



Report No.: GZE1712020-C

NVLAP LAB CODE 201011-0

LM-79-08 Test Report

For

P.Q.L., Inc.

(Brand Name: Superior Life®)

2285 Ward Avenue / Simi Valley, CA 93065

Direct Linear Ambient Luminaires

Model name(s): 8701X_12W_30K, 87015, 87016

Representative (Tested) Model: 8701X_12W_30K

Model Different: All construction and rating are the same, except CCT

Test & Report By:

Bill Luo

Engineer: Bill Luo

Date: Mar.06,2018

Review By:

Univ Xie

Manager: Univ Xie

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

2.This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Laboratory: Standard-Tech Co. Ltd Testing Center

NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

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<http://www.standard-tech.com>

1.1 Product Information:

Organization Name	P.Q.L., Inc.	
Brand Name		
Model Number	8701X_12W_30K, 87015, 87016	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Direct Linear Ambient Luminaires	
Rated Voltage / Frequency	120Vac, 50/60 Hz	
Nominal Power	12W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,4000K,5000K	
LED Manufacturer	ShenZhen JuFei Optoelectronics Co., Ltd.	
LED Model	2835 White SMD LED	
Sample Number	GZE1712020-C1(3000K)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s
Photo		
		

1.2 Test Specifications:

Date of Receipt	Dec.24,2017
Date of Test	Dec.26,2017
Test item	<ol style="list-style-type: none"> 1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Electrical Parameters
Reference Standard	<ol style="list-style-type: none"> 1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	QD25

1.3 Test Methods

1) Photometric and Light Distribution Measurement – Goniophotometer Method:

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 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1 ° vertical intervals and 22.5 ° horizontal intervals.

2) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.

2.1 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction QD25)

Test date	2017-12-26	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	8701X_12W_30K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE171202 0-C1	120.0	60	0.0961	11.21	0.9725	16.13
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Photometric Measurement – Goniophotometer Method:

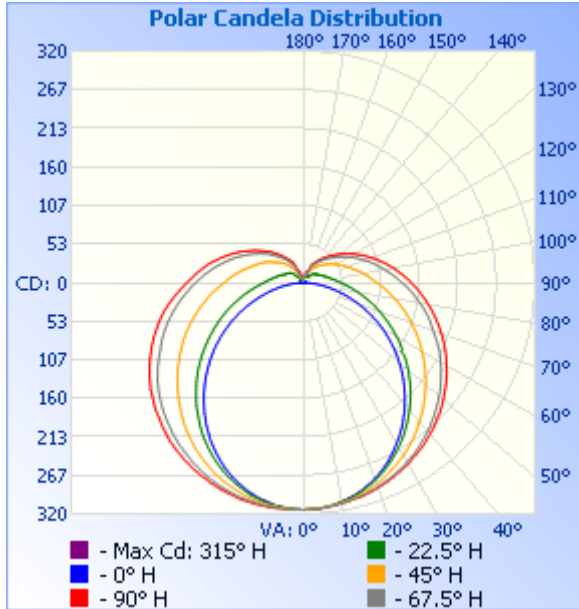
Parameter	Result	DLC V4.0 Pass Criteria	
Test Voltage (V)	120.0	--	
Frequency (Hz)	60		
Total Luminous (lm)	1486.1	--	
Total Luminous (lm)/Total Length(ft)	377.2	>=375lm/ft(-10%)	
Luminous Efficacy (lm/W)	132.57	Standard: >= 105(-3%)	Premium: >= 130(-3%)
Zonal lumens in the 0-60 °zone (%)	51.9	>= 40(-3)	
Beam Angle (°)	142.1	--	
Center Beam Candle Power (cd)	314	--	

Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	247.8	16.7%
0-40	412.1	27.7%
0-60	771.0	51.9%
60-90	418.4	28.1%
70-100	343.1	23.1%
90-120	212.0	14.3%
0-90	1,189.4	80%
90-180	296.8	20%
0-180	1,486.2	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	29.8	2.0%	90-100	89.4	6%
10-20	85.8	5.8%	100-110	70.0	4.7%
20-30	132.2	8.9%	110-120	52.6	3.5%
30-40	164.3	11.1%	120-130	37.4	2.5%
40-50	179.8	12.1%	130-140	24.2	1.6%
50-60	179.1	12.1%	140-150	14.0	0.9%
60-70	164.7	11.1%	150-160	6.3	0.4%
70-80	140.6	9.5%	160-170	2.3	0.2%
80-90	113.1	7.6%	170-180	0.5	0%

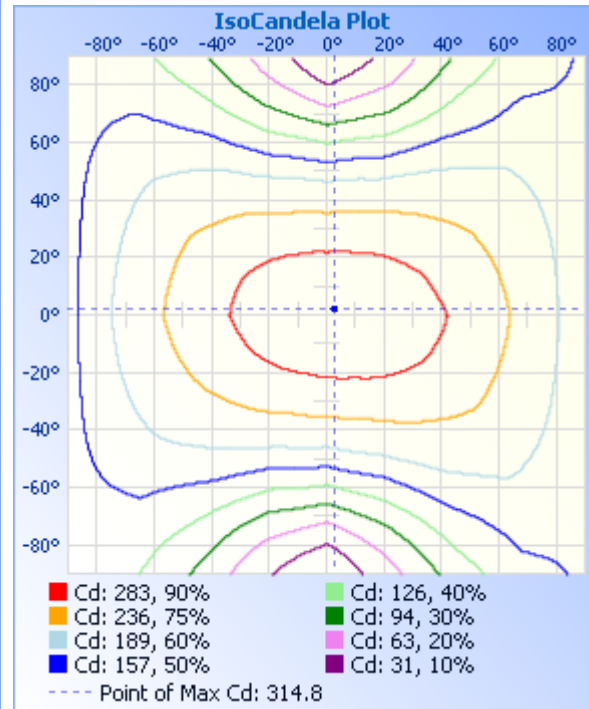
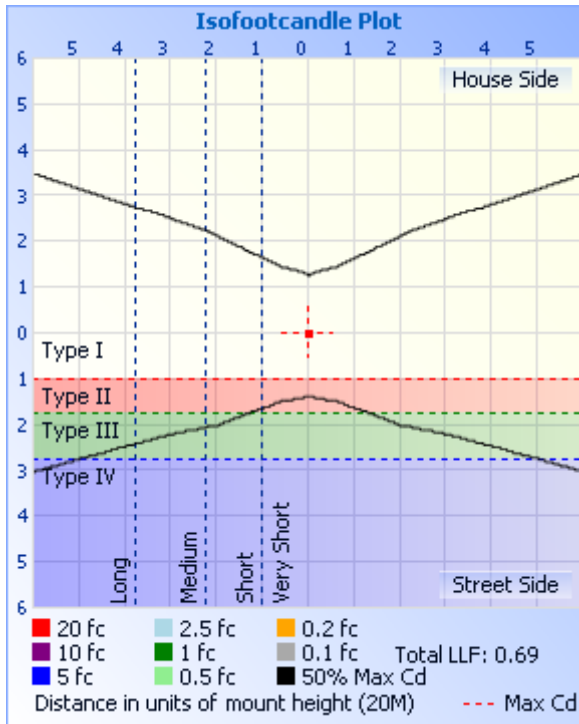
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
3.33M	2.62 fc	8.99 M	6.61 M
6.67M	0.66 fc	17.98 M	13.20 M
10.00M	0.29 fc	26.98 M	19.81 M
13.33M	0.16 fc	35.96 M	26.41 M
16.67M	0.10 fc	44.96 M	33.02 M
20.00M	0.07 fc	53.95 M	39.62 M

■ Vert. Spread: 106.9°
■ Horiz. Spread: 89.5°



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Table--1

UNIT: cd

C (DEG) \ γ (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338
0	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314
5	314	314	315	314	313	312	312	312	313	312	312	312	312	312	312	314
10	313	313	312	309	307	308	309	310	310	309	308	307	306	308	310	313
15	312	310	307	302	300	301	304	306	307	304	301	298	298	300	305	310
20	309	306	300	291	288	291	296	300	302	298	292	286	286	290	298	306
25	305	299	291	279	275	278	287	294	296	290	281	272	271	277	290	301
30	299	292	279	265	257	263	276	286	290	281	269	257	254	263	280	293
35	293	283	266	247	239	246	264	278	282	270	255	239	235	246	268	286
40	286	273	252	229	218	228	250	268	273	259	240	220	213	228	255	277
45	277	262	237	209	196	209	236	257	263	247	224	200	191	209	241	267
50	267	250	221	188	174	190	221	244	252	234	208	179	168	190	226	256
55	257	238	205	167	150	165	205	232	241	222	191	157	144	169	212	245
60	244	225	189	145	126	149	189	219	229	208	175	135	120	149	196	232
65	232	211	173	124	101	129	174	205	216	195	159	114	94.9	129	181	217
70	219	197	156	103	77.0	110	159	191	203	181	143	93.8	70.9	111	166	205
75	206	183	140	84.4	53.7	92.6	143	178	189	168	127	75.8	48.6	93.8	151	191
80	191	169	125	67.5	33.2	77.1	129	164	176	155	114	60.0	28.9	78.6	136	176
85	175	156	112	53.2	16.0	63.1	115	150	162	142	100	46.6	12.7	65.0	122	162
90	161	143	98.4	42.1	4.56	52.1	102	136	149	129	88.6	36.7	3.28	54.3	109	149
95	148	130	88.8	34.0	2.33	43.8	91.2	124	137	118	79.0	29.6	2.68	46.3	98.6	136
100	136	118	79.2	28.9	2.27	37.3	81.5	112	124	107	70.8	25.1	2.68	40.5	88.5	123
105	123	107	70.7	25.2	2.33	32.4	72.6	101	112	95.9	63.1	21.6	2.63	35.5	78.9	111
110	111	95.8	63.1	22.0	2.38	28.4	64.4	90.5	101	86.3	55.9	19.6	2.68	31.6	70.9	100
115	99.2	86.1	56.0	19.1	2.33	25.0	57.5	80.8	90.0	77.3	49.4	18.0	2.68	27.4	64.0	89.6
120	88.2	76.3	49.8	18.9	2.38	22.6	51.0	71.7	79.8	68.3	43.5	16.8	2.48	25.7	56.9	79.5
125	77.7	67.2	44.0	17.7	2.48	20.5	44.8	62.5	69.9	59.9	38.9	16.0	2.43	23.1	49.1	70.2
130	67.9	59.1	36.8	11.6	2.18	19.0	39.3	54.2	60.7	52.1	34.3	11.2	2.43	19.9	43.6	61.2
135	58.8	50.9	33.9	9.91	2.12	13.1	34.3	47.2	52.5	45.7	30.4	10.7	2.48	12.6	38.1	52.1
140	50.0	43.2	28.5	7.91	2.12	11.9	29.4	40.4	44.8	39.6	26.7	10.3	2.48	10.3	31.1	44.6
145	42.3	37.3	22.1	6.60	2.12	10.6	24.8	34.3	38.0	33.6	24.2	9.90	2.58	7.86	24.5	37.4
150	35.3	30.1	11.9	6.35	2.12	9.44	15.9	28.8	31.8	29.0	16.2	9.70	2.99	6.80	12.3	29.3
155	28.8	16.6	10.4	6.00	2.43	8.27	13.6	18.4	25.7	21.1	14.7	9.45	3.49	5.75	10.1	14.8
160	16.8	11.4	8.90	5.95	2.73	7.91	11.4	13.7	15.9	14.9	12.8	8.85	4.40	4.08	8.18	10.2
165	12.4	8.06	7.54	5.26	3.29	6.61	8.96	10.6	12.3	11.7	10.5	8.20	4.65	3.88	6.95	8.26
170	8.38	6.12	6.63	4.40	3.64	4.95	7.59	7.86	8.62	8.46	8.44	6.90	4.40	3.83	4.98	6.93
175	4.18	4.55	4.35	3.90	3.94	4.09	4.63	4.90	4.87	4.63	4.70	4.35	4.09	3.99	3.91	4.28
180	2.13	3.42	3.64	3.70	3.94	3.63	3.56	3.82	1.97	1.99	3.49	3.65	3.84	3.98	3.81	3.72

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
EE-09	Goniophotometer system	2017-07-01	2018-06-30
D908S	Standard Lamp	2017-07-01	2018-06-30
PF210	Power Meter for Goniophotometer	2017-07-01	2018-06-30
ST-R-181A	Temperature Tester	2017-07-01	2018-06-30
Uncertainty: Photometric Measurement(Goniophotometer):1.62%			

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