

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): LRKT565W-EN-2790

Representative (Tested) Model: LRKT565W-EN-2790

Model Different: N/A

Test & Report By:

Univ Xie

Engineer: Univ Xie

Date: Jan17, 2017

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

Address: Standard-Tech Building, No.6 Guanhong Road,Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320 Fax: 8620-32290422 <http://www.standard-tech.com>

1.1 Product Information:

Organization Name	L-TECH CORPORTION	
Brand Name	L-TECH CORP	
Model Number	LRKT565W-EN-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	13W	
Rated Initial Lamp Lumen	--	
Declared CCT	2700K	
LED Manufacturer	Edison Opto Corporation	
LED Model	2T03X5	
Sample Number	GZE1612120-AR1	
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	Jan08, 2017
Date of Test	Jan.11, 2017
Test item	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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

<p>1) Photometric and Light Distribution Measurement – Goniophotometer Method:</p> <p>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.</p>
<p>2) Chromaticity Measurement – Sphere-Spectroradiometer Method:</p> <p>Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25° C ± 1° 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.</p>
<p>3) Electrical Measurements:</p> <p>Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at 25° C ± 1° 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.</p>

2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2017-01-11	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LRKT565W-EN-2790		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE161212 0-AR1	120.0	60	0.1070	12.11	0.9451

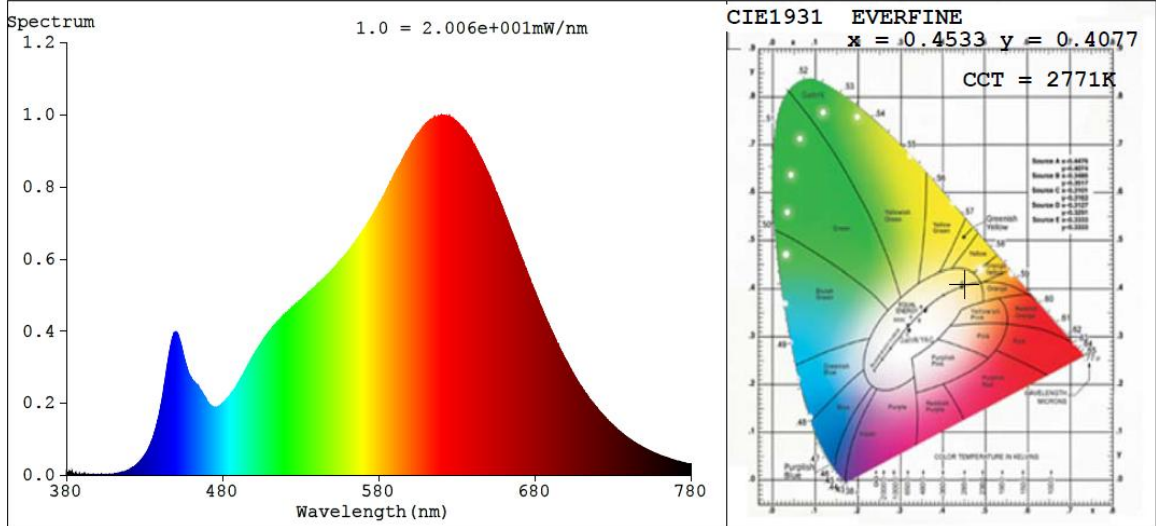
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	93	R9	57
Frequency (Hz)	60	R2	97	R10	93
CCT (K)	2771	R3	99	R11	95
Duv	-0.0005	R4	93	R12	87
Chromaticity (x, y)	x=0.4533 y=0.4077	R5	93	R13	94
Chromaticity (u', v')	u'=0.2596 v'=0.5253	R6	97	R14	99
Color Rendering Index (CRI)	93.0	R7	91	R15	88
R9	57	R8	80	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	930.36
Luminous Efficacy (lm/W)	76.83
Beam Angle (°)	103.7
Center Beam Candle Power (cd)	364

Spectral Power Distribution & Chromaticity Diagram

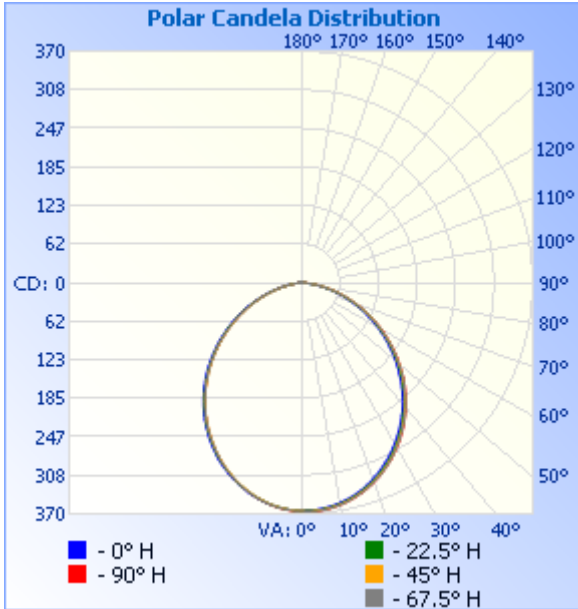


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	276.8	29.8%
0-40	447.1	48.1%
0-60	763.4	82.1%
60-90	165.7	17.8%
70-100	62.6	6.7%
90-120	0.5	0.1%
0-90	929.1	99.9%
90-180	1.2	0.1%
0-180	930.3	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	34.4	3.7%	90-100	0.2	0%
10-20	97.5	10.5%	100-110	0.1	0%
20-30	145.0	15.6%	110-120	0.1	0%
30-40	170.3	18.3%	120-130	0.1	0%
40-50	170.3	18.3%	130-140	0.1	0%
50-60	146.0	15.7%	140-150	0.1	0%
60-70	103.3	11.1%	150-160	0.1	0%
70-80	52.1	5.6%	160-170	0.1	0%
80-90	10.3	1.1%	170-180	0.0	0%

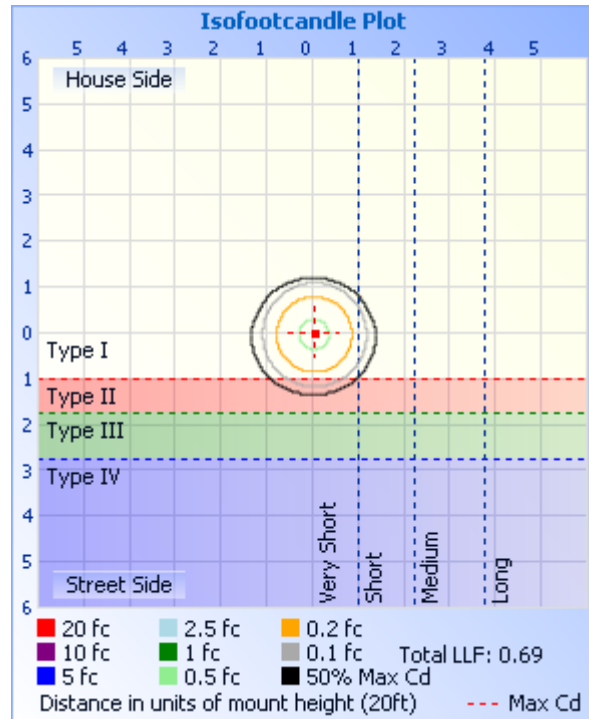
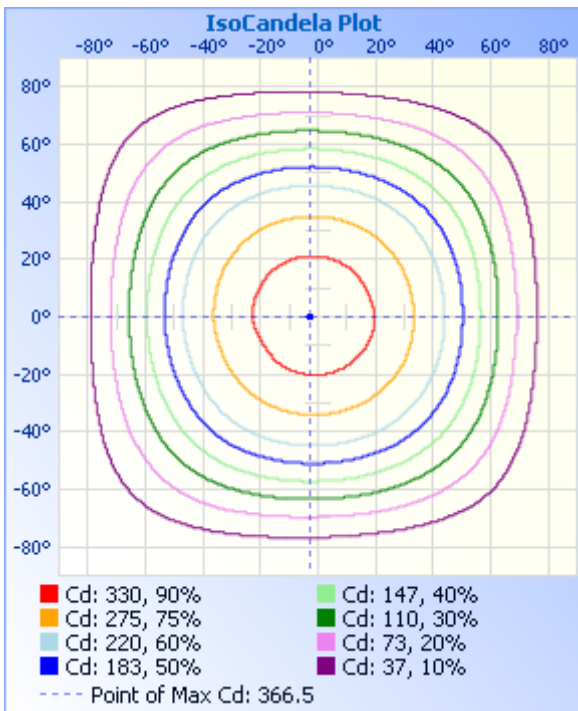
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	1.26 fc	43.0 ft	43.3 ft
34.0ft	0.32 fc	85.9 ft	86.7 ft
51.0ft	0.14 fc	128.9 ft	130.0 ft
68.0ft	0.08 fc	171.8 ft	173.3 ft
85.0ft	0.05 fc	214.8 ft	216.7 ft
102.0ft	0.04 fc	257.7 ft	260.0 ft

■ Vert. Spread: 103.3°
■ Horiz. Spread: 103.8°



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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	364	364	364	364	364	364	364	364	364	364	364	364	364	364	364	364	364
1	364	365	365	366	366	362	363	363	364	365	365	366	366	362	363	364	364
2	364	365	366	366	367	362	363	363	364	364	364	365	365	362	363	363	364
3	364	365	366	366	366	362	363	363	363	363	363	364	364	361	362	363	364
4	364	364	365	366	366	362	362	362	362	363	362	363	364	360	361	362	364
5	363	364	365	366	366	361	362	361	362	362	362	362	363	359	360	362	363
6	362	363	364	365	365	361	361	360	361	360	360	361	361	358	359	361	362
7	361	362	363	364	364	360	360	359	359	359	359	359	360	357	358	360	361
8	360	362	362	363	363	359	359	358	358	358	357	358	358	355	357	358	360
9	359	360	361	362	362	358	357	357	356	356	356	356	356	354	355	357	359
10	357	359	360	361	361	356	356	355	354	354	353	354	354	352	354	355	357
11	356	357	359	359	359	355	354	353	352	352	352	352	353	350	352	354	356
12	354	356	357	358	358	353	352	351	351	350	349	350	350	348	350	352	354
13	352	354	355	356	356	351	350	349	348	347	347	348	348	346	347	349	352
14	350	352	353	354	354	349	348	347	346	345	344	345	345	344	345	348	350
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22	328	331	332	333	334	328	326	324	322	321	319	320	321	319	322	325	328
23	324	327	330	331	331	325	323	321	319	317	316	316	317	316	319	321	324
24	321	324	326	327	327	322	320	317	315	314	312	313	313	312	315	318	321
25	317	320	323	324	324	318	317	313	312	309	309	309	309	309	311	314	317
26	314	317	319	320	320	314	312	310	308	306	304	304	305	305	307	310	314
27	310	313	316	316	317	311	308	306	303	302	301	301	301	301	304	307	310
28	306	310	312	313	312	306	305	301	300	297	296	296	297	297	299	302	306

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29	302	305	308	308	309	303	300	298	295	293	291	292	293	293	296	299	302
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60	140	144	145	146	146	138	135	131	128	124	122	123	123	127	131	136	140
61	133	137	140	140	141	133	129	125	121	119	116	117	117	122	126	130	133
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90	1	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	1

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91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	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
98	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
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	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
107	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
109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	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	0
126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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137	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
139	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
141	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
143	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
145	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
147	0	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	0
149	0	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	0
151	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	0	0	0	0	0	0	0	0

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

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153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0
159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0
164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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STANDARD-TECH



Report No.: GZE1612120-AR

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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 *******

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