Ningbo TengLi Testing Co., Ltd

2nd floor, Block B, Ningbo Testing and Certification Base, No. 66
Qingyi Road, Ningbo National Hi-Tech Zone, Ningbo, Zhejiang
Tel: 86574-8783 6802
Fax: 86574-8783 5902

LM-79-08 Test Report

For

P.Q.L., Inc.

(Brand Name: Superior Life®)

2285 Ward Avenue / Simi Valley, CA 93065

Model name(s):
88632

Report Type:	Testing and Report According to IES LM-79-2008
Type of Luminaire:	LED Vaporproof Jelly Jar
Report Date:	2020-05-27
Prepared By:	Ningbo TengLi Testing Co., Ltd 2nd floor, Block B, Ningbo Testing and Certification Base, No. 66 Qingyi Road, Ningbo National Hi-Tech Zone, Ningbo, Zhejiang

Test & Report By:

Xeon Ren

Engineer: Xeon Ren

Review By:

Johnson Sun

Manager: Johnson Sun

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 A2LA or any agency of the Federal Government.

1.1 Product Information:		
Model Number	88632	
Remark	N/A	
Representative (Tested) Model	88632	
Model Difference	N/A	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Vaporproof Jelly Jar	
LED Manufacturer	ShenZhen JuFei Optoelectronics Co., Ltd.	
LED Model	01.JT.DG2835W80P03	
Dimming	N/A	
Sample Number	STD200539NB-A1	
Date of Receipt	May.08, 2020	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

1.2 Rated Values:	
Rated Voltage / Frequency	120-277Vac,60 Hz
Nominal Power	14W
Rated Initial Lamp Lumen	--
Declared CCT	4000K

1.3 Test Specifications:

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. Electrical Parameters
Reference Standard	1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source

1.4 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 ℃ ±1 ℃, 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, 50Hz. 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) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 ºC ±1 ºC. 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 120 or rated Volts AC, 50Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.

3) 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 ºC ±1 ºC. The sample was operated at 120 or rated Volts AC, 50Hz. 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

Test date	2020-05-09	Test Ambient:	25.0 °C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	88632	Total operating time(min)	75

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
STD200539	120.0	60	0.1180	14.00	0.9882	13.11
NB-A1	277.0	60	0.0589	14.37	0.8806	15.52

Chromaticity Measurement - Sphere-Spectroradiometer Method(Self-absorption: 1.0910) (4π geometry):

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3955
Duv	0.0022
Chromaticity (x, y)	x=0.3841 y=0.3838
Chromaticity (u', v')	u'=0.2247 v'=0.5052
Color Rendering Index (CRI)	80.8
R9	-1

Special Color Rendering Indices			
R1	79	R9	-1
R2	87	R10	70
R3	94	R11	77
R4	79	R12	56
R5	78	R13	81
R6	82	R14	97
R7	85	R15	72
R8	61	--	--

Photometric Measurement – Goniophotometer Method(Tset Dstance: 26.00m):

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	1396.4	1377.7
Luminous Efficacy (lm/W)	99.72	95.88
Beam Angle ( )	155.0	--
Center Beam Candle Power (cd)	283	--

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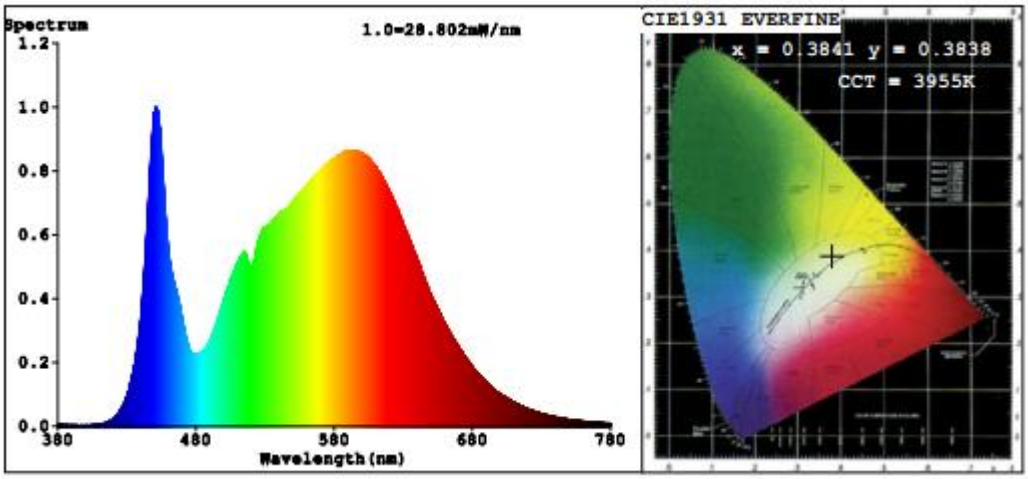
Certificate#4703.02

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	195.3	14%
0-40	338.5	24.2%
0-60	722.0	51.7%
60-90	479.6	34.3%
70-100	338.2	24.2%
90-120	130.8	9.4%
0-90	1,201.6	86.1%
90-180	194.7	13.9%
0-180	1,396.3	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	24.8	1.8%	90-100	56.7	4.1%
10-20	65.6	4.7%	100-110	38.8	2.8%
20-30	104.8	7.5%	110-120	35.3	2.5%
30-40	143.2	10.3%	120-130	28.2	2%
40-50	179.9	12.9%	130-140	18.8	1.3%
50-60	203.7	14.6%	140-150	12.0	0.9%
60-70	198.1	14.2%	150-160	3.8	0.3%
70-80	162.5	11.6%	160-170	1.1	0.1%
80-90	119.0	8.5%	170-180	0.1	0%

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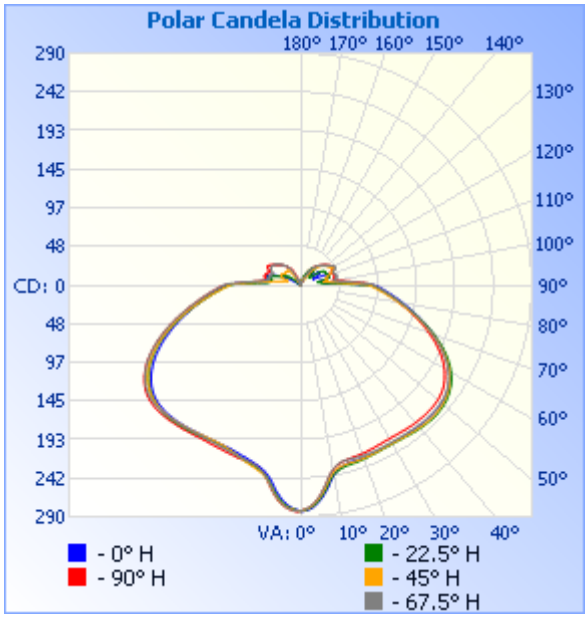
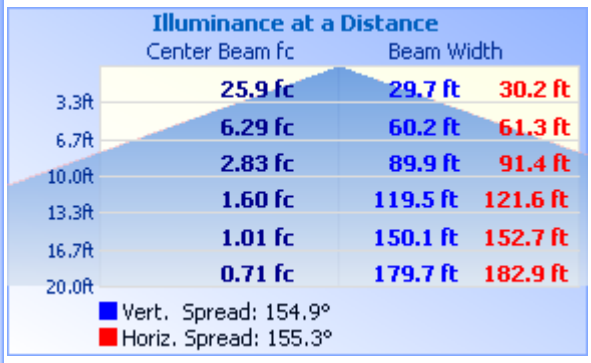
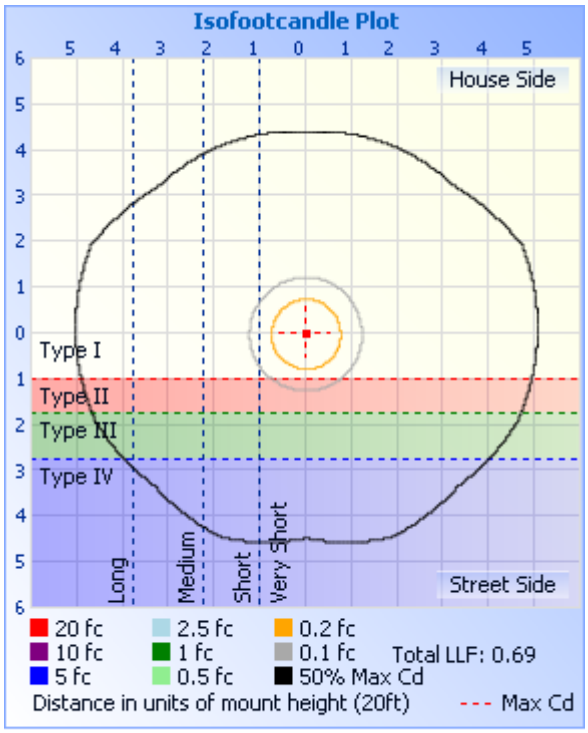
Photometric Data







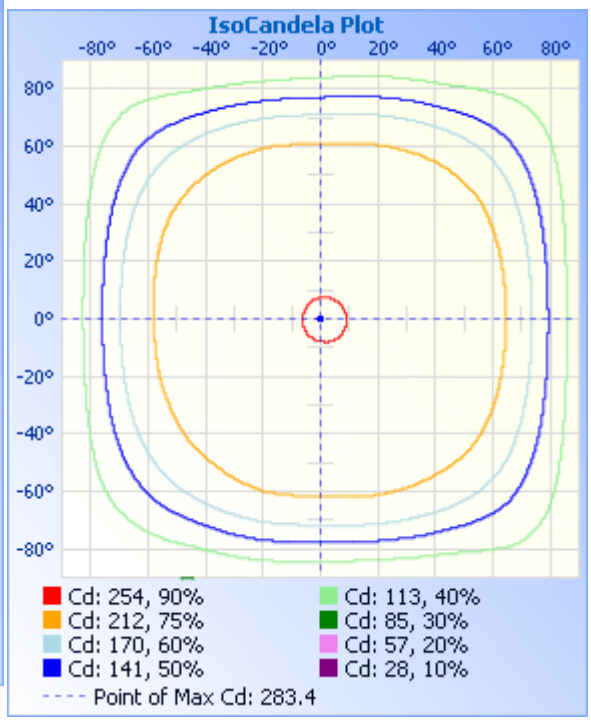


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Table--1 UNIT: cd

γ (DEG) \ C (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
0	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283		
5	275	275	274	273	271	269	268	266	266	266	267	268	269	272	274	274		
10	245	246	246	243	241	241	238	234	235	237	239	240	241	244	246	245		
15	231	234	235	231	230	233	231	226	226	229	230	230	230	233	235	231		
20	230	232	232	230	230	231	231	227	225	225	225	226	225	228	228	228		
25	228	230	230	229	229	230	229	227	223	222	222	224	223	224	223	226		
30	228	229	229	229	228	229	229	227	222	222	222	225	223	224	223	225		
35	230	231	230	230	229	231	230	228	223	223	225	228	226	227	226	227		
40	233	235	234	232	230	233	232	230	224	226	228	231	229	231	229	230		
45	236	239	237	234	231	235	233	230	225	228	230	233	231	234	233	233		
50	238	239	238	234	230	234	232	230	224	225	228	233	232	234	234	236		
55	236	236	234	230	226	229	227	225	219	219	222	228	227	230	231	234		
60	226	227	224	220	215	218	215	214	208	208	211	217	216	220	221	225		
65	209	211	207	204	198	200	197	196	191	191	193	199	198	203	204	209		
70	186	188	184	182	176	177	174	175	170	170	170	177	176	181	181	186		
75	161	161	158	157	153	152	149	151	147	146	146	153	153	155	156	161		
80	136	135	132	134	130	128	125	128	125	122	122	130	130	130	130	137		
85	115	112	109	113	111	107	104	109	106	102	101	109	110	108	108	115		
90	94.7	93.1	88.5	89.2	92.2	86.1	85.9	92.1	90.5	85.4	84.6	92.6	92.9	89.6	88.9	96.6		
95	55.2	49.1	41.2	30.8	31.4	28.2	42.2	54.1	57.6	52.2	45.7	42.6	42.7	39.3	45.3	56.4		
100	44.6	45.1	33.0	24.2	24.5	21.4	32.3	44.7	41.8	34.1	27.8	42.3	41.7	38.4	26.7	40.3		
105	46.3	45.3	33.7	39.3	36.4	36.0	33.2	46.2	44.5	33.6	21.9	45.1	42.9	41.6	19.7	40.9		
110	44.0	42.8	37.9	39.0	37.0	36.3	38.2	44.6	42.9	32.4	22.6	35.1	35.4	32.7	20.6	38.5		
115	43.3	44.9	44.1	38.1	17.5	35.4	44.4	47.5	42.7	34.3	26.0	26.6	26.6	25.5	26.9	39.3		
120	47.1	46.0	44.8	37.5	25.0	34.7	44.5	47.6	46.9	37.0	24.7	21.8	11.9	21.7	26.7	42.8		
125	43.9	42.3	41.4	30.6	29.4	27.1	41.0	43.0	43.3	38.1	23.2	14.0	8.19	18.1	25.3	42.7		
130	39.7	38.6	38.0	17.6	18.5	14.2	37.4	38.8	39.1	36.8	21.6	2.85	4.77	9.10	24.1	40.2		
135	35.8	35.0	34.1	16.6	19.2	17.8	33.2	34.8	35.0	33.8	22.3	2.23	1.24	0.87	24.4	36.4		
140	31.9	31.2	27.9	23.9	21.3	27.0	26.4	30.7	31.0	29.9	21.4	6.42	0.27	4.83	23.5	32.4		
145	27.5	26.8	19.0	26.2	18.2	25.8	15.3	25.8	26.3	25.5	15.7	6.44	0.24	7.25	15.8	27.7		
150	22.5	20.4	8.07	22.0	15.0	21.1	7.04	18.1	21.1	19.7	5.78	3.92	0.19	3.54	1.81	20.1		
155	11.3	6.78	8.22	17.0	11.6	15.7	10.6	4.24	9.49	7.71	1.85	2.28	0.30	0.57	4.78	4.04		
160	2.09	2.00	5.68	11.3	8.49	9.91	6.26	2.18	2.04	2.04	5.97	3.75	0.41	0.22	4.72	6.62		
165	7.59	5.94	1.09	4.43	4.19	3.86	0.93	4.35	6.56	6.44	4.88	2.46	0.41	0.22	2.17	4.67		
170	4.54	3.42	2.43	1.33	0.63	0.73	1.33	2.37	3.03	3.07	2.13	0.95	0.35	0.27	0.82	2.46		
175	1.31	1.12	1.04	1.07	1.03	0.90	0.79	0.60	0.38	0.41	0.27	0.27	0.30	0.27	0.27	0.59		
180	0.22	0.24	0.19	0.27	0.30	0.13	0.19	0.16	0.24	0.27	0.24	0.27	0.27	0.27	0.22	0.19		

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-702	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-701	Spectral analysis system HAAS-1200	Verified by D204 standard lamp	
ST-R-703	Standard Lamp D204	2020-02-22	2021-02-21
ST-R-704	Power Meter for Integrating Sphere	2020-01-05	2021-01-04
ST-R-714	Goniophotometer system	Verified by D908S standard lamp	
ST-R-710	Standard Lamp D908S	2020-02-22	2021-02-21
ST-R-711	Power Meter for Goniophotometer	2020-01-05	2021-01-04
Uncertainty(K=2): Photometric Measurement (Sphere):3.48% Chromaticity Measurement(Sphere):44.8K Photometric Measurement(Goniophotometer):3.48%			

4. Product Photo

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