

LM-79-08 Test Report

For

P.Q.L., Inc.

2285 Ward Avenue
Simi Valley, CA 93065

CANOPY

Model Name(s):

83338

83344

Representative (Tested) Model:

83344

Model Difference: All is the same construction, except CCT.

Prepare by:

Derek Lai

Engineer: Derek Lai

Date: 2018-09-10

Review by:

Vincent Yuan

Technical Lead: Vincent Yuan

Issue Date: 2018-09-14

Revised Date: N/A

Note:

1. The results contained in this report pertain only to the tested samples.
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Product Information:

Client Name:	P.Q.L., Inc.
Brand Name:	Superior Life®
Model Number:	83344
Product Type:	Parking Garage Luminaires
Rating Input:	120-277VAC, 50/60Hz, 40W
Declared CCT:	5000K
Declared Light Output:	5450lm
LED Manufacturer:	LUXEON
LED Model:	3030 2D
LED Quantity:	40 pcs

Test Information:

Standard Lamp:	Total Spectral Radiant Flux Standard Lamp, trace to NIST. 1. D908S for Gonio 2. D215S for Integrating Sphere
Date of Receipt Samples:	2018-08-20
Quantity of Receipt Samples:	1
Sample Number:	1800820004-S1

Laboratory Information:

Test Laboratory:	Dongguan New Testing Centre Co., Ltd
Laboratory Address:	3F, No. 1 the 1 st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China
Laboratory Contact Name:	Neil Zhong
Laboratory Contact E-mail:	Neil_ntc@163.com

Report Information:

Issued Date of Test Report:	2018-09-14
Revised Date of Test Report:	N/A
Test Report No.:	NTCR18090011
Remark (If applicable):	N/A

Test Specification:	
Date of Test	2018-09-06
Test Item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. THD and PF
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2017 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Color Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry

Test Methods:
<p>1. Photometric and Electrical Measurements – Light Distribution Method:</p> <p>Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at required Voltage and Frequency. It was stabilized before measurement was made. Luminous Flux, Luminaire Efficacy and Zonal Lumen were calculated from the software taken at 1° vertical intervals and 15° horizontal intervals.</p>
<p>2. Photometric and Electrical Measurements – Integrating Sphere Method:</p> <p>Photometric parameters were measured using an integrating sphere, as spectroradiometer and software. The ambient temperature condition inside the sphere was measured at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. 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 require Voltage and Frequency. It was stabilized before measurement was made. Chromaticity Coordinates, Correlated Color Temperature and Color Rendering Index were calculated from the spectral radiant flux measurements taken at least 1 nm intervals over the rage of 380 to 780 nm.</p>
<p>3. THD and PF Measurements:</p> <p>The sample was tested according to the ANSI C82.77-2002, the sample was operated at requirement Voltage and Frequency, and was stabilized before measurement. The Total Harmonic Distortion was calculated from the Digital Power Meter.</p>

Integrating Sphere Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
25.0	41.0	Face Down	90	10

Electrical Data:

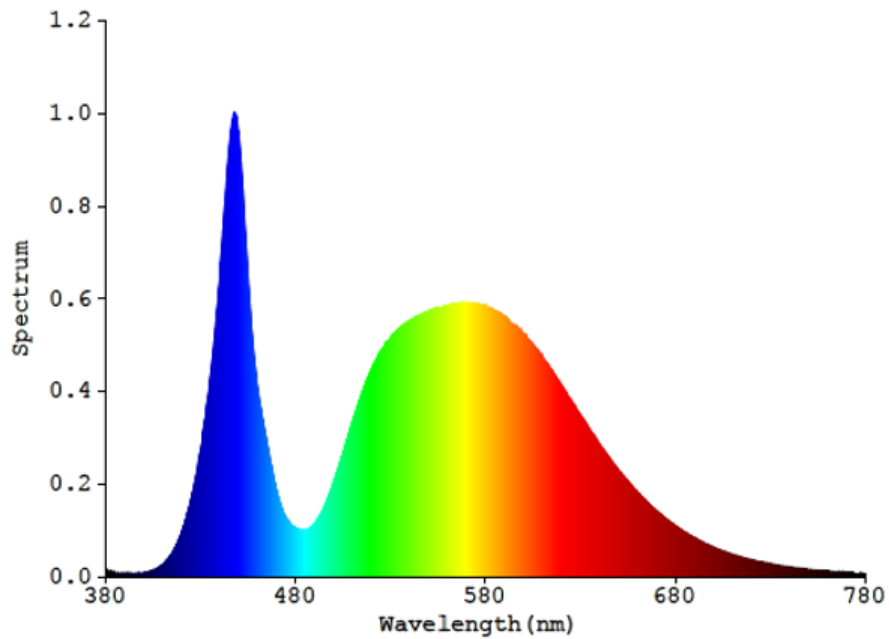
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.3406	40.18	0.9832

Color Data:

Parameter	Result
CCT(K)	5050
Color Rendering Index (CRI)	72.8
R9	-21
Chromaticity, x	0.3438
Chromaticity, y	0.3520
Chromaticity, u'	0.2104
Chromaticity, v'	0.4847
Duv	0.00068

Special Color Rendering			
R1	71	R9	-21
R2	77	R10	44
R3	80	R11	72
R4	74	R12	45
R5	72	R13	71
R6	68	R14	88
R7	80	R15	67
R8	60	-	-

Spectrum Diagram:



Goniophotometer Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
25.0	41.0	Face Down	90	25

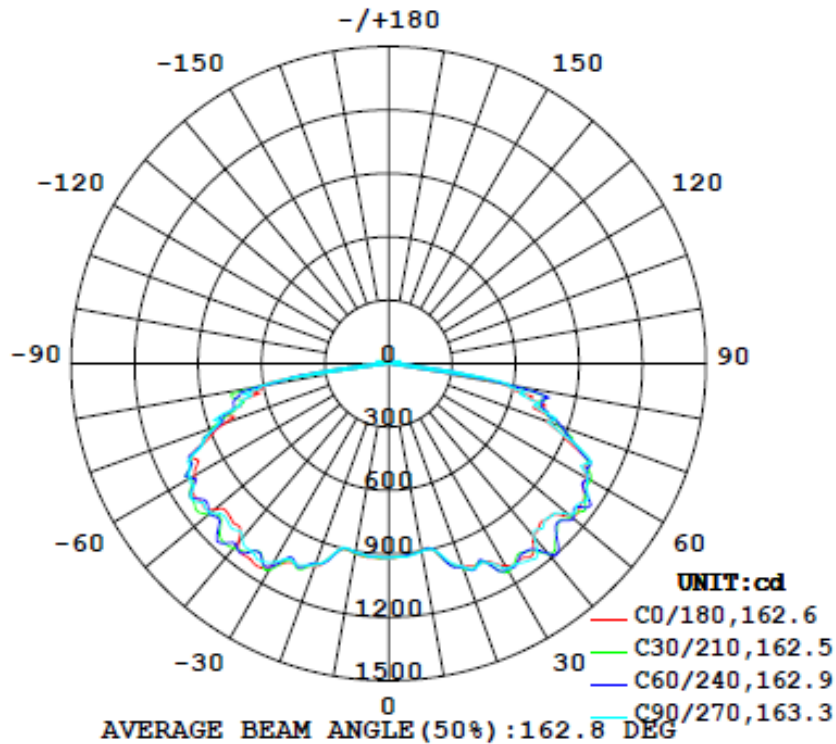
Electrical Data:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	0.3406	40.18	0.9832

Goniophotometer Data:

Parameter	Results
Total Luminous (lm)	5465.37
Total Luminous per foot (lm/t)	N/A
Luminous Efficacy (lm/w)	136.02
Zonal Lumens Distribution (60-80°)	32.6%
Zonal Lumens Distribution (70-80°)	14.6%
Beam Angle (°)	162.8

Luminous Intensity Distribution Diagram:



Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	@ zone	@ total	lum, lamp
10	897.4	900.1	902.8	907.7	912.2	908.3	904.4	895.3	0- 10	86.92	86.92	1.59,1.59
20	1023	1026	1022	1011	1020	1008	1011	1003	10- 20	268.9	355.8	6.51,6.51
30	1104	1114	1120	1116	1109	1098	1085	1088	20- 30	488.7	844.5	15.5,15.5
40	1065	1146	1068	1160	1105	1150	1075	1129	30- 40	699.0	1543	28.2,28.2
50	1122	1100	1113	1103	1074	1101	1097	1111	40- 50	864.9	2408	44.1,44.1
60	1078	1074	1081	1078	1060	1086	1081	1064	50- 60	995.7	3404	62.3,62.3
70	796.3	868.4	802.0	854.3	824.5	848.6	866.5	861.6	60- 70	987.4	4391	80.4,80.4
80	544.3	633.3	580.5	649.1	613.5	630.2	613.7	635.2	70- 80	795.6	5187	94.9,94.9
90	26.94	28.41	31.06	31.42	35.23	35.02	34.45	25.05	80- 90	242.6	5430	99.3,99.3
100	2.372	0.4344	38.80	0.3172	1.417	0.3308	27.83	0.3410	90-100	7.307	5437	99.5,99.5
110	0	3.787	32.28	3.935	0	4.058	32.95	3.483	100-110	16.53	5454	99.8,99.8
120	0	1.863	11.08	1.769	0	1.740	10.49	1.511	110-120	7.226	5461	99.9,99.9
130	0	0.4064	10.21	0.4861	0	0.5470	9.204	0.2533	120-130	3.751	5464	100,100
140	0	0.0553	1.002	0.0539	0	0.0626	1.265	0.0591	130-140	0.8438	5465	100,100
150	0.0000	0.0145	0.0096	0.0036	0.0224	0.0314	0.0090	0.0267	140-150	0.0242	5465	100,100
160	0	0	0	0	0.0142	0.0059	0.0050	0.0221	150-160	0.0061	5465	100,100
170	0	0	0	0	0	0.0053	0	0.0082	160-170	0.0013	5465	100,100
180	0	0	0	0	0	0	0	0	170-180	0.0001	5465	100,100
DEG	LUMINOUS INTENSITY:cd Less than 35% Percent = 0.9 %									UNIT:lm		

Isocandela Diagram:

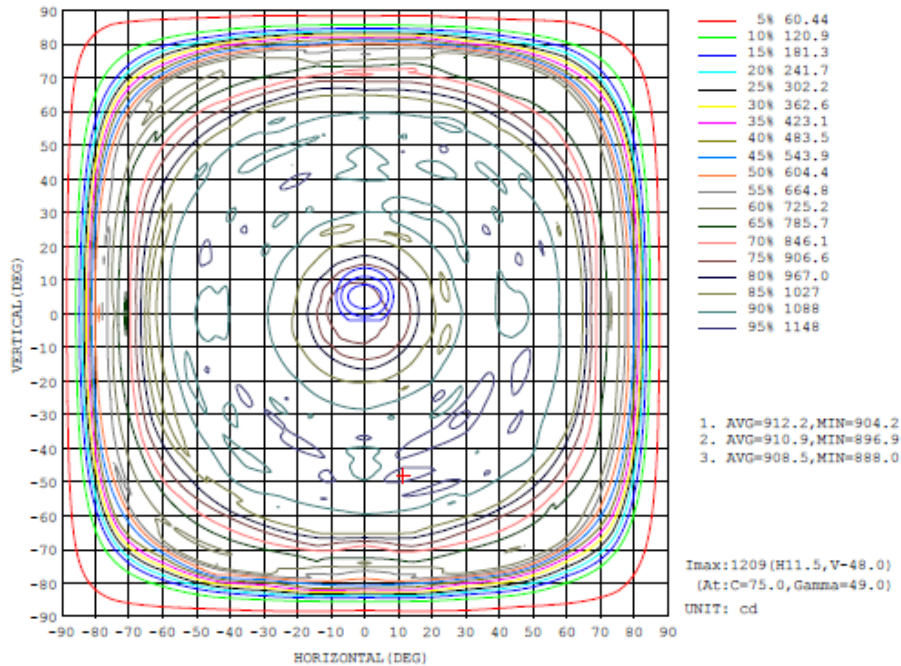
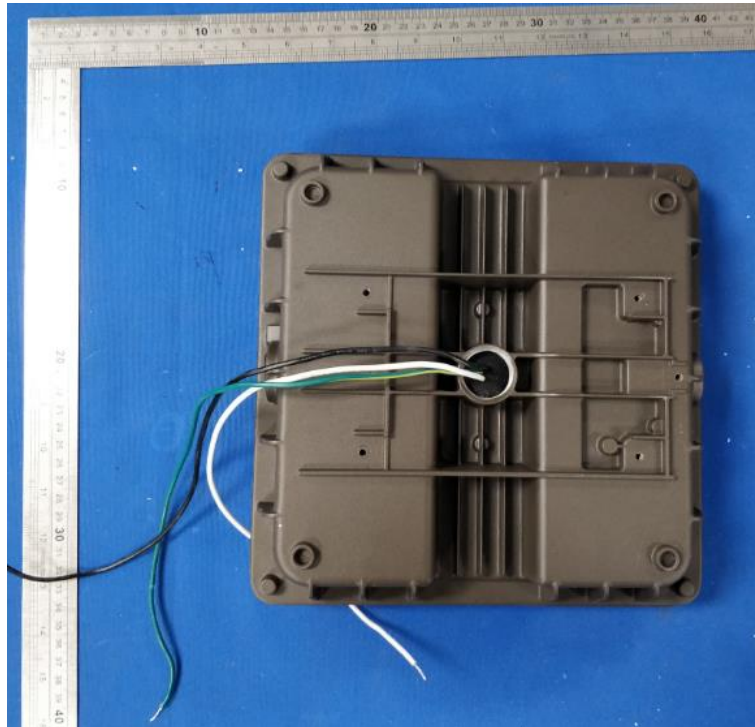
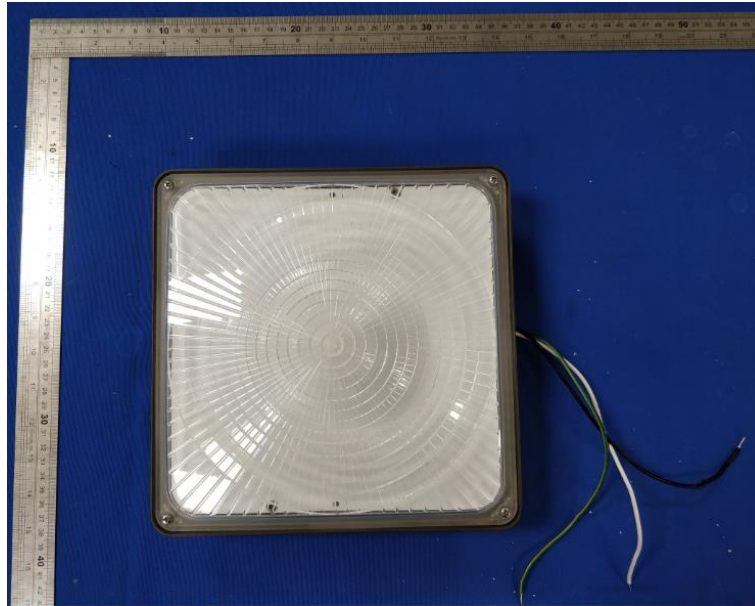


Photo of Sample:



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Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2017-11-18	2018-11-17
NTC-F01-006	2.0 meter Integrating Sphere	2017-11-18	2018-11-17
NTC-F01-012	Standard Lamp	2017-11-18	2018-11-17
NTC-F01-013	Standard Lamp	2017-11-18	2018-11-17
NTC-F01-031	Digital Power Meter	2017-11-18	2018-11-17
NTC-F01-019	Temperature & Humidity Meter	2017-11-23	2018-11-22