

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER
700TDPRLR-LED930

REPORT NUMBER
103982892CHI-032

ISSUE DATE
June 28, 2019

REVISION DATE
None

DOCUMENT CONTROL NUMBER
TBD
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REPORT DATE: June 28, 2019

TEST REPORT

TEST OF ONE LED PENDANT

MODEL NO. 700TDPRLR-LED930

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 700TDPRLR-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 AH06142019092403-32.

DATE OF TESTS

June 26, 2019 through June 27, 2019.

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SUMMARY

MODEL NO:	700TDPRLR-LED930
DESCRIPTION:	LED pendant

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	302.4	296.0
Input Power (W) @ 120 (VAC)	4.66	4.59
Lumen Efficacy (lm/W)	64.9	64.5
Input Power Factor () @ 120 (VAC)	0.780	0.775

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	23.25
Correlated Color Temperature (K)	2847
Color Rendering Index - Ra ()	92.4
Color Rendering - R9 ()	62.5
DUV ()	0.0028
Chromaticity Coordinate (x)	0.444
Chromaticity Coordinate (y)	0.399
Chromaticity Coordinate (u')	0.257
Chromaticity Coordinate (v')	0.520

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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	10/4/2018	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 2M Sphere & Spectroradiometer	CDS1100	146137	VBV	VBV
Elgar AC Power Supply	CW1251M	146113	VBV	VBV
Sorenson DC Power Supply	XFR150-8	146847	VBV	VBV
Yokogawa Power Analyzer	WT1600	146767	4/3/2019	4/3/2020
Omega Temperature	MDSi8	146873	7/10/2018	7/10/2019
Newport Thermohygrometer	iTHX-M	146961	7/23/2018	7/23/2019

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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

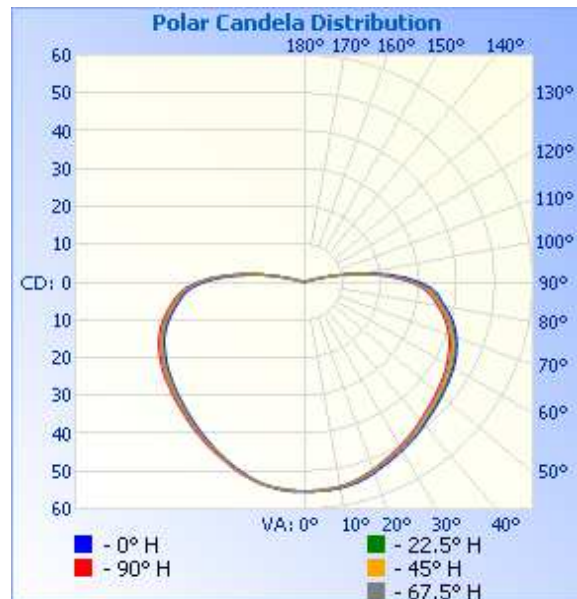
RESULTS OF TESTS

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)
AH06142019092403-32	Base Up	120.02	49.4	4.59	0.775	296.0	64.5

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	55	55	55	55	55
5	55	55	55	55	55
10	55	55	55	55	55
15	55	54	54	54	54
20	54	53	53	53	53
25	53	52	52	52	51
30	52	51	51	50	50
35	50	50	50	49	49
40	49	49	48	48	48
45	48	48	47	47	46
50	47	47	46	46	45
55	46	46	45	45	44
60	45	45	44	44	43
65	44	44	43	43	42
70	42	42	42	41	40
75	40	40	39	39	38
80	38	37	37	36	36
85	35	34	34	33	33
90	30	29	29	28	28
95	23	21	21	21	21
100	13	12	12	12	12
105	5	4	4	4	4



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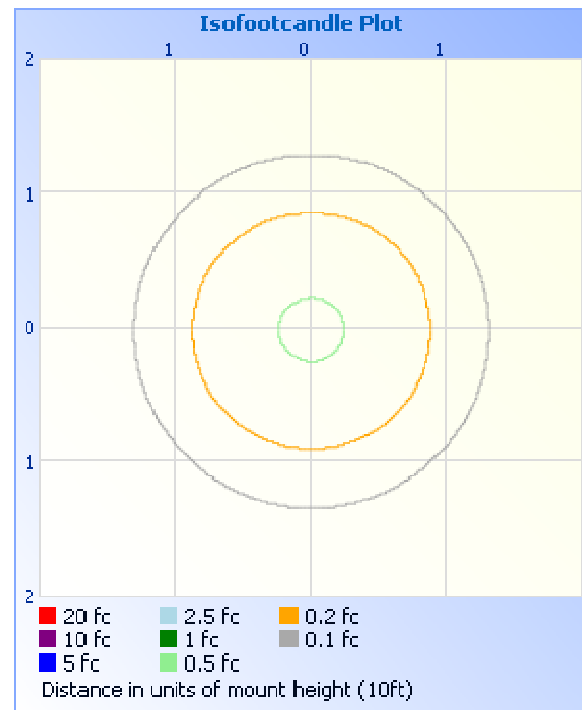
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RESULTS OF TESTS

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

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

Illuminance at a Distance		
	Center Beam fc	Beam Width
1.7ft	19.1 fc	
3.3ft	5.08 fc	
5.0ft	2.21 fc	
6.7ft	1.23 fc	
8.3ft	0.80 fc	
10.0ft	0.55 fc	



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	44.3	15.0
0-40	75.1	25.4
0-60	150.9	51.0
60-90	117.7	39.7
70-100	98.3	33.2
90-120	27.4	9.3
0-90	268.6	90.7
90-180	27.4	9.3
0-180	296.0	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	5.3	1.8
10-20	15.3	5.2
20-30	23.8	8.0
30-40	30.7	10.4
40-50	36.0	12.2
50-60	39.8	13.5
60-70	41.7	14.1
70-80	40.4	13.7
80-90	35.5	12.0
90-100	22.4	7.6
100-110	5.1	1.7

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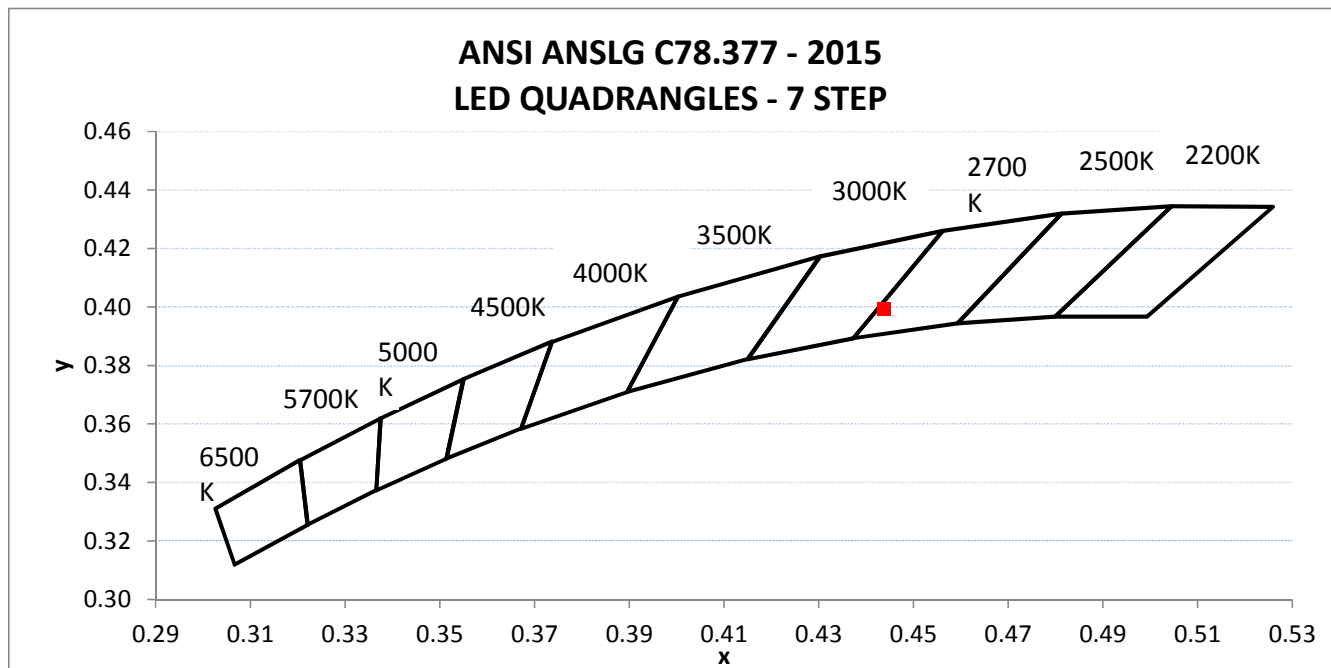
RESULTS OF TESTS

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 (%)
AH06142019092403-32	Base Up	120.03	49.76	4.66	0.780	23.25

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
302.4	64.9	2847	92.4	62.5	0.0028

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.444	0.399	0.257	0.520



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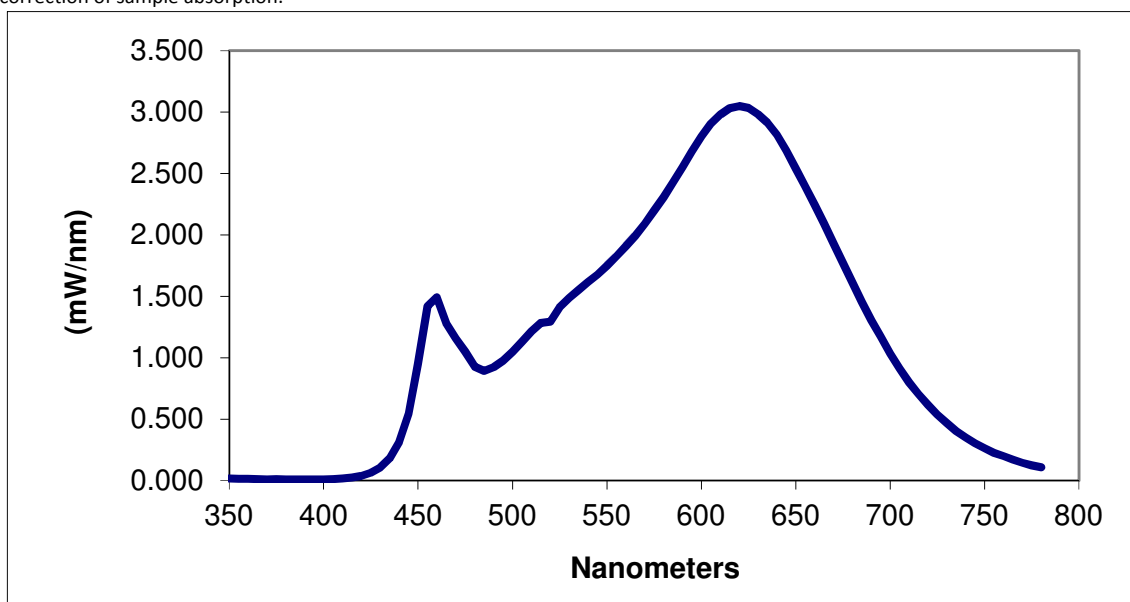
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RESULTS OF TESTS

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	0.018	460	1.492	570	2.091	680	1.612
355	0.015	465	1.278	575	2.197	685	1.456
360	0.016	470	1.159	580	2.306	690	1.305
365	0.013	475	1.049	585	2.427	695	1.173
370	0.010	480	0.928	590	2.552	700	1.035
375	0.012	485	0.892	595	2.680	705	0.913
380	0.011	490	0.924	600	2.801	710	0.799
385	0.009	495	0.976	605	2.903	715	0.704
390	0.010	500	1.049	610	2.979	720	0.618
395	0.011	505	1.130	615	3.031	725	0.538
400	0.010	510	1.215	620	3.049	730	0.469
405	0.012	515	1.282	625	3.034	735	0.405
410	0.017	520	1.295	630	2.982	740	0.351
415	0.026	525	1.411	635	2.915	745	0.304
420	0.040	530	1.487	640	2.814	750	0.263
425	0.064	535	1.552	645	2.687	755	0.227
430	0.107	540	1.617	650	2.540	760	0.200
435	0.182	545	1.678	655	2.398	765	0.170
440	0.313	550	1.750	660	2.244	770	0.146
445	0.543	555	1.825	665	2.093	775	0.125
450	0.950	560	1.908	670	1.929	780	0.108
455	1.420	565	1.992	675	1.772		

*Without correction of sample absorption.



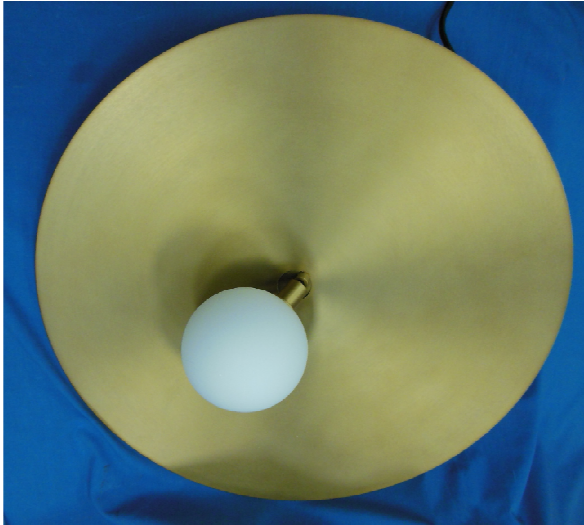
End Of Test Results

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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
Project Engineer
Lighting Division

Attachments: IES File

REVISION HISTORY

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