

TECH LIGHTING TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

700OBARKx83036ZUNV

REPORT NUMBER

104032458CHI-003

ISSUE DATE

August 5, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

© 2017 INTERTEK



REPORT NO. : 104032458CHI-003

REPORT DATE: August 5, 2019

TEST REPORT

TEST OF ONE BOLLARD - CENTER REFLECTOR

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.

REPORT NO. : 104032458CHI-003

TEST REPORT

REPORT DATE: August 5, 2019

SUMMARY

MODEL NO:	7000BARKx83036ZUNV
DESCRIPTION:	Bollard - Center Reflector

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	1360.0	1383.6
Input Power (W) @ 120 (VAC)	15.25	15.29
Lumen Efficacy (lm/W)	89.2	90.5
Input Power Factor @ 120 (VAC)	0.987	0.987

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	14.41
Correlated Color Temperature (K)	3079
Color Rendering Index - Ra	81.3
Color Rendering - R9	2.1
DUV	0.0012
Chromaticity Coordinate (x)	0.434
Chromaticity Coordinate (y)	0.407
Chromaticity Coordinate (u')	0.247
Chromaticity Coordinate (v')	0.522
B-U-G Rating	B1-U3-G1
IES Classification	Type VS
Longitudinal Classification	Very Short

REPORT NO. : 104032458CHI-003

TEST REPORT

REPORT DATE: August 5, 2019

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

REPORT NO. : 104032458CHI-003

REPORT DATE: August 5, 2019

TEST REPORT

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.

REPORT NO. : 104032458CHI-003

TEST REPORT

REPORT DATE: August 5, 2019

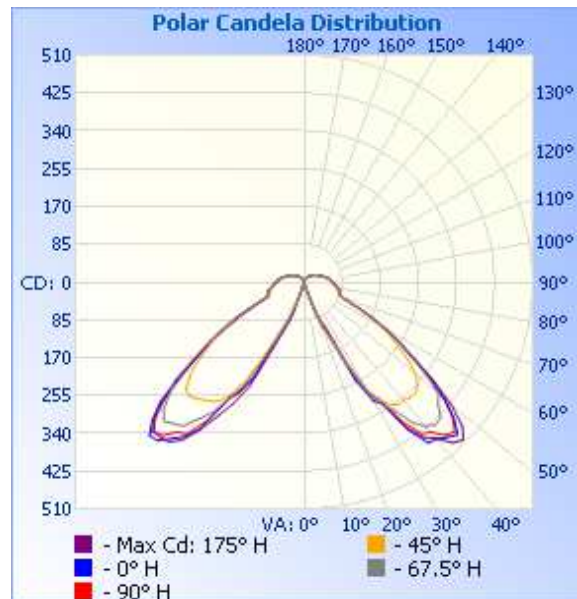
RESULTS OF TESTS

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)
AH07122019033746-001C	Base Up	120.1	129.0	15.29	0.987	1383.6	90.5

INTENSITY SUMMARY - CANDELAS

Angle	0	25	45	67.5	90
0	1	1	1	1	1
5	1	1	1	1	1
10	3	4	4	4	4
15	7	8	8	8	8
20	74	72	66	62	67
25	130	158	138	145	130
30	307	302	278	288	286
35	406	376	336	351	383
40	460	423	346	422	440
45	485	420	352	431	476
50	408	381	325	392	410
55	297	286	263	292	296
60	209	206	198	210	204
65	129	122	121	122	123
70	83	83	83	86	84
75	84	83	78	84	83
80	77	75	74	76	75
85	70	68	69	68	69
90	64	62	62	63	63
95	59	58	58	59	58
100	54	53	53	53	53
105	47	46	46	46	46
110	41	40	40	40	40
115	36	35	35	35	35
120	32	31	31	31	31
125	28	27	27	27	28
130	24	23	23	24	24
135	20	20	20	20	20
140	17	16	16	16	17
145	14	13	13	13	14
150	11	10	10	10	11
155	8	8	8	8	8
160	6	6	6	6	6
165	4	4	4	4	4
170	3	3	3	3	3
175	2	2	2	2	2
180	2	2	2	2	2



Lum. Classification System (LCS)

LCS Zone	Lumens	%Lum
FL (0-30)	42.7	3.1
FM (30-60)	402.6	29.1
FH (60-80)	107.6	7.8
FVH (80-90)	37.5	2.7
BL (0-30)	36.7	2.7
BM (30-60)	407.0	29.4
BH (60-80)	110.3	8
BVH (80-90)	37.4	2.7
UL (90-100)	63.4	4.6
UH (100-180)	138.0	10
Total	1383.2	100
BUG Rating	B1-U3-G1	

REPORT NO. : 104032458CHI-003

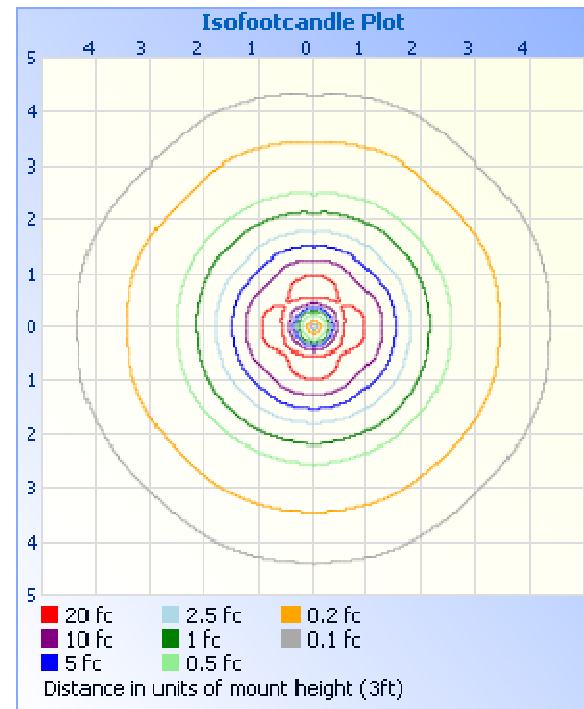
TEST REPORT

REPORT DATE: August 5, 2019

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	79.8	5.8
0-40	305.0	22.0
0-60	889.4	64.3
60-90	292.7	21.2
70-100	224.4	16.2
90-120	147.6	10.7
0-90	1182.1	85.4
90-180	201.5	14.6
0-180	1383.6	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	0.2	0.0
10-20	4.9	0.4
20-30	74.7	5.4
30-40	225.2	16.3
40-50	323.2	23.4
50-60	261.2	18.9
60-70	131.8	9.5
70-80	86.1	6.2
80-90	74.9	5.4
90-100	63.4	4.6
100-110	49.1	3.5
110-120	35.0	2.5
120-130	24.5	1.8
130-140	15.6	1.1
140-150	8.5	0.6
150-160	3.8	0.3
160-170	1.3	0.1
170-180	0.2	0.0

REPORT NO. : 104032458CHI-003

TEST REPORT

REPORT DATE: August 5, 2019

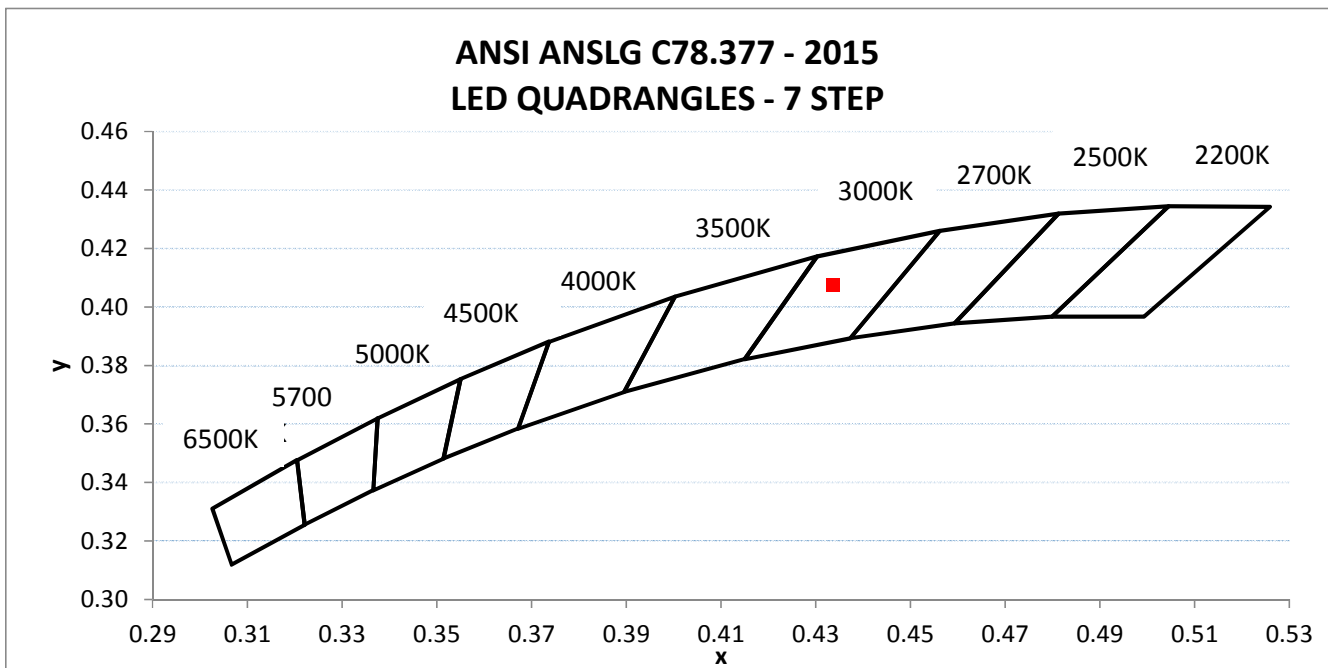
RESULTS OF TESTS

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 (%)
AH07122019033746-001C	Base Up	120.00	128.82	15.25	0.987	14.41

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
1360.0	89.2	3079	81.3	2.1	0.0012

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.434	0.407	0.247	0.522



REPORT NO. : 104032458CHI-003

TEST REPORT

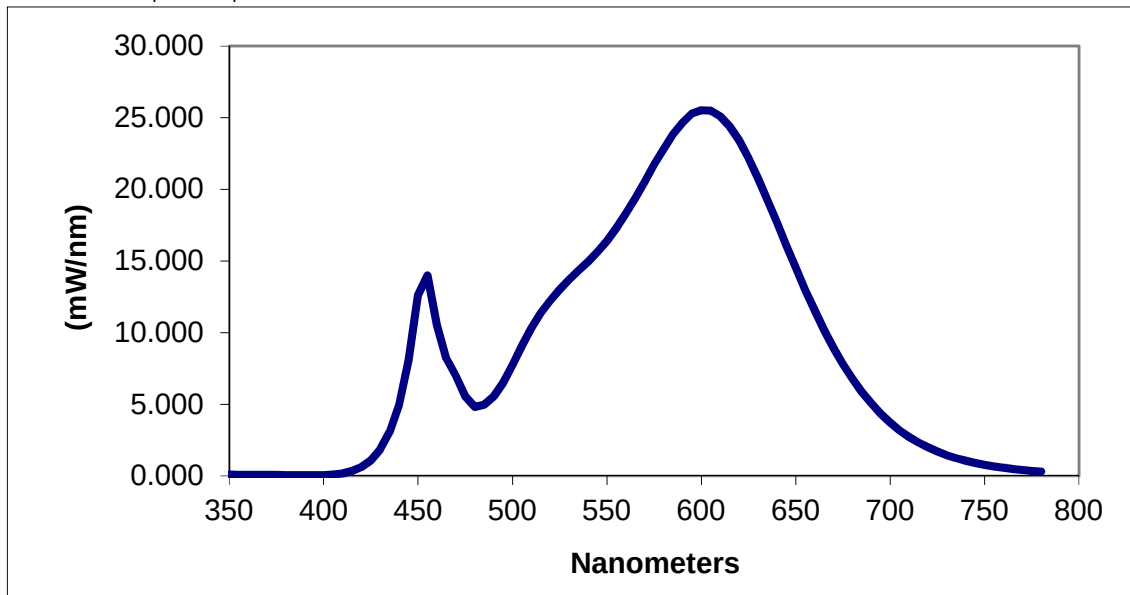
REPORT DATE: August 5, 2019

RESULTS OF TESTS

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	0.101	460	10.556	570	20.538	680	6.777
355	0.097	465	8.195	575	21.719	685	5.862
360	0.094	470	7.007	580	22.807	690	5.060
365	0.091	475	5.546	585	23.848	695	4.349
370	0.085	480	4.811	590	24.647	700	3.727
375	0.076	485	4.981	595	25.288	705	3.187
380	0.073	490	5.559	600	25.519	710	2.722
385	0.063	495	6.486	605	25.487	715	2.332
390	0.062	500	7.754	610	25.083	720	1.996
395	0.062	505	9.077	615	24.396	725	1.707
400	0.071	510	10.314	620	23.410	730	1.458
405	0.107	515	11.393	625	22.200	735	1.237
410	0.186	520	12.255	630	20.756	740	1.062
415	0.343	525	13.004	635	19.273	745	0.904
420	0.616	530	13.695	640	17.690	750	0.775
425	1.081	535	14.325	645	16.093	755	0.663
430	1.849	540	14.964	650	14.520	760	0.570
435	3.071	545	15.618	655	13.000	765	0.489
440	4.961	550	16.416	660	11.554	770	0.418
445	8.111	555	17.308	665	10.205	775	0.359
450	12.600	560	18.330	670	8.936	780	0.310
455	13.996	565	19.385	675	7.801		

*Without correction of sample absorption.



End Of Test Results

REPORT NO. : 104032458CHI-003

REPORT DATE: August 5, 2019

TEST REPORT

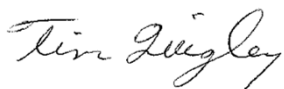
PICTURES



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				