

TECH LIGHTING TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

700OBARKx83036ZUNV

REPORT NUMBER

104032458CHI-002

ISSUE DATE

August 5, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT DATE: August 5, 2019

TEST REPORT

TEST OF ONE BOLLARD - QUAD LED PANEL

MODEL NO. 700OBARKX83036ZUNV
LED MODEL NO. PHILIPS L130-3080003000X21
DRIVER MODEL NO. ERP ESSO30W-0700-42

RENDERED TO:

TECH LIGHTING
7400 LINDER AVE
SKOKIE, IL 60077

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-00981438-0.

STANDARDS USED

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting
ANSI NEMA ANSLG C78.377: 2015: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE

The client submitted one prototype sample of model number 700OBARKx83036ZUNV. The sample was received by Intertek on July 12, 2019 in undamaged condition and one sample was tested as received. The sample designation was AH07122019033746-001.

DATE OF TESTS

July 30, 2019 through July 31, 2019.

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SUMMARY

MODEL NO:	7000BARKx83036ZUNV
DESCRIPTION:	Bollard - Quad LED Panel

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	1232.2	1226.4
Input Power (W) @ 120 (VAC)	24.22	24.24
Lumen Efficacy (lm/W)	50.9	50.6
Input Power Factor @ 120 (VAC)	0.986	0.986

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	13.23
Correlated Color Temperature (K)	3119
Color Rendering Index - Ra	80.5
Color Rendering - R9	-0.9
DUV	0.0010
Chromaticity Coordinate (x)	0.431
Chromaticity Coordinate (y)	0.406
Chromaticity Coordinate (u')	0.246
Chromaticity Coordinate (v')	0.521
B-U-G Rating	B1-U2-G0
IES Classification	Type VS
Longitudinal Classification	Very Short

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EQUIPMENT LIST

EQUIPMENT USED	MODEL NO.	CONTROL NO.	LAST CAL DATE	CAL DUE DATE
Yokogawa Power Meter	WT210	146919	7/1/2019	7/1/2020
Omega Thermometer	DPI8-C24	146920	10/4/2018	10/4/2019
LSI High Speed Mirror Goniometer	6440T	146928	VBV	VBV
Newport Thermohygrometer	iServer	146957	12/11/2018	12/11/2019
Pacific, AC power supply	118-ACX	CHI0358	VBV	VBV
Labsphere Spectroradiometer	CDS1100	CHI0091	VBV	VBV
3 Meter Sphere	SPR600	CHI0088	VBV	VBV
Elgar AC Power Supply	CW1251	146112	VBV	VBV
Sorenson DC Power Supply	XFR150-8	146846	VBV	VBV
Newport Humidity Recorder	iTHX-SD	146382	4/17/2019	4/17/2020
Yokogawa Power Meter	WT1600	146769	4/3/2019	4/3/2020
Extech K Temperature Meter	SD200	CHI0207	4/3/2019	4/3/2020

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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 Spectroradiometer and integrating 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. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a 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 Type C Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for the SSL sample.

Ambient temperature was measured equal to the height of the sample mounted on the goniometer equipment. The SSL sample was operated on the client provided driver at rated input volts in its designated orientation. The SSL sample was allowed to stabilize for at least thirty minutes before measurements were made. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a power analyzer.

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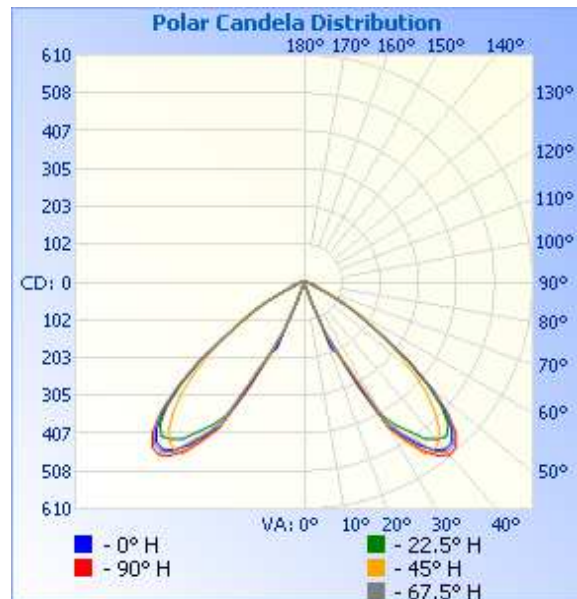
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR	LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)
AH07122019033746-001B	Base Up	120.0	204.8	24.24	0.986	1226.4	50.6

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	1	1	1	1	1
5	1	1	1	1	1
10	2	2	2	2	2
15	4	5	5	5	4
20	52	49	23	46	54
25	214	203	231	197	211
30	445	412	459	425	452
35	535	490	566	521	553
40	586	551	559	594	605
45	557	544	494	566	572
50	438	431	385	441	445
55	266	262	263	262	266
60	154	153	166	147	151
65	69	62	72	62	66
70	25	31	33	33	27
75	25	31	23	32	26
80	13	16	16	16	13
85	9	8	11	9	8
90	5	6	6	6	5
95	4	4	5	4	4
100	4	4	5	4	4
105	4	4	5	4	4
110	4	5	6	5	4
115	5	5	6	5	5
120	5	6	6	6	5
125	4	5	6	5	4
130	2	4	5	4	2
135	1	2	3	2	1
140	1	1	2	1	1
145	1	1	1	1	1
150	1	1	1	1	1
155	1	1	1	1	1



Lum. Classification System (LCS)

LCS Zone	Lumens	%Lum
FL (0-30)	55.3	4.5
FM (30-60)	490.4	40
FH (60-80)	50.9	4.2
FVH (80-90)	5.3	0.4
BL (0-30)	55.3	4.5
BM (30-60)	490.4	40
BH (60-80)	50.9	4.2
BVH (80-90)	5.3	0.4
UL (90-100)	5	0.4
UH (100-180)	17.3	1.4
Total	1226	100
BUG Rating		B1-U2-G0

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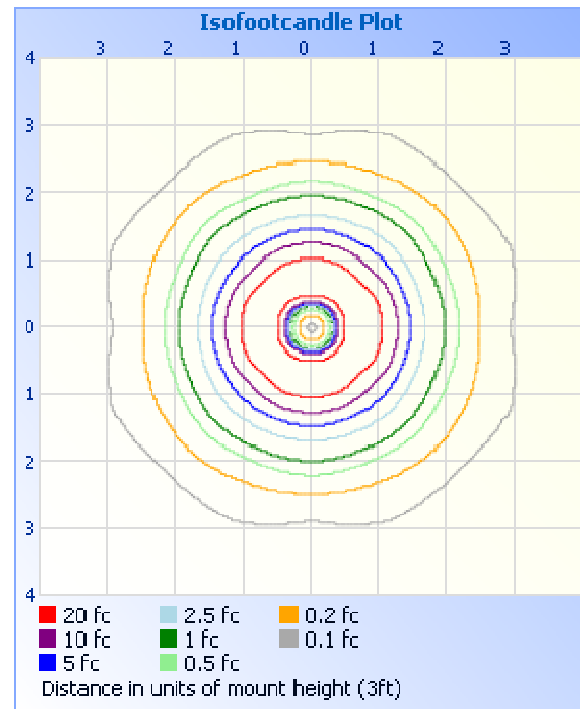
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RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

MOUNTING HEIGHT: 3ft	
ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	111.2	9.1
0-40	440.8	35.9
0-60	1091.8	89.0
60-90	112.3	9.2
70-100	42.4	3.5
90-120	15.2	1.2
0-90	1204.1	98.2
90-180	22.3	1.8
0-180	1226.4	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	0.1	0.0
10-20	3.1	0.3
20-30	108.0	8.8
30-40	329.6	26.9
40-50	405.9	33.1
50-60	245.2	20.0
60-70	74.9	6.1
70-80	26.9	2.2
80-90	10.5	0.9
90-100	5.0	0.4
100-110	4.9	0.4
110-120	5.3	0.4
120-130	4.5	0.4
130-140	1.8	0.1
140-150	0.5	0.0
150-160	0.2	0.0

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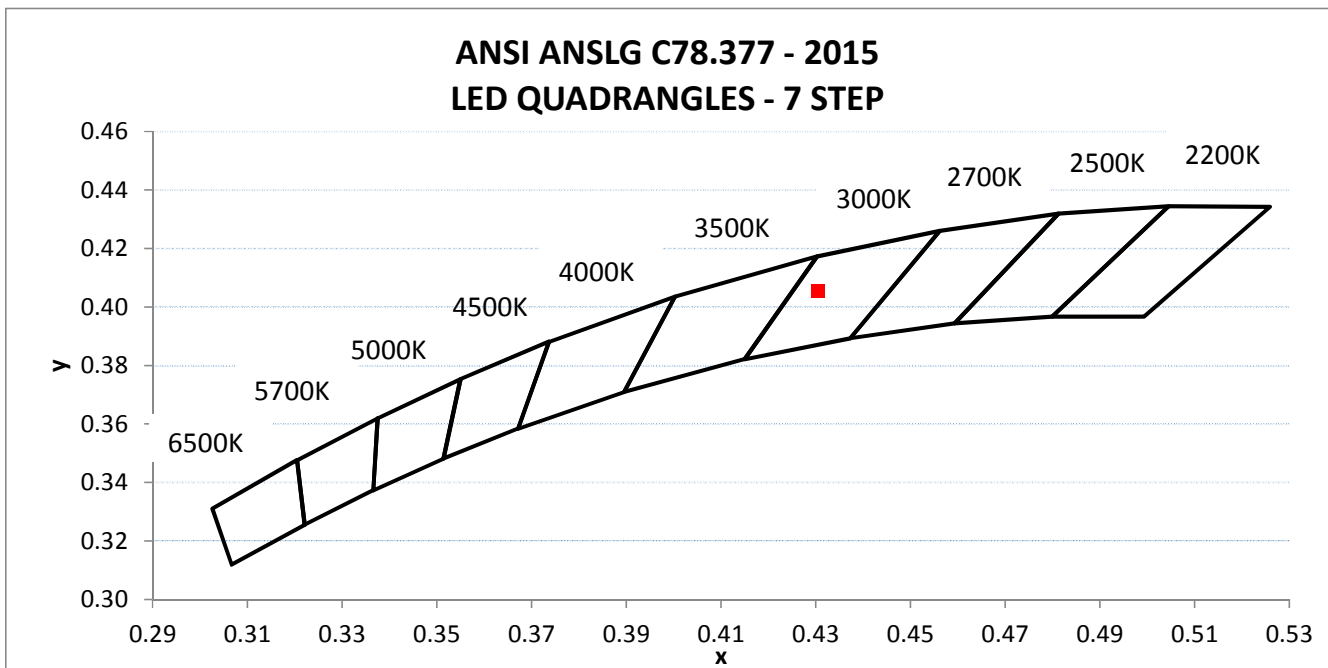
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR	INPUT CURRENT ATHD (%)
AH07122019033746-001B	Base Up	120.02	204.72	24.22	0.986	13.23

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
1232.2	50.9	3119	80.5	-0.9	0.0010

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.431	0.406	0.246	0.521



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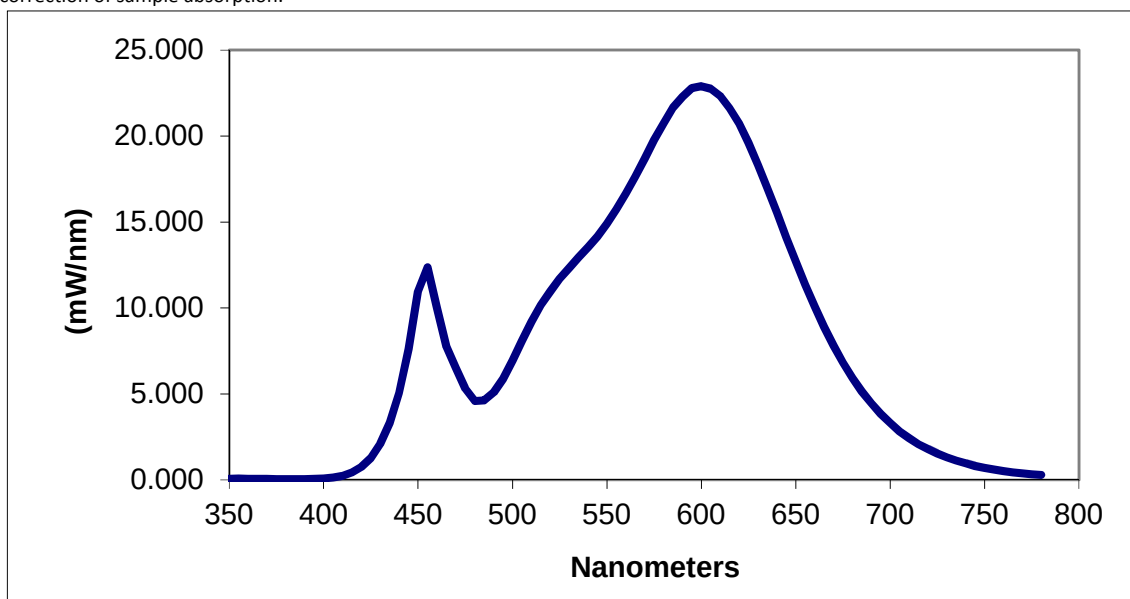
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PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

SPECTRAL DISTRIBUTION OVER VISIBLE WAVELENGTHS*							
nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.076	460	10.041	570	18.698	680	5.939
355	0.082	465	7.746	575	19.768	685	5.152
360	0.077	470	6.521	580	20.738	690	4.459
365	0.073	475	5.317	585	21.650	695	3.840
370	0.069	480	4.591	590	22.292	700	3.301
375	0.062	485	4.627	595	22.780	705	2.834
380	0.059	490	5.095	600	22.897	710	2.431
385	0.054	495	5.877	605	22.756	715	2.088
390	0.054	500	6.953	610	22.317	720	1.794
395	0.063	505	8.098	615	21.621	725	1.537
400	0.084	510	9.208	620	20.715	730	1.313
405	0.137	515	10.182	625	19.599	735	1.125
410	0.245	520	10.974	630	18.299	740	0.965
415	0.439	525	11.691	635	16.974	745	0.825
420	0.764	530	12.330	640	15.541	750	0.710
425	1.290	535	12.939	645	14.109	755	0.610
430	2.104	540	13.541	650	12.700	760	0.522
435	3.327	545	14.163	655	11.362	765	0.449
440	5.065	550	14.897	660	10.084	770	0.388
445	7.619	555	15.733	665	8.907	775	0.334
450	10.959	560	16.660	670	7.808	780	0.289
455	12.360	565	17.634	675	6.828		

*Without correction of sample absorption.



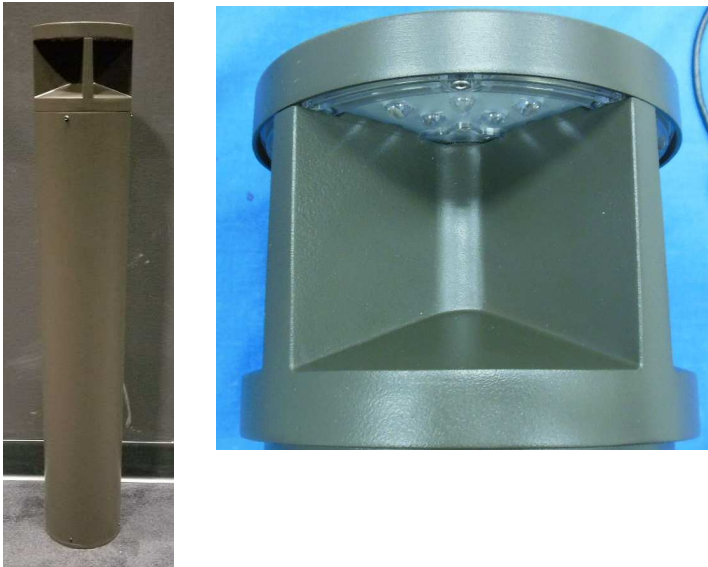
End Of Test Results

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PICTURES



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:

Tim Quigley

Timothy Quigley
Project Engineer
Lighting Division

Report Reviewed By:

Hector Huitron

Hector Huitron
Associate Engineer
Lighting Division

Attachments: IES File

REVISION HISTORY

JOB NUMBER	DATE OF REVISION	PROJECT HANDLER	REVIEWED BY	REVISION NOTE
None				