

TECH LIGHTING TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

E3SFF-LH8306AI

REPORT NUMBER

103017649CHI-091

ISSUE DATE

August 24, 2018

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT NO.: 103017649CHI-091

TEST REPORT

REPORT DATE August 24, 2018:

TEST OF ONE ELEMENT E3 ADJUSTABLE HOUSING W/60° OPTICS

MODEL NO. E3SFF-LH8306AI
LED MODEL NO. CITIZEN CLU0028-1206C4
DRIVER MODEL NO. LTF 18W DA18W 120V

RENDERED TO:

TECH LIGHTING
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 E3SFF-LH8306AI. The sample was received by Intertek on August 17, 2018 in undamaged condition and one sample was tested as received. The sample designation was AH08172018105723-01.

DATE OF TESTS

August 21, 2018 through August 23, 2018.

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SUMMARY

MODEL NO:	E3SFF-LH8306AI
DESCRIPTION:	Element E3 Adjustable Housing w/60° optics

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	1531.1	1557.5
Input Power (W) @ 120 (VAC)	18.09	18.08
Lumen Efficacy (lm/W)	84.6	86.1
Input Power Factor @ 120 (VAC)	0.977	0.977

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	11.90
Correlated Color Temperature (K)	3062
Color Rendering Index - Ra	81.5
Color Rendering - R9	4.8
DUV	0.0011
Chromaticity Coordinate (x)	0.434
Chromaticity Coordinate (y)	0.406
Chromaticity Coordinate (u')	0.248
Chromaticity Coordinate (v')	0.522

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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	VBV	VBV
Newport Thermohygrometer	iServer	146957	11/17/2017	11/17/2018
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	146379	4/16/2018	4/16/2019
Yokogawa Power Meter	WT1600	146769	4/6/2018	4/6/2019
Extech K Temperature Meter	SD200	CHI0207	4/12/2018	4/12/2019

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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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TEST REPORT

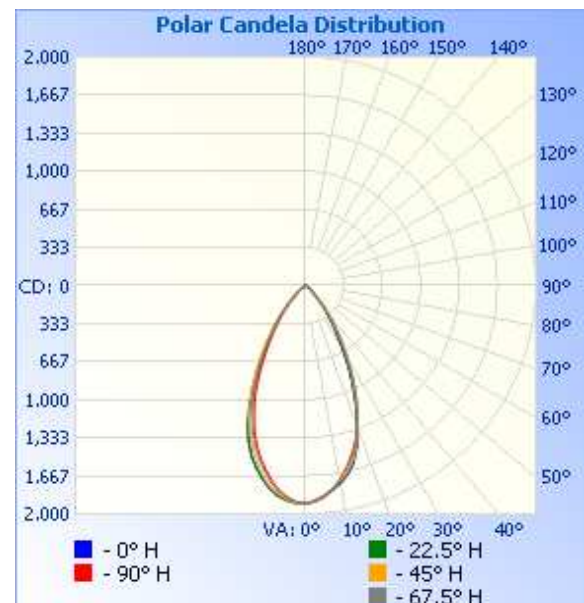
RESULTS OF TESTS

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)
AH08172018105723-01	Base Up	120.0	154.2	18.08	0.977	1557.5	86.1

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	1910	1910	1910	1910	1910
5	1849	1842	1845	1848	1857
10	1756	1748	1735	1721	1723
15	1608	1590	1585	1553	1539
20	1324	1314	1326	1321	1309
25	978	975	1020	1021	1024
30	643	667	724	715	714
35	399	405	466	456	471
40	221	221	249	261	281
45	101	105	121	129	141
50	44	46	57	57	64
55	21	22	27	26	26
60	5	6	12	6	5
65	2	2	3	2	2
70	2	2	2	2	2
75	1	1	1	1	1
80	0	0	0	0	0
85	0	0	0	0	0
90	0	0	0	0	0



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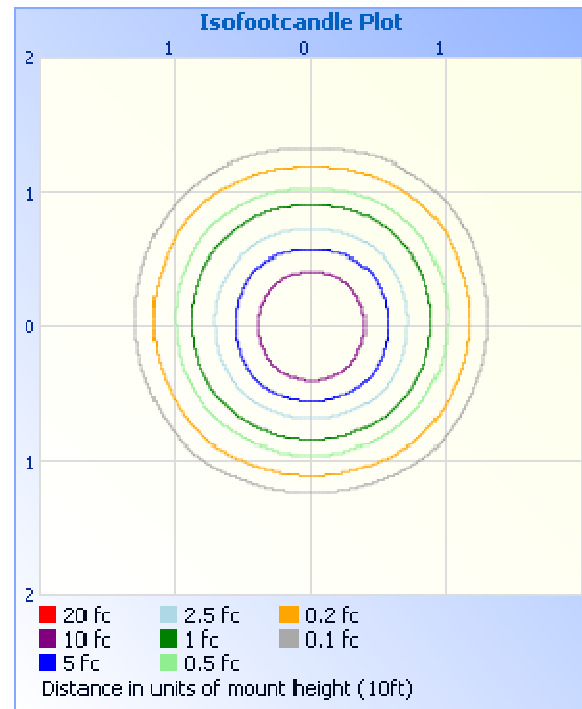
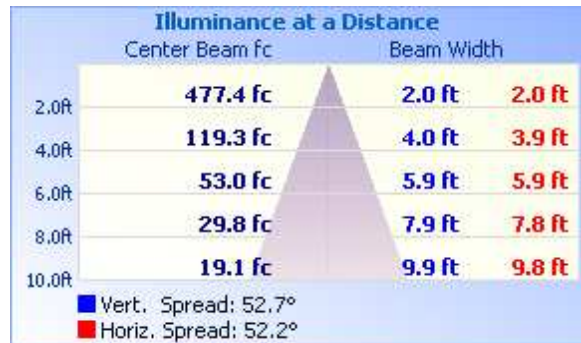
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RESULTS OF TESTS

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	1095.5	70.3
0-40	1404.0	90.1
0-60	1552.8	99.7
60-90	4.7	0.3
70-100	1.4	0.1
90-120	0.0	0.0
0-90	1557.5	100.0
90-180	0.0	0.0
0-180	1557.5	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	174.1	11.2
10-20	441.0	28.3
20-30	480.4	30.8
30-40	308.5	19.8
40-50	120.6	7.7
50-60	28.2	1.8
60-70	3.3	0.2
70-80	1.1	0.1
80-90	0.3	0.0

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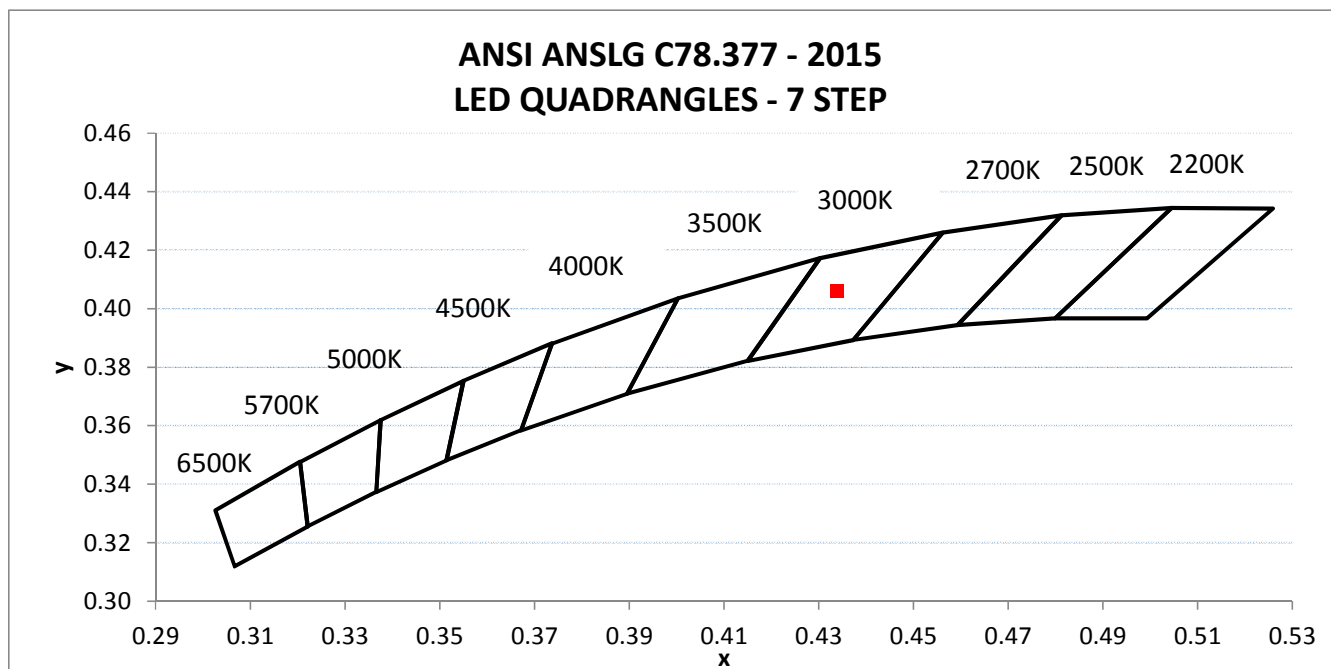
RESULTS OF TESTS

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 (%)
AH08172018105723-01	Base Up	120.01	154.29	18.09	0.977	11.90

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
1531.1	84.6	3062	81.5	4.8	0.0011

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.434	0.406	0.248	0.522



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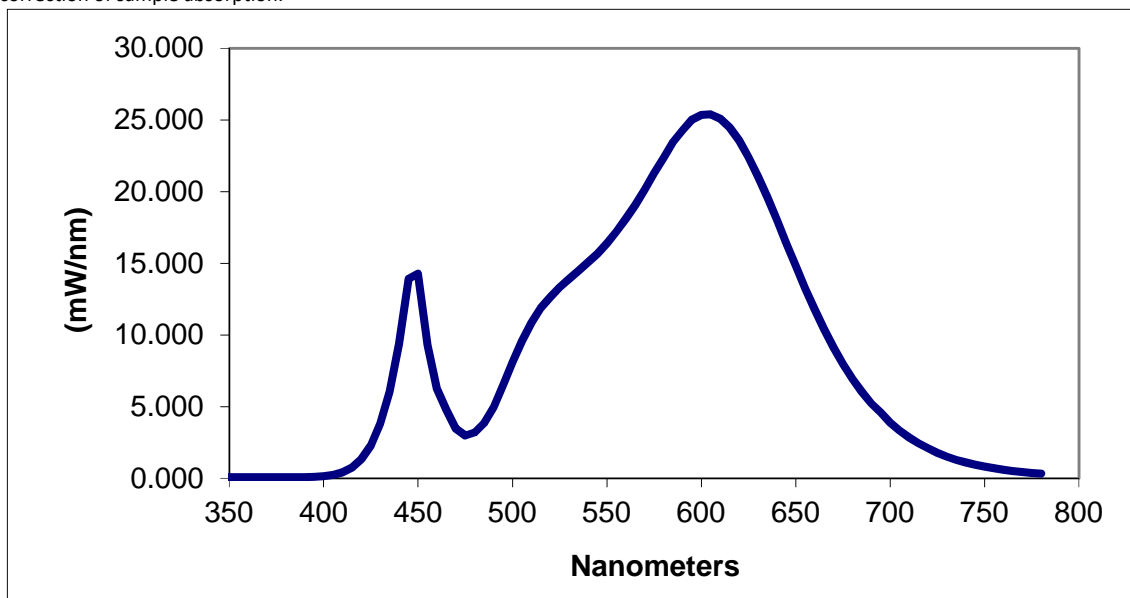
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RESULTS OF TESTS

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	0.092	460	6.274	570	20.149	680	6.951
355	0.094	465	4.774	575	21.288	685	6.036
360	0.096	470	3.472	580	22.376	690	5.228
365	0.094	475	2.978	585	23.451	695	4.587
370	0.089	480	3.217	590	24.286	700	3.878
375	0.078	485	3.865	595	25.015	705	3.342
380	0.088	490	4.982	600	25.359	710	2.859
385	0.080	495	6.487	605	25.393	715	2.447
390	0.090	500	8.120	610	25.093	720	2.087
395	0.114	505	9.572	615	24.480	725	1.778
400	0.159	510	10.864	620	23.574	730	1.517
405	0.250	515	11.893	625	22.418	735	1.293
410	0.428	520	12.662	630	21.059	740	1.105
415	0.759	525	13.331	635	19.612	745	0.949
420	1.329	530	13.917	640	18.025	750	0.820
425	2.291	535	14.476	645	16.404	755	0.703
430	3.822	540	15.078	650	14.813	760	0.604
435	6.049	545	15.675	655	13.249	765	0.520
440	9.399	550	16.408	660	11.774	770	0.448
445	13.921	555	17.205	665	10.412	775	0.384
450	14.287	560	18.121	670	9.133	780	0.330
455	9.303	565	19.070	675	7.994		

*Without correction of sample absorption.



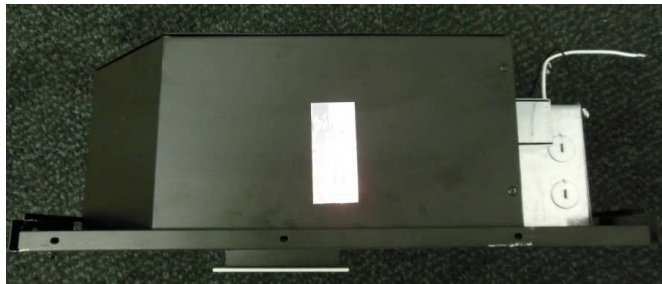
End Of Test Results

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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
Engineer
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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				