

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

700BCSPAN4S-LED930

REPORT NUMBER

103982892CHI-015

ISSUE DATE

July 11, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT DATE: July 11, 2019

TEST REPORT

TEST OF ONE LED BATH LUMINAIRE

MODEL NO. 700BCSPANA4S-LED930
LED MODEL NO. EVERLIGHT 62-217D/HK4C-H3030QA1R32835Z15/2T
DRIVER MODEL NO. LTF DA40W1400C1528LPD010-0000

RENDERED TO:

VISUAL COMFORT GROUP
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 production sample of model number 700BCSPANA4S-LED930. The sample was received by Intertek on June 14, 2019 in undamaged condition and one sample was tested as received. The sample designation was AH06142019092403-15.

DATE OF TESTS

June 19, 2019 through July 10, 2019.

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SUMMARY

MODEL NO:	700BCSPANA4S-LED930
DESCRIPTION:	LED bath luminaire

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	1580.9	1542.8
Input Power (W) @ 120 (VAC)	45.19	45.18
Lumen Efficacy (lm/W)	35.0	34.2
Input Power Factor @ 120 (VAC)	0.978	0.979

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	17.21
Correlated Color Temperature (K)	3066
Color Rendering Index - Ra	92.3
Color Rendering - R9	51.9
DUV	0.0007
Chromaticity Coordinate (x)	0.433
Chromaticity Coordinate (y)	0.405
Chromaticity Coordinate (u')	0.248
Chromaticity Coordinate (v')	0.521

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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 Newport 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	146961	7/23/2018	7/23/2019
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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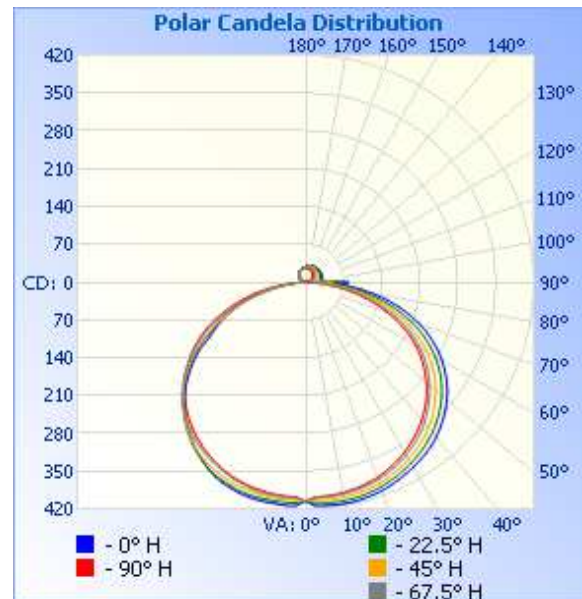
RESULTS OF TESTS

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)
AH06142019092403-15	Base Up	120.0	384.7	45.18	0.979	1542.8	34.2

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	405	405	405	405	405
5	415	411	405	400	398
10	416	411	404	398	396
15	415	408	402	395	392
20	411	404	397	390	385
25	404	396	389	381	376
30	396	388	379	370	364
35	387	376	367	357	350
40	374	363	352	340	333
45	358	347	334	320	314
50	340	327	313	298	290
55	317	304	288	273	264
60	290	275	258	243	234
65	259	242	224	209	199
70	222	204	186	170	158
75	178	159	143	127	116
80	129	111	96	81	72
85	79	64	52	38	29
90	79	69	49	25	6
95	33	29	20	10	2
100	32	28	20	11	4
105	32	29	21	13	6
110	32	29	22	15	8
115	33	30	23	17	11
120	33	30	25	19	13
125	33	31	26	20	15
130	33	32	27	22	17
135	33	32	28	24	18
140	33	32	29	25	20
145	33	32	30	26	21
150	33	32	30	27	23
155	33	33	31	28	24
160	33	33	31	28	25
165	32	32	30	28	26
170	32	32	30	28	26
175	31	30	28	27	26
180	27	27	27	27	27



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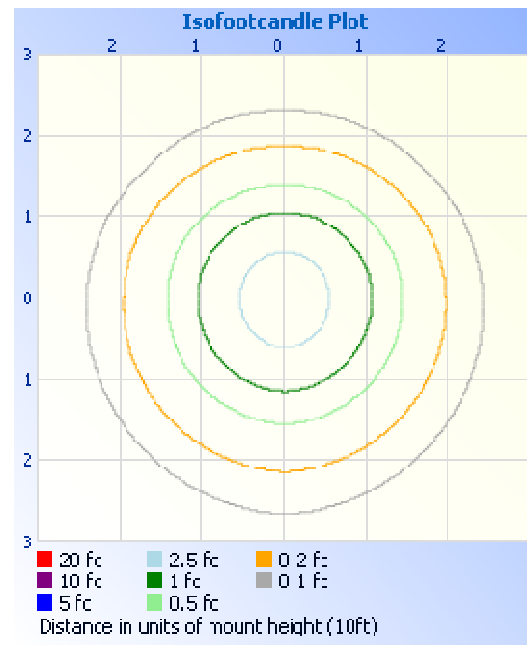
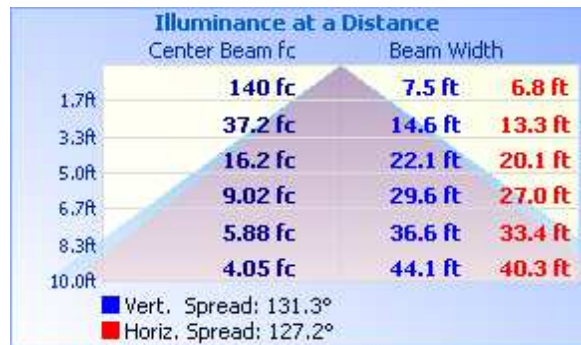
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RESULTS OF TESTS

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	331.1	21.5
0-40	558.5	36.2
0-60	1054.7	68.4
60-90	374.9	24.3
70-100	186.1	12.1
90-120	41.5	2.7
0-90	1429.6	92.7
90-180	113.3	7.3
0-180	1542.8	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	38.6	2.5
10-20	113.5	7.4
20-30	179.0	11.6
30-40	227.4	14.7
40-50	251.5	16.3
50-60	244.7	15.9
60-70	202.0	13.1
70-80	128.3	8.3
80-90	44.6	2.9
90-100	13.2	0.9
100-110	12.9	0.8
110-120	15.3	1.0
120-130	16.9	1.1
130-140	16.9	1.1
140-150	15.3	1.0
150-160	12.2	0.8
160-170	7.8	0.5
170-180	2.6	0.2

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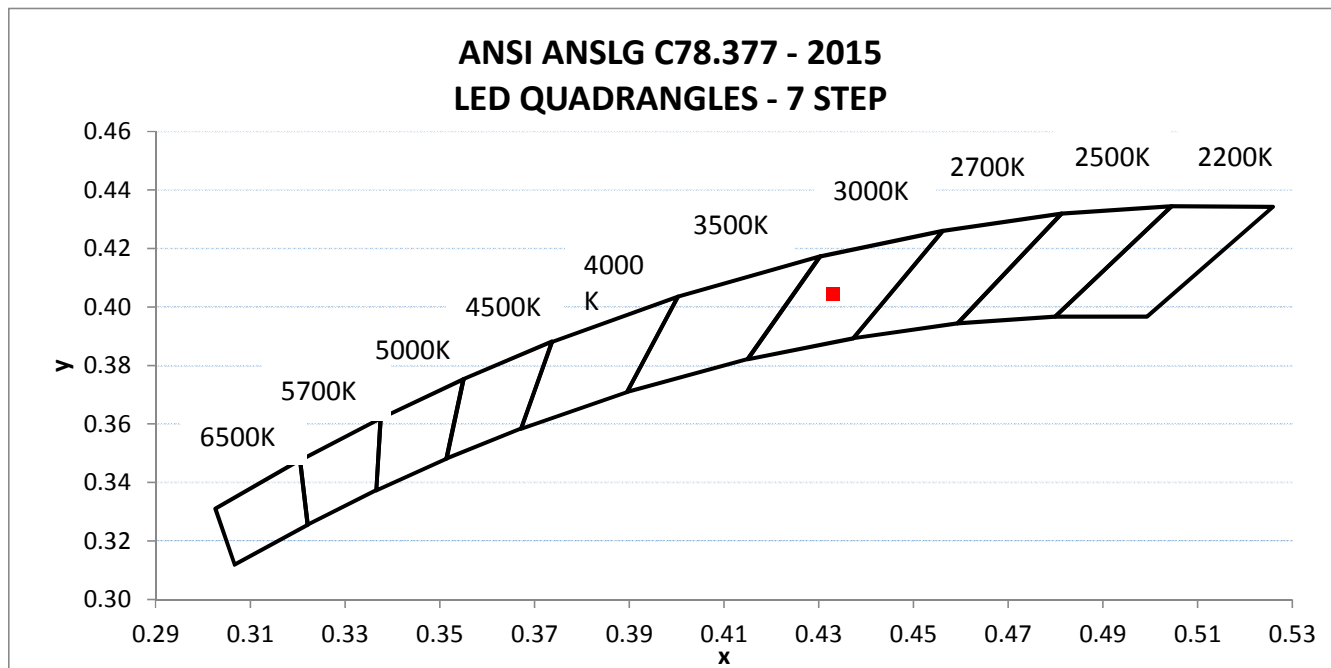
RESULTS OF TESTS

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 (%)
AH06142019092403-15	Base Up	120.02	384.89	45.19	0.978	17.21

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
1580.9	35.0	3066	92.3	51.9	0.0007

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.433	0.405	0.248	0.521



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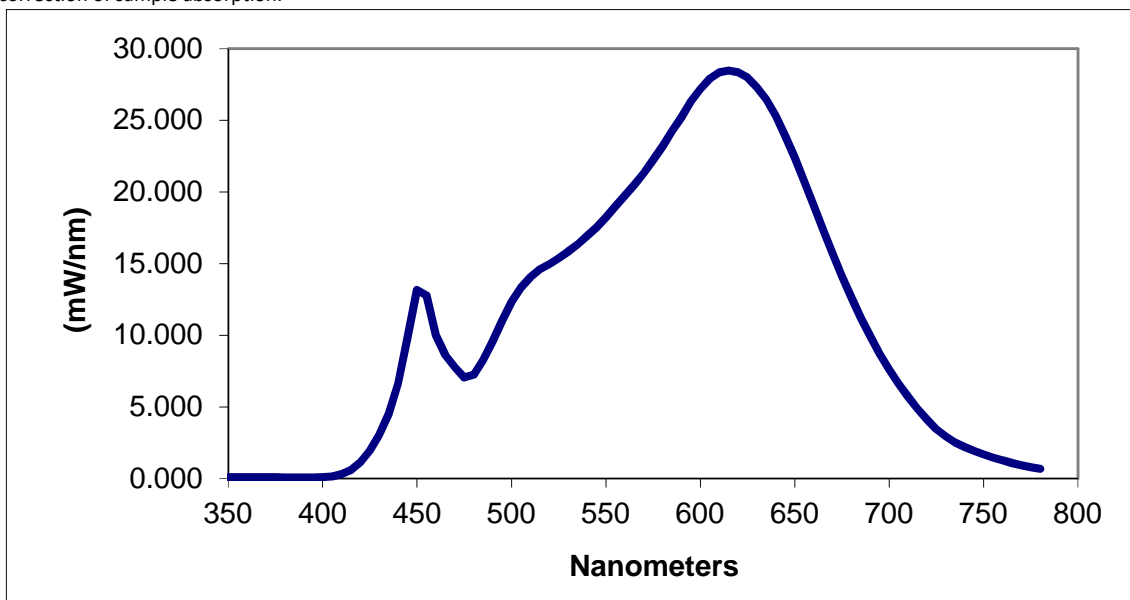
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RESULTS OF TESTS

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	0.116	460	10.016	570	21.328	680	12.629
355	0.112	465	8.619	575	22.232	685	11.233
360	0.114	470	7.797	580	23.182	690	9.931
365	0.109	475	7.042	585	24.242	695	8.728
370	0.098	480	7.259	590	25.227	700	7.607
375	0.098	485	8.289	595	26.319	705	6.618
380	0.084	490	9.595	600	27.194	710	5.706
385	0.082	495	10.996	605	27.905	715	4.876
390	0.076	500	12.333	610	28.357	720	4.116
395	0.083	505	13.323	615	28.476	725	3.466
400	0.103	510	14.068	620	28.353	730	2.939
405	0.161	515	14.596	625	27.997	735	2.529
410	0.300	520	14.964	630	27.295	740	2.204
415	0.607	525	15.371	635	26.449	745	1.931
420	1.142	530	15.838	640	25.287	750	1.689
425	1.954	535	16.346	645	23.913	755	1.470
430	3.057	540	16.941	650	22.387	760	1.270
435	4.528	545	17.523	655	20.754	765	1.090
440	6.627	550	18.237	660	19.073	770	0.934
445	9.880	555	18.988	665	17.388	775	0.794
450	13.175	560	19.751	670	15.706	780	0.678
455	12.789	565	20.484	675	14.133		

*Without correction of sample absorption.



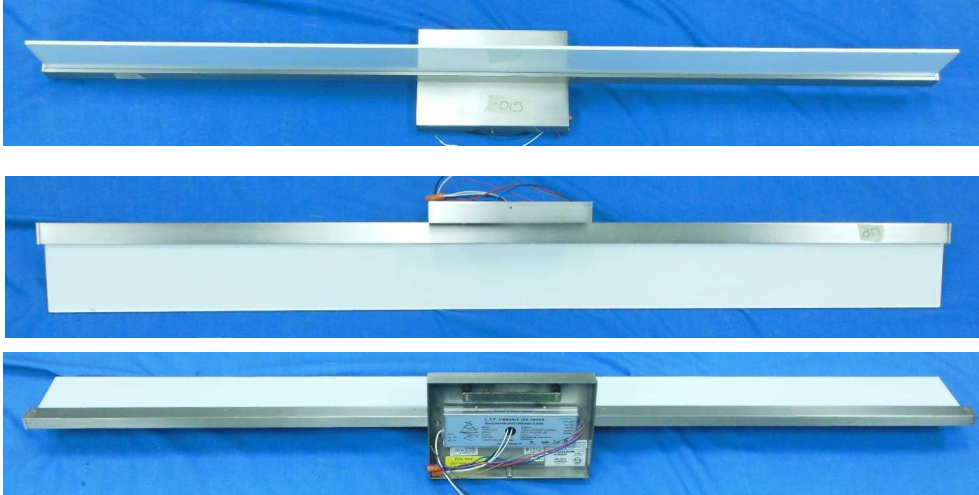
End Of Test Results

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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				