



Verification Services

Project No.: 4786480430-6

Report No.: 4786480430-6a

Report Issued Date: 2015-2-2

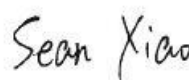
Test Report

Customer Company & Address:			
SORAA Inc ADD: 6500 Kaiser Dr, Fremont, CA 94555			
Contact Person:	Steve Yang		
Telephone:	510-4567183	Fax/Email Address:	SYang@soraa.com

Manufacturer:	SORAA Inc.
Country of Origin:	USA
Country of Export:	USA
Product Description:	Lamp Type: PAR30L LED Lamp Total Amount Of Light Source: 1 pc
Model Number:	SP30L-18-36D-830-03
Electrical Specification:	120 V AC, 60 Hz, 18.5W

Test Laboratory & Address:			
UL Verification Services (Guangzhou) Co., Ltd.			
ADD: Building A1, 1F & 2F, Nansha Science and Technology Innovation Center, No. 25, South Huanshi Avenue, Nansha District, Guangzhou 511458, China			
Telephone:	+86 20 28667188	Fax:	+86 20 83486605

Receipt of Test Samples :	2015-1-13	Test Period:	2015-1-13 ~ 2015-1-30
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Tested By	Approved By
 / Jackson Zeng	 / Sean Xiao
Test Personnel Name & Signatory	Approval Name & Signatory

The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.



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Test Report

Statement of Results

Test Flow	Test Method	Sample ID (Lab)	Sample Serial No.	Pass/Fail/NA
1.	Integrating Sphere Test	2033565-S001	N/A	Evaluate by customer
2.	Goniophotometer Test	2033565-S001	N/A	Evaluate by customer

Deviation from Test Method (if any)

N/A

Remark (if any)

This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government.



Test Report

Test No. 1 : Integrating Sphere Test

Environmental Conditions

Temperature: 25.1° C

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-PE003	Integrating Sphere	Before Use	Before Use
GVS-LE-FS019	Measurement Standard Lamp	08/22/2013	08/21/2015

Test Sample

2033565-S001

Test Method

The sample was tested according to the IES LM-79-2008.

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25° C ± 1° C.

The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation	Operate time (Min.)	Stabilization time (Min.)
Input	120.06	60	0.158	18.71	0.988	Base up	50	30

Test Type	CCT (K)	Luminous Flux (lm)	Color Rendering Index Ra	R9	Luminous Efficacy (lm/W)
Output	2983	1335.5	85.7	17	71.4



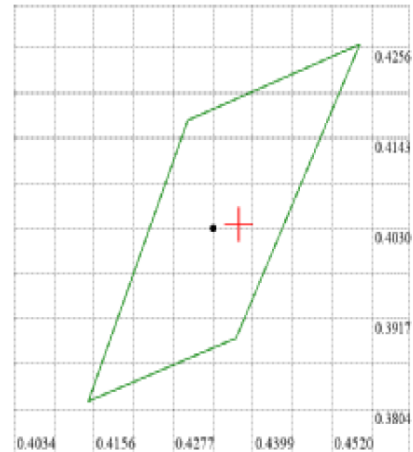
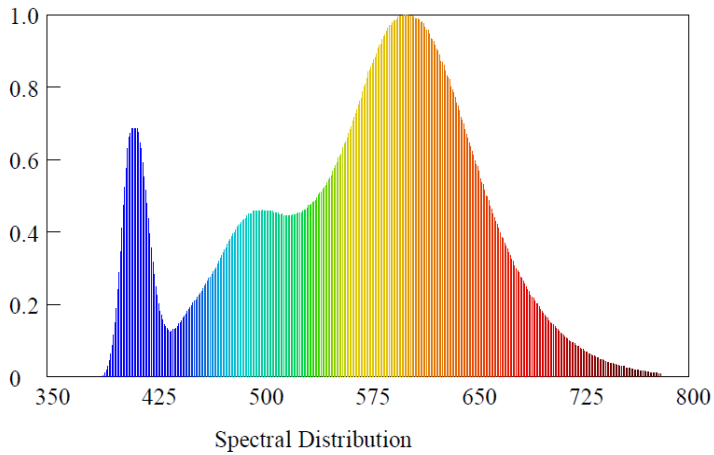
Test Report

Test Condition

Temperature: 25.1°C
Spectrum Range: 380-780 nm

RH: ----%
Scan Step: 1 nm

Spectroradiometric Parameters



Chromaticity Coordinates: x=0.4377 y=0.4035 u'=0.2513 v'=0.5213

Correlated Color Temperature: 2983 K

Dominant Wavelength: 582.0 nm(E)

Luminous Flux: 1335.514 lm

Purity: 0.5251

Chromaticity Difference: -0.00033Duv

Peak Wavelength: 602.8 nm

Color Ratio: Kr=45.8% Kg=44.9% Kb=9.2%

Bandwidth: 115.3nm

Radiant Flux: 3.987 W

Rendering Index: Ra=85.7

R1=86 R2=97 R3=88 R4=85 R5=89 R6=97 R7=82 R8=61

R9=17 R10=97 R11=87 R12=88 R13=90 R14=94 R15=77



Test Report

Test No.2: Goniophotometer Test

Environmental Conditions

Temperature: 25.1 ° C

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-GS002	Goniophotometer	Before Use	Before Use
GVS-LE-FS019	Measurement Standard Lamp	08/22/2013	08/21/2015
GVS-LE-CA008	Digital Calliper	09/18/2014	09/17/2015

Test Sample

2033565-S001

Test Method

The sample was tested according to the IES LM-79-2008.
Photometric parameters were measured using a type C goniophotometer and software.
The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample.
The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5° vertical intervals and 22.5° horizontal intervals.

Test Results

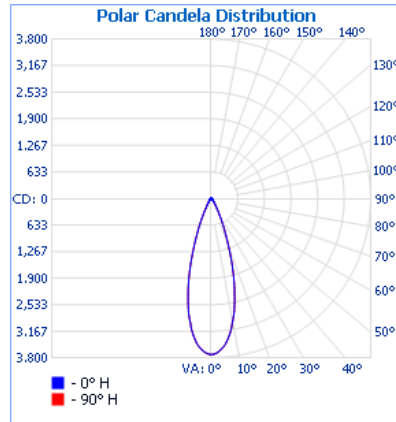
Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation	Operate time (Min.)	Stabilization time (Min.)
Input	119.97	60	0.157	18.63	0.988	Base up	70	30

Test Type	Flux (lm)	Center Beam Candle Power (cd)	Field angle (10%)		Beam angle (50%)		Luminous Efficacy (lm/W)
			Horizontal Spread	Vertical Spread	Horizontal Spread	Vertical Spread	
Output	1356.0	3721	54.8	54.8	32.6	32.6	72.8

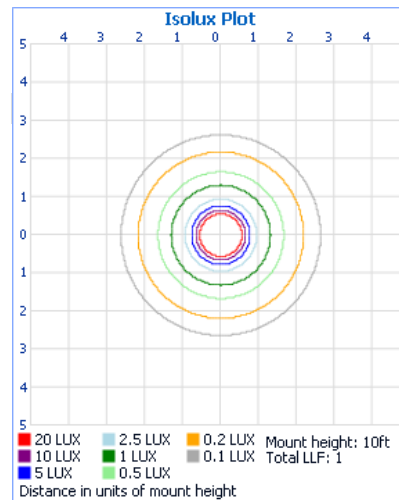


Test Report

Light Distribution Curve



Isolux Plot





Test Report

Zonal Lumen Tabulation

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	1,152.7	85%
0-40	1,234.0	91%
0-60	1,312.5	96.8%
60-90	42.6	3.1%
70-100	16.8	1.2%
90-120	0.3	0%
0-90	1,355.0	99.9%
90-180	1.0	0.1%
0-180	1,356.0	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	86.5	6.4%	90-95	0.0	0%
5-10	231.8	17.1%	95-100	0.0	0%
10-15	298.9	22.0%	100-105	0.0	0%
15-20	266.0	19.6%	105-110	0.0	0%
20-25	175.5	12.9%	110-115	0.0	0%
25-30	94.0	6.9%	115-120	0.0	0%
30-35	49.6	3.7%	120-125	0.0	0%
35-40	31.7	2.3%	125-130	0.0	0%
40-45	23.9	1.8%	130-135	0.0	0%
45-50	20.1	1.5%	135-140	0.0	0%
50-55	18.1	1.3%	140-145	0.1	0%
55-60	16.4	1.2%	145-150	0.1	0%
60-65	14.2	1.0%	150-155	0.1	0%
65-70	11.6	0.9%	155-160	0.1	0%
70-75	8.5	0.6%	160-165	0.1	0%
75-80	5.4	0.4%	165-170	0.1	0%
80-85	2.4	0.2%	170-175	0.1	0%
85-90	0.5	0.0%	175-180	0.0	0%



Test Report

Intensity Data(cd)

Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	3721	3721	3721	3721	3721	3721	3721	3721	3721	3721	3721	3721	3721	3721	3721	3721	3721
0.5	3718	3718	3718	3718	3718	3718	3718	3718	3718	3718	3718	3718	3718	3718	3718	3718	3718
1.5	3700	3700	3700	3700	3700	3700	3700	3700	3700	3700	3700	3700	3700	3700	3700	3700	3700
2.5	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666	3666
3.5	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620	3620
4.5	3561	3561	3561	3561	3561	3561	3561	3561	3561	3561	3561	3561	3561	3561	3561	3561	3561
5.5	3489	3489	3489	3489	3489	3489	3489	3489	3489	3489	3489	3489	3489	3489	3489	3489	3489
6.5	3393	3393	3393	3393	3393	3393	3393	3393	3393	3393	3393	3393	3393	3393	3393	3393	3393
7.5	3289	3289	3289	3289	3289	3289	3289	3289	3289	3289	3289	3289	3289	3289	3289	3289	3289
8.5	3171	3171	3171	3171	3171	3171	3171	3171	3171	3171	3171	3171	3171	3171	3171	3171	3171
9.5	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013
10.5	2882	2882	2882	2882	2882	2882	2882	2882	2882	2882	2882	2882	2882	2882	2882	2882	2882
11.5	2738	2738	2738	2738	2738	2738	2738	2738	2738	2738	2738	2738	2738	2738	2738	2738	2738
12.5	2555	2555	2555	2555	2555	2555	2555	2555	2555	2555	2555	2555	2555	2555	2555	2555	2555
13.5	2370	2370	2370	2370	2370	2370	2370	2370	2370	2370	2370	2370	2370	2370	2370	2370	2370
14.5	2194	2194	2194	2194	2194	2194	2194	2194	2194	2194	2194	2194	2194	2194	2194	2194	2194
15.5	2008	2008	2008	2008	2008	2008	2008	2008	2008	2008	2008	2008	2008	2008	2008	2008	2008
16.5	1823	1823	1823	1823	1823	1823	1823	1823	1823	1823	1823	1823	1823	1823	1823	1823	1823
17.5	1635	1635	1635	1635	1635	1635	1635	1635	1635	1635	1635	1635	1635	1635	1635	1635	1635
18.5	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441
19.5	1262	1262	1262	1262	1262	1262	1262	1262	1262	1262	1262	1262	1262	1262	1262	1262	1262
24.5	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610	610
29.5	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256	256
34.5	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129
39.5	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
49.5	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
54.5	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
59.5	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
64.5	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
69.5	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
74.5	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
79.5	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
84.5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
89.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
149.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
159.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
164.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
169.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
174.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
179.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
180.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



Test Report

Photos of sample



*******END OF TEST REPORT*******