



Test Report



NVLAP Lab Code: 200952-0



Verification Services

Project No. 4787241179-20
Report No. 4787241179-20a2
Report Issued Date: 2016-02-18

Customer Company & Address:			
P.Q.L., 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
Brand Name:	Superior Life®
Tested Model Number:	55213
Product Family:	55213 / 4000K 55214 / 5000K
Allowable Variations:	Different types of diffuser, clear or frosted
Electrical Specification:	120~277 V AC, 50~60 Hz, 220 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:	2016-02-04
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Tested By	Approved By
 /Jonathan Xu	 /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.



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Statement of Results

Test Flow	Test Item	Sample ID (Lab)	Pass/Fail/NA
1	Integrating Sphere Test	2270260-S1	Evaluate by customer
2	Goniophotometer Test	2270260-S1	Evaluate by customer
3	THD and PF Test	2270260-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).



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Test Flow 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	3-meter Integrating Sphere	Before Use	Before Use
GVS-LE-FS009	Measurement Standard Lamp	2015-08-22	2016-08-21

Test Sample

2270260-S1

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 Factor	Power(W)
Input	120.03	60	1.794	0.998	214.9

Test Type	CCT (K)	CRI	Lumen Output (lm)	Luminous Efficacy (lm/W)
Output	4197	84	25161	117.1



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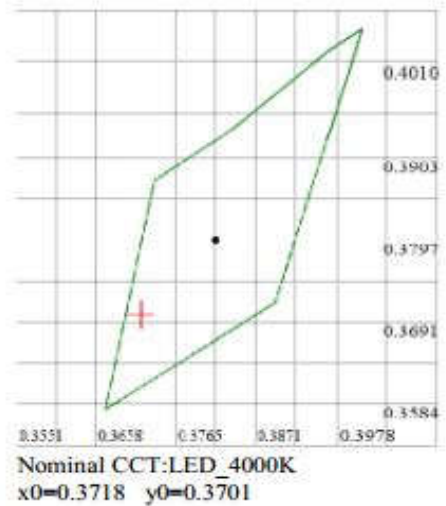
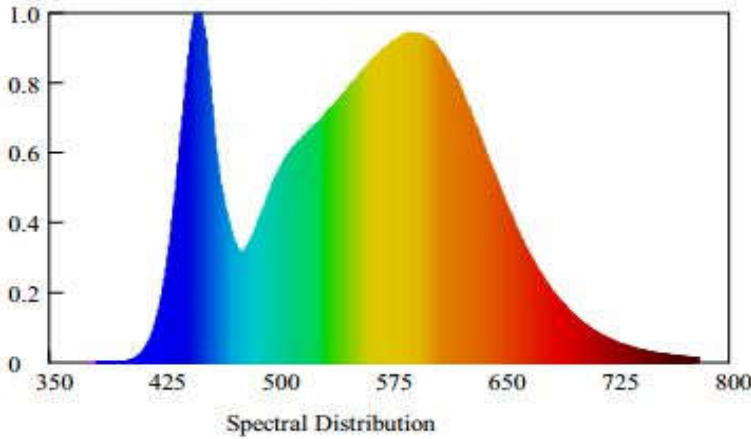
Test Report

Test Condition

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

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

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.3718$ $y=0.3701$ $u'=0.2220$ $v'=0.4973$
 Correlated Color Temperature: 4197 K Dominant Wavelength: 577.0 nm(E)
 Luminous Flux: 25161.490 lm Purity: 0.2266
 Chromaticity Difference: -0.0006Duv Peak Wavelength: 450.5 nm
 Color Ratio: Kr=37.3% Kg=52.6% Kb=10.1%
 Bandwidth: 27.4nm Radiant Flux: 80.989 W
 Rendering Index: Ra=83.8
 R1=82 R2=89 R3=95 R4=83 R5=83 R6=85 R7=87 R8=67
 R9=12 R10=75 R11=82 R12=67 R13=84 R14=97 R15=77



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Test Flow 2: Goniophotometer Test

Environmental Conditions

Temperature: 25.1 °C

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-GS003	Goniophotometer	Before Use	Before Use
GVS-LE-FS009	Measurement Standard Lamp	2015-08-22	2016-08-21

Test Sample

2270260-S1

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 Factor	Power (W)
Input	120.03	60	1.794	0.998	214.9

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	25164	9961	154.9	157.4	99.2	104.8	117.1



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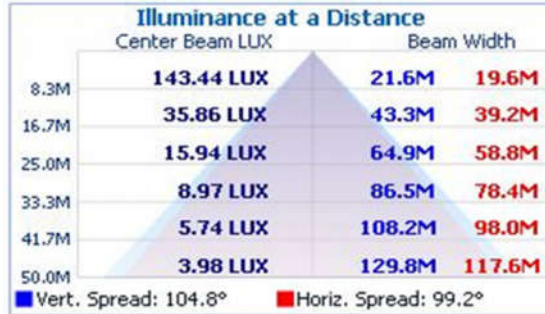
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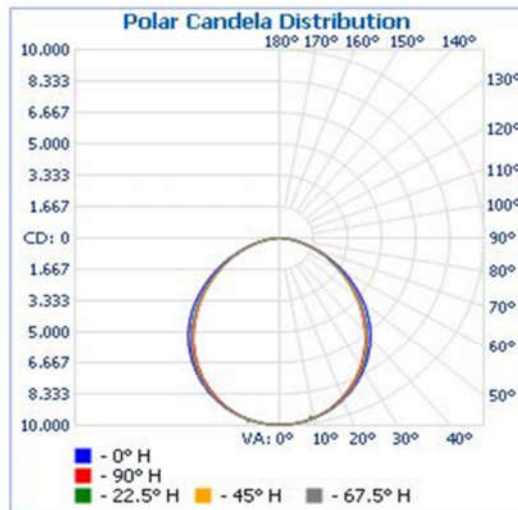
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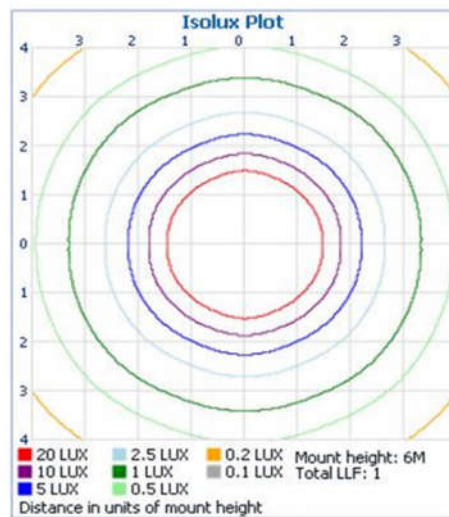
Illuminance at a Distance



Polar Candela Distribution



Isolux Plot





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Zonal Lumen Tabulation

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	7,581.3	30.1%
0-40	12,203.9	48.5%
0-60	20,547.8	81.7%
60-90	4,585.6	18.2%
70-100	1,906.5	7.6%
90-120	19.3	0.1%
0-90	25,133.5	99.9%
90-180	28.8	0.1%
0-180	25,162.3	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	237.5	0.9%	90-95	19.0	0.1%
5-10	703.1	2.8%	95-100	0.1	0%
10-15	1,140.4	4.5%	100-105	0	0%
15-20	1,531.1	6.1%	105-110	0.1	0%
20-25	1,858.9	7.4%	110-115	0.1	0%
25-30	2,110.3	8.4%	115-120	0.1	0%
30-35	2,275.2	9.0%	120-125	0.4	0%
35-40	2,347.5	9.3%	125-130	0.5	0%
40-45	2,324.2	9.2%	130-135	1.2	0%
45-50	2,213.7	8.8%	135-140	1.5	0%
50-55	2,024.6	8.0%	140-145	1.3	0%
55-60	1,781.3	7.1%	145-150	1.2	0%
60-65	1,501.1	6.0%	150-155	1.2	0%
65-70	1,197.2	4.8%	155-160	0.9	0%
70-75	884.6	3.5%	160-165	0.6	0%
75-80	581.8	2.3%	165-170	0.4	0%
80-85	306.5	1.2%	170-175	0.3	0%
85-90	114.4	0.5%	175-180	0.1	0%



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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	9961	9961	9961	9961	9961	9961	9961	9961	9961	9961	9961	9961	9961	9961	9961	9961	9961
1	9966	9952	9957	9955	9961	9955	9957	9952	9966	9952	9957	9955	9961	9955	9957	9952	9966
2	9957	9950	9959	9951	9953	9951	9959	9950	9957	9950	9959	9951	9953	9951	9959	9950	9957
3	9943	9937	9944	9943	9941	9943	9944	9937	9943	9937	9944	9943	9941	9943	9944	9937	9943
4	9934	9926	9930	9930	9925	9930	9930	9926	9934	9926	9930	9930	9925	9930	9930	9926	9934
5	9907	9902	9911	9905	9901	9905	9911	9902	9907	9902	9911	9905	9901	9905	9911	9902	9907
6	9893	9884	9891	9881	9877	9881	9891	9884	9893	9884	9891	9881	9877	9881	9891	9884	9893
7	9861	9854	9858	9854	9845	9854	9858	9854	9861	9854	9858	9854	9845	9854	9858	9854	9861
8	9838	9823	9827	9821	9812	9821	9827	9823	9838	9823	9827	9821	9812	9821	9827	9823	9838
9	9802	9624	9749	9708	9776	9783	9796	9797	9802	9917	9829	9852	9776	9783	9796	9797	9802
10	9752	9748	9746	9748	9728	9748	9746	9748	9752	9748	9746	9748	9728	9748	9746	9748	9752
11	9715	9700	9702	9705	9684	9705	9702	9700	9715	9700	9702	9705	9684	9705	9702	9700	9715
12	9679	9650	9658	9645	9628	9645	9658	9650	9679	9650	9658	9645	9628	9645	9658	9650	9679
13	9624	9599	9601	9601	9567	9601	9601	9599	9624	9599	9601	9601	9567	9601	9601	9599	9624
14	9561	9542	9542	9545	9499	9545	9542	9542	9561	9542	9542	9545	9499	9545	9542	9542	9561
15	9515	9476	9483	9475	9431	9475	9483	9476	9515	9476	9483	9475	9431	9475	9483	9476	9515
16	9451	9408	9421	9417	9370	9417	9421	9408	9451	9408	9421	9417	9370	9417	9421	9408	9451
17	9378	9343	9334	9349	9282	9349	9334	9343	9378	9343	9334	9349	9282	9349	9334	9343	9378
18	9310	9264	9263	9276	9205	9276	9263	9264	9310	9264	9263	9276	9205	9276	9263	9264	9310
19	9246	9176	9184	9194	9125	9194	9184	9176	9246	9176	9184	9194	9125	9194	9184	9176	9246
20	9164	9106	9103	9121	9037	9121	9103	9106	9164	9106	9103	9121	9037	9121	9103	9106	9164
25	8709	8641	8603	8658	8522	8658	8603	8641	8709	8641	8603	8658	8522	8658	8603	8641	8709
30	8195	8060	8032	8062	7951	8062	8032	8060	8195	8060	8032	8062	7951	8062	8032	8060	8195
35	7576	7424	7337	7406	7256	7406	7337	7424	7576	7424	7337	7406	7256	7406	7337	7424	7576
40	6925	6688	6601	6672	6520	6672	6601	6688	6925	6688	6601	6672	6520	6672	6601	6688	6925
50	5386	5078	4973	5093	4916	5093	4973	5078	5386	5078	4973	5093	4916	5093	4973	5078	5386
55	4553	4223	4175	4285	4140	4285	4175	4223	4553	4223	4175	4285	4140	4285	4175	4223	4553
60	3692	3412	3424	3488	3361	3488	3424	3412	3692	3412	3424	3488	3361	3488	3424	3412	3692
65	2882	2663	2720	2741	2641	2741	2720	2663	2882	2663	2720	2741	2641	2741	2720	2663	2882
70	2131	1994	2058	2021	1934	2021	2058	1994	2131	1994	2058	2021	1934	2021	2058	1994	2131
75	1448	1379	1424	1351	1294	1351	1424	1379	1448	1379	1424	1351	1294	1351	1424	1379	1448
80	842	824	845	772	728	772	845	824	842	824	845	772	728	772	845	824	842
85	378	368	377	331	297	331	377	368	378	368	377	331	297	331	377	368	378
90	127	114	105	76	48	76	105	114	127	114	105	76	48	76	105	114	127
95	0	2	4	2	0	2	4	2	0	2	4	2	0	2	4	2	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	4	2	0	2	4	0	0	0	4	2	0	2	4	0	0
130	0	0	4	6	0	6	4	0	0	0	4	6	0	6	4	0	0
135	9	0	2	0	0	0	2	0	9	0	2	0	0	0	2	0	9
140	5	4	2	4	6	4	2	4	5	4	2	4	6	4	2	4	5
145	0	2	9	4	6	4	9	2	0	2	9	4	6	4	9	2	0
150	9	9	2	4	0	4	2	9	9	9	2	4	0	4	2	9	9
155	9	4	9	0	0	0	9	4	9	4	9	0	0	0	9	4	9
160	5	0	0	4	6	4	0	0	5	0	0	4	6	4	0	0	5
165	0	4	7	2	0	2	7	4	0	4	7	2	0	2	7	4	0
170	5	7	9	0	0	0	9	7	5	7	9	0	0	0	9	7	5
175	0	7	2	6	0	6	2	7	0	7	2	6	0	6	2	7	0
180	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5



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Test Flow 3: THD and PF Test

Environmental Conditions

Temperature: 25.1 ° C

Test Equipment

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

Test Sample

2270260-S1

Test Method

The samples were tested according to the ANSI C82.77-2002. The ambient temperature condition was maintained at 25° C ± 1° 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 the digital power meter.

Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Current THD	Power (W)
Input	277.03	60	0.784	0.969	9.2%	210.3



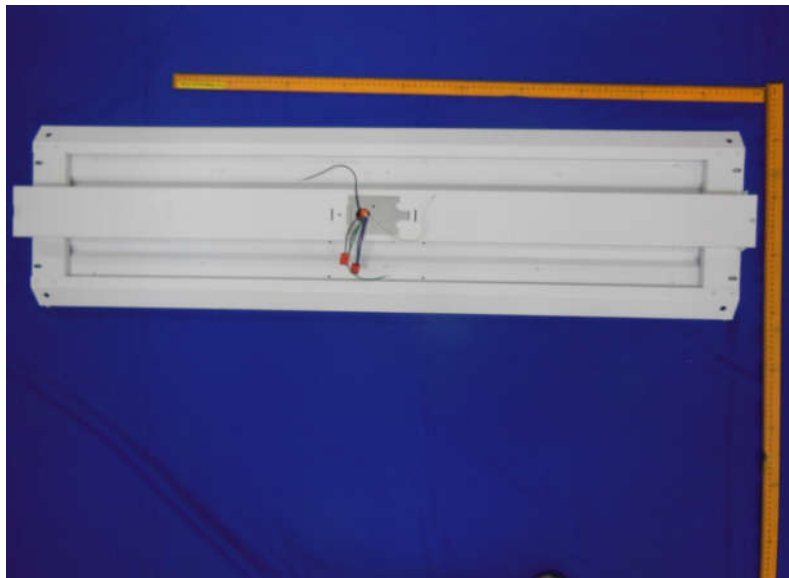
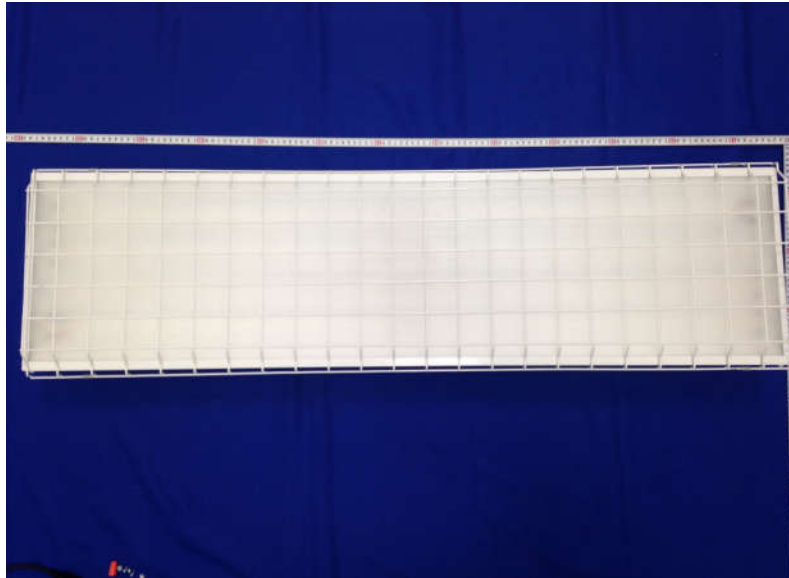
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Photos of sample



End of Test Report