



Verification Services

Project No.: 4786888141-9
Report No.: 4786888141-9a
Report Issued Date: 2015-06-24


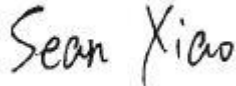
Test Report

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: PAR38 E26 LED Lamp Total Amount Of Light Source: 1 pc
Model Number:	SP38-18-60D-830-3
Electrical Specification:	12 V AC, 60 Hz

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 ~ 2015-6-23
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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	2128439-S001	N/A	Evaluate by customer
2.	Goniophotometer Test	2128439-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

2128439-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	120.00	60	0.155	18.28	38.56	0.985	Base up	58	50

Test Type	CCT (K)	Luminous Flux (lm)	Color Rendering Index Ra	Luminous Efficacy (lm/W)
Output	2921	1335.0	85.4	73.1



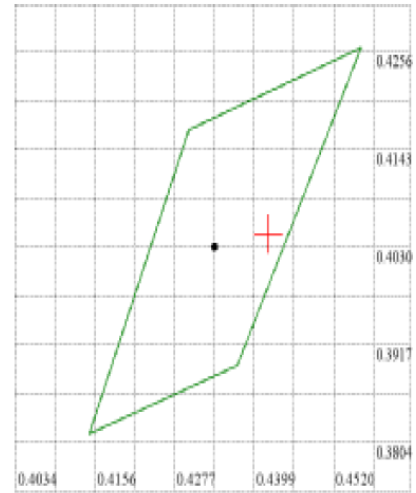
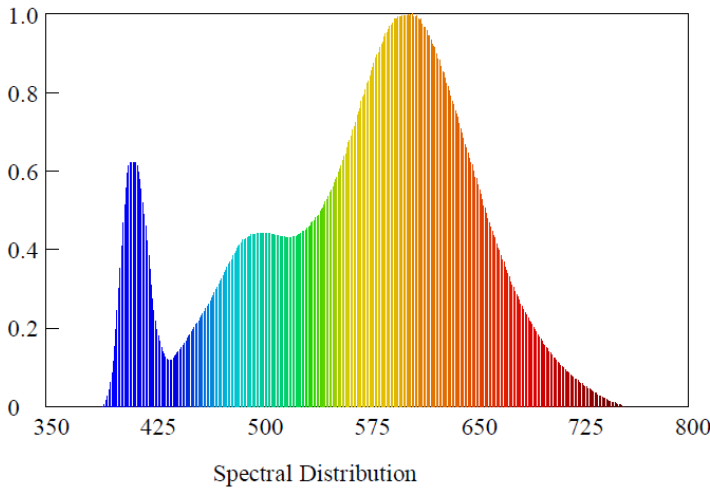
Test Report

Test Condition

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

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

Spectroradiometric Parameters



Nominal CCT:LED_3000K
 x0=0.4420 y0=0.4045

Chromaticity Coordinates: $x=0.4420$ $y=0.4045$ $u'=0.2536$ $v'=0.5223$

Correlated Color Temperature: 2921 K

Dominant Wavelength: 582.0 nm(E)

Luminous Flux: 1334.993 lm

Purity: 0.5423

Chromaticity Difference: -0.00047Duv

Peak Wavelength: 607.0 nm

Color Ratio: $K_r=46.5\%$ $K_g=44.5\%$ $K_b=9.0\%$

Bandwidth: 112.5nm

Radiant Flux: 3.84 W

Rendering Index: $R_a=85.4$

R1=86 R2=97 R3=88 R4=85 R5=89 R6=97 R7=81 R8=60

R9=16 R10=97 R11=87 R12=88 R13=89 R14=93 R15=76



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	09/12/2014	09/11/2015
GVS-LE-CA008	Digital Calliper	09/18/2014	09/17/2015

Test Sample

2128439-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	120.06	60	0.155	18.26	0.984	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	1340.3	1512	85.5	85.5	55.2	55.2	73.4



NVLAP Lab Code: 200952-0

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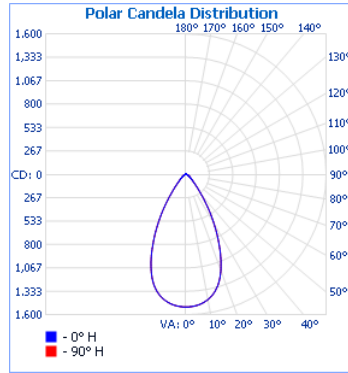
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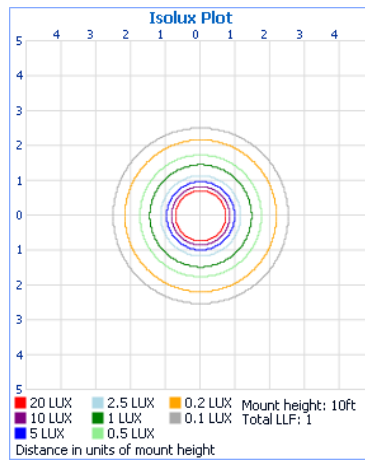
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Test Report

Light Distribution Curve



Isolux Plot





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Test Report

Zonal Lumen Tabulation

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	922.8	68.9%
0-40	1,162.9	86.8%
0-60	1,307.7	97.6%
60-90	32.1	2.4%
70-100	6.1	0.5%
90-120	0.0	0%
0-90	1,339.8	100%
90-180	0.5	0%
0-180	1,340.3	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	36.0	2.7%	90-95	0.0	0%
5-10	105.4	7.9%	95-100	0.0	0%
10-15	166.0	12.4%	100-105	0.0	0%
15-20	207.4	15.5%	105-110	0.0	0%
20-25	216.2	16.1%	110-115	0.0	0%
25-30	191.8	14.3%	115-120	0.0	0%
30-35	145.8	10.9%	120-125	0.0	0%
35-40	94.2	7.0%	125-130	0.0	0%
40-45	57.8	4.3%	130-135	0.0	0%
45-50	37.9	2.8%	135-140	0.0	0%
50-55	27.9	2.1%	140-145	0.0	0%
55-60	21.3	1.6%	145-150	0.1	0%
60-65	15.6	1.2%	150-155	0.1	0%
65-70	10.4	0.8%	155-160	0.1	0%
70-75	4.6	0.3%	160-165	0.1	0%
75-80	1.3	0.1%	165-170	0.0	0%
80-85	0.2	0.0%	170-175	0.0	0%
85-90	0.0	0.0%	175-180	0.0	0%



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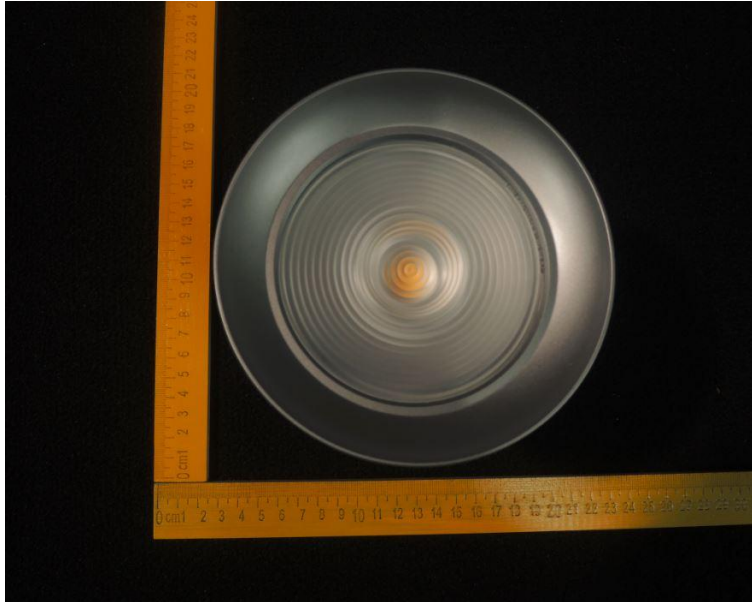
Intensity Data(cd)

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	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512
1	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512	1512
2	1510	1510	1510	1510	1510	1510	1510	1510	1510	1510	1510	1510	1510	1510	1510	1510	1510
3	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507	1507
4	1503	1503	1503	1503	1503	1503	1503	1503	1503	1503	1503	1503	1503	1503	1503	1503	1503
5	1498	1498	1498	1498	1498	1498	1498	1498	1498	1498	1498	1498	1498	1498	1498	1498	1498
6	1491	1491	1491	1491	1491	1491	1491	1491	1491	1491	1491	1491	1491	1491	1491	1491	1491
7	1483	1483	1483	1483	1483	1483	1483	1483	1483	1483	1483	1483	1483	1483	1483	1483	1483
8	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473	1473
9	1462	1462	1462	1462	1462	1462	1462	1462	1462	1462	1462	1462	1462	1462	1462	1462	1462
10	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448
11	1433	1433	1433	1433	1433	1433	1433	1433	1433	1433	1433	1433	1433	1433	1433	1433	1433
12	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416	1416
13	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395	1395
14	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373	1373
15	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346
16	1318	1318	1318	1318	1318	1318	1318	1318	1318	1318	1318	1318	1318	1318	1318	1318	1318
17	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284
18	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247
19	1207	1207	1207	1207	1207	1207	1207	1207	1207	1207	1207	1207	1207	1207	1207	1207	1207
20	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164
25	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900
30	626	626	626	626	626	626	626	626	626	626	626	626	626	626	626	626	626
35	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376
40	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208	208
50	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
60	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
65	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
70	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
75	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
80	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Test Report

Photos of sample



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