

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

7000WZUR93024BUNVA

REPORT NUMBER

103017649CHI-090A

ISSUE DATE

July 31, 2018

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT DATE: July 31, 2018

TEST REPORT

TEST OF ONE LED WALL SCONCE

MODEL NO. 700OWZUR93024BUNVA
LED MODEL NO. CITIZEN CLU028-1203C4-303H5K2
DRIVER MODEL NO. LTF DS20W500C2040LI2D010-0000

RENDERED TO:

VISUAL COMFORT GROUP
7400 LINDER AVE.
SKOKIE, IL, 60077

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-00779063-2.

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 production sample of model number 700OWZUR93024BUNVA. The sample was received by Intertek on July 16, 2018 in undamaged condition and one sample was tested as received. The sample designation was AH07162018035546 -090A.

DATE OF TESTS

July 18, 2018 through July 19, 2018.

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SUMMARY

MODEL NO:	7000WZUR93024BUNVA
DESCRIPTION:	LED Wall Sconce

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	905.2	909.6
Input Power (W) @ 120 (VAC)	20.57	20.46
Lumen Efficacy (lm/W)	44.0	44.5
Input Power Factor () @ 120 (VAC)	0.824	0.767

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	25.96
Correlated Color Temperature (K)	3084
Color Rendering Index - Ra ()	92.9
Color Rendering - R9 ()	66.5
DUV ()	0.0010
Chromaticity Coordinate (x)	0.433
Chromaticity Coordinate (y)	0.407
Chromaticity Coordinate (u')	0.247
Chromaticity Coordinate (v')	0.522
BUG Rating	B1-U0-G0

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EQUIPMENT LIST

EQUIPMENT USED	MODEL NO.	CONTROL NO.	LAST CAL DATE	CAL DUE DATE
Yokogawa Power Meter	WT210	146919	7/9/2018	7/9/2019
Omega Newport Thermometer	DPI8-C24	146920	10/4/2017	10/4/2018
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
Newport Thermohygrometer	iServer	146957	11/17/2017	11/17/2018
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU
3 Meter Sphere	SPR600	CHI0088	VBU	VBU
Elgar AC Power Supply	CW1251	146112	VBU	VBU
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU
Newport Humidity Recorder	iTHX-SD	146379	4/16/2018	4/16/2019
Yokogawa Power Meter	WT1600	146769	4/6/2018	4/6/2019

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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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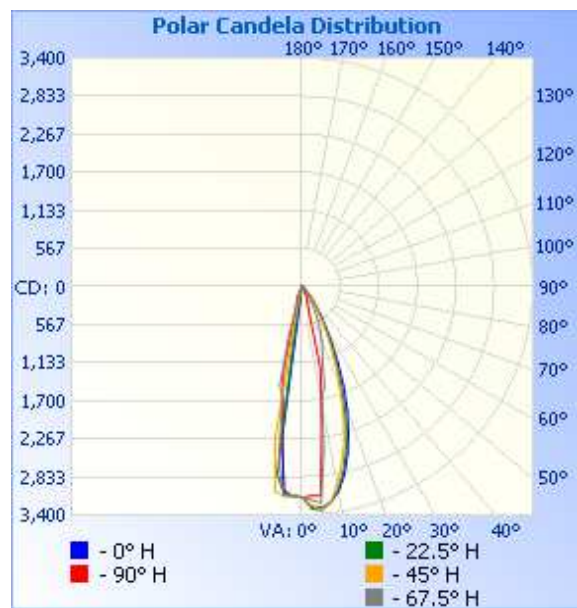
RESULTS OF TESTS

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)
AH07162018035546 -090A	Base Up	120.1	222.2	20.46	0.767	909.6	44.5

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	3135	3135	3135	3135	3135
5	3300	3339	3320	3227	3120
10	3094	3064	2991	1682	1610
15	2588	2498	2394	1169	422
20	1942	1774	1656	843	231
25	1253	1113	1048	553	138
30	714	625	592	315	54
35	397	343	324	170	18
40	214	189	177	92	6
45	113	102	95	50	2
50	58	53	49	26	1
55	32	29	27	14	1
60	19	18	16	8	0
65	12	11	10	5	0
70	8	7	6	0	0
75	5	4	0	0	0
80	3	2	0	0	0
85	1	0	0	0	0
90	0	0	0	0	0



Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	602	65.8
FM	(30-60)	127	13.9
FH	(60-80)	5	0.6
FVH	(80-90)	0.2	0.0
BL	(0-30)	178.4	19.5
BM	(30-60)	1	0.2
BH	(60-80)	< 0.05	0.0
BVH	(80-90)	0.0	0.0
UL	(90-100)	0.0	0.0
UH	(100-180)	0.0	0.0
Total		914	100.0

BUG Rating: B1-U0-G0

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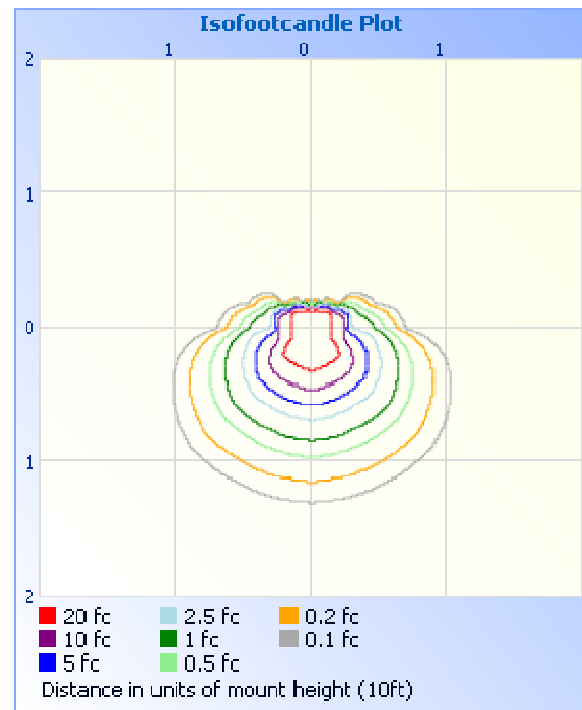
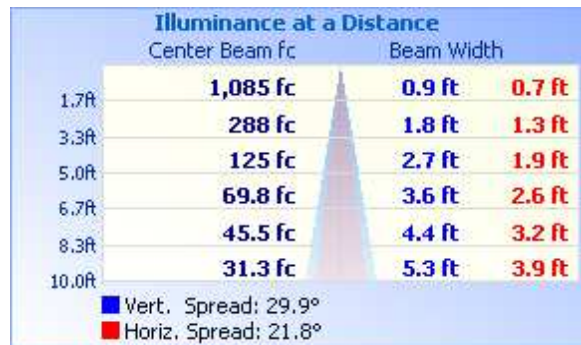
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RESULTS OF TESTS

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

MOUNTING HEIGHT: 10ft	
ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	775.9	85.3
0-40	862.7	94.8
0-60	904.3	99.4
60-90	5.4	0.6
70-100	1.4	0.2
90-120	0.0	0.0
0-90	909.6	100.0
90-180	0.0	0.0
0-180	909.6	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	262.3	28.8
10-20	312.0	34.3
20-30	201.7	22.2
30-40	86.8	9.5
40-50	31.2	3.4
50-60	10.4	1.1
60-70	4.0	0.4
70-80	1.2	0.1
80-90	0.2	0.0

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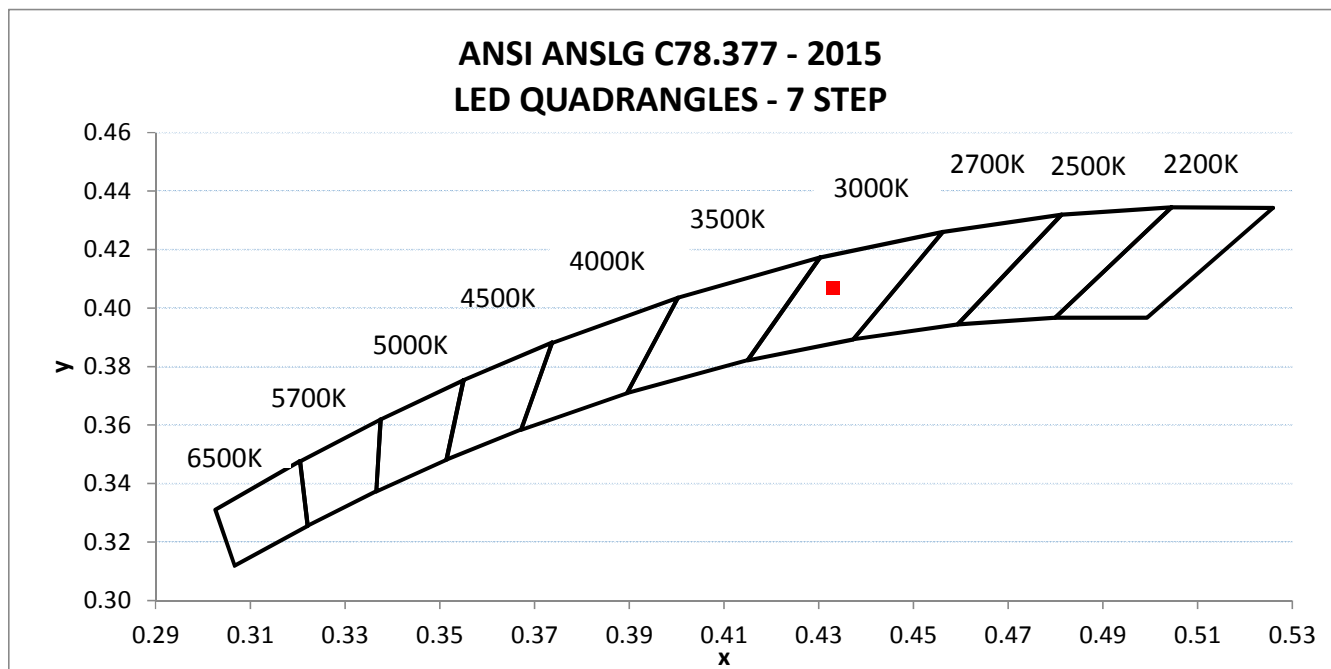
RESULTS OF TESTS

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 (%)
AH07162018035546 -090A	Base Up	120.05	207.93	20.57	0.824	25.96

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
905.2	44.0	3084	92.9	66.5	0.0010

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.433	0.407	0.247	0.522



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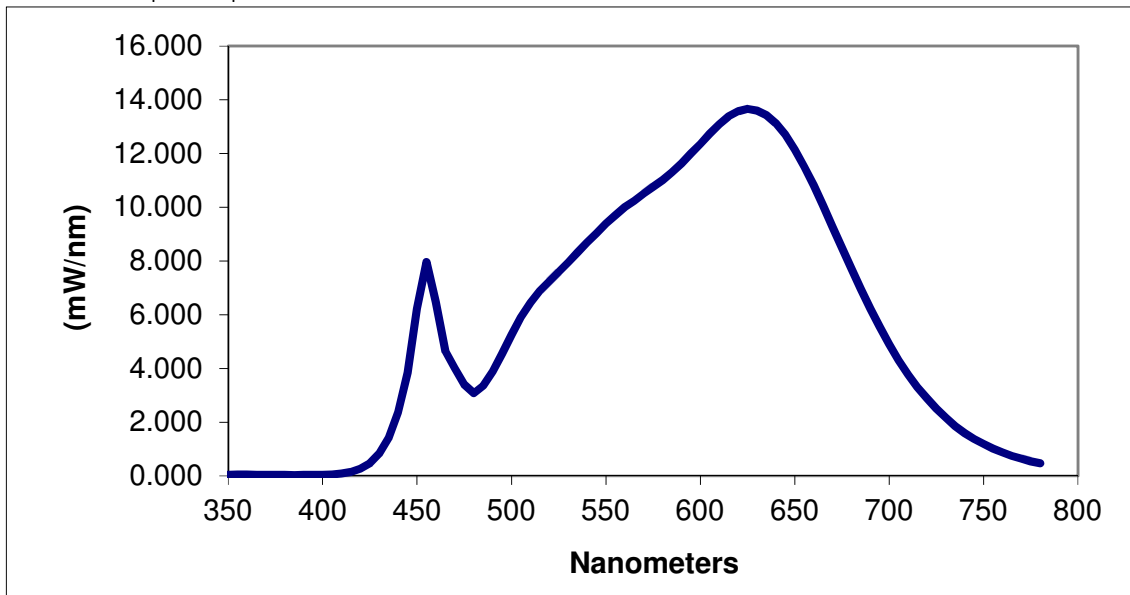
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RESULTS OF TESTS

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	0.051	460	6.480	570	10.507	680	7.714
355	0.064	465	4.644	575	10.762	685	6.962
360	0.055	470	4.008	580	11.012	690	6.227
365	0.052	475	3.405	585	11.303	695	5.557
370	0.051	480	3.084	590	11.633	700	4.901
375	0.046	485	3.358	595	12.000	705	4.311
380	0.042	490	3.896	600	12.363	710	3.773
385	0.040	495	4.551	605	12.743	715	3.306
390	0.042	500	5.263	610	13.086	720	2.893
395	0.042	505	5.906	615	13.387	725	2.507
400	0.048	510	6.454	620	13.574	730	2.169
405	0.062	515	6.895	625	13.663	735	1.860
410	0.095	520	7.244	630	13.592	740	1.599
415	0.157	525	7.597	635	13.430	745	1.378
420	0.274	530	7.952	640	13.119	750	1.189
425	0.480	535	8.320	645	12.698	755	1.021
430	0.833	540	8.687	650	12.140	760	0.881
435	1.428	545	9.029	655	11.516	765	0.753
440	2.363	550	9.389	660	10.817	770	0.641
445	3.847	555	9.698	665	10.067	775	0.549
450	6.228	560	10.006	670	9.266	780	0.472
455	7.967	565	10.240	675	8.502		

*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:

Hector Huitron
Associate Engineer
Lighting Division

Report Reviewed By:

Timothy Quigley
Engineer
Lighting Division

Attachments: IES File

REVISION HISTORY

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