



**Verification Services**

Project No.: 4786480430-7  
Report No.: 4786480430-7a  
Report Issued Date: 2015-2-2


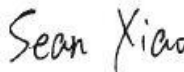
# Test Report

<b>Customer Company &amp; Address:</b>			
SORAA Inc 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-18-36D-927-03
<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>	2015-1-13	<b>Test Period:</b>	2015-1-13 ~ 2015-1-30
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<b>Tested By</b>	<b>Approved By</b>
 / Jackson Zeng	 / Sean Xiao
<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.



# 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	2033567-S001	N/A	Evaluate by customer
2.	Goniophotometer Test	2033567-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-FS019	Measurement Standard Lamp	08/22/2013	08/21/2015

### Test Sample

2033567-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	120.06	60	0.155	18.39	0.989	Base up	50	30

Test Type	CCT (K)	Luminous Flux (lm)	Color Rendering Index Ra	R9	Luminous Efficacy (lm/W)
Output	2665	1071.4	95.5	96	58.3



NVLAP Lab Code: 200952-0

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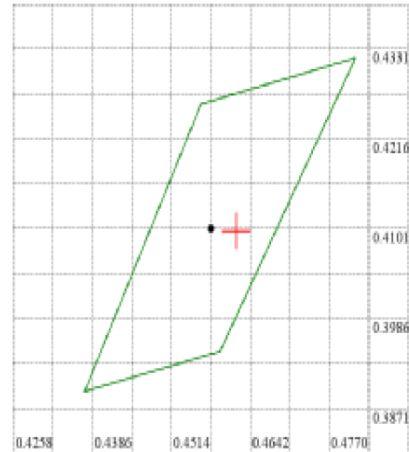
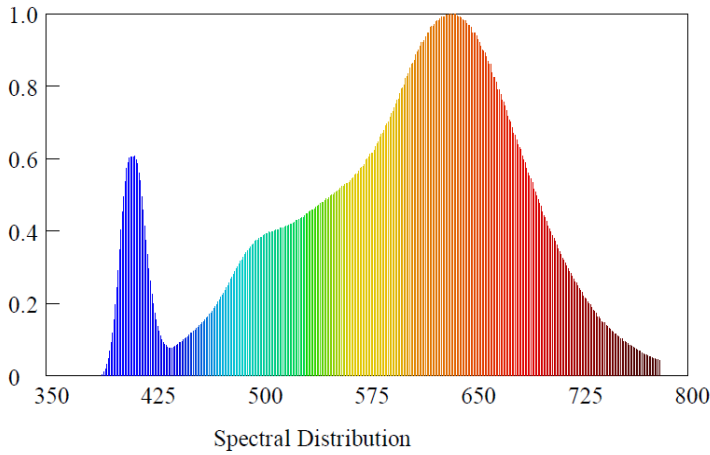
# Test Report

## Test Condition

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

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

## Spectroradiometric Parameters



Nominal CCT: Manual  
x0=0.4619 y0=0.4098

Chromaticity Coordinates: x=0.4619 y=0.4098 u'=0.2642 v'=0.5273

Correlated Color Temperature: 2665 K

Dominant Wavelength: 583.0 nm(E)

Luminous Flux: 1071.361 lm

Purity: 0.6196

Chromaticity Difference: -0.00048Duv

Peak Wavelength: 636.9 nm

Color Ratio: Kr=46.7% Kg=44.6% Kb=8.7%

Color Tolerance(SDCM): 0

Bandwidth: 139.6nm

Radiant Flux: 3.985 W

Rendering Index: Ra=95.5

R1=96 R2=97 R3=98 R4=93 R5=93 R6=91 R7=98 R8=98

R9=96 R10=92 R11=88 R12=75 R13=95 R14=99 R15=98



# 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

2033567-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	119.83	60	0.155	18.33	0.989	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	1092.6	3055	54.3	54.3	32.3	32.3	59.6



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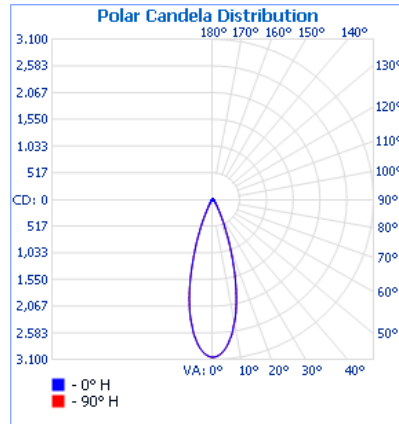
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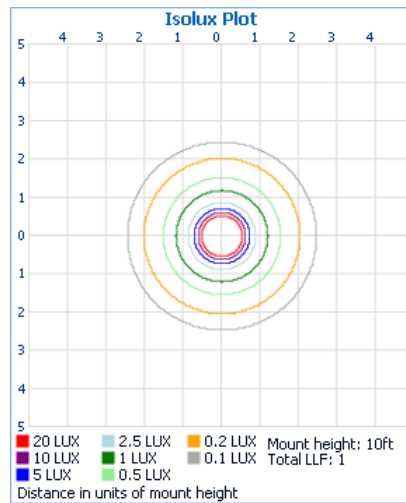
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# Test Report

## Light Distribution Curve



## Isolux Plot





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# Test Report

## Zonal Lumen Tabulation

### Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	932.9	85.4%
0-40	997.4	91.3%
0-60	1,058.6	96.9%
60-90	33.0	3%
70-100	13.0	1.2%
90-120	0.3	0%
0-90	1,091.6	99.9%
90-180	1.0	0.1%
0-180	1,092.6	100%

### Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	70.9	6.5%	90-95	0.1	0%
5-10	188.8	17.3%	95-100	0.0	0%
10-15	243.8	22.3%	100-105	0.0	0%
15-20	214.6	19.6%	105-110	0.0	0%
20-25	141.2	12.9%	110-115	0.0	0%
25-30	73.5	6.7%	115-120	0.0	0%
30-35	39.3	3.6%	120-125	0.0	0%
35-40	25.2	2.3%	125-130	0.0	0%
40-45	18.7	1.7%	130-135	0.0	0%
45-50	15.6	1.4%	135-140	0.0	0%
50-55	14.1	1.3%	140-145	0.1	0%
55-60	12.7	1.2%	145-150	0.1	0%
60-65	11.1	1.0%	150-155	0.1	0%
65-70	9.0	0.8%	155-160	0.1	0%
70-75	6.5	0.6%	160-165	0.1	0%
75-80	4.1	0.4%	165-170	0.1	0%
80-85	1.9	0.2%	170-175	0.0	0%
85-90	0.4	0.0%	175-180	0.0	0%



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## 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	3055	3055	3055	3055	3055	3055	3055	3055	3055	3055	3055	3055	3055	3055	3055	3055	3055
0.5	3054	3054	3054	3054	3054	3054	3054	3054	3054	3054	3054	3054	3054	3054	3054	3054	3054
1.5	3039	3039	3039	3039	3039	3039	3039	3039	3039	3039	3039	3039	3039	3039	3039	3039	3039
2.5	3010	3010	3010	3010	3010	3010	3010	3010	3010	3010	3010	3010	3010	3010	3010	3010	3010
3.5	2968	2968	2968	2968	2968	2968	2968	2968	2968	2968	2968	2968	2968	2968	2968	2968	2968
4.5	2915	2915	2915	2915	2915	2915	2915	2915	2915	2915	2915	2915	2915	2915	2915	2915	2915
5.5	2847	2847	2847	2847	2847	2847	2847	2847	2847	2847	2847	2847	2847	2847	2847	2847	2847
6.5	2765	2765	2765	2765	2765	2765	2765	2765	2765	2765	2765	2765	2765	2765	2765	2765	2765
7.5	2681	2681	2681	2681	2681	2681	2681	2681	2681	2681	2681	2681	2681	2681	2681	2681	2681
8.5	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580	2580
9.5	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456
10.5	2354	2354	2354	2354	2354	2354	2354	2354	2354	2354	2354	2354	2354	2354	2354	2354	2354
11.5	2229	2229	2229	2229	2229	2229	2229	2229	2229	2229	2229	2229	2229	2229	2229	2229	2229
12.5	2087	2087	2087	2087	2087	2087	2087	2087	2087	2087	2087	2087	2087	2087	2087	2087	2087
13.5	1941	1941	1941	1941	1941	1941	1941	1941	1941	1941	1941	1941	1941	1941	1941	1941	1941
14.5	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790
15.5	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631	1631
16.5	1471	1471	1471	1471	1471	1471	1471	1471	1471	1471	1471	1471	1471	1471	1471	1471	1471
17.5	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309
18.5	1165	1165	1165	1165	1165	1165	1165	1165	1165	1165	1165	1165	1165	1165	1165	1165	1165
19.5	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025
24.5	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
29.5	197	197	197	197	197	197	197	197	197	197	197	197	197	197	197	197	197
34.5	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
39.5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
49.5	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
54.5	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
59.5	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
64.5	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
69.5	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
74.5	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
79.5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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

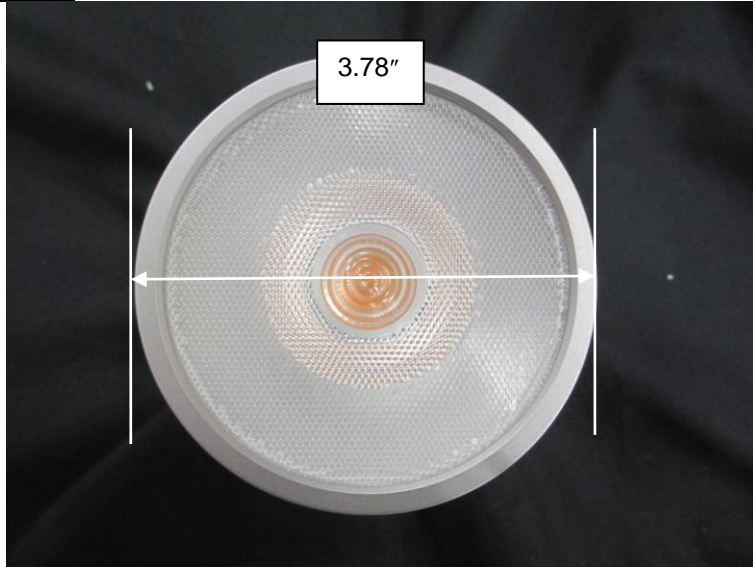




# Test Report

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## Photos of sample



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