LM-79-08 Test Report

For

L-TECH CORPORTION

(Brand Name: L-TECH CORP)

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

LED Luminare

Model name(s): LED8SQ WITH LTSQ801-4090

Representative (Tested) Model: LED8SQ WITH LTSQ801-4090

Model Different: N/A

Test & Report By:

Candice Liao

Engineer: Candice Liao
Date: Nov.24, 2017

Review By:

Tommy Liang

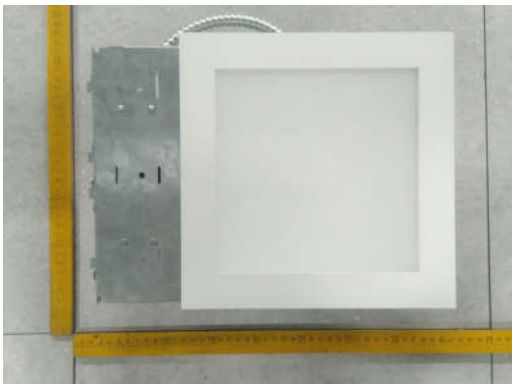
Manager: Tommy Liang

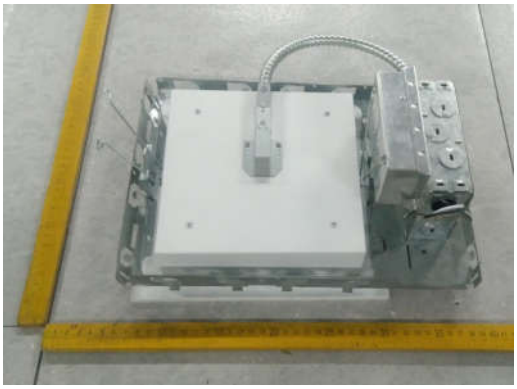
Note: 1. The results contained in this report pertain only to the tested samples.
2. This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

1.1 Product Information:

Organization Name	L-TECH CORPORTION	
Brand Name	L-TECH CORP	
Model Number	LED8SQ WITH LTSQ801-4090	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Luminaire	
Rated Voltage / Frequency	120-277V, 50/60HZ	
Nominal Power	20W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K	
LED Manufacturer	Seoul Semiconductor Co., LTD	
LED Model	SAWxA32E-xx	
Sample Number	GZE1711043-H-C1	
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	Nov.20, 2017
Date of Test	Nov.21, 2017
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 6. 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° C ± 1° 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) 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 25º C ± 1º 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 25º C ± 1º 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	2017-11-21	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED8SQ WITH LTSQ801-4090		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1711043-H-C1	120.0	60	0.1577	18.65	0.9858

Chromaticity Measurement - Sphere-Spectroradiometer Method:

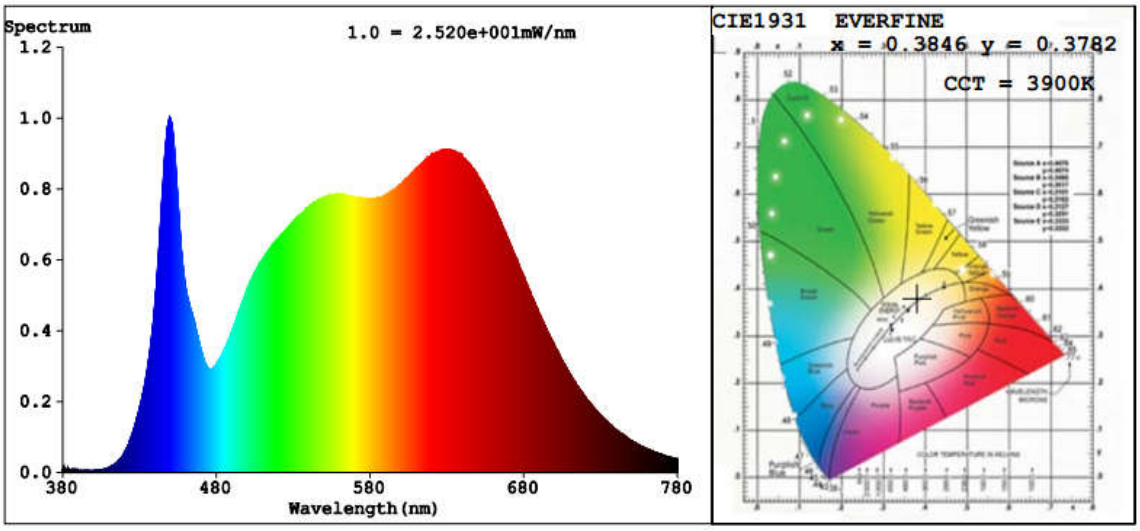
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3900
Duv	-0.0005
Chromaticity (x, y)	x=0.3846 y=0.3782
Chromaticity (u', v')	u'=0.2272 v'=0.5028
Color Rendering Index (CRI)	94.8
R9	88

Special Color Rendering Indices			
R1	97	R9	88
R2	95	R10	87
R3	92	R11	95
R4	95	R12	76
R5	95	R13	96
R6	92	R14	95
R7	96	R15	97
R8	96	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1532.6
Luminous Efficacy (lm/W)	82.18
Beam Angle (°)	99.2
Center Beam Candle Power (cd)	627

Spectral Power Distribution & Chromaticity Diagram

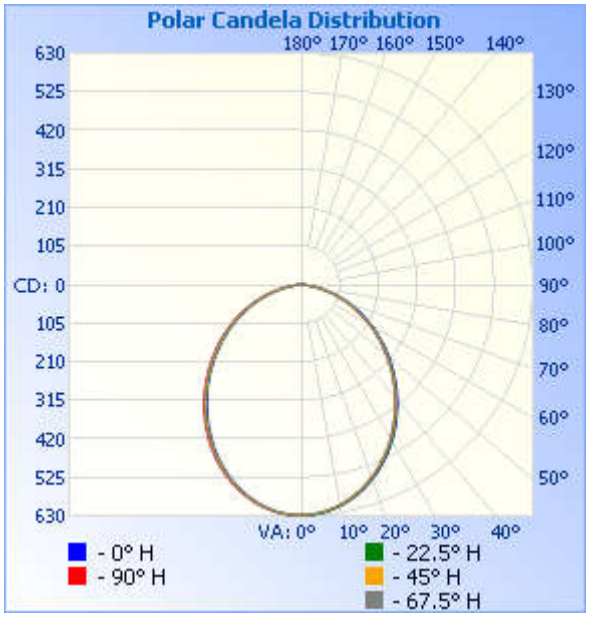


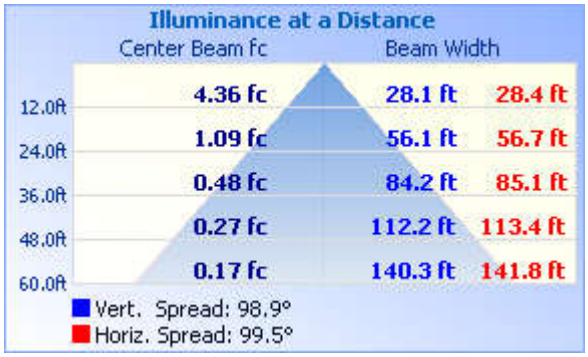
Zonal Lumen Tabulation

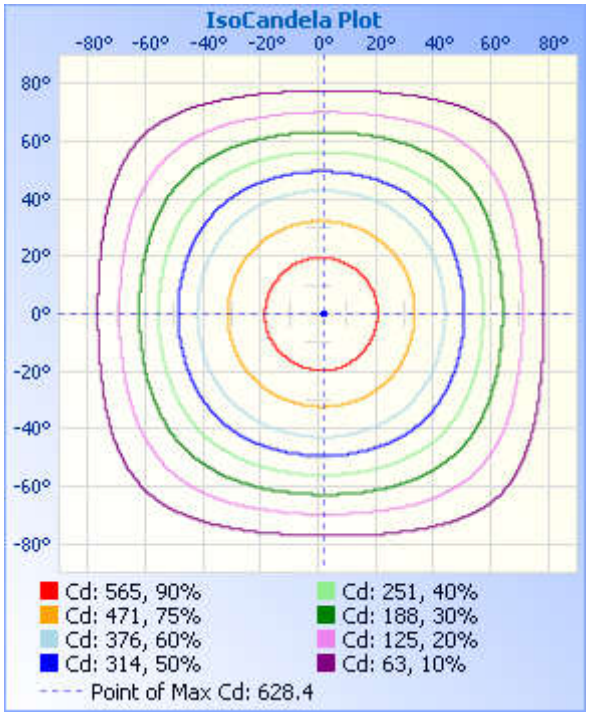
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	468.0	30.5%
0-40	747.4	48.8%
0-60	1,256.4	82%
60-90	274.2	17.9%
70-100	106.1	6.9%
90-120	0.8	0%
0-90	1,530.6	99.9%
90-180	1.8	0.1%
0-180	1,532.4	100%

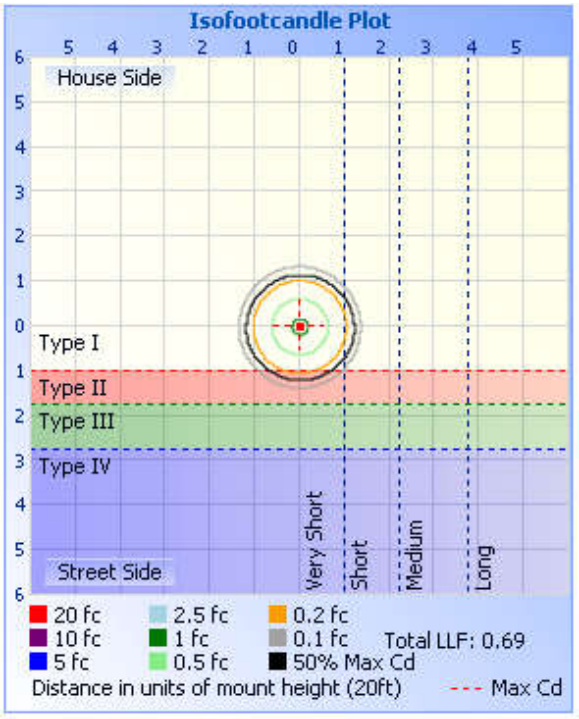
Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	59.1	3.9%	90-100	0.4	0%
10-20	166.0	10.8%	100-110	0.2	0%
20-30	243.0	15.9%	110-120	0.2	0%
30-40	279.4	18.2%	120-130	0.2	0%
40-50	274.5	17.9%	130-140	0.2	0%
50-60	234.5	15.3%	140-150	0.2	0%
60-70	168.5	11.0%	150-160	0.2	0%
70-80	87.6	5.7%	160-170	0.1	0%
80-90	18.1	1.2%	170-180	0.0	0%

Photometric Data









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	627	627	627	627	627	627	627	627	627	627	627	627	627	627	627	627	627
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137	0	0	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	0	0
139	0	0	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	0	0
141	0	0	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	0	0
143	0	0	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	0	0
145	0	0	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	0	0
147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
149	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
150	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
152	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
153	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
154	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
156	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0

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

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2017-07-01	2018-06-30
ST-R-331	Spectral analysis system HAAS-2000	2017-07-01	2018-06-30
D204	Standard Lamp	2017-07-01	2018-06-30
PF2010	Power Meter for Integrating Sphere	2017-07-01	2018-06-30
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
Uncertainty: Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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