



NVLAP Lab Code: 200952-0

Verification Services

Project No.: 4786480430-9
Report No.: 4786480430-9a
Report Issued Date: 2015-03-17

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-18-09D-827-03
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 :	2015-03-10	Test Period:	2015-03-10 ~ 2015-03-17
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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.



Test Report

Statement of Results

Test Flow	Test Method	Sample ID (Lab)	Sample Serial No.	Pass/Fail/NA
1.	Integrating Sphere Test	2071402-S001	N/A	Evaluate by customer
2.	Goniophotometer Test	2071402-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-FS023	Measurement Standard Lamp	12/23/2013	12/22/2014

Test Sample

2071402-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)	THD	Power Factor	Orientation	Operate time (Min.)	Stabilization time (Min.)
Input	119.94	60	0.152	18.03	12.03	0.988	Base up	58	50

Test Type	CCT (K)	Luminous Flux (lm)	Color Rendering Index Ra	Luminous Efficacy (lm/W)
Output	2664	1300.0	82.4	72.1



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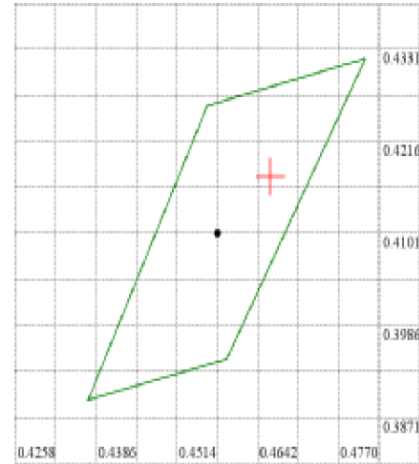
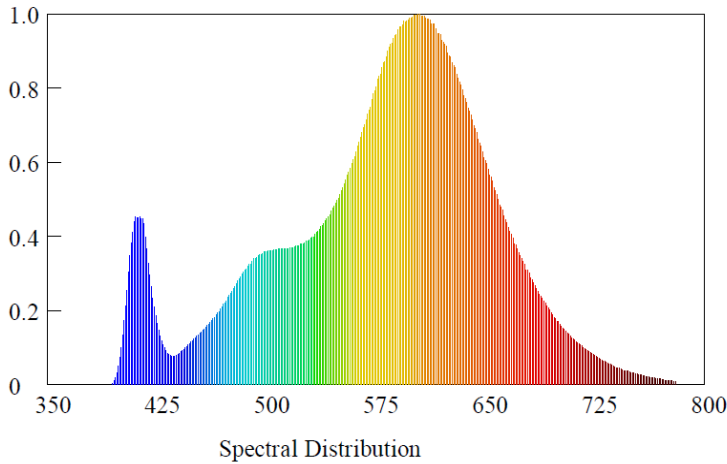
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Test Report

Spectroradiometric Parameters



Nominal CCT:Manual
x0=0.4662 y0=0.4172

Chromaticity Coordinates: $x=0.4662$ $y=0.4172$ $u'=0.2636$ $v'=0.5308$

Correlated Color Temperature: 2664 K

Dominant Wavelength: 582.0 nm(E)

Luminous Flux: 1300.021 lm

Purity: 0.6560

Chromaticity Difference: 0.0019Duv

Peak Wavelength: 604.9 nm

Color Ratio: Kr=48.8% Kg=43.6% Kb=7.6%

Color Tolerance(SDCM): 0

Bandwidth: 107.4nm

Radiant Flux: 3.727 W

Rendering Index: Ra=82.4

R1=81 R2=94 R3=89 R4=80 R5=84 R6=97 R7=79 R8=54

R9=4 R10=90 R11=81 R12=93 R13=85 R14=94 R15=71



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

2071402-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	Opreate time (Min.)	Stabilization time (Min.)
Input	120.01	60	0.152	18.00	0.987	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	1302.4	24488	18.3	18.3	10	10	72.4



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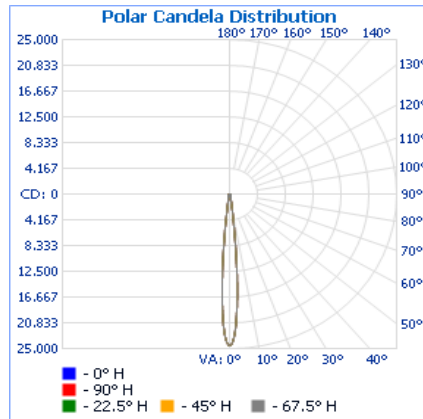
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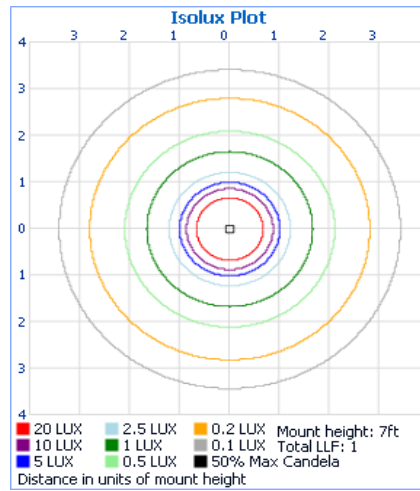
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Test Report

Light Distribution Curve



Isolux Plot





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Test Report

Zonal Lumen Tabulation

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	1,064.6	81.7%
0-40	1,159.9	89.1%
0-60	1,248.2	95.8%
60-90	53.2	4.1%
70-100	25.1	1.9%
90-120	0.3	0%
0-90	1,301.4	99.9%
90-180	1.1	0.1%
0-180	1,302.4	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	432.8	33.2%	90-95	0.1	0%
5-10	330.2	25.4%	95-100	0.0	0%
10-15	109.1	8.4%	100-105	0.0	0%
15-20	76.7	5.9%	105-110	0.0	0%
20-25	61.0	4.7%	110-115	0.0	0%
25-30	54.9	4.2%	115-120	0.0	0%
30-35	50.4	3.9%	120-125	0.0	0%
35-40	44.9	3.4%	125-130	0.1	0%
40-45	33.2	2.5%	130-135	0.1	0%
45-50	21.2	1.6%	135-140	0.0	0%
50-55	17.9	1.4%	140-145	0.0	0%
55-60	16.0	1.2%	145-150	0.0	0%
60-65	14.7	1.1%	150-155	0.1	0%
65-70	13.4	1.0%	155-160	0.1	0%
70-75	11.5	0.9%	160-165	0.1	0%
75-80	8.5	0.7%	165-170	0.1	0%
80-85	4.4	0.3%	170-175	0.1	0%
85-90	0.6	0.0%	175-180	0.0	0%



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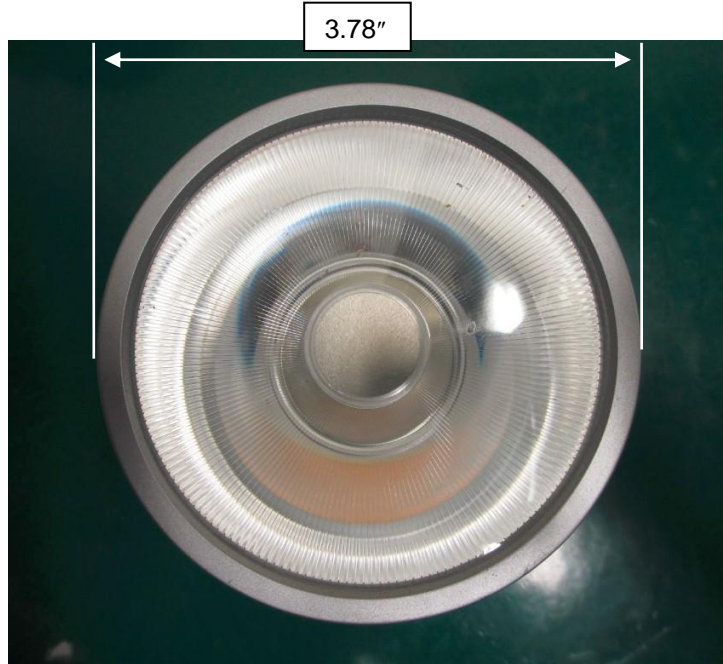
Intensity Data(cd)

Candela Table - Type C																
0	24488	24488	24488	24488	24488	24488	24488	24488	24488	24488	24488	24488	24488	24488	24488	24488
0.5	24399	24399	24399	24399	24399	24399	24399	24399	24399	24399	24399	24399	24399	24399	24399	24399
1.5	23351	23351	23351	23351	23351	23351	23351	23351	23351	23351	23351	23351	23351	23351	23351	23351
2.5	21247	21247	21247	21247	21247	21247	21247	21247	21247	21247	21247	21247	21247	21247	21247	21247
3.5	18047	18047	18047	18047	18047	18047	18047	18047	18047	18047	18047	18047	18047	18047	18047	18047
4.5	14265	14265	14265	14265	14265	14265	14265	14265	14265	14265	14265	14265	14265	14265	14265	14265
5.5	10435	10435	10435	10435	10435	10435	10435	10435	10435	10435	10435	10435	10435	10435	10435	10435
6.5	6762	6762	6762	6762	6762	6762	6762	6762	6762	6762	6762	6762	6762	6762	6762	6762
7.5	4126	4126	4126	4126	4126	4126	4126	4126	4126	4126	4126	4126	4126	4126	4126	4126
8.5	2739	2739	2739	2739	2739	2739	2739	2739	2739	2739	2739	2739	2739	2739	2739	2739
9.5	1813	1813	1813	1813	1813	1813	1813	1813	1813	1813	1813	1813	1813	1813	1813	1813
10.5	1361	1361	1361	1361	1361	1361	1361	1361	1361	1361	1361	1361	1361	1361	1361	1361
11.5	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061
12.5	873	873	873	873	873	873	873	873	873	873	873	873	873	873	873	873
13.5	754	754	754	754	754	754	754	754	754	754	754	754	754	754	754	754
14.5	672	672	672	672	672	672	672	672	672	672	672	672	672	672	672	672
15.5	584	584	584	584	584	584	584	584	584	584	584	584	584	584	584	584
16.5	519	519	519	519	519	519	519	519	519	519	519	519	519	519	519	519
17.5	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466
18.5	413	413	413	413	413	413	413	413	413	413	413	413	413	413	413	413
19.5	374	374	374	374	374	374	374	374	374	374	374	374	374	374	374	374
20.5	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
25.5	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238
30.5	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191
35.5	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147
40.5	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
45.5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
50.5	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
55.5	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
60.5	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
65.5	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
70.5	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
75.5	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80.5	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
85.5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
90.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
165.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
170.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
175.5	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



Test Report

Photos of sample



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