



NVLAP Lab Code: 200952-0

Verification Services

Project No.: 4786480430-10
Report No.: 4786480430-10a
Report Issued Date: 2015-06-24


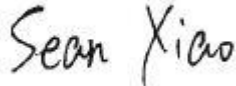
Test Report

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-18-25D-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 :	2015-05-26	Test Period:	2015-05-26 ~ 2015-06-24
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Tested By	Approved By
 / Sam Tse	 / 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	2128435-S001	N/A	Evaluate by customer
2.	Goniophotometer Test	2128435-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-FS007	Measurement Standard Lamp	09/12/2014	09/11/2015

Test Sample

2128435-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	119.99	60	0.161	19.07	0.987	Base up	58	50

Test Type	CCT (K)	Luminous Flux (lm)	Color Rendering Index Ra	Luminous Efficacy (lm/W)
Output	2687	1394.6	83.3	73.1



Test Report

Test Condition

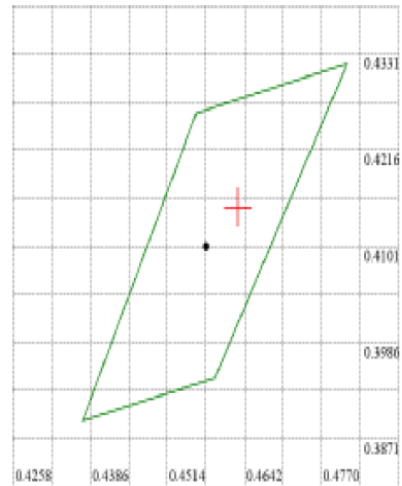
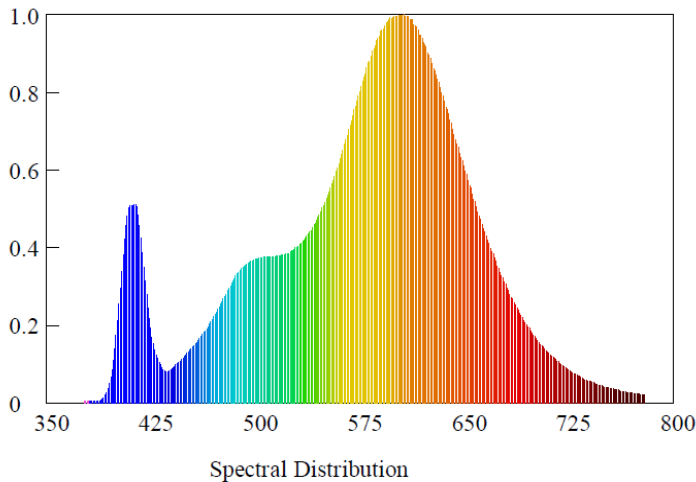
Temperature: 25.1°C

RH: ----%

Spectrum Range: 380-780 nm

Scan Step: 1 nm

Spectroradiometric Parameters



Nominal CCT:LED_2700K
 $x_0=0.4631$ $y_0=0.4148$

Chromaticity Coordinates: $x=0.4631$ $y=0.4148$ $u'=0.2627$ $v'=0.5294$

Correlated Color Temperature: 2687 K

Dominant Wavelength: 582.0 nm(E)

Luminous Flux: 1394.617 lm

Purity: 0.6397

Chromaticity Difference: +0.00127Duv

Peak Wavelength: 606.7 nm

Color Ratio: $K_r=48.6\%$ $K_g=43.6\%$ $K_b=7.8\%$

Bandwidth: 108nm

Radiant Flux: 4.137 W

Rendering Index: $R_a=83.3$

$R_1=82$ $R_2=95$ $R_3=89$ $R_4=82$ $R_5=85$ $R_6=98$ $R_7=80$ $R_8=56$

$R_9=7$ $R_{10}=91$ $R_{11}=83$ $R_{12}=90$ $R_{13}=86$ $R_{14}=94$ $R_{15}=73$



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-FS007	Measurement Standard Lamp	09/11/2014	09/12/2015
GVS-LE-CA008	Digital Calliper	09/18/2014	09/17/2015

Test Sample

2128435-S001

Test Method

The sample was tested according to the IES LM-79-2008.
Photometric paramters 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	120.05	60	0.161	19.08	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	1400.0	7482	40.6	40.6	22.5	22.5	73.4



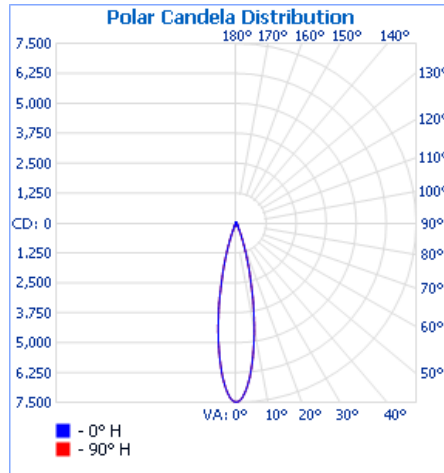
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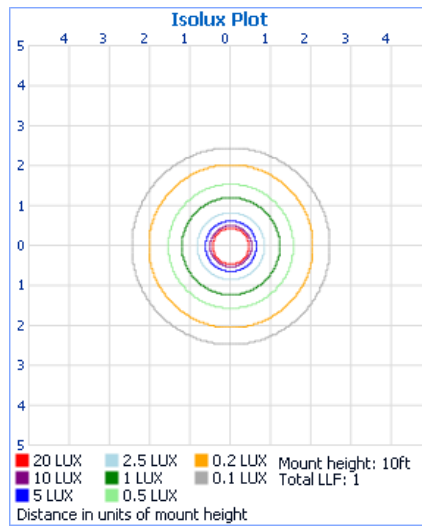
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Test Report

Light Distribution Curve



Isolux Plot





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Test Report

Zonal Lumen Tabulation

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	1,263.0	90.2%
0-40	1,305.0	93.2%
0-60	1,366.9	97.6%
60-90	32.5	2.3%
70-100	12.1	0.9%
90-120	0.1	0%
0-90	1,399.4	100%
90-180	0.6	0%
0-180	1,400.0	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	166.2	11.9%	90-95	0.0	0%
5-10	380.0	27.1%	95-100	0.0	0%
10-15	368.8	26.3%	100-105	0.0	0%
15-20	225.9	16.1%	105-110	0.0	0%
20-25	88.6	6.3%	110-115	0.0	0%
25-30	33.6	2.4%	115-120	0.0	0%
30-35	22.7	1.6%	120-125	0.0	0%
35-40	19.3	1.4%	125-130	0.0	0%
40-45	17.6	1.3%	130-135	0.0	0%
45-50	16.1	1.1%	135-140	0.0	0%
50-55	14.9	1.1%	140-145	0.0	0%
55-60	13.4	1.0%	145-150	0.0	0%
60-65	11.3	0.8%	150-155	0.1	0%
65-70	9.0	0.6%	155-160	0.1	0%
70-75	6.5	0.5%	160-165	0.1	0%
75-80	3.7	0.3%	165-170	0.1	0%
80-85	1.6	0.1%	170-175	0.1	0%
85-90	0.3	0.0%	175-180	0.0	0%



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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	7482	7482	7482	7482	7482	7482	7482	7482	7482	7482	7482	7482	7482	7482	7482	7482	7482
1	7437	7437	7437	7437	7437	7437	7437	7437	7437	7437	7437	7437	7437	7437	7437	7437	7437
2	7306	7306	7306	7306	7306	7306	7306	7306	7306	7306	7306	7306	7306	7306	7306	7306	7306
3	7082	7082	7082	7082	7082	7082	7082	7082	7082	7082	7082	7082	7082	7082	7082	7082	7082
4	6802	6802	6802	6802	6802	6802	6802	6802	6802	6802	6802	6802	6802	6802	6802	6802	6802
5	6467	6467	6467	6467	6467	6467	6467	6467	6467	6467	6467	6467	6467	6467	6467	6467	6467
6	6078	6078	6078	6078	6078	6078	6078	6078	6078	6078	6078	6078	6078	6078	6078	6078	6078
7	5662	5662	5662	5662	5662	5662	5662	5662	5662	5662	5662	5662	5662	5662	5662	5662	5662
8	5228	5228	5228	5228	5228	5228	5228	5228	5228	5228	5228	5228	5228	5228	5228	5228	5228
9	4774	4774	4774	4774	4774	4774	4774	4774	4774	4774	4774	4774	4774	4774	4774	4774	4774
10	4312	4312	4312	4312	4312	4312	4312	4312	4312	4312	4312	4312	4312	4312	4312	4312	4312
11	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845
12	3412	3412	3412	3412	3412	3412	3412	3412	3412	3412	3412	3412	3412	3412	3412	3412	3412
13	2927	2927	2927	2927	2927	2927	2927	2927	2927	2927	2927	2927	2927	2927	2927	2927	2927
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15	2162	2162	2162	2162	2162	2162	2162	2162	2162	2162	2162	2162	2162	2162	2162	2162	2162
16	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831
17	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512
18	1226	1226	1226	1226	1226	1226	1226	1226	1226	1226	1226	1226	1226	1226	1226	1226	1226
19	970	970	970	970	970	970	970	970	970	970	970	970	970	970	970	970	970
20	798	798	798	798	798	798	798	798	798	798	798	798	798	798	798	798	798
25	204	204	204	204	204	204	204	204	204	204	204	204	204	204	204	204	204
30	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93
35	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
40	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
50	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
55	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
60	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
65	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
70	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
75	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
80	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
85	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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
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Doc No. TC-1-10000

Issue No: 1.1



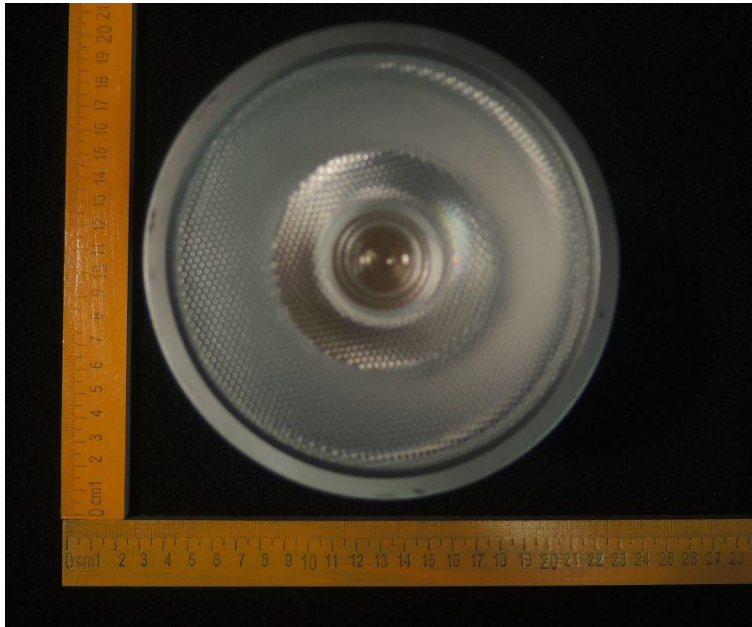
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Test Report

Photos of sample



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