH:	POLYESTER POWDERCOAT (STD COLOR)	
OPTIONS:		



PEMCO LIGHTING proudly meets and exceeds LEVEL THREE requirements for even the most stringent of ARRA-2009 "BUY AMERICAN" legislation.

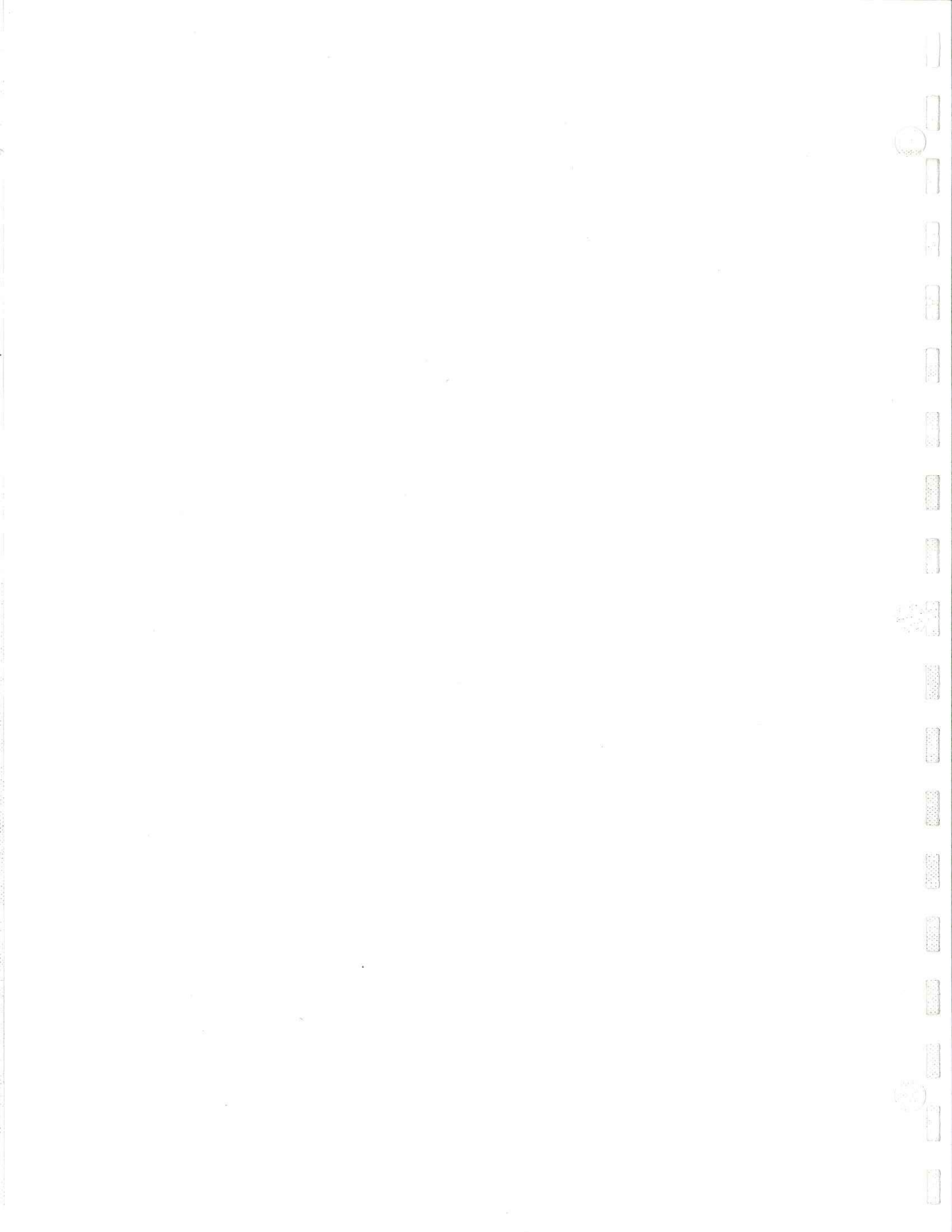
ALL SIZES REPRESENTED ARE NOMINAL



LIGHTING PRODUCTS, INC.
 150 PEMCO WAY - WILMINGTON, DE 19804-3535
 P-(302) 892-9003 F-(302) 892-9005
 WWW.PEMCOLIGHTING.COM

JOB NAME: **SIEMENS - SAN JOSE**

DRAWN BY: <i>JS</i>	TYPE: LED	REVISION: 0
DATE: 1/29/2016	REP: NCS	PAGE: 1 OF 1





Report: 70041558 - 2
Project: 70041558
Client: Pemco Lighting Products

PHOTOMETRIC TESTING & EVALUATION TO IES LM-79-08

Sample Tested
**HUN-PA102-ACR-PLC7-GF5-DEC A2 94W12C4K TYPE V BK 530MA
SOLID SHIELD**

Prepared for:

John Bowers

Pemco Lighting Products
150 Pemco Way
Wilmington, DE 19804

Phone: 302-892-9000

**Technical Report Number
70041558 - 2**

July 31, 2015

Prepared by:

Mauricio Anderson, Project Manager

Approved by:

Jesse Whalen, Operations Manager

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government



Program Description

Photometric and electrical testing of a "HUN-PA102-ACR-PLC7-GF5-DEC A2 94W12C4K TYPE V BK 530MA SOLID SHIELD" replacement fixture to IES LM-79-08.

Executive Summary

Sample Tested = HUN-PA102-ACR-PLC7-GF5-DEC A2 94W12C4K TYPE V BK 530MA SOLID SHIELD

Luminous Efficacy* (Lumens/Watt)	Luminous Flux* (Lumens)	Input Power* (Watts)	Power Factor*
67.15	5458	81.27	0.9953

CCT (K)*	CRI*	Stabilization Time (Light & Power)
4987	71.22	60 minutes

* The above results are recorded / derived from measurements made using an Integrating Sphere

Roadway Summary [‡] - Utilization		
Downward Utilization		Percentage of Luminaire
Downward Street Side:	2,668.4	44.6%
Downward House Side:	2,549.9	42.6%
Downward Total:	5,218.3	87.1%
Upward Street Side:	136.5	6.3%
Upward House Side:	134.5	6.6%
Upward Total:	271.0	12.8%
Total Lumens:	5,489.3	100%
IES Classification		NonCutoff Type VS

[‡] Based upon IES file generated output – Total Lumens may differ from Integrating Sphere results. Gonio-Photometric calculations based upon a mount height of 30ft.



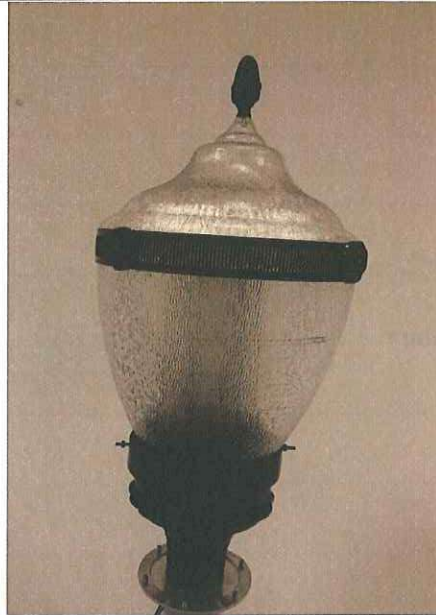
TABLE OF CONTENTS

Sample.....	4
Test Results.....	5
Spectral Flux.....	6
Chromaticity Diagram.....	7
Flux Distribution – Zonal Lumen Summary.....	8
Illuminance Plots.....	9
Candela Plots.....	10
Candela Tabulation.....	11
BUG Rating Analysis.....	12
In Situ Temperature Measurement:.....	13
Photometric Testing Information.....	14
Equipment List:.....	16

Sample

The following sample was submitted for evaluation:

Pemco Lighting Products: HUN-PA102-ACR-PLC7-GF5-DEC A2 94W12C4K TYPE V BK 530MA SOLID SHIELD



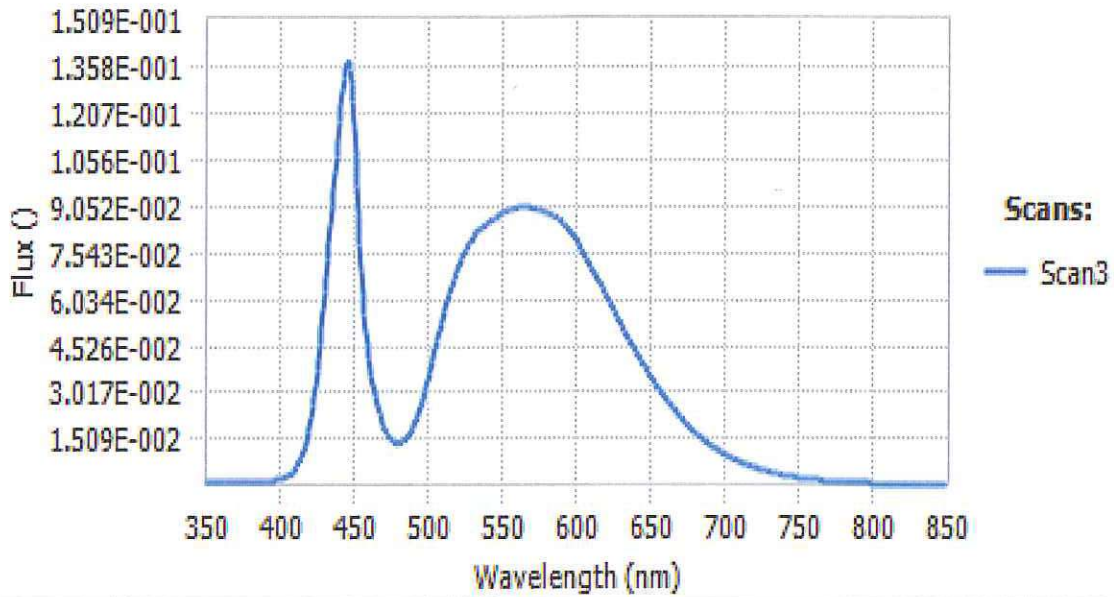
HUN-PA102-ACR-PLC7-GF5-DEC A2 94W12C4K TYPE V BK 530MA SOLID SHIELD



Test Results –							
The following results were measured after stabilization of the sample in the Integrating Sphere (unless otherwise stated). Stability is reached when the variation of 3 readings of light output and electrical power, taken 15 minutes apart, is less than 0.50% (in accordance with IES LM-79-08).							
Key Photometric Results	Sample Reference						
	HUN-PA102-ACR-PLC7-GF5-DEC A2 94W12C4K TYPE V BK 530MA SOLID SHIELD						
	Integrating Sphere			Goniophotometer			
Luminous Efficacy (Lumens/Watt)	67.15			67.55			
Total Luminous Flux (Lumens)	5458			5489.85			
Total Radiant Flux (Watts)	16.53						
Correlated Color Temperature (CCT)	4987						
Color Rendering Index (CRI) (Ra)	71.22						
R1 thru R7 Value	69.3	74.7	78.9	72.8	69.9	66	79.7
R8 thru R14 Value	58.6	-25.6	40.2	70.7	40.7	43.1	69.2
Chromaticity (Chroma x / Chroma y)	0.3460 / 0.3590						
Chromaticity (Chroma u / Chroma v)	0.2092 / 0.3256						
Chromaticity (Chroma u' / Chroma v')	0.2092 / 0.4883						
Duv Value	0.0033						
Stabilization Time (Light and Power)	Approx. 60 minutes						
Total Run Time – Integrating Sphere	64 minutes						
Total Run Time – Goniophotometer	48 minutes						
Scotopic/Photopic ratio $\Phi(v')/\Phi(v)$	1.73						
Electrical Input Results:	Sample Reference						
	HUN-PA102-ACR-PLC7-GF5-DEC A2 94W12C4K TYPE V BK 530MA SOLID SHIELD						
Input Power (Watts)	81.27						
Input Voltage (Volts AC)	120.08						
Input Current (Amps)	0.6799						
Input Frequency (Hertz)	60.0						
Power Factor	0.9953						
Total Harmonic Distortion (%THD V/A)	0.09 / 5.17						
Additional Information	Sample Reference						
	HUN-PA102-ACR-PLC7-GF5-DEC A2 94W12C4K TYPE V BK 530MA SOLID SHIELD						
Ambient Temperature	24.9°C						
Integrating Sphere Detector	CDS 1100 Spectroradiometer						
Absorption Correction used?	Yes						

Spectral Flux

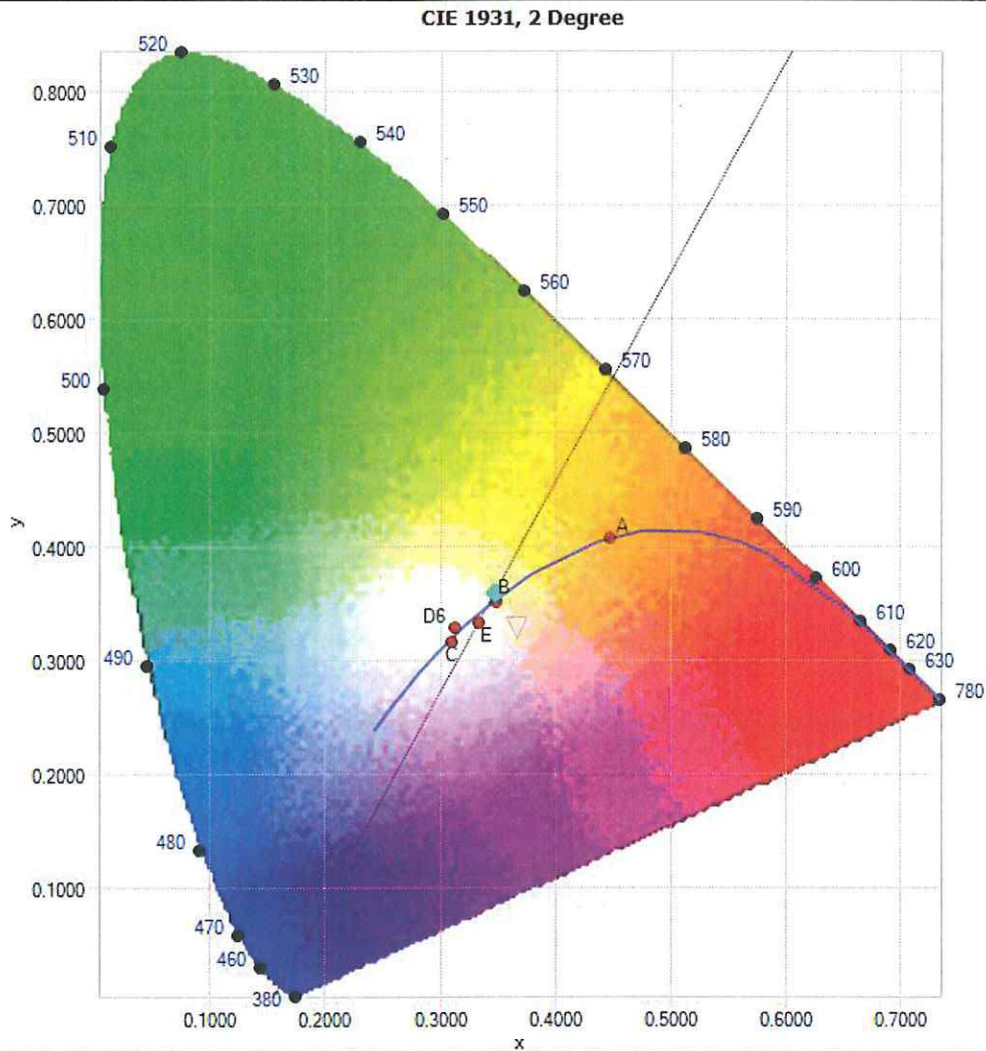
The following graph shows the spectral response curve of the radiant flux for the sample:



Spectral response of the Radiant Flux
 (350nm to 850nm – calibrated range of the Spectroradiometer).

Chromaticity Diagram

The following image shows the chromaticity diagram for the sample:



Tristimulus values (from page 6):
 $x / y = 0.3460 / 0.3590$

The locations on the diagram of the tristimulus coordinates are indicated by the blue diamond.



Test Results – Flux Distribution – Zonal Lumen Summary

The following table depicts the zonal lumen distribution for the sample:

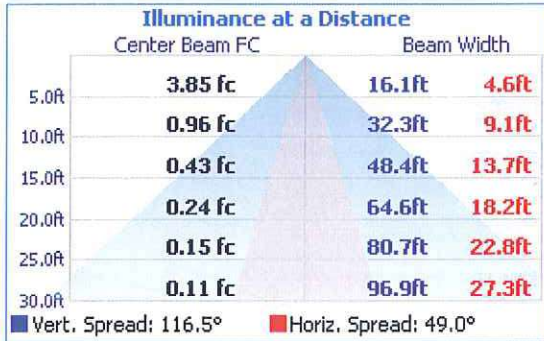
Zone	Lumens	% Total
0-10	17.8	0.3%
10-20	101.0	1.8%
20-30	240.6	4.4%
30-40	478.1	8.7%
40-50	823.7	15.0%
50-60	1,154.9	21.0%
60-70	1,223.2	22.3%
70-80	711.5	13.0%
80-90	468.0	8.5%
90-100	142.4	2.60%
100-110	56	1%
110-120	30.4	0.60%
120-130	18.2	0.30%
130-140	11.4	0.20%
140-150	7.1	0.10%
150-160	3.7	0.10%
160-170	1.7	0%
170-180	0.5	0%
Total	5490.1 LUMENS	100%

Zonal Lumen Summary

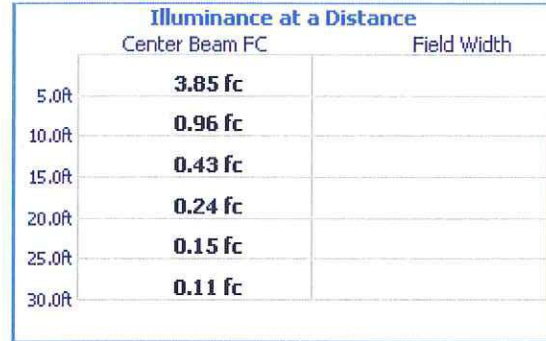
Zone	Lumens	% Luminaire
0-30	359.4	6.5%
0-40	837.5	15.3%
0-60	2,816.1	51.3%
60-90	2,402.7	43.8%
70-100	1,321.9	24.1%
90-120	228.8	4.2%
0-90	5,218.8	95.1%
90-180	271.4	4.9%
0-180	5,490.1	100%

Test Results – Illuminance Plots

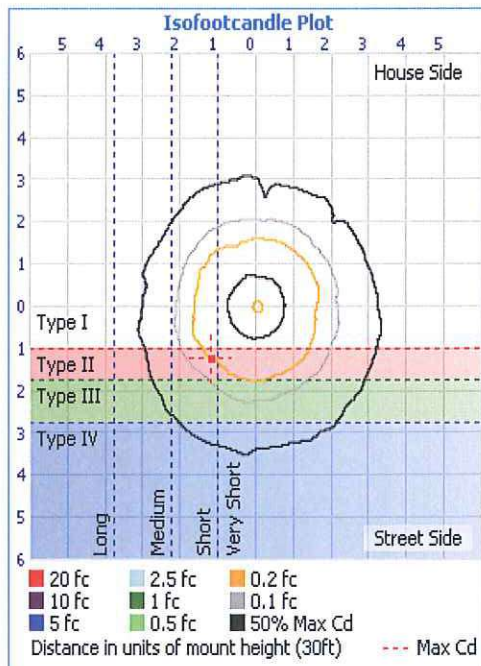
The following images depict the illuminance characteristics of the luminaire.



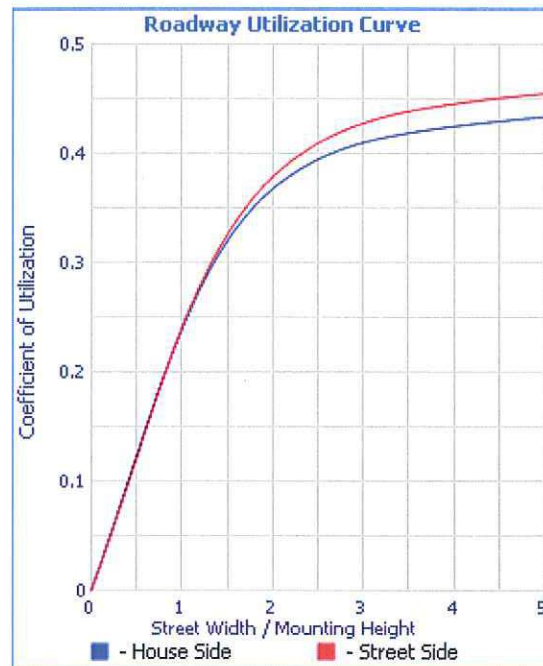
Beam Angle



Field Angle



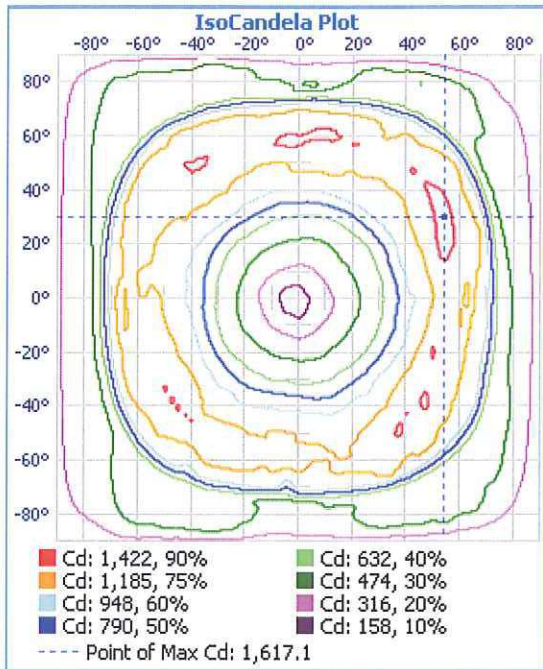
Illuminance Plot (Footcandles)



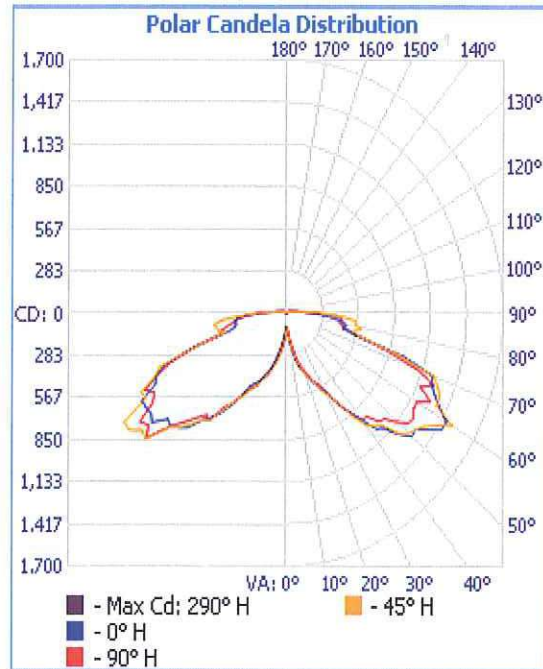
Roadway Utilization Curve

Test Results – Candela Plots

The following images depict the luminous intensity distribution characteristics of the luminaire.



IsoCandela Plot



Polar Candela Distribution



CSA Group

Report: 70041558 - 2
 Project: 70041558
 Client: Pemco Lighting Products

Test Results – Candela Tabulation

The following table provides the tabulated Candela measurements:

Candela Table - Type C

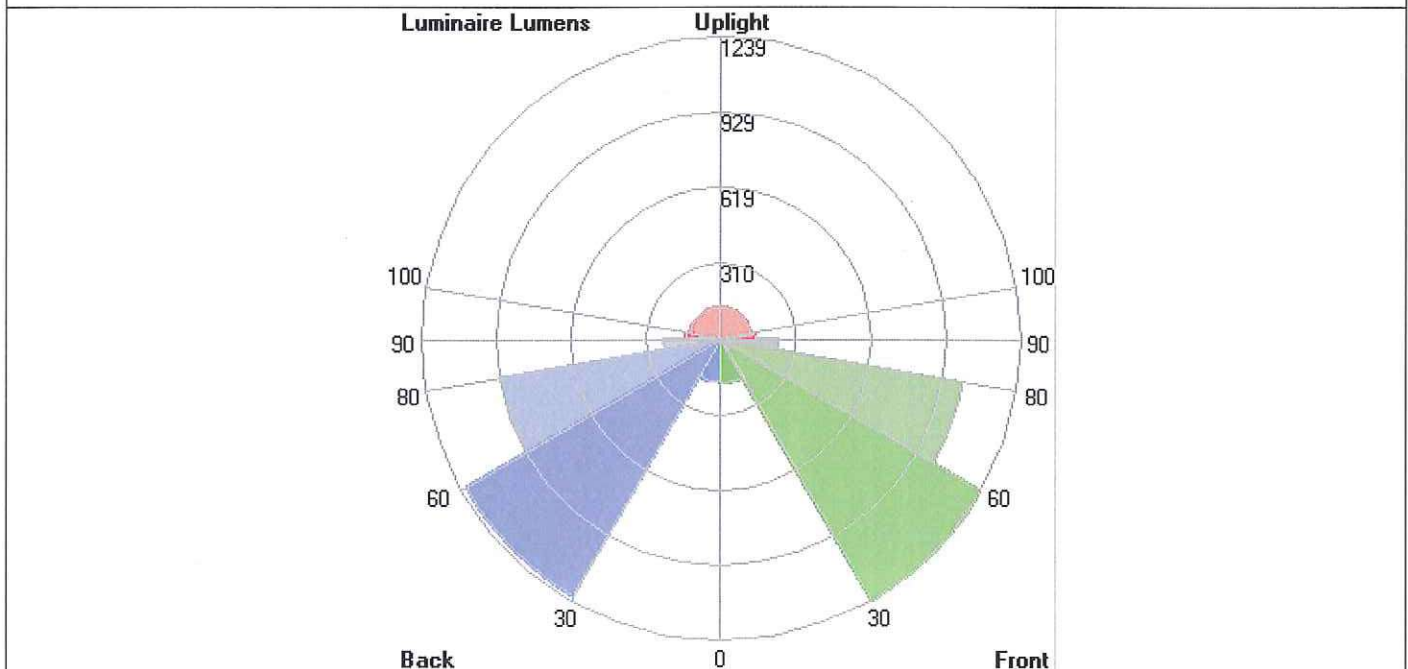
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360			
0	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96		
2.5	96	103	100	95	94	91	88	85	86	91	93	95	97	98	99	145	98	106	94	98	107	114	122	127	128	127	127	128	132	136	141	145	148	148	143	137	96			
5	146	156	147	142	132	121	115	114	112	119	124	124	123	123	121	176	121	129	125	134	144	157	170	179	182	178	176	177	182	189	196	203	205	203	195	186	146			
7.5	202	214	211	203	191	177	164	155	154	160	168	166	163	161	163	207	168	168	166	175	190	205	216	223	225	221	221	223	230	238	245	248	251	247	240	231	202			
10	253	264	263	257	247	232	220	205	202	209	219	220	215	216	221	238	223	226	218	229	243	252	263	266	264	263	265	269	277	284	287	288	285	285	278	268	253			
12.5	313	321	318	314	305	292	279	265	257	261	273	276	279	275	282	276	278	282	272	280	295	304	315	315	311	310	308	310	321	329	336	333	330	326	320	314	313			
15	364	370	369	362	358	344	334	320	310	316	326	328	327	329	335	342	342	337	324	335	347	357	360	357	358	358	354	356	366	371	378	377	371	363	358	354	364			
17.5	402	402	405	403	398	387	384	368	364	367	376	386	383	373	374	387	395	391	375	381	386	402	405	405	403	400	395	395	404	415	426	427	417	400	399	395	402			
20	441	445	442	448	440	439	435	424	406	410	414	420	423	420	420	423	428	423	428	424	438	452	453	446	437	428	443	441	447	461	466	456	448	441	436	435	441			
22.5	481	478	487	484	478	478	479	484	463	454	461	461	464	473	476	475	471	483	463	467	474	485	483	483	489	491	468	472	482	488	490	495	478	476	468	468	481			
25	512	517	533	536	517	516	512	519	510	511	494	502	504	493	487	490	519	518	508	504	499	522	526	532	514	510	524	528	540	527	522	511	512	503	498	509	512			
27.5	572	563	556	568	565	561	545	545	545	537	530	545	541	543	524	538	544	558	533	541	533	548	565	551	575	561	564	562	565	563	547	543	554	556	546	551	572			
30	608	618	600	622	643	600	589	611	594	590	590	579	592	595	605	619	602	563	585	602	622	604	617	604	608	599	600	592	603	599	596	611	599	594	597	606				
32.5	675	679	701	695	682	671	665	673	678	686	653	658	641	655	659	659	640	702	661	663	648	671	670	690	687	664	649	661	662	675	661	651	661	649	654	656	675			
35	770	744	769	792	777	740	754	729	737	769	752	740	722	748	734	739	755	754	759	731	712	735	752	773	754	744	751	746	743	784	760	763	760	745	774	746	770			
37.5	854	858	874	859	873	866	838	853	850	854	843	849	855	804	787	797	847	886	845	788	760	830	853	859	840	827	808	794	837	829	820	815	854	840	827	843	854			
40	947	937	943	942	988	988	915	901	898	932	930	918	888	860	884	910	883	904	914	878	877	883	906	960	946	946	942	942	929	949	942	948	956	927	924	947				
42.5	1049	992	1002	1057	1041	1015	981	942	933	935	998	1017	969	957	980	118	964	962	959	958	922	982	941	1003	985	956	942	926	1009	1053	990	1042	1029	1055	1048	1023	1049			
45	1091	1084	1048	1130	1089	1091	1058	975	964	1026	1090	1077	1047	1002	1020	1008	1058	1078	1083	1011	970	1022	1029	1090	1067	1045	1026	992	1004	1120	1069	1097	1124	1093	1105	1105	1097	1091		
47.5	1197	1126	1058	1148	1236	1186	1132	1064	1001	1046	1129	1138	1210	1097	1083	1035	1112	1136	1135	1093	1045	1030	1063	1186	1245	1225	1126	1082	1143	1180	1162	1132	1125	1150	1200	1173	1197			
50	1285	1155	1170	1192	1277	1243	1201	1149	1125	1132	1189	1225	1249	1208	1113	1084	1141	1209	1180	1123	1080	1197	1262	1427	1358	1268	1182	1255	1248	1197	1120	1149	1184	1196	1222	1285				
52.5	1277	1188	1210	1240	1256	1230	1219	1152	1126	1209	1230	1229	1235	1180	1208	1306	1189	1230	1167	1163	1205	1209	1300	1322	1340	1410	1341	1374	1366	1341	1273	1219	1195	1250	1243	1274	1277			
55	1358	1299	1302	1317	1300	1235	1295	1181	1178	1224	1244	1304	1342	1392	1290	1328	1262	1222	1279	1196	1108	1204	1327	1457	1421	1427	1292	1313	1458	1393	1326	1203	1176	1189	1339	1302	1358			
57.5	1445	1444	1360	1348	1413	1435	1281	1234	1193	1188	1312	1392	1452	1433	1290	1354	1344	1201	1252	1186	1119	1312	1329	1392	1456	1377	1311	1353	1384	1529	1363	1286	1282	1365	1317	1397	1445			
60	1453	1415	1374	1375	1404	1401	1349	1288	1234	1187	1345	1376	1346	1371	1286	1283	1272	1288	1266	1191	1183	1292	1419	1367	1441	1234	1238	1207	1346	1612	1478	1504	1280	1325	1420	1433	1453			
62.5	1354	1360	1321	1361	1303	1462	1275	1228	1170	1280	1217	1324	1279	1192	1271	1286	1241	1249	1268	1137	1206	1256	1348	1271	1294	1327	1220	1157	1290	1376	1356	1295	1306	1339	1353	1469	1354			
65	1286	1301	1217	1274	1217	1300	1275	1235	1287	1162	1225	1242	1232	1177	1243	1215	1194	1182	1127	1154	1207	1209	1261	1194	1205	1153	1148	1216	1350	1328	1372	1305	1175	1213	1300	1373	1286			
67.5	1223	1233	1222	1301	1348	1341	1288	1302	1241	1257	1186	1195	1195	1168	1163	1142	1060	1176	1100	1175	1125	1185	1259	1210	1141	1158	1079	1090	1215	1207	1252	1184	1198	1307	1263	1285	1232			
70	1227	1141	1202	1193	1179	1303	1205	1201	1110	1102	1166	1095	1072	1101	1045	1019	1051	1025	1006	1058	1066	1110	1107	1082	1024	1097	940	965	1194	1099	1169	1099	1139	1199	1185	1227				
72.5	977	923	942	947	1051	967	914	912	922	832	800	760	773	775	766	740	691	643	744	754	773	805	738	688	697	771	703	750	832	777	858	882	949	996	1037	1044	957			
75	555	612	640	634	585	594	586	595	618	591	527	503	503	519	522	517	480	440	473	505	507	511	512	477	493	534	528	526	506	492	510	583	668	623	605	555				
77.5	460	520	504	526	557	528	522	517	511	458	451	494	539	525	500	486	517	460	411	470	488	515	546	541	527	541	482	514	440	481	511	478	544	539	495	478	460			
80	473	523	528	605	635	568	616	515	493	443	453	504	558	569	617	525	494	450	400	478	473	544	559	560	586	574	514	456	491	518	575	524	559	487	449	473				
82.5	449	452	535	613	565	554	519	481	421	426	486	567	541	639	541	487	445	412	419	462	545	553	527	579	469	462	399	399	453	498	621	540	513	470	417	449				
85	378	473	517	623	521	517	578	620	439	434	397	465	531	593	585	522	412	370	387	400	440	485	476	465	466	470	419	372	371	384	475	494	528	557	429	404	378			
87.5	287	358	381	453	428	421	452	452	399	396	353	379	453	431	410	439	354	293	320	320	341	372	360	344	319	329	318	283	275	297	300	342	357	376	330	303	287			
90	212	22																																						

BUG Rating Analysis

The following table shows the BUG rating classification:

Luminaire Classification System (LCS)

LCS	Zone	Lumens	% of Luminaire
FL	(0-30)	181.8	3.3
FM	(30-60)	1238.7	22.6
FH	(60-80)	1011.6	18.4
FVH	(80-90)	235.9	4.3
BL	(0-30)	176.9	3.2
BM	(30-60)	1217.1	22.2
BH	(60-80)	923.3	16.8
BVH	(80-90)	232.1	4.2
UL	(90-100)	142.4	2.6
UH	(100-180)	128.9	2.3
Total		5488.7	100

BUG RATING = B2-U3-G3


In Situ Temperature Measurement:

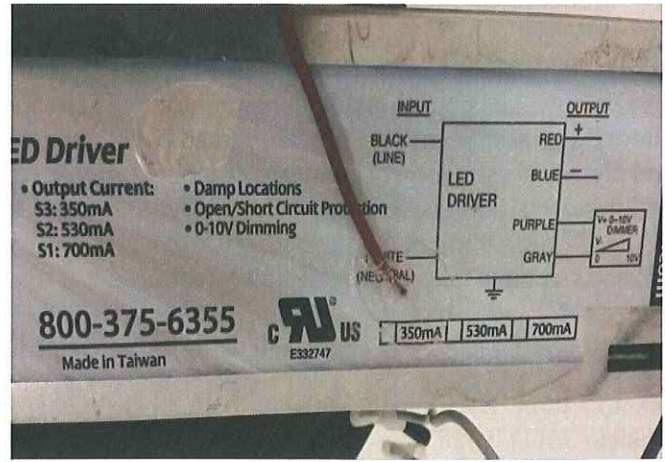
Test Overview

- The sample was tested in the CSA Atlanta, GA lighting laboratory at a regulated and controlled ambient temperature of 25°C ± 1°C
- Data was taken on a Fluke 54II calibrated to ISO 17025
- The sample was powered continuously from a conditioned 120.0V AC Source (60 Hertz).
- Temperature data was recorded after 7 hours of operation (stabilization).
- T_c was monitored using a J-Type thermocouple on the manufacturers designated temperature measurement location as shown in the photographs above:

Thermocouple Location	Temperature Measured (°C)
LED Junction / Driver	80.3 / 49.9
Ambient	25.0



TC Location on LED



TC Location on Driver



Photometric Testing Information

The sample was evaluated for photometric and electrical characteristics using an integrating sphere and a goniophotometer, each located in purpose-built, temperature and humidity-controlled, draft free environments.

The integrating sphere is by Labsphere which exhibits a “ 4π geometry” configuration according to IES LM-79-08 and is applicable for all types of LED products (directional and non-directional light projections). Its spectroradiometer is an array-type detector manufactured and calibrated by Labsphere.

The integrating sphere uses self-absorption correction to eliminate errors due to mismatches between the standard reference lamp and the test samples being measured. The auxiliary lamp used to perform this task is a halogen type lamp powered by a calibrated *Lamp Power Supply* manufactured and calibrated by Labsphere. Ambient temperature (for photometric analysis) is measured using a “J-Type” thermocouple located inside the integrating sphere at the same height as the sample under test and not more than 1 meter in horizontal distance away from the sample. The thermocouple is located behind the baffle of the photo detector in order to eliminate any direct optical radiation from the sample under test.

Luminaire Stabilization.

The sample was placed inside the integrating sphere and powered by a regulated and conditioned Voltage alternating current supply. The correlated color temperature, color rendering index, chromaticity coordinates and electrical power measurements contained in this report are the numeric **averages** of the three readings upon which stabilization is verified. The stabilization times shown on the results pages of this report denote the time of the 1st measurement (of the 3 consecutive readings) since this is the minimum time that the sample is assumed to have taken to reach stabilization.

The integrating sphere is calibrated using a quartzline halogen lamp with the following specifications:

Manufacturer: Sylvania
Model# 75Q/CL-28V
Voltage = 28.0 Volt
Wattage = 75.0 Watts
Calibration Current = 2.679 Amperes
Luminous Flux = 1538.8 Lumens
Calibration Date = 8-18-2005 (calibrated by Labsphere – NIST traceable).

Continued.....



Photometric Testing Information (continued)

The goniophotometer Mayer Engineering Type C is calibrated using a frosted tungsten filament FDS/DZE lamp with the following specifications:

Manufacturer: GE
Part Number: DZE 88
Bulb Number: 114-A
Voltage: 16.59 Volts DC reference
Calibration Current: 4.810 Amperes
Luminous Intensity: 154.7 Candelas
Calibration Date: 7/12/12 (NIST traceable)

Manufacturer: GE
Part Number: DZE 88
Bulb Number: 114-B
Voltage: 16.61 Volts DC reference
Calibration Current: 4.819 Amperes
Luminous Intensity: 150.6 Candelas
Calibration Date: 7/12/12 (NIST traceable)

Manufacturer: GE
Part Number: DZE 88
Bulb Number: 114-C
Voltage: 16.66 Volts DC reference
Calibration Current: 4.815 Amperes
Luminous Intensity: 155.4 Candelas
Calibration Date: 7/12/12 (NIST traceable)

A *Yokogawa WT210 Power Analyzer* was used to measure all electrical characteristics of the sample.

CSA is an accredited Test Laboratory
National Voluntary Laboratory Accreditation Program
(NVLAP)200732-0



Equipment List: Goniophotometer Type C (Mirror 1)			
Description	Manufacturer and Model Number	CSA Instrument Reference Number	Calibration Due Date
Optometer	Gigahertz Optik P9801	N/A	N/A
Regulated Power Supply	Chroma Instruments 61602P-80-60	N/A	N/A
Regulated Power Supply	Chroma Instruments 61602	N/A	N/A
Power Analyzer	Yokogawa WT210	POA400	11/2015
Equipment List: Sphere D Equipment			
Description	Manufacturer and Model Number	CSA Instrument Reference Number	Calibration Due Date
Integrating Sphere 109"	Labsphere LMS760	SPH400	N/A
Spectroradiometer	Labsphere CDS1100	CDS1000A	N/A
Auxiliary Lamp PSU	Labsphere LPS100	LPS100	N/A
Power Analyzer	Yokogawa WT210	PA118	12/2015
Regulated Power Supply	Chroma Instruments 61603	N/A	N/A
Equipment List: In Situ Temperature			
Thermometer (Thermocouple)	Fluke 54II	TH109	8/2016

All equipment is calibrated to ISO / IEC 17025-2005 guidelines.



DLC Qualified Products List Family and Single Submission Form: Technical Requirements v3.0 (6/23/2015)

Entire application form must be filled out and submitted online using your manufacturer account. Applications will not be considered complete until payment has been processed and both this Application Form and Scaled Performance Table are submitted.

Company	PEMCO LIGHTING PRODUCTS INC
Brand	HUNTINGTON
Website	WWW.PEMCOLIGHTING.COM

Application Type (Must Select)

Single Product or Family Group?	Single Product Application
---------------------------------	----------------------------

Category Information

DLC Category	Outdoor
General Application	Outdoor - Mid Output
Primary Use	Please note your primary or specialty use in the applicable column in the Scaled Performance Table. If you wish to submit the same model number under multiple primary/specialty uses, please list the model number with each additional primary use. Please refer to the Category Reference tab for the correct primary use language. Outdoor Pole/Arm-mounted Decorative Luminaire
-OR-	
Specialty Use(s): Provide description	
DLC Tier	Please note your DLC Tier, for each model, in the Scaled Performance Table. Tier 2

Product Information

Rated voltage range	120-277V AC
List your driver model number *Please include your driver spec sheet	XITANIUM X1075C070V105DNY1
LED Package/Module/Array Part Number	OPTI FLUX 72W9C4K
LED Drive Current i.e. the current going to your LED. For Chip-on-board packages, please include both the current to the Array and the current per die	74.84 WATTS

For retrofit kits and lamps, or as necessary: Approved housing model number and description of additional accessories used during testing

Please provide a description of the product or product group below:

This is a decorative outdoor luminaire with a cast aluminum capital, plastic stipple globe with decorative band and Finial

Can your product be ordered with an integral occupancy sensor and/or photocontrol?

Does your submission include any housing variations?

Please describe each housing variation in the spaces below. The "A", "B", "C", etc. nomenclature should be used for reference on the Scaled Performance Table.

Housing Variation A

Housing Variation B

Housing Variation C

Housing Variation D

Housing Variation E

Does this application contain dimmable products?

If your product family includes models that are capable of dimming, please be sure to complete the appropriate columns in the Scaled Performance Table.

Product Identifier Information

Please provide a breakdown of your ordering code below. Be sure to follow the format of the example breakdown:

HUN-PA102-ACR-PLC7-DEA2-78W10C4K-UNIV-TYPE V-BK HUN=FAMILY STYLE. PA102 ACR = STYLE AND MATERIAL OF GLOBE. 78W=78 WATTS. 10C=10 LED CHIPS. 4k= CCT COLOR. UNIV= VOLTAGE 120

ABC = Family Series

V = CCT; 30 = 3000K; 40 = 4000K

W = Wattage; 2 = 20W; 4 = 40W; 6 = 60W

XXX = Optic Type; TTT = Type 1; SSS = Type 2; RRR = Type 2 Medium; QQQ = Type 3; PPP = Type 4; NNN = Type 5; MMM = Type 5 Medium

YY = Drive Current; 35 = 350mA; 53 = 530mA; 70 = 700mA

Z = Mounting Option; Mounting 1; Mounting 2; Mounting 3

Housing Variation

FALSE

Application Type

Select from Drop-down Menu ----->

Single Product Application

Family Grouping Application

Category

Select from Drop-down Menu ----->

Outdoor

Indoor

Outdoor Retrofit Kit

Indoor Retrofit Kit

Linear Replacement Lamp

Multiple Categories

General Applications

Select from Drop-down Menu ----->

Outdoor - Multiple Light Output Bins

Outdoor - Low Output

Outdoor - Mid Output

Outdoor - High Output

Interior Directional

Display Case

Troffer

Linear Ambient

High-Bay

Four-Foot Linear Replacement Lamps

Two-Foot Linear Replacement Lamps

Multiple General Applications

Primary Uses

Select from Drop-down Menu ----->

Outdoor Pole/Arm-Mounted Area and Roadway Luminaires

Outdoor Pole/Arm-Mounted Decorative Luminaires

Outdoor Wall-Mounted Area Luminaires

Bollards

Parking Garage Luminaires

Fuel Pump Canopy

Landscape/Accent Flood and Spot Luminaires

Architectural Flood and Spot Luminaires

Stairwell and Passageway Luminaires

Wall-Wash Luminaires

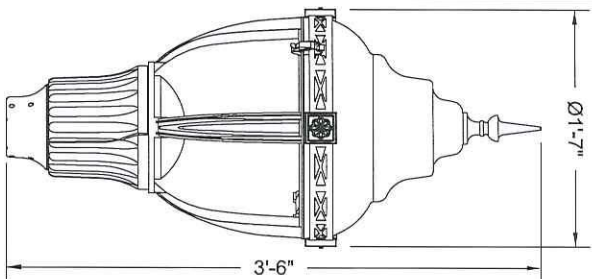
Track or Mono-Point Directional Luminaires

Vertical Refrigerated Case Luminaires
Horizontal Refrigerated Case Luminaires
Display Case Luminaires
2x2 Luminaires for Ambient Lighting of Interior Commercial Spaces
1x4 Luminaires for Ambient Lighting of Interior Commercial Spaces
2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces
Direct Linear Ambient Luminaires
Linear Ambient Luminaires w/ Indirect component
High-Bay Luminaires for Commercial and Industrial Buildings
Low-Bay Luminaires for Commercial and Industrial Buildings
High-Bay Aisle Luminaires
Retrofit Kits for Outdoor Pole/Arm-Mounted Area and Roadway Luminaires
Retrofit Kits for Outdoor Pole/Arm-Mounted Decorative Luminaires
Retrofit Kits for Large Outdoor Pole/Arm-Mounted Area and Roadway Luminaires
Retrofit Kits for Outdoor Wall-Mounted Area Luminaires
Retrofit Kits for Parking Garage Luminaires
Retrofit Kits for Fuel Pump Canopy Luminaires
Linear Retrofit Kits for 2x2 Luminaires for Ambient Lighting of Interior Commercial Spaces
Integrated Retrofit Kits for 2x2 Luminaires for Ambient Lighting of Interior Commercial Spaces
Linear Retrofit Kits for 1x4 Luminaires for Ambient Lighting of Interior Commercial Spaces
Integrated Retrofit Kits for 1x4 Luminaires for Ambient Lighting of Interior Commercial Spaces
Linear Retrofit Kits for 2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces
Integrated Retrofit Kits for 2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces
Retrofit Kits for High-Bay Luminaires for Commercial and Industrial Buildings
Retrofit Kits for Low-Bay Luminaires for Commercial and Industrial Buildings
Replacement Lamps ("Plug and Play") (UL Type A)
Internal Driver/Line Voltage Lamp-Style Retrofit Kits (UL Type B)
External Driver Lamp-Style Retrofit Kits (UL Type C)
Dual Mode Internal Driver (UL Type A or B)

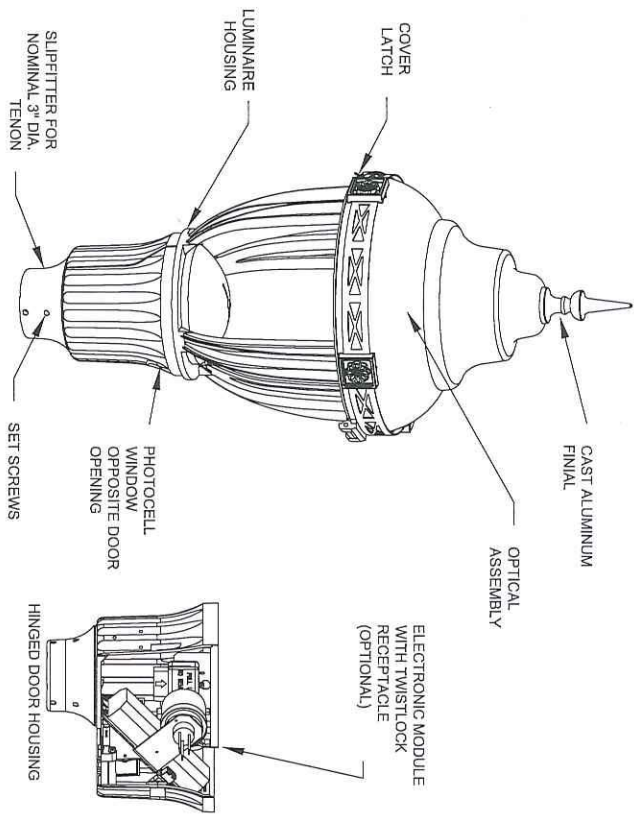




Appendix 2.2.1: Alternate Special / Ornamental / Decorative Luminaire



Maximum weight - 57 lbs
Maximum effective projected area - 1.72 sq. ft.



ORDERING INFORMATION:

EXAMPLE:
WFL 070 6K AS B L3 S

WATTAGE / DRIVER
070 = 70 W (350mA)
105 = 105 W (525mA)

VOLTAGE
AS = AUTO-SENSING VOLTAGE (120 THRU 277 V)
AH = AUTO-SENSING VOLTAGE (347 THRU 480 V)

COLOR TEMPERATURE
4K = 4000K
5K = 5000K
6K = 6000K

COLOR
A = AS SPECIFIED
B = BLACK
D = DARK GREEN
E = BROWN GREEN
F = DARK GREEN
H = DARK GREEN
N = GREEN
W = WHITE
Z = BRONZE

OPTICS
L3 = ASYMMETRIC FULL CUTOFF, FLAT GLASS
L5 = SYMMETRIC FULL CUTOFF, FLAT GLASS

FINAL (FACTORY INSTALLED)
B = BALL
S = SPIKE

OPTIONS

OPTIONS
DM = 0-10V DIMMING
H = NEMA TWISTLOCK PHOTOCONTROL RECEPTACLE ONLY
L03 = 3 FEET OF PREWIRED LEADS*
L10 = 10 FEET OF PREWIRED LEADS*
L20 = 20 FEET OF PREWIRED LEADS*
L25 = 25 FEET OF PREWIRED LEADS*
L30 = 30 FEET OF PREWIRED LEADS*
P03 = DTL SOLID-STATE LIGHTING PHOTOCONTROL 120-277 VOLT (MUST BE USED WITH OPTION "H")
P34 = DTL TWISTLOCK PHOTOCONTROL 347 VOLT (MUST BE USED WITH OPTION "H")
P48 = DTL TWISTLOCK PHOTOCONTROL 480 VOLT (MUST BE USED WITH OPTION "H")
PSC = SHORTING CAP (MUST BE USED WITH OPTION "H")

*UNIT IS PROVIDED WITH 2 FEET OF PREWIRED LEADS UNLESS OTHERWISE SPECIFIED

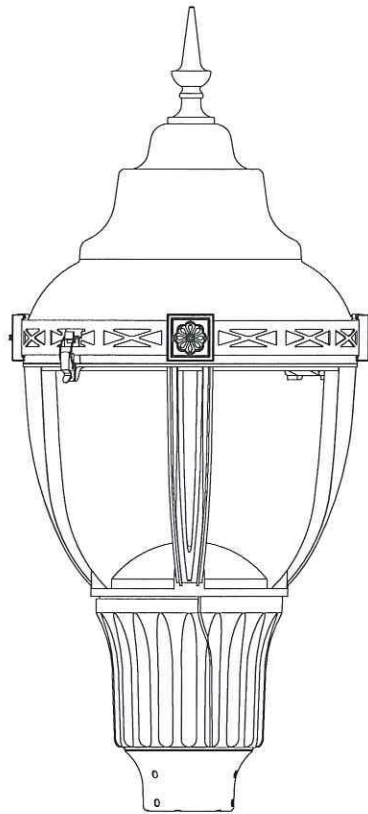


DECORATIVE
OUTDOOR

Utility Washington Postlite®
Series Luminaire
Full Cutoff LED

ORDER #:
TYPE:
DRAWN: SGK
DATE: 05/04/11
DWG #: LUM_WFL

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FINIALS

BALL



SPIKE



Specifications

GENERAL DESCRIPTION

The Utility Washington Full Cutoff LED is designed for ease of maintenance with the plug-in electrical module common to each of the luminaires in Holophane's Utility Luminaire Series. A precision optical system maximizes post spacings while maintaining uniform illumination.

OPTICAL SYSTEM

The optical system consists of a precisely engineered LED circuit board located in the top cover. A gasket between the cover and ring along with a flat glass plate and gasket beneath the reflector create a sealed optical compartment that meets an IP rating. Optics designed to provide an I.E.S. Asymmetric or Symmetric full cutoff distribution are available.

LUMINAIRE HOUSING

The luminaire housing, cast of aluminum, anchors the optical system and provides an enclosure for the plug in electrical module. The electrical enclosure conforms to an IP55 rating. For use with units with an E.E.I.-N.E.M.A. twist lock photocell receptacle, the housing contains a glass "window" to allow light to reach the cell. The nickel plated lamp grip socket and the three station incoming line terminal block are pre-wired to a five conductor receptacle for ease in connecting the electrical module. A slipfitter will accept a 3" high by 2 7/8" to 3 1/8" O.D. pole tenon.

LUMINAIRE HOUSING DOOR

Cast of aluminum, the housing door is hinged and latched to the housing. The door forms the mount for the electrical module, and allows easy access during maintenance.

ELECTRICAL MODULE

The electrical components are mounted to an aluminum plate that is removable with standard tools. A matching five plug connector connects the electrical components to the surge protector for quick replacement. For Photoelectric operation, the electrical module is provided with an E.E.I.-N.E.M.A. twist lock Photocell receptacle

TOP COVER

The top cover, cast of aluminum, is attached to the top ring of the luminaire housing by a stainless steel hinge pin. The cover is latched by an overcenter, positive action, stainless steel latch which allows tool-less entry to the lamp chamber for relamping.

DRIVER

Voltage sensing 120-277V or 347-480V, 50/60 Hz electronic drivers are >90% efficient. Potted for increased thermal management. Removable through hinged door housing. Available with 0-10V dimming control signal input. Refer to Driver Data Sheet for specific operating characteristics.

FINISH

The luminaire is finished with polyester powder paint applied to ensure maximum durability.

UL

The luminaire is UL listed as suitable for wet locations at a maximum of 40 degrees C ambient temperature.

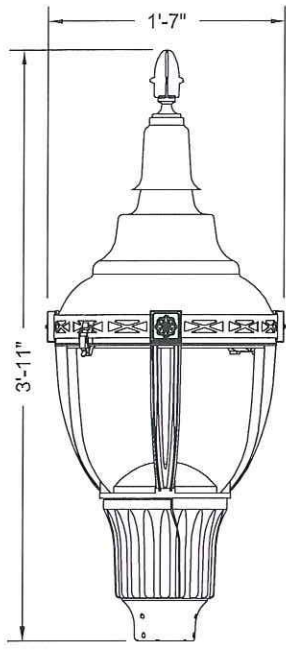
**Utility Washington Postlite®
Series Luminaire
Full Cutoff LED**

**DECORATIVE
OUTDOOR**

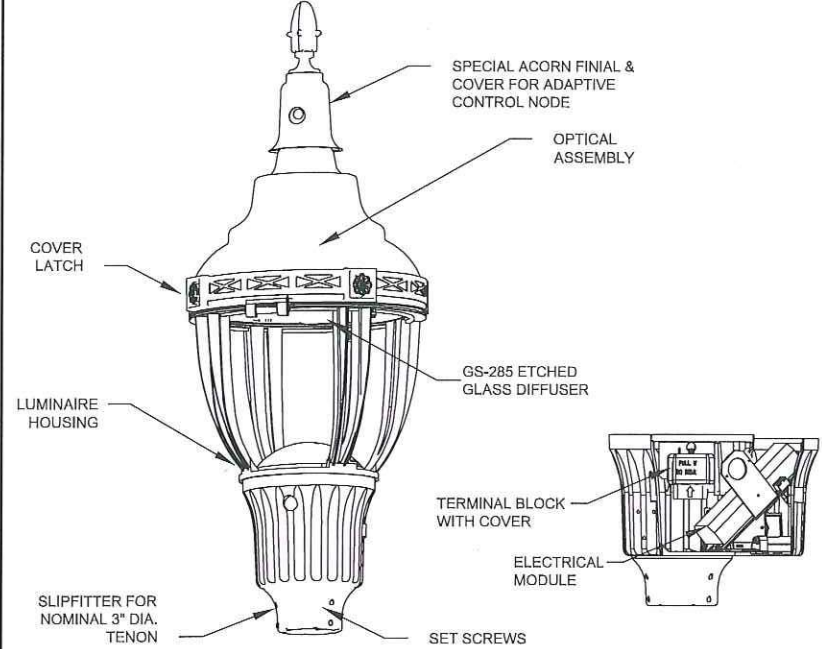


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ORDER #:	
TYPE:	
DRAWN:	SGK
DATE:	05/04/11
DWG #:	LUM_WFL



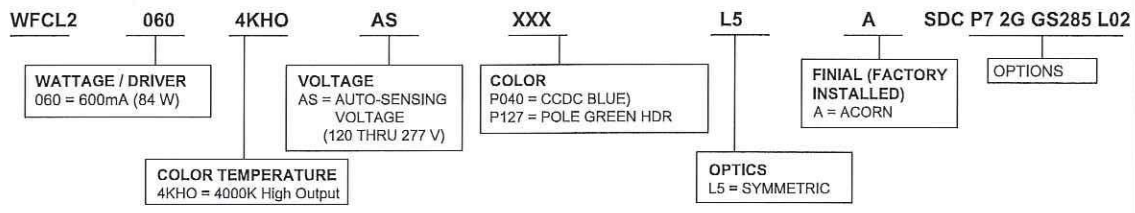
Maximum weight - 57 lbs
 Maximum effective projected area - 1.72 sq. ft.



Utility Washington Postlite®
 Series Luminaire
 Full Cutoff LED

DECORATIVE
 OUTDOOR

ORDERING INFORMATION:



OPTIONS

- SDC = RECEPTACLE AT TOP AND ACORN FINIAL AND COVER FOR ADAPTIVE CONTROL NODE
- P7 = NEMA TWISTLOCK PHOTOCONTROL, ANSI C136.41 7-PIN RECEPTACLE, ADAPTIVE CONTROL READY
- 2G = TENON SET SCREWS FOR 2G RATING
- GS285 = SPECIAL GS-285 ETCHED GLASS
- L02 = WITH 2 FEET OF PREWIRED LEADS EXITING TENON FITTER

GENERAL DESCRIPTION

The Utility Washington Full Cutoff LED is designed for ease of maintenance with the plug-in electrical module common to each of the luminaires in Holophane's Utility Luminaire Series. A precision optical system maximizes post spacings while maintaining uniform illumination.

OPTICAL SYSTEM

The optical system consists of a precisely engineered LED circuit board located in the top cover. A gasket between the cover and ring along with a flat glass plate and gasket beneath the LED's create a sealed optical compartment that meets an IP66 rating. Optics designed to provide an I.E.S. Asymmetric or Symmetric full cutoff distribution are available.

LUMINAIRE HOUSING

The luminaire housing, cast of aluminum, anchors the optical system and provides an enclosure for the plug in electrical module. The electrical enclosure conforms to an IP55 rating. A slipfitter will accept a 3" high by 2 7/8" to 3 1/8" O.D. pole tenon.

LUMINAIRE HOUSING DOOR

Cast of aluminum, the housing door is hinged and latched to the housing. The door forms the mount for the electrical module, and allows easy access during maintenance.

TOP COVER

The top cover, cast of aluminum, is attached to the top ring of the luminaire housing by a stainless steel hinge pin. The cover is latched by an overcenter, positive action, stainless steel latch which allows tool-less entry to the LED chamber.

FINISH

The luminaire is finished with polyester powder coat paint to ensure maximum durability.

LISTING

The luminaire is UL listed as suitable for wet locations at a maximum of 40°C ambient temperature. The luminaire is currently on the DLC QPL (Qualified Products List).

Warranty

Limited warranty located at www.acuitybrands.com/Customeresources/Terms_and_conditions.aspx



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INPUT WATTAGE	LUMENS	CCT	BUG RATING	OPERATION
84W Nominal	6444	4000K	B3-U0-G1	600mA Drive Current, Undimmed

ORDER #:
 TYPE:
 DRAWN: RAF
 DATE: 02/01/2016
 DWG #: TSG008975R4



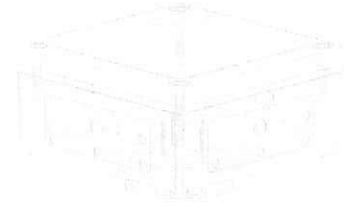


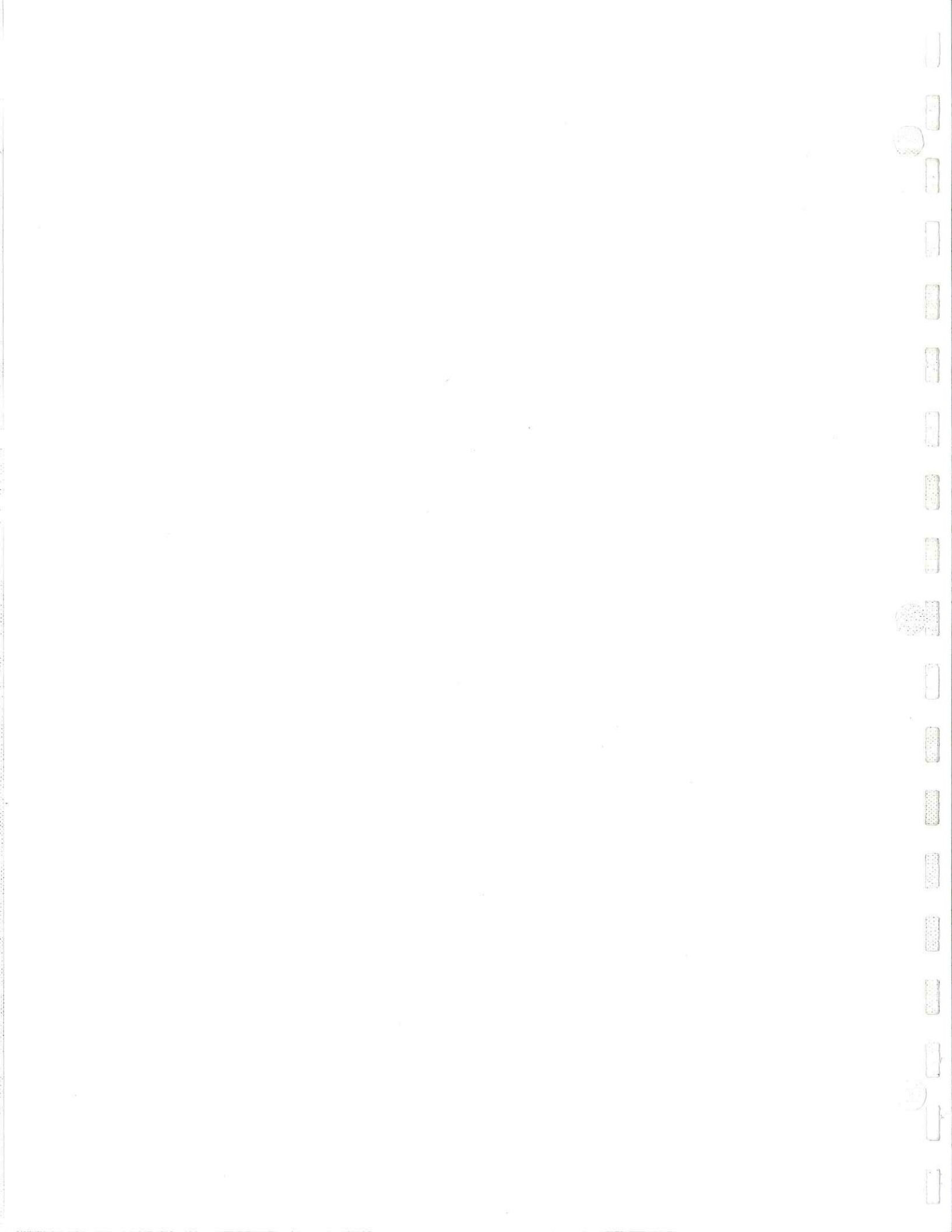
Appendix 2.3: Next-Generation Lighting Controls and Multi-Functional Node

General Specifications

The anyCOMM communications “Node” is a field installable direct replacement for a standard outdoor photocell and typically installed on the top of cobra streetlights or embedded into decorative fixtures.

- **Enclosure**
 - Gray Polycarbonate (PC) resin 10% glass fiber filled
 - IP-67 TUV to keep out dust and water in extreme conditions
 - UL508 / NEMA type 4X and type 6 listed #E343339
 - UL industrial controls directive 2006/95/EC listed
 - Non-chlorinated & non-brominated flame retardant UL-94 V0 rating
 - Suitable for ultraviolet light exposure and water exposure in accordance with UL 746C
 - High impact resistance
- **Electrical Connection**
 - ANSI C136.41-2013 compliant
 - Mates with standard 3, 5 & 7 position twist lock photocell sockets
 - Voltage requirement : 90-305 VAC
 - Operating temperature : -20° to 85° Celsius
 - Switched relay contacts : 15A max or 5A with inductive load
 - Dimming : 0-10 VDC, PWM
- **Replacement Photocell**
 - Direct field replacement for standard photocells
 - Four independent automated lighting sensors
 - Initial turn on at 3 footcandles, off at 8 footcandles (remotely adjustable)
 - Initial time delay set to 45 seconds (remotely adjustable)
- **Metering Specifications**
 - Cirrus Logic CS54XX SOC (same as most popular smart meters)
 - Utility company grade data with 0.2% reading accuracy
 - Sub-meter capable for loads up to 30A (via separate modules)
 - Zero setup or provisioning (onboard GPS)
- **Network Connectivity**
 - WiFi Module
 - o 802.11.XX backhaul with up to 1000 feet open air range
 - o 802.11.B,G,N,AC front-side hotspot capable with up to 500 feet open air range
 - o MU-MIMO Technology with up to 1.7 Gbps
 - LTE Module
 - o LTE based modem with up to 100 Mbps downlink and 50 Mbps uplink
 - o GNSS (Global Positioning System)
 - o Internal antennas
- **Audio / Video**
 - Four HD video optical sensors with 5° down pitch
 - Auto focus (day/night) adjustable optics
 - Four omnidirectional microphone audio sensors
- **Emergency Notification LEDs**
 - Twelve full color RGB LEDs
 - Individually addressable
 - Large light scattering angle





2681 Zanker Rd,
San Jose CA 95134

916-265-1050
www.anycomm.com



anyCOMM Next-Generation Lighting Controls and Multi-Function Node

Model 1 = Installation on top of Roadway / Cobra-head streetlight luminaire / fixture



Model 2 = Installation at base of the luminaire / fixture for Special / Ornamental / Decorative streetlight

