

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

700OASTR93018DB12S

REPORT NUMBER

103017649CHI-086

ISSUE DATE

July 27, 2018

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT DATE: July 27, 2018

TEST REPORT

TEST OF ONE LED PATHWAY

MODEL NO. 700OASTR93018DB12S
LED MODEL NO. (LUMINUS) MP-2016-1100-30-90
DRIVER MODEL NO. LTF DL112W350C2435-3000

RENDERED TO:

VISUAL COMFORT GROUP
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 prototype sample of model number 700OASTR93018DB12S. The sample was received by Intertek on July 16, 2018 in undamaged condition and one sample was tested as received. The sample designation was AH07162018035546 -086.

DATE OF TESTS

July 18, 2018 through July 19, 2018.

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SUMMARY

MODEL NO:	7000ASTR93018DB12S
DESCRIPTION:	LED PATHWAY

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	693.1	675.1
Input Power (W) @ 120 (VAC)	14.63	14.65
Lumen Efficacy (lm/W)	47.4	46.1
Input Power Factor () @ 120 (VAC)	0.837	0.837

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	47.11
Correlated Color Temperature (K)	2983
Color Rendering Index - Ra ()	92.7
Color Rendering - R9 ()	69.6
DUV ()	0.0010
Chromaticity Coordinate (x)	0.437
Chromaticity Coordinate (y)	0.402
Chromaticity Coordinate (u')	0.251
Chromaticity Coordinate (v')	0.521
BUG Rating	B0-U1-G0

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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 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	4/5/2018	4/5/2019
Omega Temperature	MDSi8	146873	7/10/2018	7/10/2019
Newport Thermohygrometer	iTHX-M	146379	4/16/2018	4/16/2019

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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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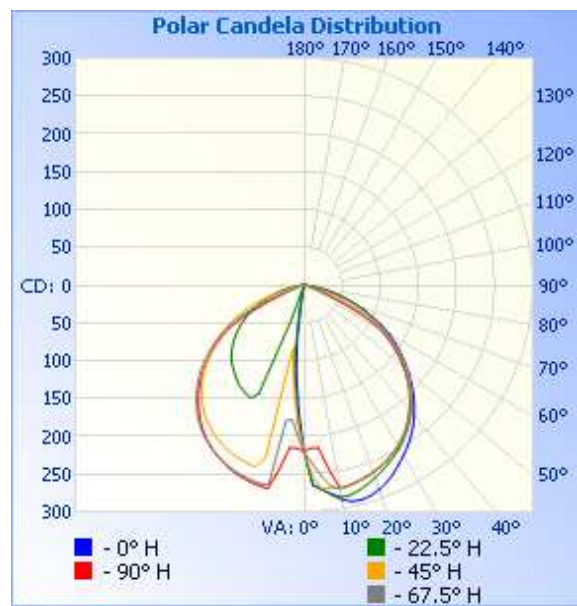
RESULTS OF TESTS

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)
AH07162018035546 -086	Base Up	120.1	145.8	14.65	0.837	675.1	46.1

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	220	220	220	220	220
5	271	272	270	252	216
10	288	284	273	273	273
15	294	281	269	269	270
20	288	271	263	264	264
25	276	261	256	256	256
30	260	249	246	246	246
35	244	235	233	233	232
40	225	219	217	217	215
45	203	198	198	197	195
50	178	174	176	174	171
55	154	149	151	147	145
60	129	123	122	117	112
65	99	95	91	74	55
70	71	67	59	20	16
75	43	40	16	9	9
80	20	17	6	6	6
85	6	3	4	4	4
90	1	1	1	1	1



Lum. Classification System (LCS)

LCS	ZONE	Lumens	%Lum
FL	(0-30)	111.3	16.5
FM	(30-60)	216.1	32.0
FH	(60-80)	54.8	8.1
FVH	(80-90)	2.5	0.4
BL	(0-30)	74.4	11.0
BM	(30-60)	169.8	25.1
BH	(60-80)	44.1	6.5
BVH	(80-90)	2.1	0.3
UL	(90-100)	0.1	0.0
UH	100-180	0.0	0.0
Total		675.2	100.0
BUG Rating		B0-U1-G0	

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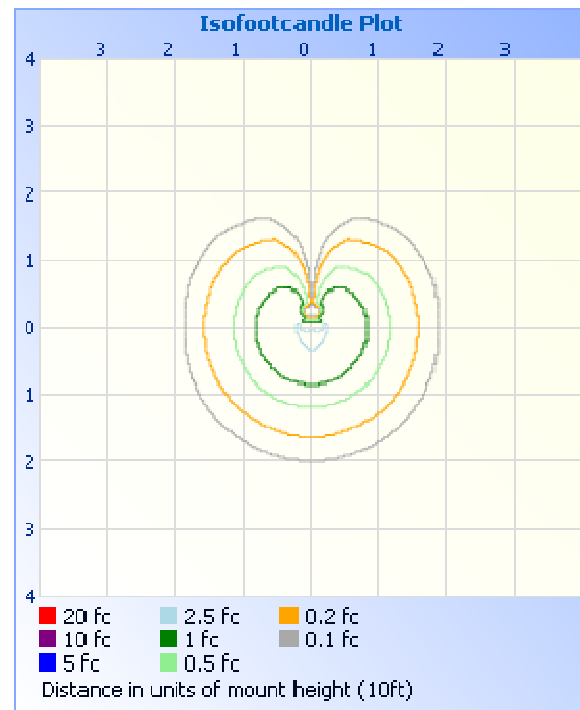
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RESULTS OF TESTS

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	185.7	27.5
0-40	315.8	46.8
0-60	571.6	84.7
60-90	103.5	15.3
70-100	28.5	4.2
90-120	0.1	0.0
0-90	675.0	100.0
90-180	0.1	0.0
0-180	675.1	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	19.7	2.9
10-20	61.6	9.1
20-30	104.4	15.5
30-40	130.1	19.3
40-50	136.1	20.2
50-60	119.7	17.7
60-70	75.1	11.1
70-80	23.7	3.5
80-90	4.6	0.7
90-100	0.1	0.0

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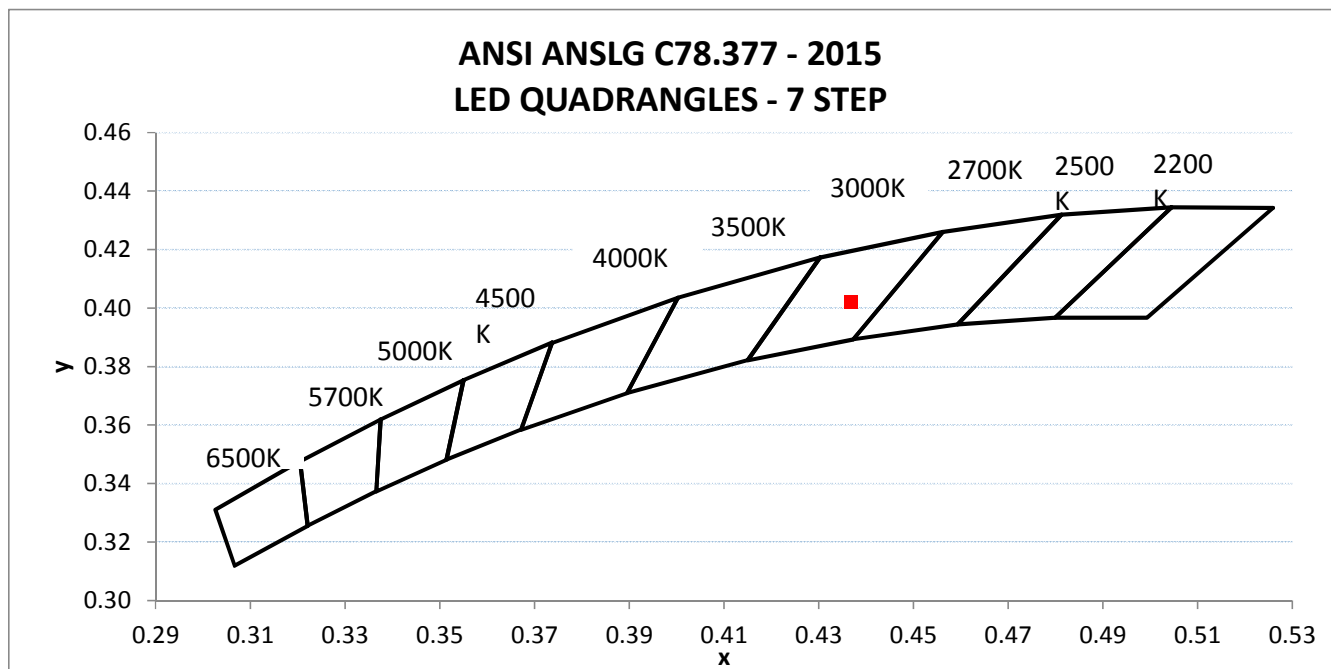
RESULTS OF TESTS

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 (%)
AH07162018035546 -086	Base Up	120.01	145.61	14.63	0.837	47.11

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
693.1	47.4	2983	92.7	69.6	0.0010

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.437	0.402	0.251	0.521



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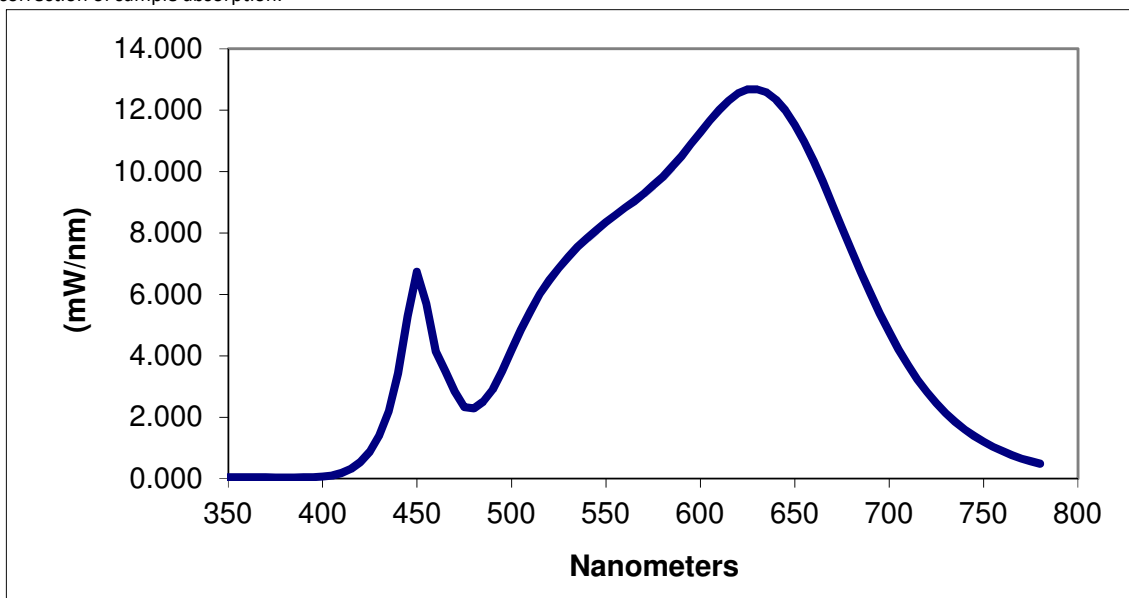
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RESULTS OF TESTS

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	0.054	460	4.149	570	9.279	680	7.435
355	0.048	465	3.500	575	9.552	685	6.725
360	0.054	470	2.841	580	9.822	690	6.041
365	0.053	475	2.331	585	10.157	695	5.390
370	0.048	480	2.286	590	10.498	700	4.777
375	0.041	485	2.514	595	10.901	705	4.208
380	0.038	490	2.907	600	11.272	710	3.700
385	0.040	495	3.499	605	11.655	715	3.228
390	0.046	500	4.192	610	12.007	720	2.826
395	0.055	505	4.851	615	12.304	725	2.461
400	0.068	510	5.455	620	12.554	730	2.133
405	0.104	515	6.005	625	12.681	735	1.851
410	0.184	520	6.465	630	12.679	740	1.605
415	0.317	525	6.856	635	12.584	745	1.391
420	0.538	530	7.217	640	12.346	750	1.203
425	0.885	535	7.552	645	12.001	755	1.038
430	1.407	540	7.833	650	11.519	760	0.901
435	2.193	545	8.097	655	10.983	765	0.773
440	3.425	550	8.356	660	10.344	770	0.660
445	5.296	555	8.584	665	9.667	775	0.567
450	6.736	560	8.826	670	8.906	780	0.485
455	5.702	565	9.027	675	8.181		

*Without correction of sample absorption.



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End Of Test Results

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
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Lighting Division

Report Reviewed By:

Timothy Quigley
Engineer
Lighting Division

Attachments: IES File

REVISION HISTORY

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