



Report No.: GZE160771-K

NVLAP LAB CODE 201011-0

## LM-79-08 Test Report

For

### L-TECH CORPORATION

**(Brand Name: L-TECH CORP)**

SHAOGANGTOU DISTRICT.QIAOTOU TOWN.DONGGUAN  
CITY.GUANGDONG PROVINCE,CHINA

### LED Luminaire

Model name(s): LED800SQ WITH LTSQ801-2790

Test & Report By:

*Johnson Sun*

Engineer: Johnson Sun

Date: Jul.27,2016

Review By:

*Tommy Liang*

Manager: Tommy Liang

Note: 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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Tel: 8620-3229 0320

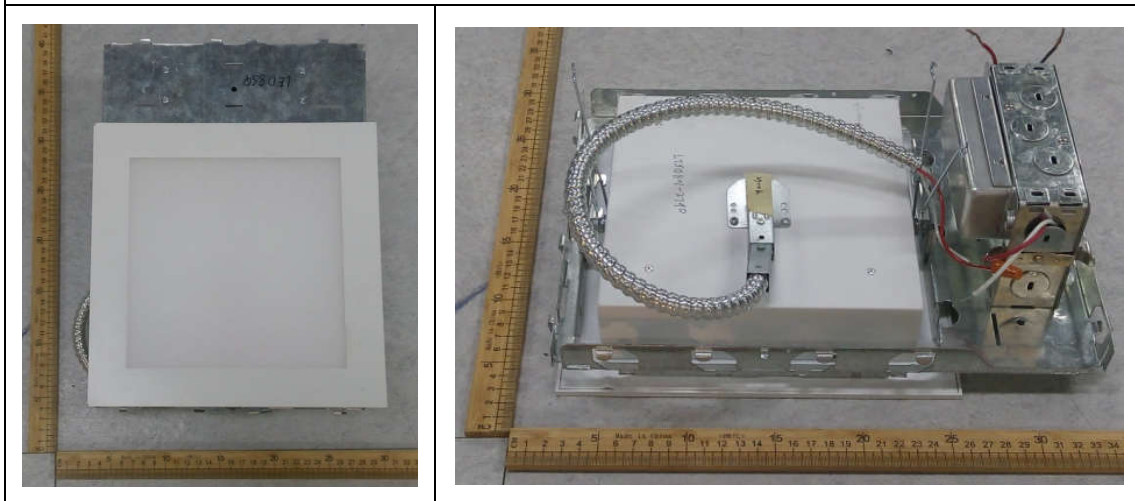
Fax: 8620-32290422

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**1.1 Product Information:**

Organization Name	L-TECH CORPORTION	
Brand Name	L-TECH CORP	
Model Number	LED800SQ WITH LTSQ801-2790	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaire	
Rated Voltage / Frequency	120Vac, 60 Hz	
Nominal Power	18W	
Rated Initial Lamp Lumen	--	
Declared CCT	2700K	
LED Manufacturer	N/A	
LED Model	N/A	
Sample Number	GZE160771-K1	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaire Width	--	mm
Number of Units (modular products)	N/A	s

**Photo**



## 1.2 Test Specifications:

Date of Receipt	Jul.20,2016
Date of Test	Jul.21,2016
Test item	<ol style="list-style-type: none"> <li>1. Total Luminous Flux</li> <li>2. Luminous Distribution Intensity</li> <li>3. Luminous Efficacy</li> <li>4. Correlated Color Temperature</li> <li>5. Color Rendering Index</li> <li>6. Chromaticity Coordinate</li> <li>7. Electrical Parameters</li> </ol>
Reference Standard	<ol style="list-style-type: none"> <li>1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</li> <li>2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products</li> <li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li> <li>4. CIE 15-2004 Technical Report Colorimetry</li> <li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li> <li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li> </ol>
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  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , 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  $1^{\circ}$  vertical intervals and  $22.5^{\circ}$  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  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . 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 120 or rated Volts AC, 60Hz. 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  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . 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)*

<b>Test date</b>	2016-07-21	<b>Test Ambient:</b>	25.2 °C
<b>Test Orientation</b>	Horizontal	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LED800SQ WITH LTSQ801-2790		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE160771-K1	120.0	60	0.1492	17.80	0.9952

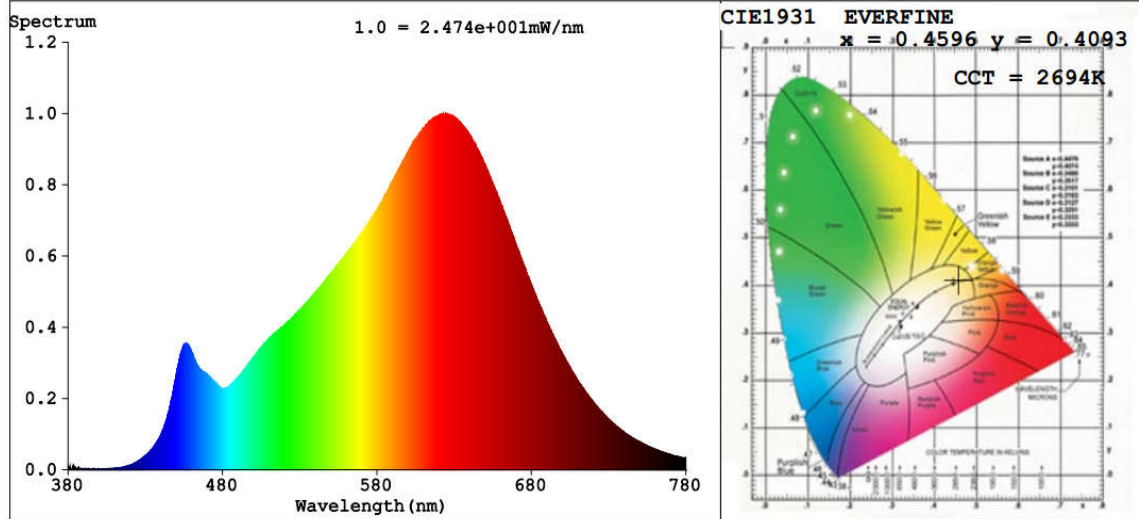
**Chromaticity Measurement - Sphere-Spectroradiometer Method i:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	94	R9	60
Frequency (Hz)	60	R2	99	R10	96
CCT (K)	2694	R3	97	R11	94
Duv	-0.0005	R4	92	R12	86
Chromaticity (x, y)	x=0.4596 y=0.4093	R5	94	R13	95
Chromaticity (u', v')	u'=0.2629 v'=0.5268	R6	97	R14	100
Color Rendering Index (CRI)	93.0	R7	90	R15	89
R9	60	R8	80	--	--

**Photometric Measurement – Goniophotometer Method:**

Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	1305.13	--
Luminous Efficacy (lm/W)	73.32	--
Beam Angle (°)	100.9	--
Center Beam Candle Power (cd)	521	--

**Spectral Power Distribution & Chromaticity Diagram**

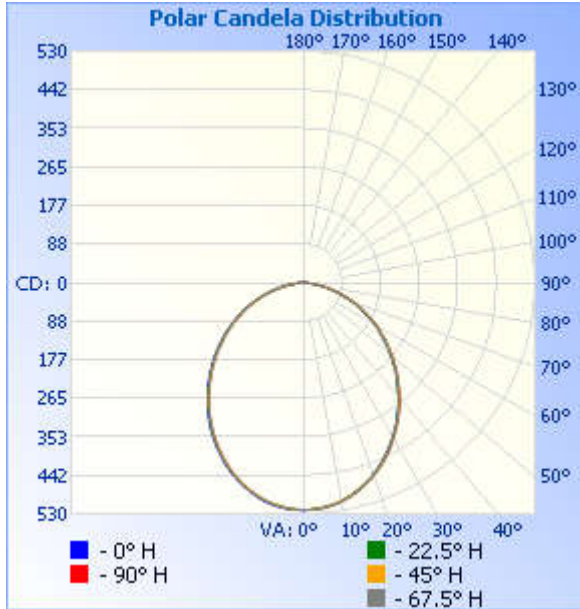


**Zonal Lumen Tabulation**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	389.7	29.9%
0-40	624.1	47.8%
0-60	1,057.2	81%
60-90	245.6	18.8%
70-100	98.8	7.6%
90-120	1.1	0.1%
0-90	1,302.8	99.8%
90-180	2.3	0.2%
0-180	1,305.1	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	49.0	3.8%	90-100	0.5	0%
10-20	138.0	10.6%	100-110	0.3	0%
20-30	202.7	15.5%	110-120	0.3	0%
30-40	234.4	18.0%	120-130	0.3	0%
40-50	232.1	17.8%	130-140	0.3	0%
50-60	201.0	15.4%	140-150	0.3	0%
60-70	147.3	11.3%	150-160	0.2	0%
70-80	79.7	6.1%	160-170	0.1	0%
80-90	18.7	1.4%	170-180	0.0	0%

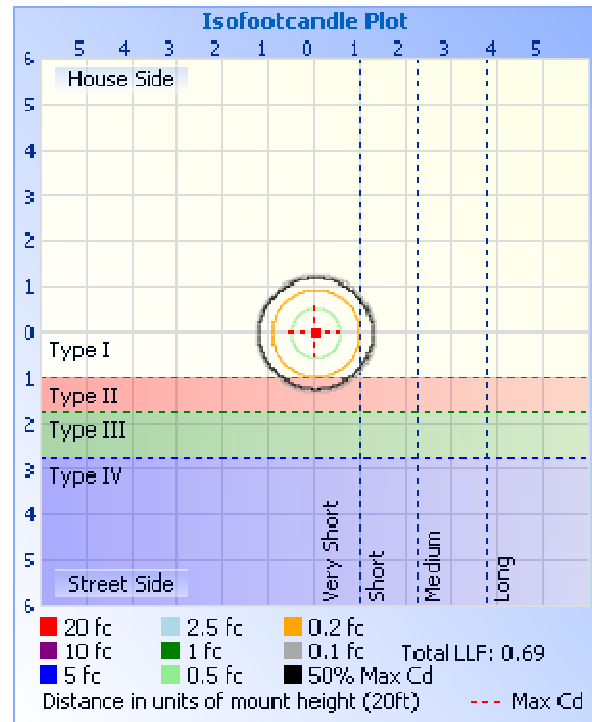
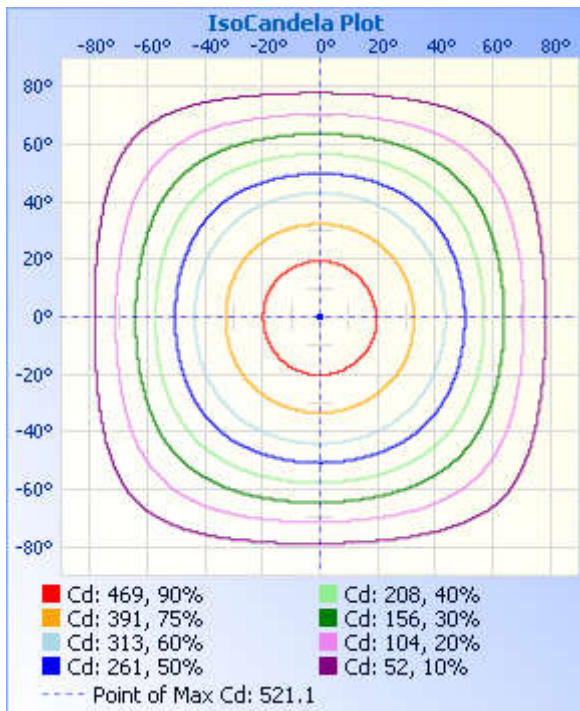
**Photometric Data**



**Illuminance at a Distance**

	Center Beam fc	Beam Width	
17.0ft	1.80 fc	41.1 ft	41.1 ft
34.0ft	0.45 fc	82.2 ft	82.2 ft
51.0ft	0.20 fc	123.3 ft	123.2 ft
68.0ft	0.11 fc	164.4 ft	164.3 ft
85.0ft	0.07 fc	205.5 ft	205.4 ft
102.0ft	0.05 fc	246.6 ft	246.5 ft

■ Vert. Spread: 100.8°  
■ Horiz. Spread: 100.8°



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**Candela Table - Type C**

	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	521	520	520	521	520	519	519	520	521	520	520	521	520	519	519	520	521
1	521	520	520	521	520	519	519	520	521	520	520	521	520	519	519	520	521
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6	516	516	516	517	517	515	515	515	516	515	514	516	515	514	514	515	516
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29	416	416	418	418	419	420	418	417	416	415	413	413	412	412	412	415	416
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61	179	180	182	182	183	182	183	182	180	178	177	176	176	174	174	177	179
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93	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	1	0
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96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	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
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105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
152	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
153	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
154	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
156	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

Laboratory: Standard-Tech Co. Ltd Testing Center  
 NVLAP CODE: 201011-0

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157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
158	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
159	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
160	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
161	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
163	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
164	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
168	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0
169	0	0	0	1	1	0	0	0	0	0	1	1	1	1	0	1
170	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	0
171	0	1	0	0	0	0	0	1	1	0	1	1	0	1	1	1
172	0	0	1	0	0	1	0	0	0	0	1	1	1	0	0	1
173	0	0	0	1	0	1	0	1	1	0	1	0	1	0	1	0
174	0	0	0	1	0	0	0	0	1	1	1	0	1	0	1	1
175	0	0	0	0	0	1	0	0	1	1	1	1	1	0	0	1
176	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1
177	0	1	1	1	0	1	0	1	1	0	0	1	0	1	1	1
178	0	1	1	1	1	0	1	1	1	1	1	1	0	0	1	1
179	1	1	1	0	0	0	1	0	1	1	1	1	1	0	1	1
180	1	1	1	0	1	0	0	1	1	1	1	0	1	0	0	1

### 3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2016-07-01	2017-06-30
ST-R-331	Spectral analysis system HAAS-2000	2016-07-01	2017-06-30
D204	Standard Lamp	2016-07-01	2017-06-30
PF2010	Power Meter for Integrating Sphere	2016-07-01	2017-06-30
EE-09	Goniophotometer system	2016-07-01	2017-06-30
D908S	Standard Lamp	2016-07-01	2017-06-30
PF210	Power Meter for Goniophotometer	2016-07-01	2017-06-30
ST-R-181A	Temperature Tester	2016-07-01	2017-06-30
Uncertainty: Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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