



Verification Services

Project No.: 4786480430-3

Report No.: 4786480430-3a

Report Issued Date: 2014-12-15


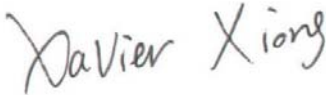
# Test Report

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

<b>Manufacturer:</b>	SORAA Inc.
<b>Country of Origin:</b>	USA
<b>Country of Export:</b>	USA
<b>Product Description:</b>	Lamp Type: PAR30L LED Lamp Total Amount Of Light Source: 1 pc
<b>Model Number:</b>	SP30L-18-25D-930-03
<b>Electrical Specification:</b>	120 V AC, 60 Hz, 18.5W

<b>Test Laboratory &amp; Address:</b>			
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			
<b>Telephone:</b>	+86 20 28667188	<b>Fax:</b>	+86 20 83486605

<b>Receipt of Test Samples :</b>	2014-12-05	<b>Test Period:</b>	2014-12-06 ~ 2014-12-13
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<b>Tested By</b>	<b>Approved By</b>
 / Jackson Zeng	 / Xavier Xiong
<b>Test Personnel Name &amp; Signatory</b>	<b>Approval Name &amp; Signatory</b>

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

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## **Statement of Results**

Test Flow	Test Method	Sample ID (Lab)	Sample Serial No.	Pass/Fail/NA
1.	Integrating Sphere Test	2015366-S001	N/A	Evaluate by customer
2.	Goniophotometer Test	2015366-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
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### Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-PE003	Integrating Sphere	Before Use	Before Use
GVS-LE-FS023	Measurement Standard Lamp	12/23/2013	12/22/2014

### Test Sample

2015366-S001
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### 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	119.92	60	0.157	18.62	0.986	Base up	58	50

Test Type	CCT (K)	Luminous Flux (lm)	Color Rendering Index Ra	Luminous Efficacy (lm/W)
Output	3024	1083.9	95.4	58.2



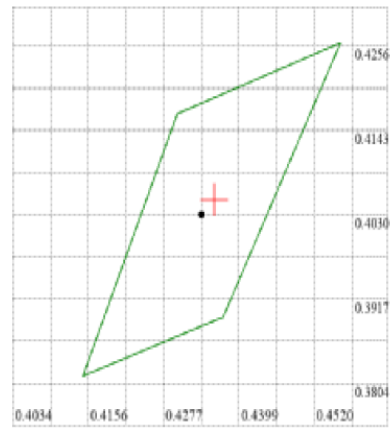
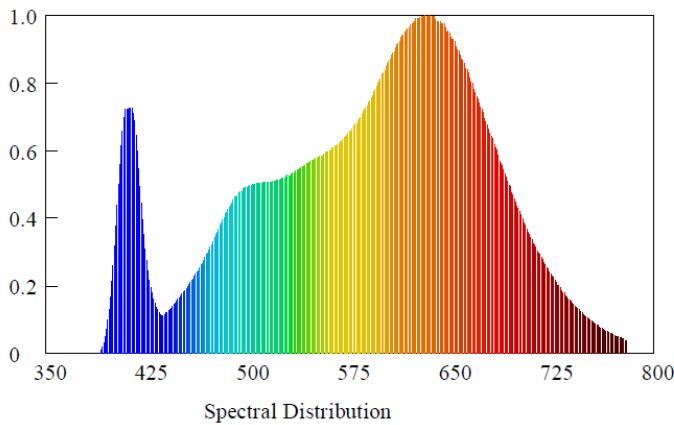
# Test Report

## Test Condition

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

RH: ---%  
 Scan Step: 1 nm

## Spectroradiometric Parameters



Nominal CCT: LED\_3000K  
 $x_0=0.4359$   $y_0=0.4050$

Chromaticity Coordinates:  $x=0.4359$   $y=0.4050$   $u'=0.2495$   $v'=0.5216$

Correlated Color Temperature: 3024 K

Dominant Wavelength: 581.0 nm(E)

Luminous Flux: 1083.920 lm

Purity: 0.5259

Chromaticity Difference: 0.0005Duv

Peak Wavelength: 634.1 nm

Color Ratio:  $K_r=43.4\%$   $K_g=46.5\%$   $K_b=10.2\%$

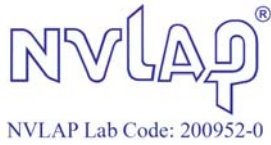
Bandwidth: 180.5nm

Radiant Flux: 4.051 W

Rendering Index:  $R_a=95.4$

$R_1=95$   $R_2=96$   $R_3=97$   $R_4=93$   $R_5=93$   $R_6=91$   $R_7=99$   $R_8=99$

$R_9=98$   $R_{10}=91$   $R_{11}=89$   $R_{12}=76$   $R_{13}=95$   $R_{14}=99$   $R_{15}=97$



# 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	08/19/2014	08/18/2015
GVS-LE-CA008	Digital Calliper	09/18/2014	09/17/2015

### Test Sample

2015366-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° C ± 1° 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

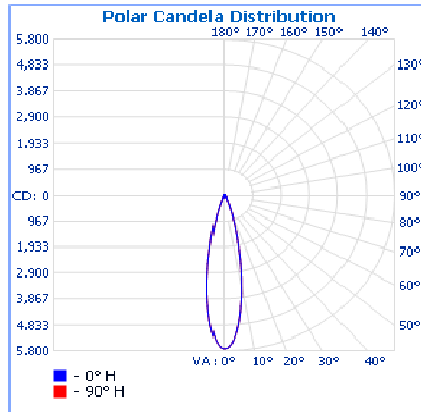
Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation	Operate time (Min.)	Stabilization time (Min.)
Input	120.00	60	0.157	18.60	0.986	Base up	70	30

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	1094.7	5717	40.9	40.9	22.6	22.6	58.8

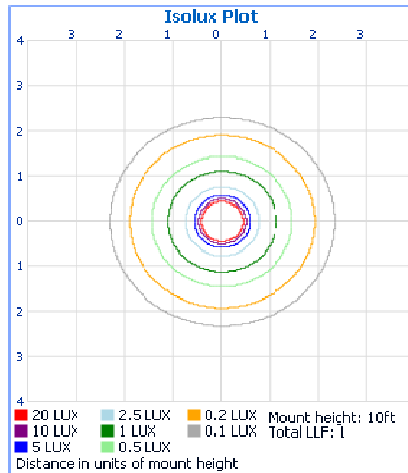


# Test Report

## Light Distribution Curve



## Isolux Plot





# Test Report

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## Zonal Lumen Tabulation

### Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	985.5	90%
0-40	1,018.5	93%
0-60	1,068.2	97.6%
60-90	25.9	2.4%
70-100	9.8	0.9%
90-120	0.0	0%
0-90	1,094.1	100%
90-180	0.5	0%
0-180	1,094.7	100%

### Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	127.6	11.7%	90-95	0.0	0%
5-10	292.9	26.8%	95-100	0.0	0%
10-15	285.5	26.1%	100-105	0.0	0%
15-20	179.6	16.4%	105-110	0.0	0%
20-25	72.3	6.6%	110-115	0.0	0%
25-30	27.6	2.5%	115-120	0.0	0%
30-35	17.7	1.6%	120-125	0.0	0%
35-40	15.3	1.4%	125-130	0.0	0%
40-45	14.1	1.3%	130-135	0.0	0%
45-50	13.0	1.2%	135-140	0.0	0%
50-55	12.0	1.1%	140-145	0.0	0%
55-60	10.7	1.0%	145-150	0.0	0%
60-65	9.0	0.8%	150-155	0.1	0%
65-70	7.2	0.7%	155-160	0.1	0%
70-75	5.1	0.5%	160-165	0.1	0%
75-80	3.0	0.3%	165-170	0.1	0%
80-85	1.3	0.1%	170-175	0.1	0%
85-90	0.3	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	5717	5717	5717	5717	5717	5717	5717	5717	5717	5717	5717	5717	5717	5717	5717	5717	5717
1	5683	5683	5683	5683	5683	5683	5683	5683	5683	5683	5683	5683	5683	5683	5683	5683	5683
2	5586	5586	5586	5586	5586	5586	5586	5586	5586	5586	5586	5586	5586	5586	5586	5586	5586
3	5441	5441	5441	5441	5441	5441	5441	5441	5441	5441	5441	5441	5441	5441	5441	5441	5441
4	5237	5237	5237	5237	5237	5237	5237	5237	5237	5237	5237	5237	5237	5237	5237	5237	5237
5	4980	4980	4980	4980	4980	4980	4980	4980	4980	4980	4980	4980	4980	4980	4980	4980	4980
6	4693	4693	4693	4693	4693	4693	4693	4693	4693	4693	4693	4693	4693	4693	4693	4693	4693
7	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371
8	4035	4035	4035	4035	4035	4035	4035	4035	4035	4035	4035	4035	4035	4035	4035	4035	4035
9	3691	3691	3691	3691	3691	3691	3691	3691	3691	3691	3691	3691	3691	3691	3691	3691	3691
10	3314	3314	3314	3314	3314	3314	3314	3314	3314	3314	3314	3314	3314	3314	3314	3314	3314
11	2959	2959	2959	2959	2959	2959	2959	2959	2959	2959	2959	2959	2959	2959	2959	2959	2959
12	2624	2624	2624	2624	2624	2624	2624	2624	2624	2624	2624	2624	2624	2624	2624	2624	2624
13	2266	2266	2266	2266	2266	2266	2266	2266	2266	2266	2266	2266	2266	2266	2266	2266	2266
14	1932	1932	1932	1932	1932	1932	1932	1932	1932	1932	1932	1932	1932	1932	1932	1932	1932
15	1702	1702	1702	1702	1702	1702	1702	1702	1702	1702	1702	1702	1702	1702	1702	1702	1702
16	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432
17	1215	1215	1215	1215	1215	1215	1215	1215	1215	1215	1215	1215	1215	1215	1215	1215	1215
18	982	982	982	982	982	982	982	982	982	982	982	982	982	982	982	982	982
19	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788
20	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629	629
25	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
30	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
35	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
40	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
50	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
55	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
60	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
65	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
70	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
75	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
80	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
85	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
165	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
170	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
175	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
180	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

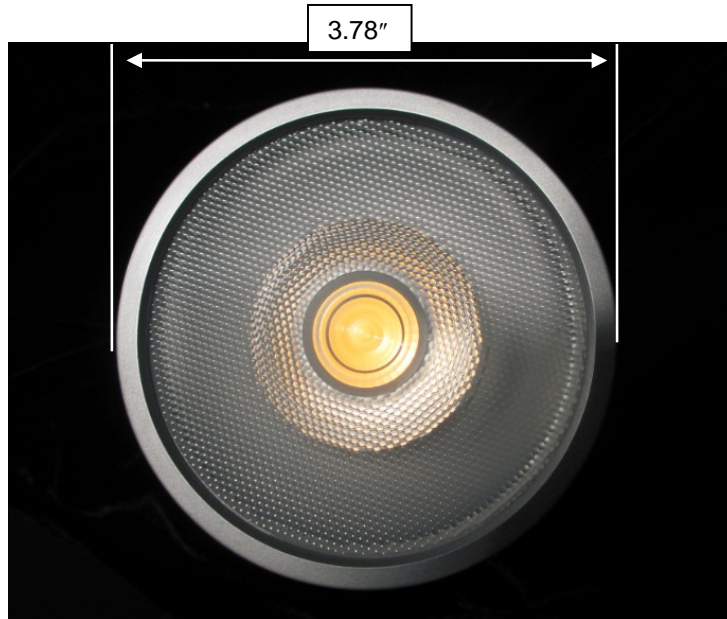




# Test Report

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## Photos of sample



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