



Verification Services

Project No.: 4787817257-5
Report No.: 4787817257-5a
Report Issued Date: 2017-01-04



Test Report

Customer Company & Address:	
P.Q.L., Inc. 2285 Ward Avenue Simi Valley, CA 93065	
Phone Number:	1-800-323-8107

Relevant Standards:	IES LM-79-2008
Product Description:	Luminaire Description: High Bay Luminaires for Commercial and Industrial Buildings Amount of Light Source: 144 pcs (NF2L757DRT-V1) Manufacture of Light Source: NICHIA Driver: LY96W-39-C2450-RD
Brand Name:	Superior Life®
Tested Model Number:	90414-ALU
Product Family:	N/A
Allowable Variations:	N/A
Nominal CCT	4000K
Electrical Specification:	100-277V AC, 50/60 Hz, 100 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:	2017-01-02	Test Date:	2017-01-04
-------------------------------	------------	-------------------	------------

Tested By	Approved By
 /Dendi Lin	 /Alvin Xie
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.



Verification Services

Project No.: 4787817257-5
Report No.: 4787817257-5a
Report Issued Date: 2017-01-04

Test Report

Statement of Results

Test Flow	Test Item	Sample ID (Lab)	Pass/Fail/NA
1	Integrating Sphere Test	730237-S001	Evaluate by customer
2	Goniophotometer Test	730237-S001	Evaluate by customer
3	THD and PF Test	730237-S001	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.



Verification Services

Project No.: 4787817257-5

Report No.: 4787817257-5a

Report Issued Date: 2017-01-04

Test Report

Test Flow 1 : Integrating Sphere Test

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-PE003	Integrating Sphere	Before Use	Before Use
GVS-LE-PM009	Digital Power Meter	2016-05-17	2017-05-16
GVS-LE-FS007	Measurement Standard Lamp	2016-07-29	2017-07-28

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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The reference standard lamp is 100W omni-directional Incandescent lamp and was calibrated by china seprei laboratory.

The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using 4π geometry. The self-absorption factor is applied in the final test result. 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 Conditions

Temperature	25.1°C	Orientation	Vertical
Operating Time	45 mins	Stabilization Time	40 mins

Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	119.97	60	0.792	0.997	94.7
Test Type	CCT (K)	CRI	Lumen Output (lm)	Luminous Efficacy (lm/W)	
Output	4094	74	11633	122.8	



Verification Services

Project No.: 4787817257-5
Report No.: 4787817257-5a
Report Issued Date: 2017-01-04

Test Report

Test Condition

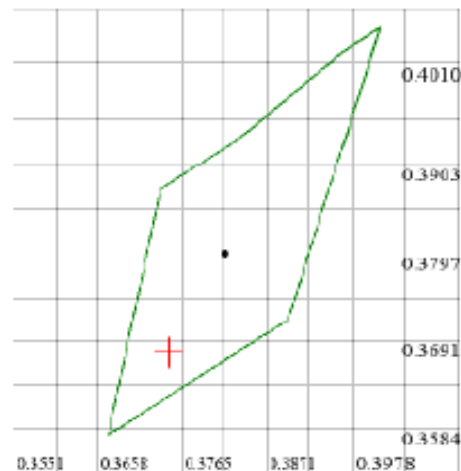
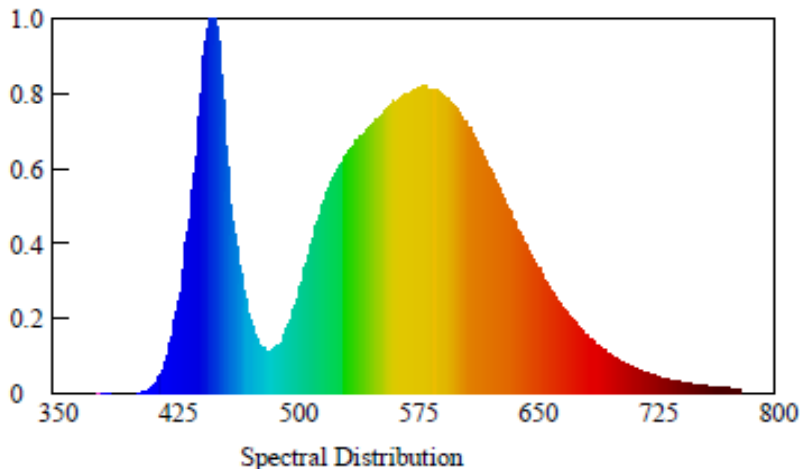
Temperature: 25.1°C

RH: ----%

Spectrum Range: 380-780 nm

Scan Step: 1 nm

Spectroradiometric Parameters



Nominal CCT:LED 4000K
x0=0.3747 y0=0.3677

Chromaticity Coordinates: $x=0.3747$ $y=0.3677$ $u'=0.2249$ $v'=0.4967$

Correlated Color Temperature: 4094 K

Dominant Wavelength: 579.0 nm(E)

Luminous Flux: 11632.970 lm

Purity: 0.2283

Chromaticity Difference: -0.0026Duv

Peak Wavelength: 451.5 nm

Color Ratio: $K_r=37.2\%$ $K_g=56.1\%$ $K_b=6.7\%$

Bandwidth: 22.9nm

Radiant Flux: 31.468 W

Rendering Index: $R_a=73.5$

R1=72 R2=80 R3=84 R4=72 R5=70 R6=70 R7=82 R8=57

R9=-17 R10=50 R11=66 R12=41 R13=74 R14=91 R15=68



Verification Services

Project No.: 4787817257-5

Report No.: 4787817257-5a

Report Issued Date: 2017-01-04

Test Report

Test Flow 2: Goniophotometer Test

Environmental Conditions

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-GS001	Goniophotometer	Before Use	Before Use
GVS-LE-PE007	Digital Power Meter	2016-05-17	2017-05-16
GVS-LE-FS007	Measurement Standard Lamp	2016-07-29	2017-07-28

Test Method

The sample was tested according to the IES LM-79-2008.
 The samples were tested fully and properly mounted in the troffer, Lithonia 2SP8 lensed 2x2.
 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 reference standard lamp is 100W omni-directional Incandescent lamp and was calibrated by china seprei laboratory.
 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 1° vertical intervals and 22.5° horizontal intervals. Photometric distance was more than five times of the largest dimension of the test SSL product.

Test Conditions

Temperature	25.1°C	Orientation	Vertical
Operating Time	1 hour 45 mins	Stabilization Time	45 mins

Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	120.05	60	0.802	0.996	95.9
Test Type	Lumen Output (lm)	Center Beam Candle Power (cd)	Zonal Lumen Distribution		Luminous Efficacy (lm/W)
			20-50°		
Output	11540	7968	57.5%		120.3

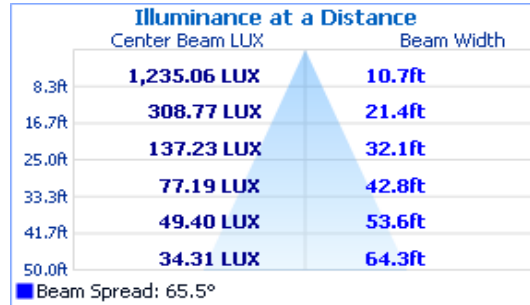


Verification Services

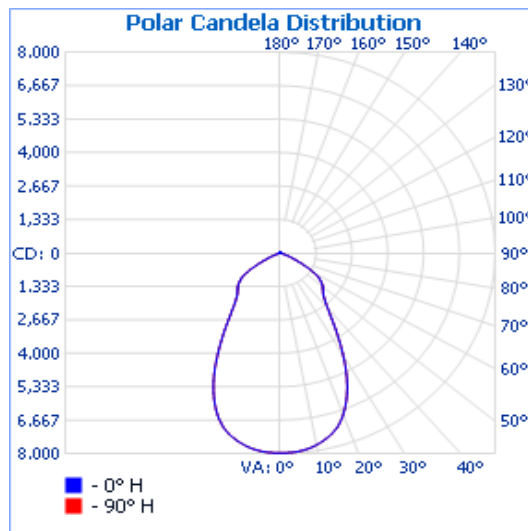
Project No.: 4787817257-5
Report No.: 4787817257-5a
Report Issued Date: 2017-01-04

Test Report

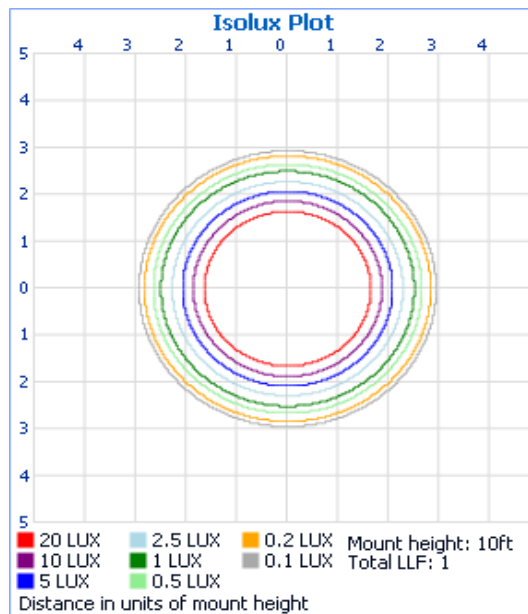
Illuminance at a Distance



Polar Candela Distribution



Isolux Plot





Verification Services

Project No.: 4787817257-5

Report No.: 4787817257-5a

Report Issued Date: 2017-01-04

Test Report

Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	5,509.9	47.7%
0-40	7,703.0	66.8%
0-60	10,995.8	95.3%
60-90	532.5	4.6%
70-100	10.5	0.1%
90-120	2.1	0%
0-90	11,528.3	99.9%
90-180	11.8	0.1%
0-180	11,540.0	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	190.3	1.6%	90-95	0.2	0%
5-10	562.2	4.9%	95-100	0.2	0%
10-15	903.0	7.8%	100-105	0.3	0%
15-20	1,181.3	10.2%	105-110	0.4	0%
20-25	1,338.1	11.6%	110-115	0.5	0%
25-30	1,335.0	11.6%	115-120	0.6	0%
30-35	1,187.4	10.3%	120-125	0.8	0%
35-40	1,005.6	8.7%	125-130	0.9	0%
40-45	896.9	7.8%	130-135	1.0	0%
45-50	869.8	7.5%	135-140	1.1	0%
50-55	835.3	7.2%	140-145	1.1	0%
55-60	690.8	6.0%	145-150	1.1	0%
60-65	391.1	3.4%	150-155	1.0	0%
65-70	131.3	1.1%	155-160	0.9	0%
70-75	8.9	0.1%	160-165	0.7	0%
75-80	0.6	0.0%	165-170	0.5	0%
80-85	0.4	0.0%	170-175	0.3	0%
85-90	0.3	0.0%	175-180	0.1	0%



Verification Services

Project No.: 4787817257-5

Report No.: 4787817257-5a

Report Issued Date: 2017-01-04

Test Report

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	7968	7968	7968	7968	7968	7968	7968	7968	7968	7968	7968	7968	7968	7968	7968	7968	7968
1	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967
2	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967	7967
3	7965	7965	7965	7965	7965	7965	7965	7965	7965	7965	7965	7965	7965	7965	7965	7965	7965
4	7956	7956	7956	7956	7956	7956	7956	7956	7956	7956	7956	7956	7956	7956	7956	7956	7956
5	7940	7940	7940	7940	7940	7940	7940	7940	7940	7940	7940	7940	7940	7940	7940	7940	7940
6	7917	7917	7917	7917	7917	7917	7917	7917	7917	7917	7917	7917	7917	7917	7917	7917	7917
7	7889	7889	7889	7889	7889	7889	7889	7889	7889	7889	7889	7889	7889	7889	7889	7889	7889
8	7856	7856	7856	7856	7856	7856	7856	7856	7856	7856	7856	7856	7856	7856	7856	7856	7856
9	7818	7818	7818	7818	7818	7818	7818	7818	7818	7818	7818	7818	7818	7818	7818	7818	7818
10	7769	7769	7769	7769	7769	7769	7769	7769	7769	7769	7769	7769	7769	7769	7769	7769	7769
11	7718	7718	7718	7718	7718	7718	7718	7718	7718	7718	7718	7718	7718	7718	7718	7718	7718
12	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660
13	7597	7597	7597	7597	7597	7597	7597	7597	7597	7597	7597	7597	7597	7597	7597	7597	7597
14	7526	7526	7526	7526	7526	7526	7526	7526	7526	7526	7526	7526	7526	7526	7526	7526	7526
15	7448	7448	7448	7448	7448	7448	7448	7448	7448	7448	7448	7448	7448	7448	7448	7448	7448
16	7359	7359	7359	7359	7359	7359	7359	7359	7359	7359	7359	7359	7359	7359	7359	7359	7359
17	7258	7258	7258	7258	7258	7258	7258	7258	7258	7258	7258	7258	7258	7258	7258	7258	7258
18	7134	7134	7134	7134	7134	7134	7134	7134	7134	7134	7134	7134	7134	7134	7134	7134	7134
19	7004	7004	7004	7004	7004	7004	7004	7004	7004	7004	7004	7004	7004	7004	7004	7004	7004
20	6851	6851	6851	6851	6851	6851	6851	6851	6851	6851	6851	6851	6851	6851	6851	6851	6851
25	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900
30	4655	4655	4655	4655	4655	4655	4655	4655	4655	4655	4655	4655	4655	4655	4655	4655	4655
35	3470	3470	3470	3470	3470	3470	3470	3470	3470	3470	3470	3470	3470	3470	3470	3470	3470
40	2648	2648	2648	2648	2648	2648	2648	2648	2648	2648	2648	2648	2648	2648	2648	2648	2648
45	2257	2257	2257	2257	2257	2257	2257	2257	2257	2257	2257	2257	2257	2257	2257	2257	2257
50	2059	2059	2059	2059	2059	2059	2059	2059	2059	2059	2059	2059	2059	2059	2059	2059	2059
55	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762
60	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164	1164
65	485	485	485	485	485	485	485	485	485	485	485	485	485	485	485	485	485
70	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
75	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
80	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
85	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
110	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
115	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
120	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
125	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
130	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
135	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
140	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
145	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
150	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
155	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
160	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
165	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
170	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
175	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
180	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5



Verification Services

Project No.: 4787817257-5

Report No.: 4787817257-5a

Report Issued Date: 2017-01-04

Test Report

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
GVS-LE-PE007	Digital Power Meter	2016-05-17	2017-05-16
GVS-LE-PS047	Power Supply	----	----

Test Sample

730237-S001

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	277.01	60	0.354	0.961	14.0%	94.2



Verification Services

Project No.: 4787817257-5

Report No.: 4787817257-5a

Report Issued Date: 2017-01-04

Test Report

Photos of sample



End of Test Report