

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

700TDOBLRN-LED930

REPORT NUMBER

104019509CHI-004

ISSUE DATE

July 28, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT NO.: 104019509CHI-004

REPORT DATE: July 28, 2019

TEST REPORT

TEST OF ONE LED PENDANT

MODEL NO. 700TDOBLRN-LED930

RENDERED TO:

VISUAL COMFORT GROUP
7400 LINDER AVE.
SKOKIE, IL 60077

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-00981438.

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 700TDOBLRN-LED930. The sample was received by Intertek on July 17, 2019 in undamaged condition and one sample was tested as received. The sample designation was AH07172019014704-004.

DATE OF TESTS

July 24, 2019 through July 25, 2019.

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TEST REPORT

SUMMARY

MODEL NO:	700TDOBLRN-LED930
DESCRIPTION:	LED pendant

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	359.6	352.1
Input Power (W) @ 120 (VAC)	4.30	4.29
Lumen Efficacy (lm/W)	83.6	82.1
Input Power Factor @ 120 (VAC)	0.785	0.785

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	21.43
Correlated Color Temperature (K)	2990
Color Rendering Index - Ra	92.4
Color Rendering - R9	61.4
DUV	0.0017
Chromaticity Coordinate (x)	0.435
Chromaticity Coordinate (y)	0.400
Chromaticity Coordinate (u')	0.251
Chromaticity Coordinate (v')	0.519

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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	VBU	VBU
Newport Thermohygrometer	iServer	146957	12/11/2018	12/11/2019
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU
Labsphere 2M Sphere & Spectroradiometer	CDS1100	146137	VBU	VBU
Elgar AC Power Supply	CW1251M	146113	VBU	VBU
Sorenson DC Power Supply	XFR150-8	146847	VBU	VBU
Yokogawa Power Analyzer	WT1600	146767	4/3/2019	4/3/2020
Omega Temperature	MDSi8	146873	7/2/2019	7/2/2020
Newport Thermohygrometer	iTHX-M	146382	4/17/2019	4/17/2020

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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.

TEST REPORT

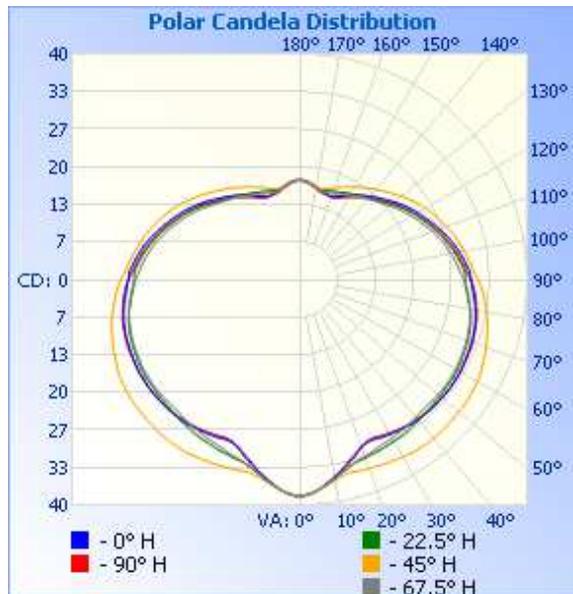
RESULTS OF TESTS

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)
AH07172019014704-004	Horizontal	120.02	45.5	4.29	0.785	352.1	82.1

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	38	38	38	38	38
5	38	38	38	38	38
10	36	36	36	36	36
15	33	34	35	34	34
20	32	34	36	33	32
25	31	33	36	33	31
30	32	33	36	32	31
35	32	33	37	32	32
40	32	33	37	32	32
45	33	32	37	32	32
50	33	32	36	32	33
55	33	32	36	32	33
60	33	32	36	32	33
65	32	32	36	32	32
70	32	32	35	31	32
75	32	31	34	31	32
80	31	30	33	30	32
85	31	30	32	30	31
90	30	29	31	29	30
95	30	29	30	28	29
100	28	28	29	27	28
105	27	27	28	26	27
110	26	26	28	25	26
115	25	24	26	24	25
120	24	23	26	23	23
125	23	22	24	22	22
130	22	21	23	20	21
135	20	20	22	20	20
140	19	19	21	19	19
145	18	18	20	18	18
150	17	18	19	17	17
155	16	17	18	17	16
160	16	17	17	16	16
165	16	16	17	16	16
170	17	17	17	17	16
175	17	17	17	17	17
180	18	18	18	18	18



TEST REPORT

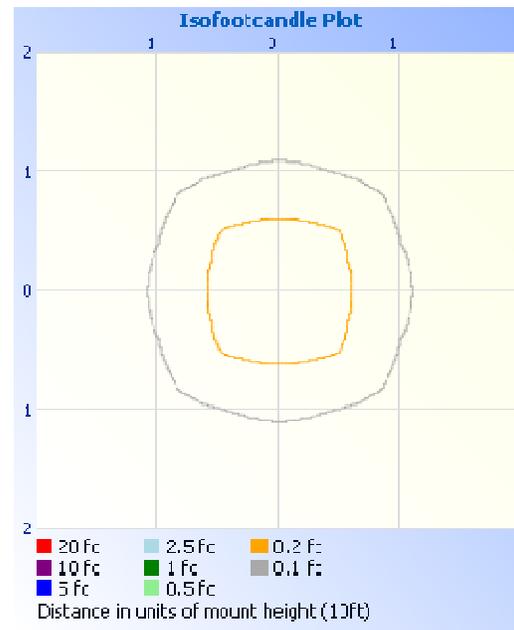
RESULTS OF TESTS

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

MOUNTING HEIGHT: 10ft

ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT
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Illuminance at a Distance		
	Center Beam fc	Beam Width
1.7ft	13.3 fc	
3.3ft	3.53 fc	
5.0ft	1.54 fc	
6.7ft	0.86 fc	
8.3ft	0.56 fc	
10.0ft	0.38 fc	



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	28.7	8.2
0-40	49.7	14.1
0-60	105.3	29.9
60-90	99.9	28.4
70-100	99.0	28.1
90-120	85.0	24.1
0-90	205.2	58.3
90-180	146.9	41.7
0-180	352.1	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	3.5	1.0
10-20	9.7	2.8
20-30	15.4	4.4
30-40	21.0	6.0
40-50	25.8	7.3
50-60	29.8	8.5
60-70	32.6	9.2
70-80	33.9	9.6
80-90	33.5	9.5
90-100	31.7	9.0
100-110	28.6	8.1
110-120	24.7	7.0
120-130	20.3	5.8
130-140	15.8	4.5
140-150	11.7	3.3
150-160	7.9	2.2
160-170	4.6	1.3
170-180	1.6	0.5

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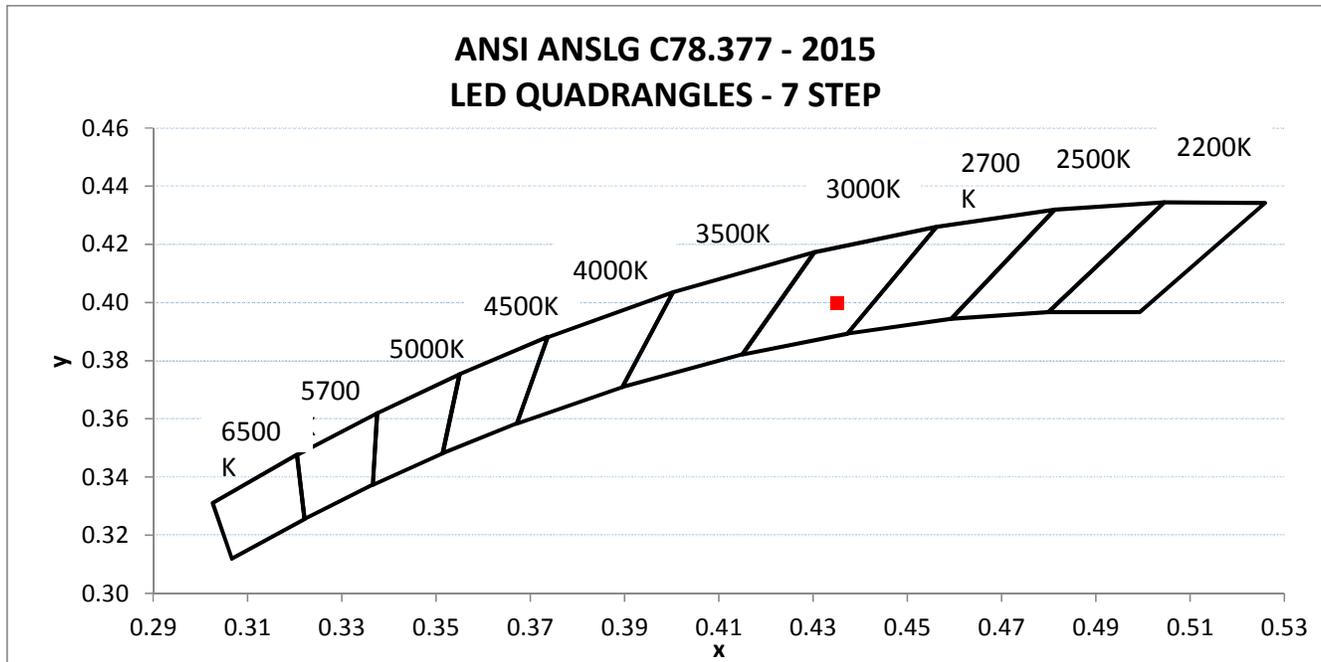
RESULTS OF TESTS

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 (%)
AH07172019014704-004	Horizontal	119.99	45.66	4.30	0.785	21.43

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
359.6	83.6	2990	92.4	61.4	0.0017

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.435	0.400	0.251	0.519



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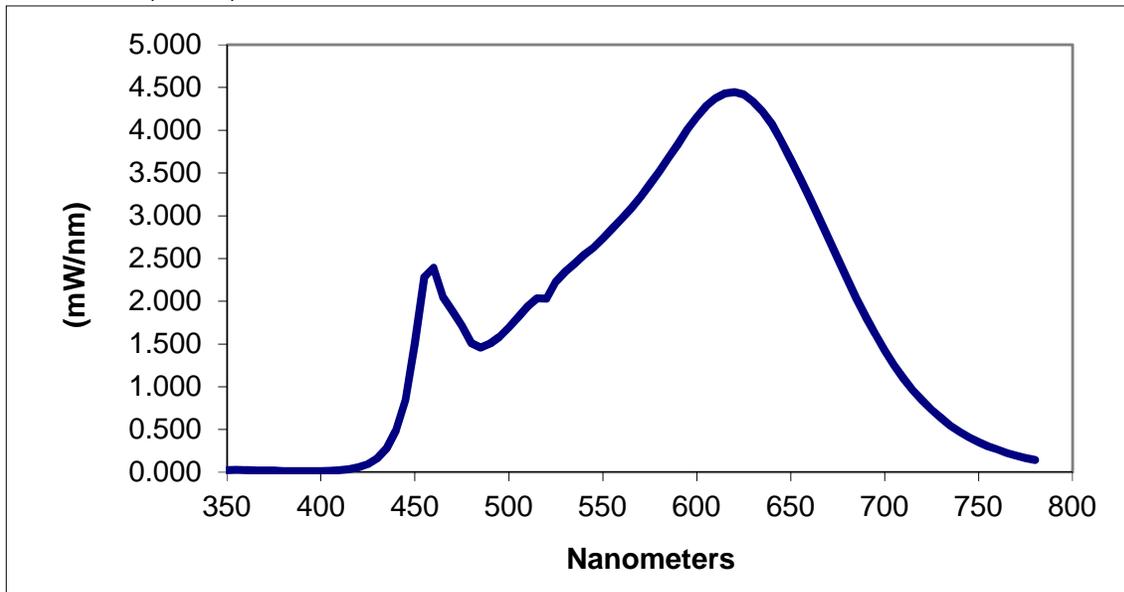
TEST REPORT

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	0.025	460	2.392	570	3.218	680	2.260
355	0.028	465	2.044	575	3.368	685	2.031
360	0.025	470	1.888	580	3.515	690	1.816
365	0.024	475	1.714	585	3.680	695	1.618
370	0.021	480	1.511	590	3.839	700	1.425
375	0.020	485	1.458	595	4.010	705	1.253
380	0.015	490	1.508	600	4.157	710	1.098
385	0.015	495	1.583	605	4.282	715	0.961
390	0.014	500	1.696	610	4.375	720	0.839
395	0.014	505	1.815	615	4.433	725	0.731
400	0.014	510	1.942	620	4.447	730	0.635
405	0.018	515	2.036	625	4.420	735	0.547
410	0.025	520	2.031	630	4.335	740	0.474
415	0.037	525	2.229	635	4.224	745	0.409
420	0.058	530	2.346	640	4.070	750	0.353
425	0.096	535	2.441	645	3.874	755	0.304
430	0.165	540	2.543	650	3.659	760	0.266
435	0.282	545	2.626	655	3.441	765	0.227
440	0.489	550	2.733	660	3.210	770	0.194
445	0.850	555	2.848	665	2.978	775	0.167
450	1.504	560	2.966	670	2.737	780	0.144
455	2.284	565	3.084	675	2.503		

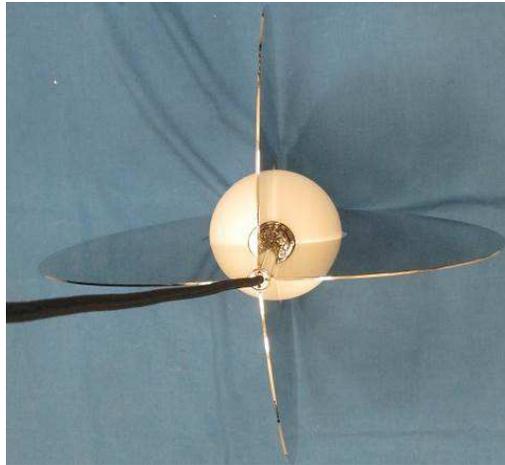
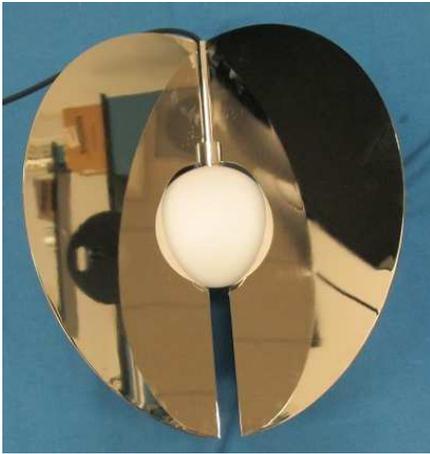
*Without correction of sample absorption.



End Of Test Results

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:

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Lighting Division

Report Reviewed By:

Jeffrey Davis
N.A. Technical Lead
Lighting Division

Attachments: IES File

REVISION HISTORY

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