NVLAP Lab Code: 200952-0

Verification Services

Project No. 4787241179-19
Report No. 4787241179-19a2
Report Issued Date: 2016-02-18

Test Report

Customer Company & Address:			
Premium Quality Lighting, Inc. **2285 Ward Avenue** **Simi Valley, CA 93065**			
Contact Person:			
Phone Number:		**Email Address:**	

Relevant Standards:	IES LM-79-2008
Product Description:	Luminaire Description: Indoor High Bay Light Source: LGIT 5630 Ballast/Driver: VPL100-240,VPL50-115MVHDA-PD-1C
Brand Name:	Superior Life®
Tested Model Number:	55209
Product Family:	55208 / 4000K 55209 / 5000K
Allowable Variations:	Different types of diffuser, clear or frosted
Electrical Specification:	120~277 V AC, 50~60 Hz, 160 W

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

Sample Reception Date:	2015-12-14	**Test Date:**	2016-01-06

Tested By	**Approved By**
Jonathan Xu /Jonathan Xu	Duff Yang /Duff Yang
Signatory & Test Personnel Name	**Signatory & Approval Name**

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 Item	Sample ID (Lab)	Pass/Fail/NA
1	Integrating Sphere Test	2270259-S1	Evaluate by customer
2	Goniophotometer Test	2270259-S1	Evaluate by customer
3	THD and PF Test	2270259-S1	Evaluate by customer

Deviation from Test Method (*if any*)

N/A

Remark *(if any)*

1. This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government.

2.The THD test data within this report comes from UL-CCIC Company Limited(NVLAP Lab Code:600106-0).

Test Report

Test Flow 1 : Integrating Sphere Test

Environmental Conditions

Temperature: 25.1℃

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-PE005	2-meter Integrating Sphere	Before Use	Before Use
GVS-LE-FS025	Measurement Standard Lamp	2015-06-17	2016-06-16

Test Sample

2270259-S1

Test Method

The sample was tested according to the IES LM-79-2008.
Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º 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.

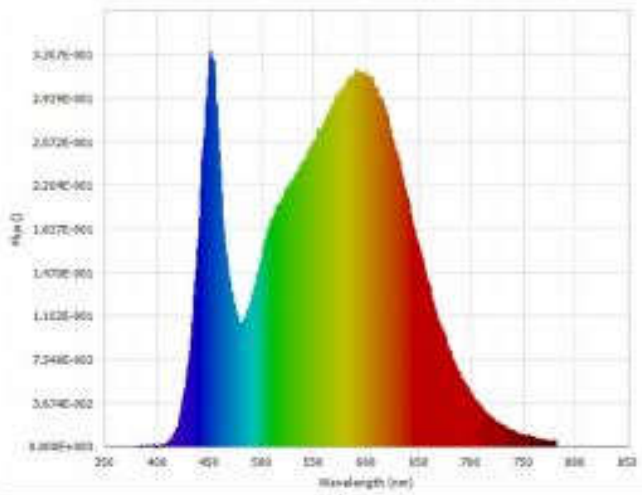
Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power(W)
Input	120.01	60	1.326	0.998	158.7

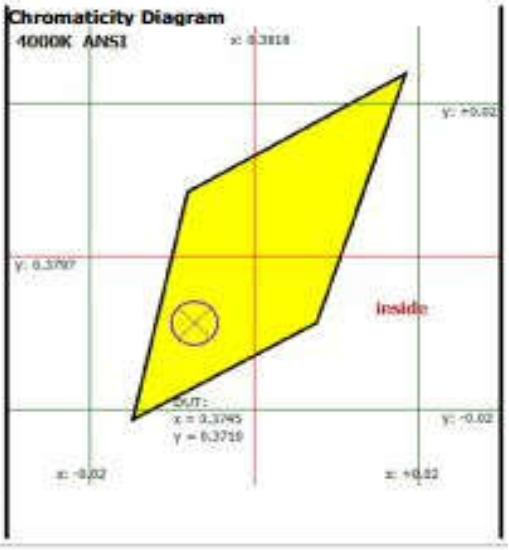
Test Type	CCT (K)	CRI	Lumen Output (lm)	Luminous Efficacy (lm/W)
Output	4121	84	18520	116.7

Test Report

Spectral Flux Graph



Chromaticity Diagram



Spectral Result

Radiant Flux Φ	57.47 (W)	Luminous Flux Φ(v)	18520.10 (lm)
Φ(v')	32194.19 (lm')	Chrom x	0.3745
Chrom y	0.3710	Chrom u	0.2235
Chrom v	0.3321	Duv	-0.001
Chrom u'	0.2235	Chrom v'	0.4981
λ (peak)	450.4 (nm)	λ (center)	450.7 (nm)
λ (centroid)	561.6 (nm)	λ (dom)	579.2 (nm)
FWHM	27.5 (nm)	Purity	23.7 (%)
CCT	4121.0 (K)	Luminous Efficacy η	116.68 (lm/W)
SDCM	N/A	Ra	84.25
R1	82.7	R2	90.0
R3	94.9	R4	83.4
R5	83.1	R6	86.0
R7	86.7	R8	67.2
R9	14.9	R10	76.2
R11	82.4	R12	67.6
R13	84.5	R14	97.4
R15	77.4	DUT Current	1.3258 (A)
DUT Voltage	120.0100 (V)	DUT PF	0.9976
DUT Power	158.7200 (W)	DUT Freq	60.0 (Hz)
DUT THD	4.8 (%)	DUT Comments:	N/A
Date/Time	2015/12/17 10:51:19		

Test Flow 2: Goniophotometer Test

Environmental Conditions

Temperature: 25.1 º C

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-GS001	Goniophotometer	Before Use	Before Use
GVS-LE-FS009	Measurement Standard Lamp	2015-08-22	2016-08-21

Test Sample

2270259-S1

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^{o} vertical intervals and 22.5^{o} horizontal intervals.

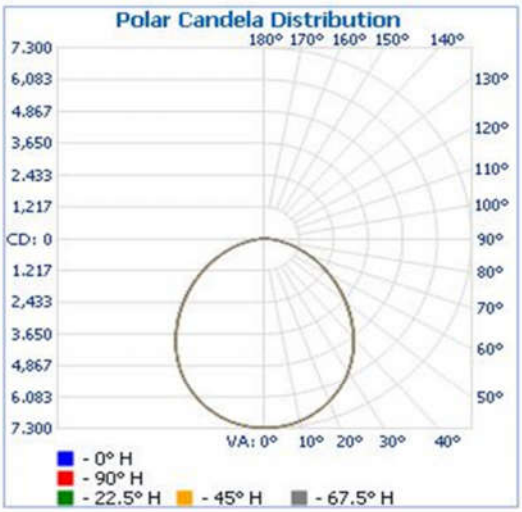
Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	120.01	60	1.326	0.998	158.7

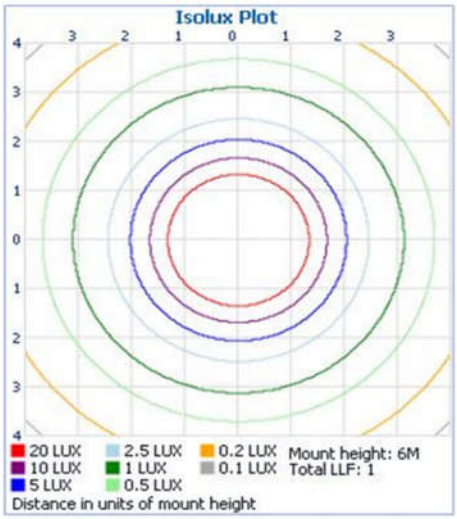
Test Type	Lumen Output (lm)	Center Beam Candle Power (cd)	Field angle (10%)		Beam angle (50%)		Luminous Efficacy (lm/W)
			Horizontal Spread	Vertical Spread	Horizontal Spread	Vertical Spread	
Output	18374	7279	156.4	155.9	100.9	101.5	115.8

Illuminance at a Distance

Polar Candela Distribution



Isolux Plot



Zonal Lumen Tabulation

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	5,544.8	30.2%
0-40	8,922.6	48.6%
0-60	15,031.5	81.8%
60-90	3,317.4	18.1%
70-100	1,343.8	7.3%
90-120	10.2	0.1%
0-90	18,348.9	99.9%
90-180	27.4	0.1%
0-180	18,376.3	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	173.6	0.9%	90-95	3.2	0%
5-10	514.0	2.8%	95-100	1.1	0%
10-15	833.8	4.5%	100-105	0.9	0%
15-20	1,119.5	6.1%	105-110	1.5	0%
20-25	1,360.1	7.4%	110-115	1.4	0%
25-30	1,543.9	8.4%	115-120	2.0	0%
30-35	1,663.3	9.1%	120-125	2.2	0%
35-40	1,714.5	9.3%	125-130	1.9	0%
40-45	1,697.6	9.2%	130-135	2.1	0%
45-50	1,617.6	8.8%	135-140	2.1	0%
50-55	1,484.3	8.1%	140-145	2.0	0%
55-60	1,309.4	7.1%	145-150	1.8	0%
60-65	1,102.2	6.0%	150-155	1.7	0%
65-70	875.6	4.8%	155-160	1.5	0%
70-75	642.9	3.5%	160-165	1.0	0%
75-80	416.3	2.3%	165-170	0.6	0%
80-85	217.2	1.2%	170-175	0.2	0%
85-90	63.1	0.3%	175-180	0.1	0%

Intensity Data(cd)

	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	7279	7279	7279	7279	7279	7279	7279	7279	7279	7279	7279	7279	7279	7279	7279	7279	7279
1	7266	7279	7283	7283	7273	7283	7283	7279	7266	7279	7283	7283	7273	7283	7283	7279	7266
2	7273	7270	7276	7273	7286	7273	7276	7270	7273	7270	7276	7273	7286	7273	7276	7270	7273
3	7260	7263	7266	7260	7266	7260	7266	7263	7260	7263	7266	7260	7266	7260	7266	7263	7260
4	7240	7250	7257	7257	7260	7257	7257	7250	7240	7250	7257	7257	7260	7257	7257	7250	7240
5	7234	7243	7243	7234	7240	7234	7243	7243	7234	7243	7243	7234	7240	7234	7243	7243	7234
6	7214	7224	7227	7230	7227	7230	7227	7224	7214	7224	7227	7230	7227	7230	7227	7224	7214
7	7194	7194	7201	7204	7214	7204	7201	7194	7194	7194	7201	7204	7214	7204	7201	7194	7194
8	7175	7184	7184	7178	7181	7178	7184	7184	7175	7184	7184	7178	7181	7178	7184	7184	7175
9	7149	7135	7148	7148	7161	7148	7161	7161	7149	7162	7161	7175	7161	7148	7161	7161	7149
10	7129	7125	7135	7129	7129	7129	7135	7125	7129	7125	7135	7129	7129	7129	7135	7125	7129
11	7096	7089	7093	7086	7096	7086	7093	7089	7096	7089	7093	7086	7096	7086	7093	7089	7096
12	7050	7057	7056	7053	7057	7053	7056	7057	7050	7057	7056	7053	7057	7053	7056	7057	7050
13	7005	7021	7024	7020	7037	7020	7024	7021	7005	7021	7024	7020	7037	7020	7024	7021	7005
14	6978	6975	6978	6971	6971	6971	6978	6975	6978	6975	6978	6971	6971	6971	6978	6975	6978
15	6933	6932	6929	6915	6925	6915	6929	6932	6933	6932	6929	6915	6925	6915	6929	6932	6933
16	6880	6877	6886	6886	6879	6886	6886	6877	6880	6877	6886	6886	6879	6886	6886	6877	6880
17	6821	6827	6834	6824	6840	6824	6834	6827	6821	6827	6834	6824	6840	6824	6834	6827	6821
18	6769	6775	6778	6774	6775	6774	6778	6775	6769	6775	6778	6774	6775	6774	6778	6775	6769
19	6716	6726	6715	6712	6709	6712	6715	6726	6716	6726	6715	6712	6709	6712	6715	6726	6716
20	6658	6657	6660	6647	6663	6647	6660	6657	6658	6657	6660	6647	6663	6647	6660	6657	6658
25	6317	6316	6315	6309	6315	6309	6315	6316	6317	6316	6315	6309	6315	6309	6315	6316	6317
30	5898	5907	5906	5886	5883	5886	5906	5907	5898	5907	5906	5886	5883	5886	5906	5907	5898
35	5414	5412	5404	5401	5404	5401	5404	5412	5414	5412	5404	5401	5404	5401	5404	5412	5414
40	4884	4885	4879	4863	4840	4863	4879	4885	4884	4885	4879	4863	4840	4863	4879	4885	4884
50	3731	3725	3722	3695	3692	3695	3722	3725	3731	3725	3722	3695	3692	3695	3722	3725	3731
55	3149	3145	3125	3109	3095	3109	3125	3145	3149	3145	3125	3109	3095	3109	3125	3145	3149
60	2573	2575	2558	2522	2518	2522	2558	2575	2573	2575	2558	2522	2518	2522	2558	2575	2573
65	2003	2002	1994	1977	1974	1977	1994	2002	2003	2002	1994	1977	1974	1977	1994	2002	2003
70	1486	1487	1479	1466	1476	1466	1479	1487	1486	1487	1479	1466	1476	1466	1479	1487	1486
75	1002	1009	1003	1000	990	1000	1003	1009	1002	1009	1003	1000	990	1000	1003	1009	1002
80	563	563	577	584	597	584	577	563	563	563	577	584	597	584	577	563	563
85	223	236	239	243	236	243	239	236	223	236	239	243	236	243	239	236	223
90	26	16	23	26	26	26	23	16	26	16	23	26	26	26	23	16	26
95	0	3	0	0	0	0	0	3	0	3	0	0	0	0	0	3	0
100	0	7	0	0	0	0	0	7	0	7	0	0	0	0	0	7	0
105	0	0	3	0	0	0	3	0	0	0	3	0	0	0	3	0	0
110	0	3	3	3	0	3	3	3	0	3	3	3	0	3	3	3	0
115	7	0	3	7	0	7	3	0	7	0	3	7	0	7	3	0	7
120	0	7	3	7	10	7	3	7	0	7	3	7	10	7	3	7	0
125	0	7	0	7	10	7	0	7	0	7	0	7	10	7	0	7	0
130	13	0	0	3	0	3	0	0	13	0	0	3	0	3	0	0	13
135	7	7	7	0	0	0	7	7	7	7	7	0	0	0	7	7	7
140	13	7	10	7	10	7	10	7	13	7	10	7	10	7	10	7	13
145	7	7	7	0	7	0	7	7	7	7	7	0	7	0	7	7	7
150	0	10	7	3	7	3	7	10	0	10	7	3	7	3	7	10	0
155	13	13	13	7	7	7	13	13	13	13	13	7	7	7	13	13	13
160	13	7	13	3	0	3	13	7	13	7	13	3	0	3	13	7	13
165	7	7	10	3	7	3	10	7	7	7	10	3	7	3	10	7	7
170	0	3	3	3	7	3	3	3	0	3	3	3	7	3	3	3	0
175	7	7	3	7	0	7	3	7	7	7	3	7	0	7	3	7	7
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Test Report

Test Flow 3: THD and PF Test

Environmental Conditions

Temperature: 25.1 º C

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
122302	Power Analyzer	09/16/2015	09/15/2016

Test Sample

2270259-S1

Test Method

The samples were tested according to the ANSI C82.77-2002.
The ambient temperature condition was maintained at 25º C ± 1º C. The sample measurement was made using a digital power meter and power supply. The sample was operated at rated voltage and stabilized before measurement. The total harmonic distortion were calculated from thedigital power meter.

Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Current THD	Power (W)
Input	277.04	60	0.578	0.972	8.8%	155.7

Photos of sample

End of Test Report