

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

700MDCHCRR

REPORT NUMBER

103982892CHI-004

ISSUE DATE

July 9, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT NO.: 103982892CHI-004

REPORT DATE: July 9, 2019

TEST REPORT

TEST OF ONE LED CHANDELIER

MODEL NO. 700MDCHCRR
LED MODEL NO. BRIDGELUX BXEN-30G-13H-9C-00-0-0
DRIVER MODEL NO. MACRON MDR60824100LC

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 700MDCHCRR. The sample was received by Intertek on June 14, 2019 in undamaged condition and one sample was tested as received. The sample designation was AH06142019092403-004.

DATE OF TESTS

June 25, 2019 through July 9, 2019.

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SUMMARY

MODEL NO:	700MDCHCRR
DESCRIPTION:	LED chandelier

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	2023.5	2018.3
Input Power (W) @ 120 (VAC)	70.05	69.87
Lumen Efficacy (lm/W)	28.9	28.9
Input Power Factor @ 120 (VAC)	0.996	0.996

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	2.62
Correlated Color Temperature (K)	3015
Color Rendering Index - Ra	91.4
Color Rendering - R9	59.3
DUV	0.0003
Chromaticity Coordinate (x)	0.436
Chromaticity Coordinate (y)	0.403
Chromaticity Coordinate (u')	0.250
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	7/9/2018	7/9/2019
Omega Newport 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 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	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.

TEST REPORT

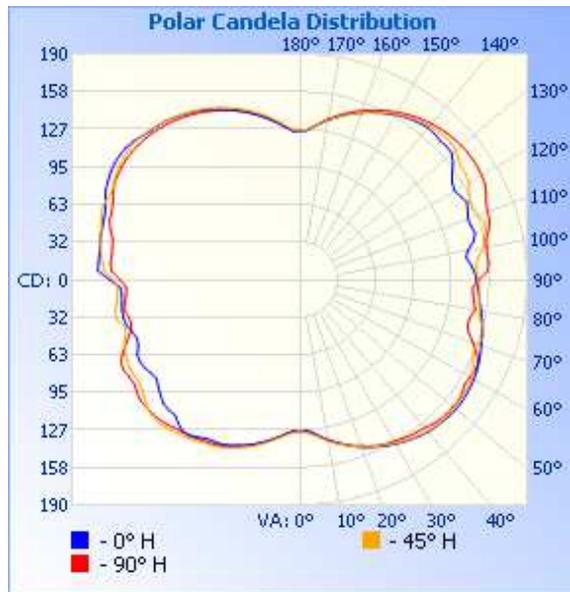
RESULTS OF TESTS

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)
AH06142019092403-004	Base Up	120.1	584.2	69.87	0.996	2018.3	28.9

INTENSITY SUMMARY - CANDELAS

Angle	0	45	90	135	180
0	128	128	128	128	128
5	129	131	130	132	130
10	137	138	137	138	137
15	144	144	144	145	143
20	150	150	149	151	149
25	155	155	154	156	153
30	160	159	158	159	155
35	164	163	161	163	160
40	167	166	163	166	158
45	169	168	166	168	155
50	170	168	167	166	152
55	170	168	166	161	146
60	168	166	164	160	149
65	165	159	164	159	150
70	162	159	154	156	144
75	158	158	145	151	150
80	154	153	149	156	151
85	150	150	145	153	149
90	148	149	150	156	159
95	144	148	159	165	169
100	143	156	159	169	169
105	152	161	164	172	170
110	150	158	167	175	173
115	154	157	172	174	179
120	150	163	176	177	182
125	156	165	177	179	183
130	166	170	176	180	181
135	166	171	174	178	177
140	167	169	171	174	174
145	164	166	168	170	170
150	160	161	163	165	165
155	155	156	157	160	158
160	150	150	151	154	152
165	143	143	145	146	144
170	136	136	137	138	136
175	129	129	129	130	128
180	125	125	125	125	125



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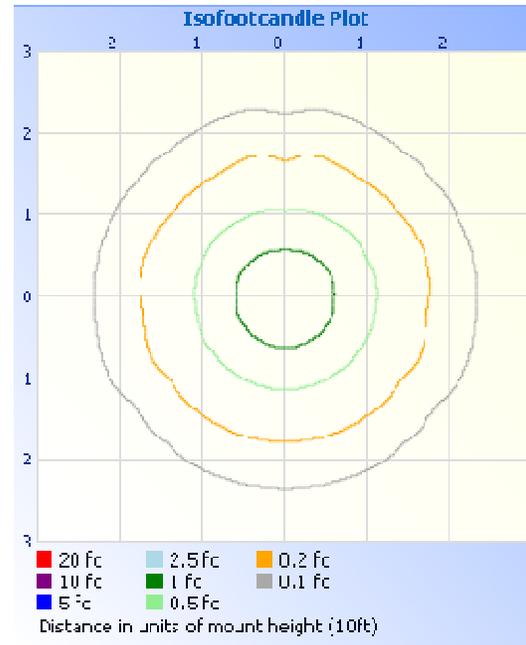
RESULTS OF TESTS

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

MOUNTING HEIGHT: 10ft

ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT
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Illuminance at a Distance		
	Center Beam fc	Beam Width
1.7ft	44.2 fc	
3.3ft	11.7 fc	
5.0ft	5.11 fc	
6.7ft	2.85 fc	
8.3ft	1.86 fc	
10.0ft	1.28 fc	



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	125.6	6.2
0-40	227.3	11.3
0-60	503.7	25.0
60-90	489.0	24.2
70-100	498.1	24.7
90-120	505.6	25.0
0-90	992.7	49.2
90-180	1025.6	50.8
0-180	2018.3	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	12.8	0.6
10-20	41.1	2.0
20-30	71.7	3.6
30-40	101.8	5.0
40-50	128.3	6.4
50-60	148.1	7.3
60-70	160.4	7.9
70-80	163.8	8.1
80-90	164.7	8.2
90-100	169.6	8.4
100-110	171.3	8.5
110-120	164.7	8.2
120-130	154.2	7.6
130-140	133.5	6.6
140-150	105.3	5.2
150-160	73.1	3.6
160-170	41.2	2.0
170-180	12.6	0.6

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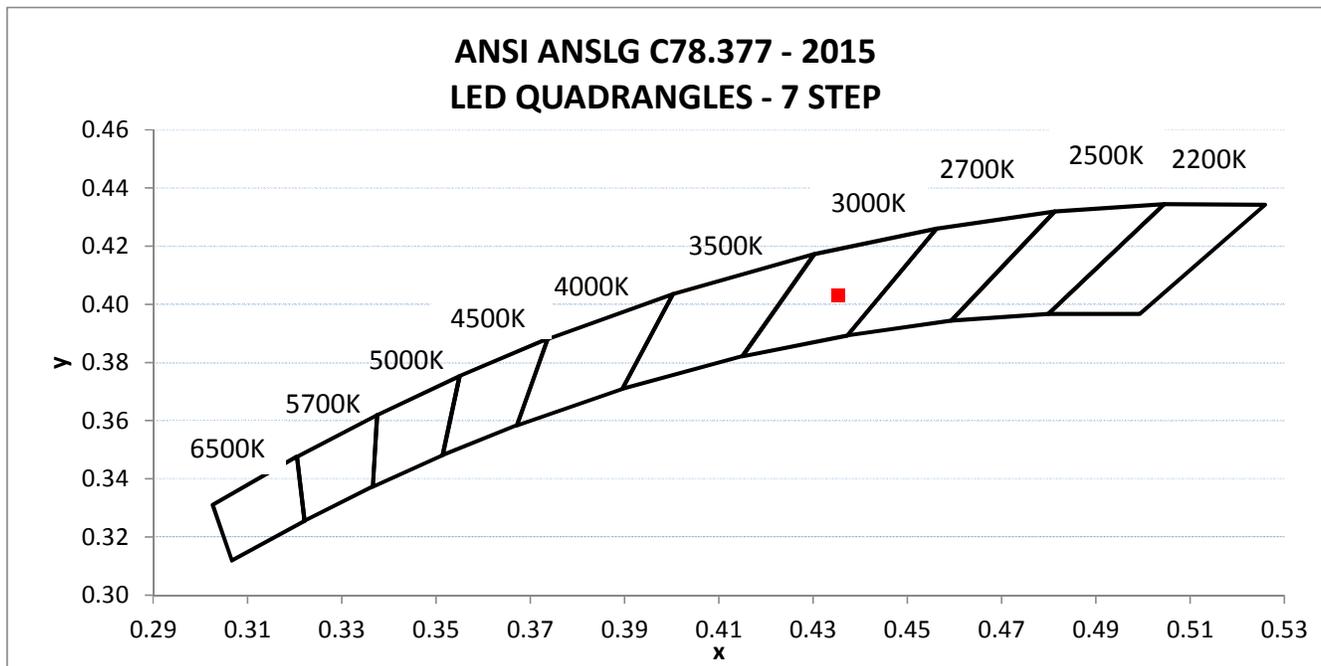
RESULTS OF TESTS

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 (%)
AH06142019092403-004	Base Up	119.99	586.00	70.05	0.996	2.62

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
2023.5	28.9	3015	91.4	59.3	0.0003

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.436	0.403	0.250	0.521



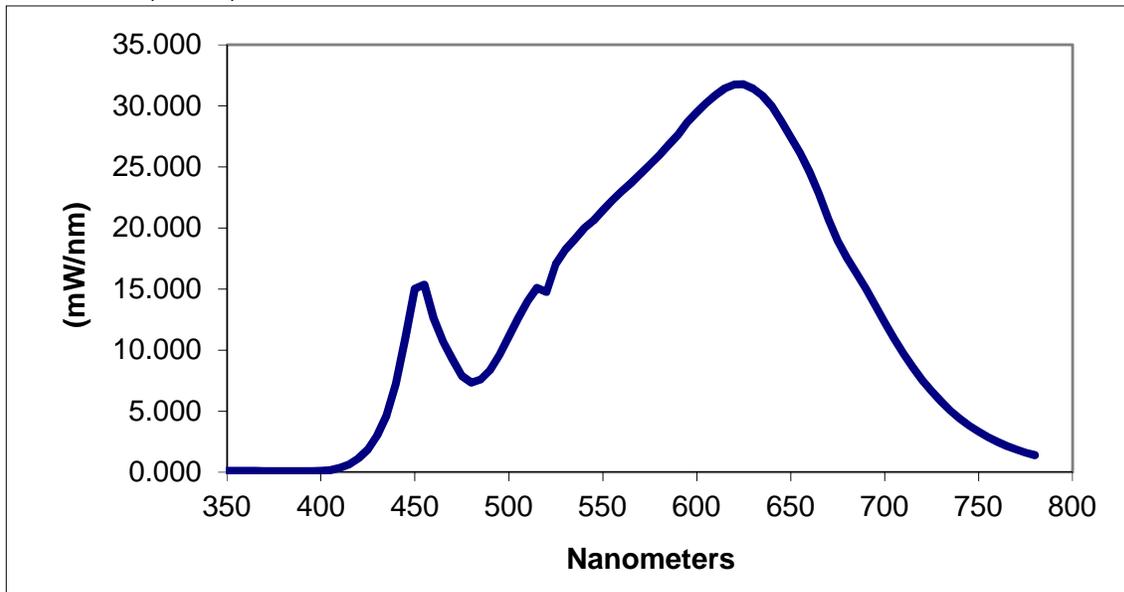
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RESULTS OF TESTS

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	0.118	460	12.632	570	24.428	680	17.535
355	0.133	465	10.691	575	25.186	685	16.293
360	0.128	470	9.257	580	25.940	690	15.025
365	0.115	475	7.886	585	26.811	695	13.676
370	0.104	480	7.354	590	27.634	700	12.271
375	0.104	485	7.600	595	28.648	705	10.959
380	0.089	490	8.382	600	29.488	710	9.703
385	0.088	495	9.612	605	30.222	715	8.581
390	0.088	500	11.137	610	30.894	720	7.558
395	0.093	505	12.619	615	31.426	725	6.626
400	0.119	510	14.038	620	31.755	730	5.800
405	0.191	515	15.102	625	31.761	735	5.043
410	0.350	520	14.768	630	31.399	740	4.397
415	0.657	525	17.062	635	30.847	745	3.814
420	1.138	530	18.232	640	29.956	750	3.320
425	1.873	535	19.074	645	28.761	755	2.875
430	3.008	540	19.966	650	27.410	760	2.500
435	4.692	545	20.589	655	26.141	765	2.154
440	7.227	550	21.457	660	24.583	770	1.863
445	11.065	555	22.240	665	22.801	775	1.614
450	15.029	560	22.996	670	20.737	780	1.394
455	15.356	565	23.671	675	18.959		

*Without correction of sample absorption.



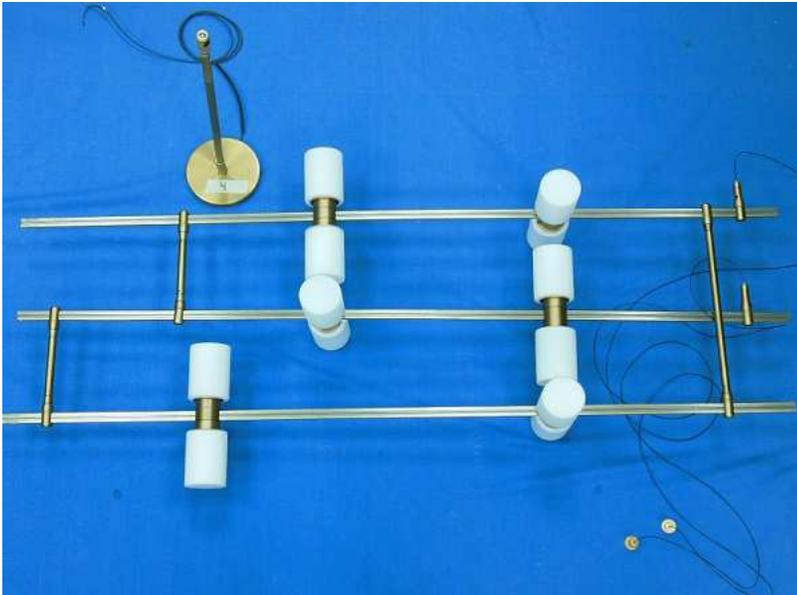
End Of Test Results

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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:

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Lighting Division

Report Reviewed By:

Hector Huitron
Associate Engineer
Lighting Division

Attachments: IES File

REVISION HISTORY

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