

TECH LIGHTING TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

700OBARKx83036ZUNV

REPORT NUMBER

104032458CHI-001

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 - SINGLE LED PANEL

MODEL NO. 700OBARKX83036ZUNV
LED MODEL NO. PHILIPS L130-3080003000X21
DRIVER MODEL NO. ERP ESS020W-0450-42

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 - Single LED Panel

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	900.8	876.7
Input Power (W) @ 120 (VAC)	16.09	16.09
Lumen Efficacy (lm/W)	56.0	54.5
Input Power Factor @ 120 (VAC)	0.987	0.988

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	14.28
Correlated Color Temperature (K)	3111
Color Rendering Index - Ra	82.2
Color Rendering - R9	10.6
DUV	0.0006
Chromaticity Coordinate (x)	0.431
Chromaticity Coordinate (y)	0.404
Chromaticity Coordinate (u')	0.246
Chromaticity Coordinate (v')	0.521
B-U-G Rating	B0-U2-G0
IES Classification	Type II
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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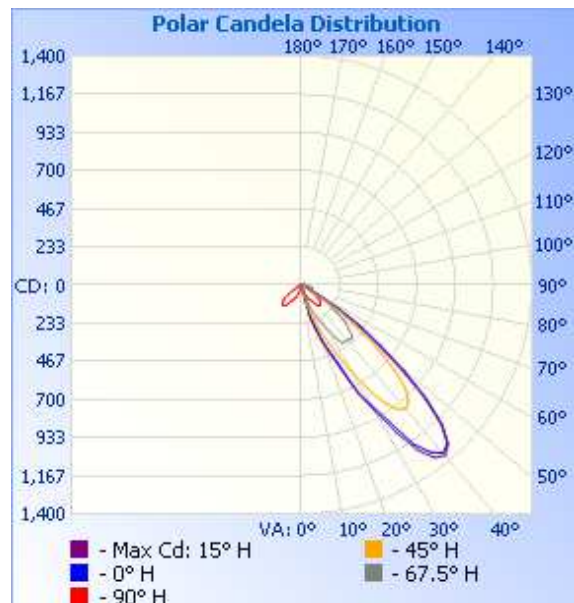
RESULTS OF TESTS

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)
AH07122019033746-001A	Base Up	120.1	135.7	16.09	0.988	876.7	54.5

INTENSITY SUMMARY - CANDELAS

Angle	0	25	45	67.5	90
0	1	1	1	1	1
5	1	2	2	2	2
10	14	17	12	5	2
15	197	175	129	63	15
20	351	330	232	142	54
25	530	522	392	208	86
30	848	843	620	307	103
35	1188	1189	876	433	129
40	1338	1339	986	436	165
45	1210	1206	894	432	161
50	814	769	600	330	142
55	441	361	295	203	93
60	147	109	99	85	44
65	53	52	49	44	28
70	57	56	52	34	22
75	63	46	39	25	14
80	27	19	20	15	9
85	14	12	11	10	4
90	11	10	8	5	2
95	8	8	6	4	1
100	8	8	7	5	1
105	9	9	8	6	1
110	10	10	8	7	1
115	10	10	9	7	2
120	11	10	8	7	2
125	11	10	6	5	2
130	10	8	3	3	1
135	7	5	1	1	1
140	4	2	1	1	1
145	2	1	1	0	0
150	1	1	1	0	0
155	0	0	1	0	0



Lum. Classification System (LCS)

LCS Zone	Lumens	%Lum
FL (0-30)	110.2	12.6
FM (30-60)	669.7	76.4
FH (60-80)	45.9	5.2
FVH (80-90)	6.1	0.7
BL (0-30)	3.2	0.4
BM (30-60)	20.1	2.3
BH (60-80)	3.1	0.4
BVH (80-90)	0.5	0.1
UL (90-100)	3.5	0.4
UH (100-180)	14.1	1.6
Total	876.4	100
BUG Rating	B0-U2-G0	

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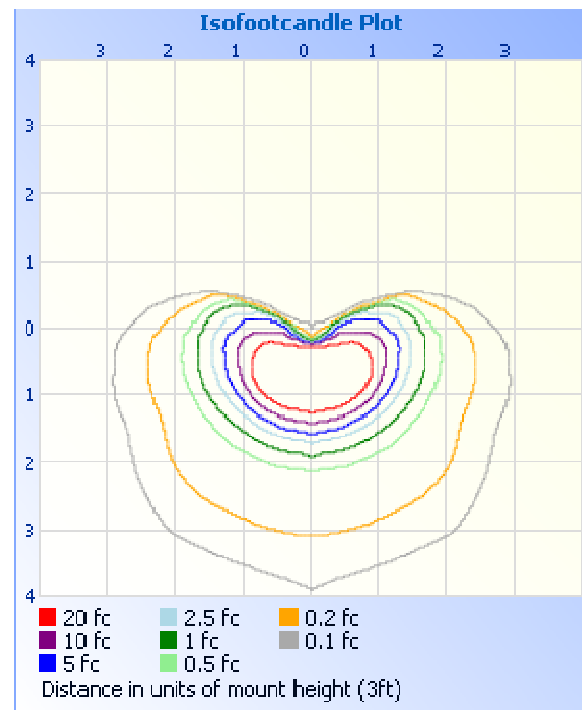
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RESULTS OF TESTS

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	113.9	13.0
0-40	364.5	41.6
0-60	803.6	91.7
60-90	55.5	6.3
70-100	29.5	3.4
90-120	11.7	1.3
0-90	859.1	98.0
90-180	17.6	2.0
0-180	876.7	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	0.3	0.0
10-20	19.0	2.2
20-30	94.6	10.8
30-40	250.6	28.6
40-50	303.9	34.7
50-60	135.3	15.4
60-70	29.6	3.4
70-80	19.4	2.2
80-90	6.6	0.8
90-100	3.5	0.4
100-110	3.9	0.4
110-120	4.3	0.5
120-130	3.4	0.4
130-140	1.5	0.2
140-150	0.6	0.1
150-160	0.3	0.0
160-170	0.1	0.0

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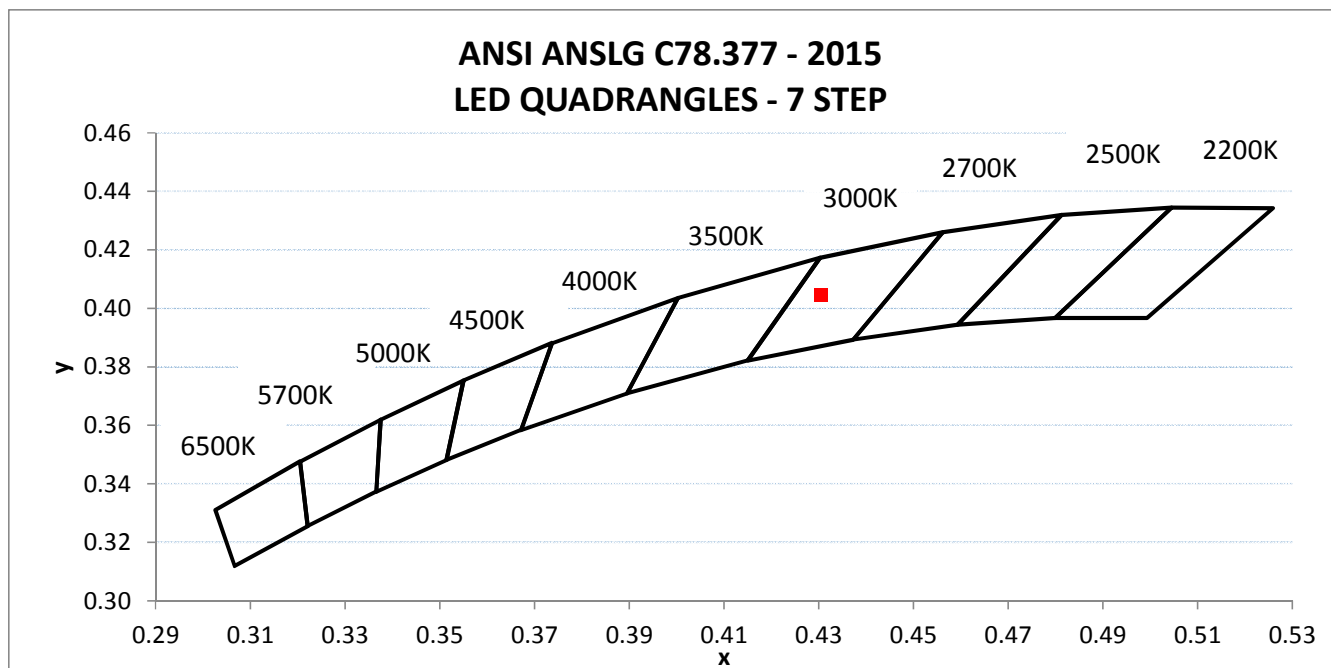
RESULTS OF TESTS

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 (%)
AH07122019033746-001A	Base Up	120.01	135.79	16.09	0.987	14.28

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
900.8	56.0	3111	82.2	10.6	0.0006

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.431	0.404	0.246	0.521



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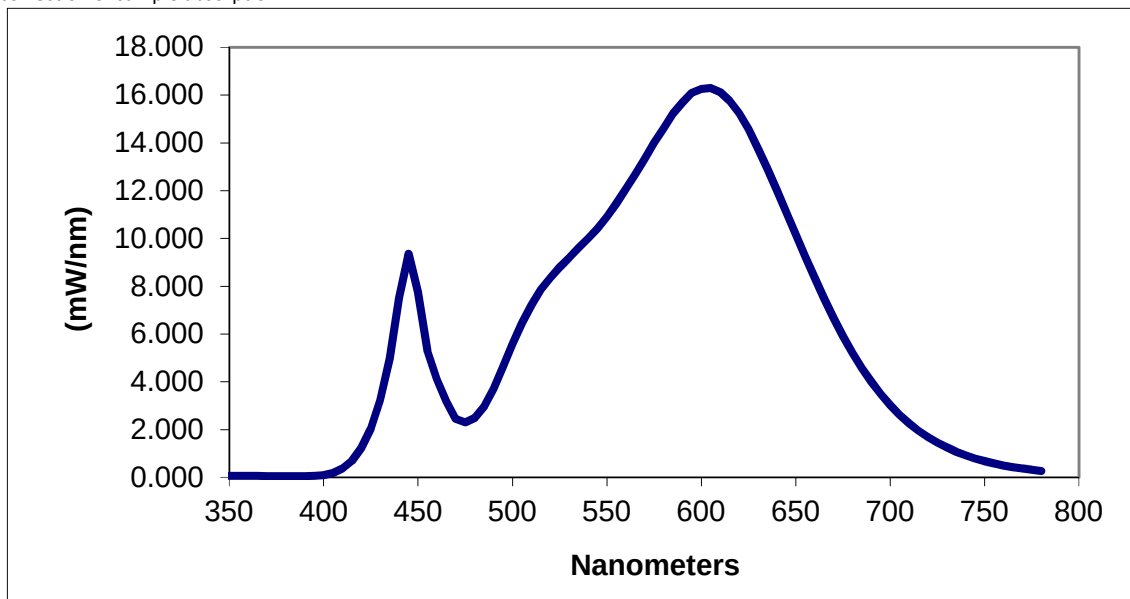
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PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

SPECTRAL DISTRIBUTION OVER VISIBLE WAVELENGTHS*							
nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.069	460	4.111	570	13.344	680	5.215
355	0.060	465	3.173	575	14.016	685	4.575
360	0.064	470	2.455	580	14.612	690	4.009
365	0.066	475	2.304	585	15.230	695	3.492
370	0.054	480	2.492	590	15.701	700	3.025
375	0.054	485	2.953	595	16.093	705	2.625
380	0.052	490	3.709	600	16.265	710	2.265
385	0.050	495	4.633	605	16.300	715	1.956
390	0.049	500	5.594	610	16.122	720	1.688
395	0.060	505	6.460	615	15.760	725	1.453
400	0.097	510	7.224	620	15.235	730	1.251
405	0.185	515	7.867	625	14.580	735	1.071
410	0.373	520	8.354	630	13.760	740	0.917
415	0.698	525	8.801	635	12.931	745	0.788
420	1.224	530	9.204	640	12.016	750	0.679
425	2.046	535	9.602	645	11.102	755	0.582
430	3.236	540	10.009	650	10.159	760	0.500
435	4.979	545	10.412	655	9.258	765	0.427
440	7.516	550	10.915	660	8.361	770	0.367
445	9.355	555	11.468	665	7.499	775	0.314
450	7.767	560	12.080	670	6.671	780	0.272
455	5.275	565	12.688	675	5.917		

*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:



Timothy Quigley
Project Engineer
Lighting Division

Report Reviewed By:



Hector Huitron
Associate Engineer
Lighting Division

Attachments: IES File

REVISION HISTORY

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