

LM-79-08 Test Report

For

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

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

LED Luminaire

Model name(s): LRKT543W-EN-4090

Representative (Tested) Model: LRKT543W-EN-4090

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

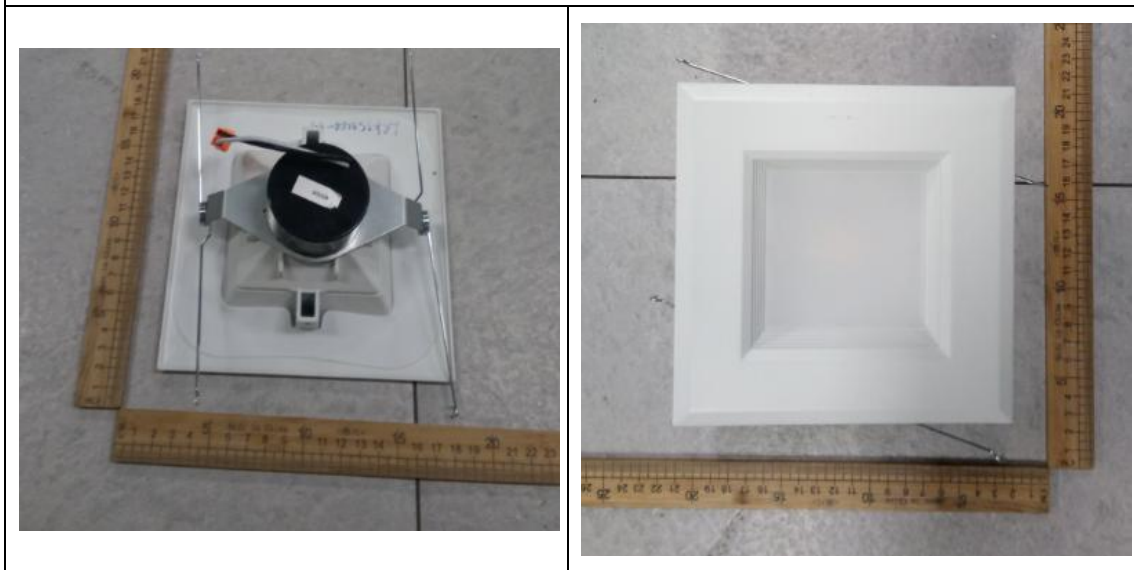
Address: Standard-Tech Building, No.6 Guanhong Road,Guangzhou Science City, Guangzhou 510663, China

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	LRKT543W-EN-4090	
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	15W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K	
LED Manufacturer	Edison Opto Corporation	
LED Model	2T03X5	
Sample Number	GZE1612120-AZ1	
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	LRKT543W-EN-4090		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE161212 0-AZ1	120.0	60	0.1240	14.26	0.9612

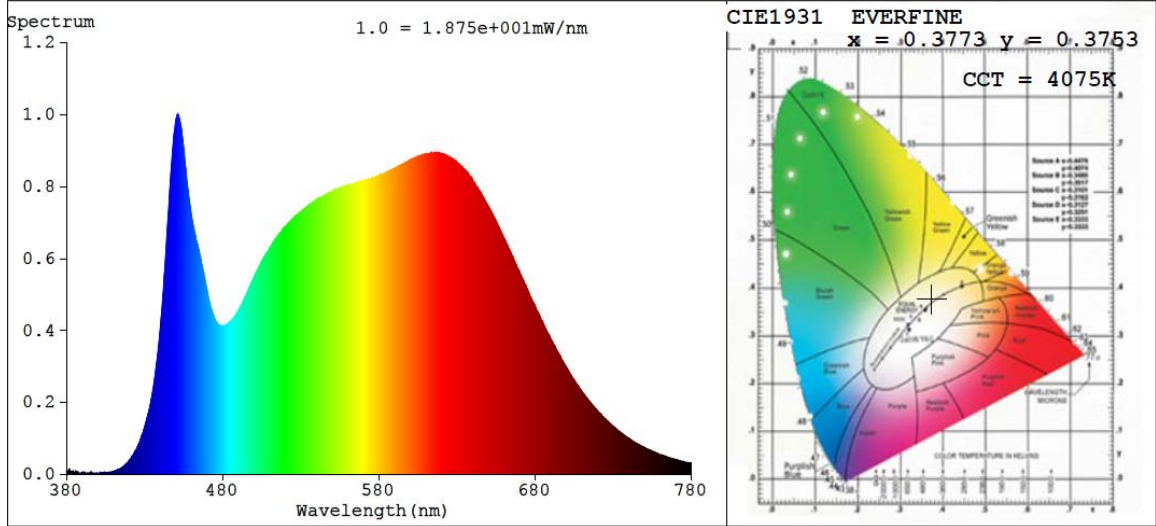
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	94	R9	71
Frequency (Hz)	60	R2	96	R10	90
CCT (K)	4075	R3	97	R11	93
Duv	0.0003	R4	94	R12	73
Chromaticity (x, y)	x=0.3773 y=0.3753	R5	93	R13	95
Chromaticity (u', v')	u'=0.2236 v'=0.5005	R6	93	R14	98
Color Rendering Index (CRI)	93.9	R7	95	R15	92
R9	71	R8	88	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1046.08
Luminous Efficacy (lm/W)	73.36
Beam Angle (°)	98.7
Center Beam Candle Power (cd)	450

Spectral Power Distribution & Chromaticity Diagram

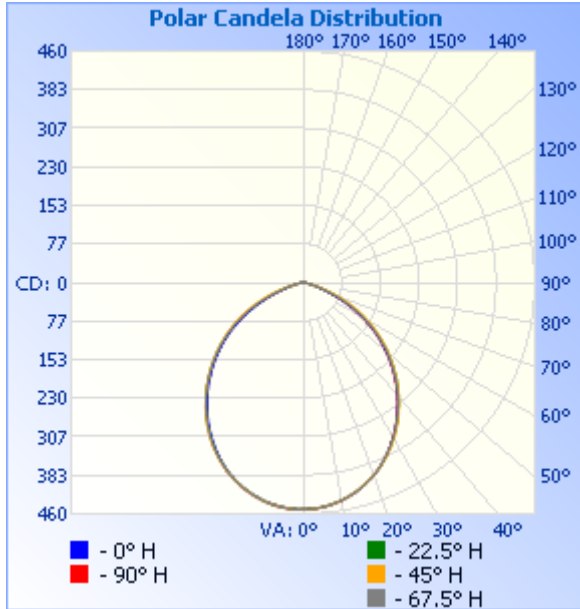


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	340.7	32.6%
0-40	546.4	52.2%
0-60	911.0	87.1%
60-90	133.8	12.8%
70-100	35.5	3.4%
90-120	0.4	0%
0-90	1,044.8	99.9%
90-180	1.2	0.1%
0-180	1,045.9	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	42.5	4.1%	90-100	0.1	0%
10-20	120.3	11.5%	100-110	0.1	0%
20-30	178.0	17.0%	110-120	0.1	0%
30-40	205.7	19.7%	120-130	0.1	0%
40-50	200.6	19.2%	130-140	0.2	0%
50-60	163.9	15.7%	140-150	0.2	0%
60-70	98.4	9.4%	150-160	0.2	0%
70-80	30.5	2.9%	160-170	0.1	0%
80-90	4.9	0.5%	170-180	0.0	0%

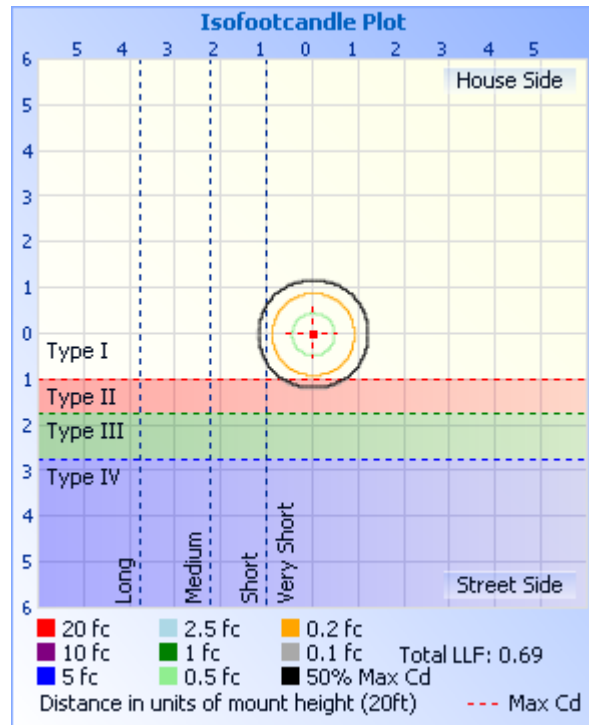
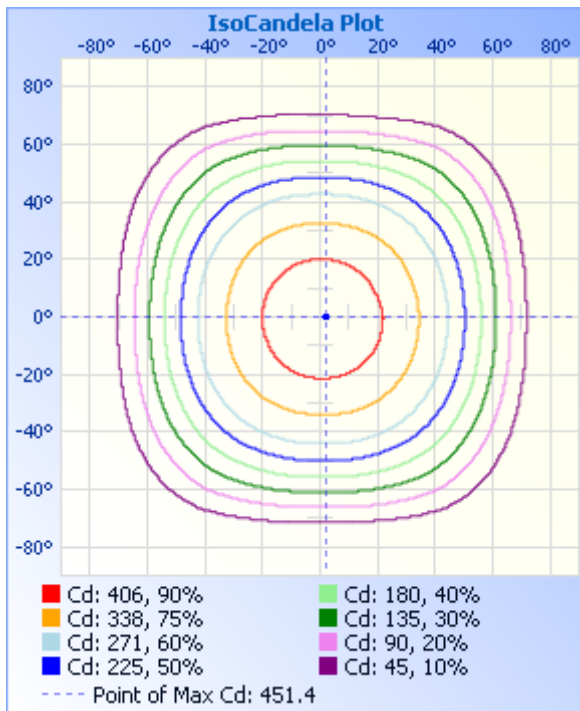
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	1.56 fc	39.5 ft	39.6 ft
34.0ft	0.39 fc	79.0 ft	79.1 ft
51.0ft	0.17 fc	118.5 ft	118.7 ft
68.0ft	0.10 fc	157.9 ft	158.2 ft
85.0ft	0.06 fc	197.4 ft	197.8 ft
102.0ft	0.04 fc	236.9 ft	237.3 ft

■ Vert. Spread: 98.5°
■ Horiz. Spread: 98.6°



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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	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
1	450	450	451	451	451	449	449	450	450	451	451	451	451	449	449	450	450
2	450	450	450	451	451	449	449	449	450	450	451	451	451	449	449	449	450
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4	448	449	449	449	449	448	448	448	449	449	449	450	450	448	448	448	448
5	447	448	448	448	448	447	447	448	448	448	449	449	449	447	447	447	447
6	446	446	446	447	447	446	446	446	447	447	447	448	448	446	446	446	446
7	445	445	445	445	446	444	445	444	445	446	446	447	447	444	444	444	445
8	443	443	443	444	444	442	443	443	444	444	445	445	445	443	443	443	443
9	441	441	441	441	442	440	441	441	442	442	443	444	444	441	441	441	441
10	439	439	439	439	440	439	439	440	441	441	441	442	442	439	439	439	439
11	437	437	437	437	437	436	437	438	438	439	439	440	440	437	437	437	437
12	434	434	434	435	435	434	434	435	436	436	437	437	437	434	434	434	434
13	432	431	431	432	432	431	432	433	434	434	434	435	435	432	432	432	432
14	429	429	429	429	429	428	429	429	431	431	431	432	432	429	429	428	429
15	426	426	425	426	426	426	426	427	427	428	428	429	430	426	426	426	426
16	422	422	422	422	423	422	423	424	425	425	426	426	426	423	423	422	422
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28	368	369	371	369	368	369	372	371	372	373	375	374	373	370	373	370	368

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29	362	363	365	362	362	364	367	366	366	367	371	369	368	366	367	364	362
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56	169	175	177	171	166	173	180	178	174	180	184	180	176	178	180	174	169
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90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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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	1	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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118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	1	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
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132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
134	0	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	0
136	0	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	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	1	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	1	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
151	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
152	0	0	0	0	0	1	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	1	0	0	0	0	0	0	0	0	0	0
154	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
156	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
157	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
158	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	1
159	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0
160	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0
161	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
162	1	0	0	1	0	1	1	1	0	0	0	0	0	0	0	1
163	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0
164	1	0	1	1	0	1	1	0	0	0	0	0	1	0	0	1
165	1	0	0	1	0	1	1	1	0	0	0	0	0	0	0	1
166	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
167	0	1	0	1	0	1	1	0	1	0	0	0	0	0	0	0
168	1	1	0	1	0	1	1	1	0	0	0	0	0	0	0	1
169	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	1
170	1	0	1	0	0	1	1	1	0	0	0	0	0	0	0	1
171	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0
172	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0
173	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0
174	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
175	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
176	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
177	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
178	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
179	0	1	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-AZ

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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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