



REPORT

545 E. Algonquin Rd., Arlington Heights, IL 60005

Project No. G102171228

Date: August 28, 2016

REPORT NO. 102171228CHI-048

TEST OF ONE LED BOLLARD

MODEL NO. 700OBSYN42SCUNV830Z
LED MODEL NO. LUMINUS MP-3030-2100-30-90
DRIVER MODEL NO. LTF DS30W830C2036LI2D010-0000

RENDERED TO

GENERATION BRANDS
7400 LINDER AVE.
SKOKIE, IL, 60077

TEST: Electrical and Photometric tests as required to the IESNA test standard.

AUTHORIZATION: The testing performed was authorized by signed quote number 500606081.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

ANSI NEMA ANSLG C78.377: 2012: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number 700OBSYN42SCUNV830Z. The sample was received by Intertek on August 22, 2016, in undamaged condition and one sample was tested as received. The sample designation was AH08222016030613-48.

DATES OF TESTS: August 25, 2016 through August 28, 2016.

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SUMMARY

Model No.: 700OBSYN42SCUNV830Z
Description: LED Bollard

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	578.0	557.5
Total Power (W)	28.91	28.95
Luminaire Efficacy (LPW)	19.99	19.26

Criteria	Result
Power Factor	0.975
Current ATHD %	14.15
Correlated Color Temperature (CCT - K)	3080
Color Rendering Index (CRI - Ra)	83.0
Color Rendering Index (CRI - R9)	8.1
DUV	0.002
Chromaticity Coordinate (x)	0.429
Chromaticity Coordinate (y)	0.396
Chromaticity Coordinate (u')	0.248
Chromaticity Coordinate (v')	0.517
BUG Rating	B0-U1-G0
IES Classification	Type II
Longitudinal Classification	Very Short

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Yokogawa Power Meter	WT210	146919	07/11/16	07/11/17	08/28/16
Omega Newport Thermometer	DPI8-C24	146920	10/09/15	10/09/16	08/28/16
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	08/28/16
Newport Thermohygrometer	iServer	146956	01/04/16	01/04/17	08/28/16
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	08/28/16
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	08/25/16
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	08/25/16
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	08/25/16
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	08/25/16
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	08/25/16
Yokogawa Power Meter	WT1600	146768	01/14/16	01/14/17	08/25/16
Omega Temperature Meter	MDSi8	146139	03/21/16	03/21/17	08/25/16

TEST METHODS

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79.

Photometric and Electrical Measurements – Integrating Sphere Method

A Labsphere Model CDS 1100 CCD Array Spectroradiometer and Two Meter or Ten Foot Sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit.

Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation. Each SSL unit was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

The calibration of the sphere photometer-spectroradiometer system is traceable to the National Institute of Standards and Technology.

Photometric and Electrical Measurements – Distribution Method

A LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

BUG Ratings (Backlight, Uplight, Glare) – for Outdoor Fixtures Only

Zonal Lumens were calculated and grouped using the formula in IESNA TM-15-11 for each zone as defined in the BUG addendum. The maximum lumen rating in each zone was compared against the BUG zonal requirements of Energy Star. Photometric Toolbox software was used to calculate results.

RESULTS OF TEST

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

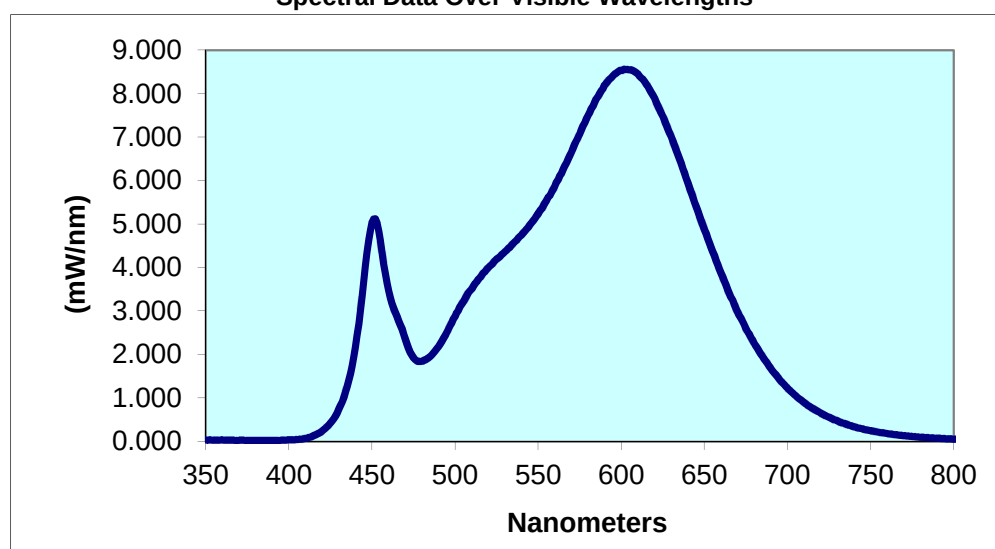
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH08222016030613-48	UP	120.0	247.2	28.91	0.975	14.15	578.0	19.99

Correlated Color Temperature (K)	CRI -Ra	CRI -R9	DUV	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
3080	83.0	8.1	0.002	0.429	0.396	0.248	0.517

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.035	440	2.173	530	4.368	620	7.888	710	0.895
355	0.031	445	3.680	535	4.556	625	7.475	715	0.765
360	0.034	450	5.043	540	4.749	630	7.006	720	0.654
365	0.029	455	4.623	545	4.984	635	6.495	725	0.559
370	0.029	460	3.466	550	5.244	640	5.950	730	0.475
375	0.025	465	2.879	555	5.543	645	5.416	735	0.404
380	0.025	470	2.357	560	5.876	650	4.877	740	0.342
385	0.022	475	1.921	565	6.248	655	4.371	745	0.291
390	0.023	480	1.848	570	6.658	660	3.880	750	0.249
395	0.026	485	1.962	575	7.075	665	3.412	755	0.214
400	0.033	490	2.189	580	7.501	670	2.992	760	0.184
405	0.047	495	2.521	585	7.884	675	2.606	765	0.158
410	0.075	500	2.883	590	8.199	680	2.260	770	0.134
415	0.137	505	3.226	595	8.413	685	1.955	775	0.116
420	0.244	510	3.513	600	8.531	690	1.682	780	0.099
425	0.427	515	3.780	605	8.550	695	1.439		
430	0.735	520	3.999	610	8.450	700	1.232		
435	1.262	525	4.193	615	8.212	705	1.050		

Spectral Data Over Visible Wavelengths



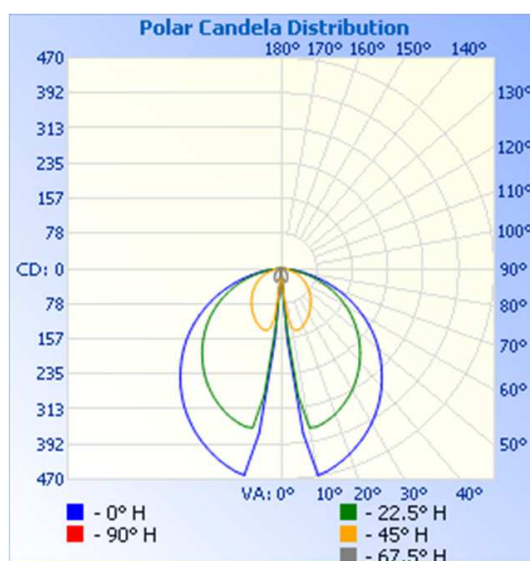
RESULTS OF TEST (cont'd)

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH08222016030613-48	UP	120.0	248.3	28.95	0.972	557.5	19.26

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	0	0	0	0	0
5	161	126	50	5	0
10	468	360	133	21	0
15	457	357	142	29	0
20	440	346	138	31	0
25	421	331	130	29	0
30	399	313	121	27	0
35	373	293	111	24	0
40	344	270	101	21	0
45	313	245	92	18	0
50	281	220	82	16	0
55	246	193	71	14	0
60	208	163	61	12	0
65	169	133	50	10	0
70	129	102	39	8	0
75	88	71	28	6	0
80	50	41	18	4	0
85	17	17	10	3	0
90	0	4	5	2	0
95	0	4	5	2	0
100	0	3	4	2	0
105	0	3	3	2	0
110	0	3	3	1	0
115	0	2	3	1	0
120	1	2	2	1	0
125	1	2	2	1	0
130	1	1	1	1	0
135	1	1	1	1	0
140	1	1	1	0	0
145	1	1	1	0	0
150	1	1	1	0	0
155	1	1	1	0	0
160	1	1	1	0	0
165	1	1	1	0	0
170	1	1	1	0	0



RESULTS OF TEST (cont'd)

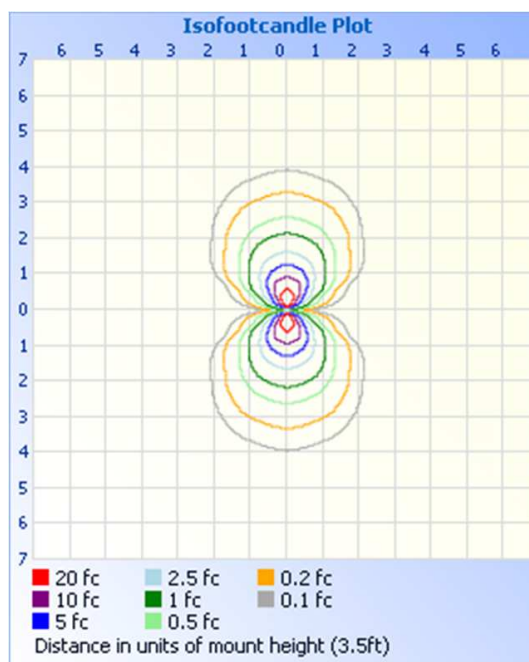
Illumination Plots

Mounting Height: 3.5 ft.

Illuminance - Cone of Light

Illuminance at a Distance			
	Center Beam fc	Beam Width	
1.0ft	0.00 fc	0.9 ft	0.2 ft
2.0ft	0.00 fc	1.9 ft	0.5 ft
3.0ft	0.00 fc	2.8 ft	0.7 ft
4.0ft	0.00 fc	3.8 ft	1.0 ft
Vert. Spread: 50.7° Horiz. Spread: 14.2°			

Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	144.9	26.0
0-40	240.9	43.2
0-60	429.1	77.0
60-90	119.5	21.4
0-90	548.6	98.4
90-180	8.9	1.6
0-180	557.5	100.0

Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	72.3	13.0
FM	(30-60)	142.1	25.5
FH	(60-80)	54.0	9.7
FVH	(80-90)	5.7	1.0
BL	(0-30)	72.3	13.0
BM	(30-60)	142.1	25.5
BH	(60-80)	54.0	9.7
BVH	(80-90)	5.7	1.0
UL	(90-100)	2.9	0.5
UH	(100-180)	6.0	1.1
Total		557.1	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	11.1	2.0
10-20	53.2	9.5
20-30	80.6	14.5
30-40	96.0	17.2
40-50	98.7	17.7
50-60	89.4	16.0
60-70	68.6	12.3
70-80	39.5	7.1
80-90	11.5	2.1
90-100	2.9	0.5
100-110	2.1	0.4
110-120	1.5	0.3
120-130	1.0	0.2
130-140	0.6	0.1
140-150	0.4	0.1
150-160	0.2	0.0
160-170	0.1	0.0

BUG Rating: B0-U1-G0
 IES Classification: Type II
 Longitudinal Classification: Very Short

PICTURES (not to scale)



CONCLUSION

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:



Vladimir Kozak
Senior Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley
Engineer
Lighting Division