

Energy Star Test Report

For

L-TECH CORPORTION

(Brand Name: L-TECH CORP)

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

Downlights

Model name(s): LRKT543W-EN-##90

Remark: "##" in the model name stands for different CCT as bellow:
27=2700K,30=3000K,40=4000K,50=5000K

Representative (Tested) Model: LRKT543W-EN-2790

Model Different: All construction and rating are the same, except CCT

Test & Report By:

Bill Luo

Engineer: Bill Luo

Date: Oct.16,2017

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.

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

Report Format Number STD/QR4910-A/1

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>

U.S. Department of Energy

Lighting Facts™ Uniform LM-79 Reporting Template

Laboratory Information:

Name of Test Laboratory	Standard-Tech Co., Ltd.
Date of Test Report	Oct.16,2017
Test Report No.	GZE1709109-H-H
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	L-TECH CORPORTION	
Brand Name	L-TECH CORP	
Model Number	LRKT543W-EN-##90	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Downlights	
Luminaire Aperture (for Downlightss)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Integrating Sphere

Goniophotometer

Electrical Measurements:

	Output	Output	
Input Wattage	--	15.38	W
Input Current	--	0.1325	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9672	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	1039.9	lm
Initial Lumen Efficacy	--	67.61	lm/w
Correlated color temperature / CCT	2728	--	K
Color rendering index / CRI	92.6	--	
R9 Value	56	--	
Duv	-0.0020	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)		437	cd
Beam angle (if applicable)		99.9	°
Zonal lumens in the 0°-60° zone		86.5	%
Zonal lumens in the 60°-90° zone	-----	13.5	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0	%

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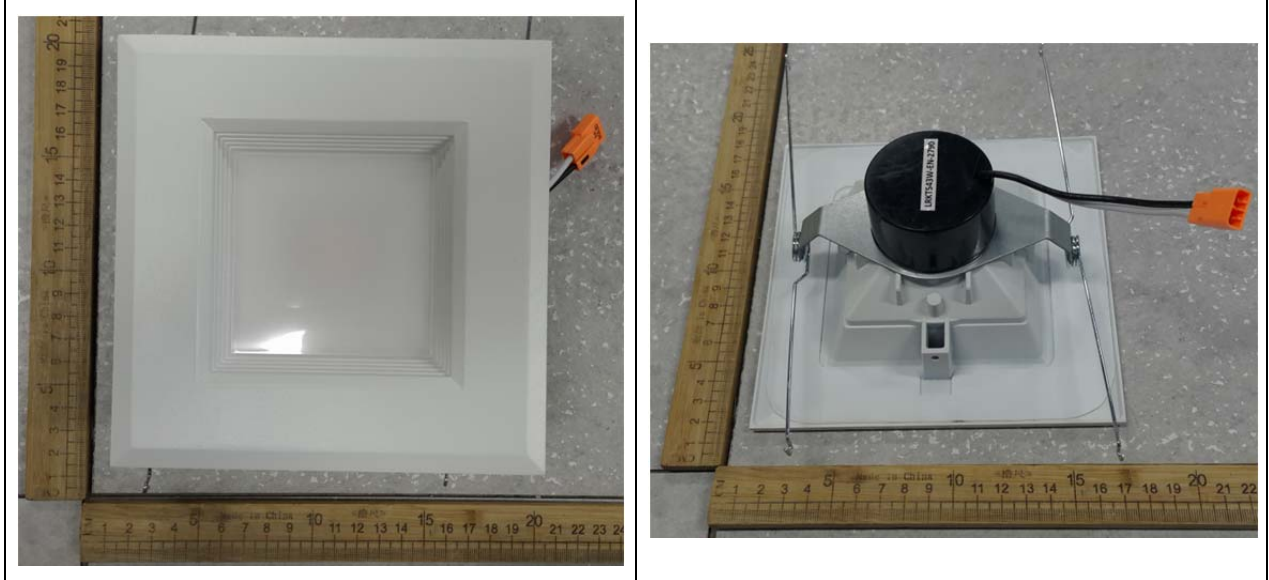
Test Specifications:	
Date of Receipt	Sep.20,2017
Date of Test	Oct.09,2017
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry IESNA LM-16-93 Practical Guide to Colorimetry of Light Source IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems UL1993 4 th Edition, Self-Ballasted Lamps and Lamp Adapters ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) – Version 2.0
Reference Work Instruction	QD25
Remark	Below test and data are not covered by NVLAP accreditation: - Operating Frequency

<p>Test Methods</p> <p>1. Photometric and Electrical measurements – Light Distribution 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 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. Photometric and Electrical Measurements – Integrating Sphere Method: Photometric 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 Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at least 5 nm intervals over the range of 380 to 780 nm.</p>

1. Product Information:

Brand Name	L-TECH CORP
Model Number	LRKT543W-EN-##90
Luminaire Type	Downlights
Rated Voltage / Frequency	120Vac, 50/60 Hz
Nominal Power	15.5W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,4000K,5000K
LED Manufacturer	Edison Opto Corporation
LED Model	2T03X5WW11000003
Sample Receipt Date	Sep.20,2017
Sample Number	GZE1709109-H-H1,H2,H3

Photo



2.1 Electrical, Photometric and Chromaticity Measurements <i>(Refer to Work Instruction QD25)</i>	IES LM-79 2008
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Test date	2017-10-09	Test Ambient:	25.0 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LRKT543W-EN-2790		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1709109-H-H1	120.0	60	0.1325	15.38	0.9672
GZE1709109-H-H2	120.0	60	0.1309	15.19	0.9668
GZE1709109-H-H3	120.0	60	0.1314	15.26	0.9679
Average			0.1316	15.28	0.9673

Sphere-Spectroradiometer Method:

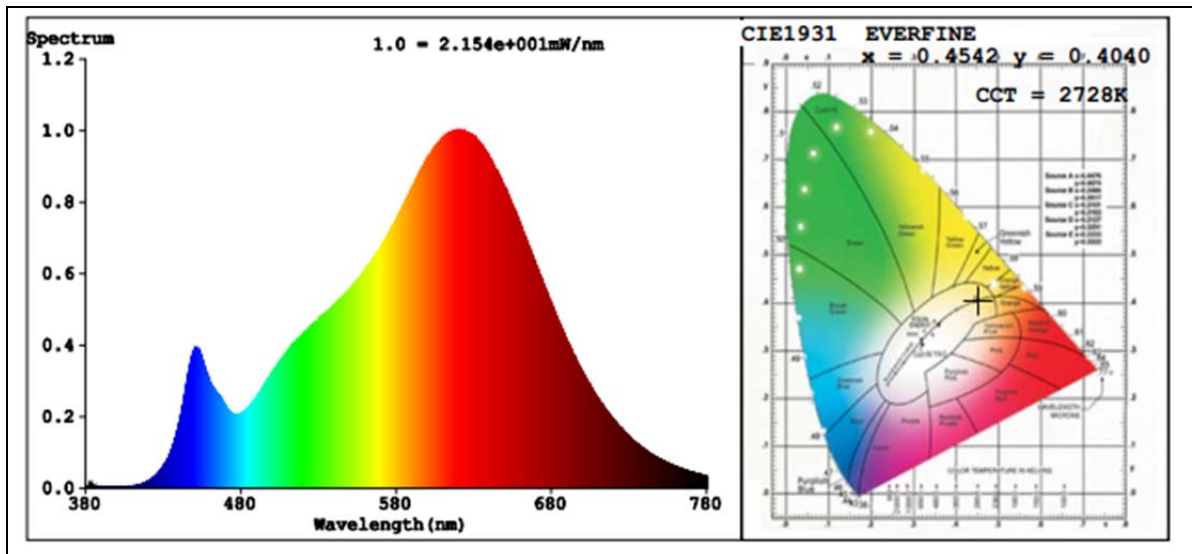
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	92.6
R9	56
CCT (K)	2728
Chromaticity (x, y)	x=0.4542 y=0.4040
Chromaticity (u', v')	u'=0.2618 v'=0.5239
Duv	-0.0020

Special Color Rendering Indices			
R1	93	R9	56
R2	98	R10	95
R3	98	R11	94
R4	93	R12	88
R5	94	R13	95
R6	97	R14	100
R7	90	R15	89
R8	79	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1039.9
Luminous Efficacy (lm/W)	67.61
Beam Angle°	99.9
Center Beam Candle Power (cd)	437

Spectral Power Distribution and Chromaticity Diagram



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

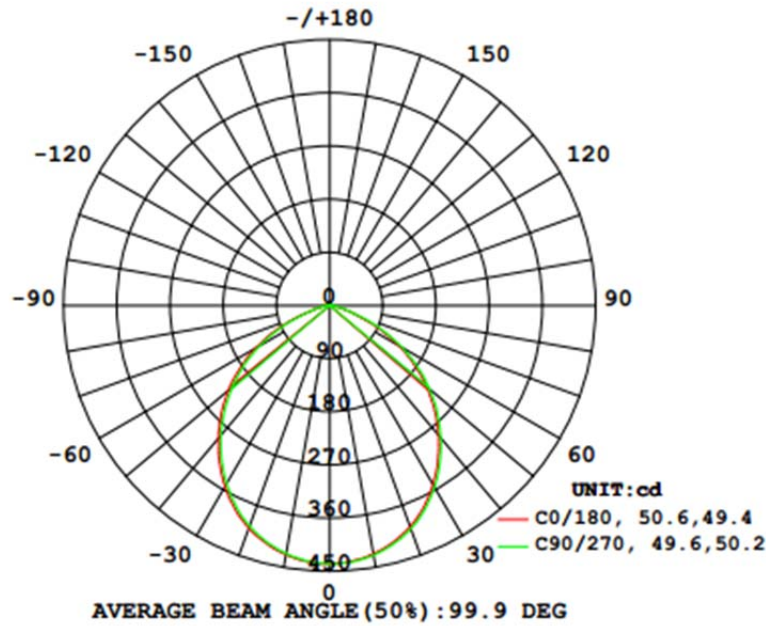
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Zonal Lumen Tabulation

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	333.0	32%
0-40	535.8	51.5%
0-60	899.6	86.5%
60-90	140.1	13.5%
70-100	38.0	3.7%
90-120	0.0	0%
0-90	1,039.8	100%
90-180	0.0	0%
0-180	1,039.8	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	41.3	4.0%	90-100	0.0	0%
10-20	117.3	11.3%	100-110	0	0%
20-30	174.5	16.8%	110-120	0.0	0%
30-40	202.8	19.5%	120-130	0.0	0%
40-50	199.1	19.1%	130-140	0.0	0%
50-60	164.7	15.8%	140-150	0.0	0%
60-70	102.1	9.8%	150-160	0.0	0%
70-80	33.0	3.2%	160-170	0.0	0%
80-90	5.1	0.5%	170-180	0.0	0%

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Table--1 UNIT: cd

C (DEG) γ (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338	
0	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	
5	434	435	435	435	435	435	435	435	435	435	434	434	434	434	434	434	
10	427	428	428	429	429	429	429	428	428	428	427	427	426	426	426	427	
15	415	416	417	417	418	418	418	417	417	416	415	414	414	414	414	415	
20	398	400	401	401	402	402	402	401	401	400	399	398	397	397	398	398	
25	377	379	381	381	381	382	383	381	380	380	379	377	375	377	377	377	
30	350	353	357	356	355	357	359	356	354	354	355	351	349	350	353	351	
35	319	324	328	327	325	328	331	327	325	326	326	322	319	321	324	322	
40	286	291	296	294	292	296	299	296	293	295	295	290	286	289	292	290	
45	251	257	261	260	257	262	265	263	259	262	261	257	252	256	257	256	
50	214	221	225	224	221	226	229	227	224	226	225	221	216	220	221	220	
55	175	182	187	186	182	188	192	190	186	189	189	184	178	182	185	181	
60	133	142	149	145	140	148	154	150	145	150	152	145	137	143	147	141	
65	89.6	98.8	110	103	96.8	106	115	108	102	109	113	103	94.5	101	108	98.7	
70	49.7	57.0	68.1	61.0	55.8	63.5	73.6	64.6	58.9	65.6	72.5	61.0	54.0	59.6	66.9	56.8	
75	23.4	26.0	30.1	28.0	26.0	29.4	33.7	29.5	27.3	30.1	33.4	28.4	25.3	27.3	29.4	26.0	
80	9.99	10.8	11.4	11.4	10.8	12.0	12.4	12.0	11.2	12.3	12.4	11.6	10.5	11.1	11.2	10.9	
85	4.16	4.15	3.98	4.41	4.61	4.57	4.42	4.66	4.81	4.73	4.42	4.47	4.49	4.24	3.95	4.18	
90	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
125	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
130	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
135	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
140	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
145	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
150	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
155	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
160	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
165	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
170	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
175	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

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2.2 Color Spatial Uniformity	IES LM-79 2008 ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
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Test Data :

Test date	2017-10-09	Test Ambient	25.1°C
Sample No.		Maximum Δu'v'	
GZE1709109-H-H1		0.0034	

Gamma\C	CIE u'	CIE v'	du' v'	CIE u'	CIE v'	du' v'
-73	0.26	0.523	0.002	0.2602	0.5229	0.0018
-72	0.2595	0.5226	0.0025	0.26	0.5226	0.002
-71	0.2594	0.5223	0.0026	0.2599	0.5223	0.0022
-70	0.2592	0.522	0.003	0.2599	0.5222	0.0023
-69	0.2593	0.5218	0.0029	0.2598	0.522	0.0024
-68	0.2592	0.5218	0.003	0.2599	0.522	0.0023
-67	0.2595	0.5218	0.0027	0.2601	0.522	0.0021
-66	0.2595	0.5218	0.0027	0.2601	0.522	0.0021
-65	0.2596	0.5218	0.0027	0.2603	0.5221	0.0018
-64	0.2599	0.5219	0.0023	0.2604	0.5221	0.0018
-63	0.26	0.5219	0.0022	0.2607	0.5222	0.0015
-62	0.26	0.522	0.0022	0.2608	0.5223	0.0014
-61	0.2602	0.5221	0.0019	0.2608	0.5223	0.0013
-60	0.2603	0.5221	0.0019	0.2611	0.5224	0.001
-59	0.2607	0.5223	0.0015	0.2611	0.5225	0.001
-58	0.2607	0.5223	0.0014	0.2614	0.5225	0.0007
-57	0.2608	0.5224	0.0013	0.2614	0.5226	0.0006
-56	0.2609	0.5224	0.0012	0.2615	0.5226	0.0006
-55	0.2609	0.5225	0.0012	0.2615	0.5227	0.0005
-54	0.2611	0.5225	0.001	0.2618	0.5227	0.0002
-53	0.2611	0.5226	0.0009	0.2618	0.5228	0.0002
-52	0.2611	0.5226	0.0009	0.2619	0.5228	0.0001
-51	0.2615	0.5227	0.0005	0.2619	0.5229	0.0001
-50	0.2615	0.5227	0.0005	0.2619	0.5229	0.0001
-49	0.2616	0.5228	0.0004	0.2622	0.5229	0.0002
-48	0.2616	0.5228	0.0004	0.2622	0.523	0.0002
-47	0.2617	0.5228	0.0003	0.2622	0.523	0.0002
-46	0.2617	0.5229	0.0003	0.2623	0.523	0.0003
-45	0.2617	0.5229	0.0003	0.2623	0.523	0.0003
-44	0.2617	0.5229	0.0002	0.2623	0.523	0.0003

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-43	0.2619	0.5229	0.0001	0.2625	0.5231	0.0006
-42	0.2619	0.523	0.0001	0.2625	0.5232	0.0006
-41	0.2619	0.523	0.0001	0.2626	0.5231	0.0006
-40	0.2619	0.523	0.0001	0.2626	0.5232	0.0007
-39	0.2619	0.523	0.0001	0.2626	0.5232	0.0007
-38	0.2621	0.523	0.0002	0.2626	0.5232	0.0007
-37	0.2621	0.523	0.0002	0.2627	0.5232	0.0007
-36	0.2621	0.5231	0.0002	0.2629	0.5233	0.001
-35	0.2621	0.5231	0.0002	0.2629	0.5233	0.001
-34	0.2622	0.5231	0.0003	0.2629	0.5233	0.001
-33	0.2622	0.5231	0.0003	0.2629	0.5233	0.001
-32	0.2623	0.5231	0.0003	0.2629	0.5233	0.001
-31	0.2623	0.5231	0.0004	0.2629	0.5233	0.001
-30	0.2623	0.5231	0.0004	0.263	0.5233	0.001
-29	0.2623	0.5231	0.0003	0.2629	0.5233	0.001
-28	0.2624	0.5232	0.0005	0.2629	0.5233	0.001
-27	0.2624	0.5232	0.0005	0.263	0.5233	0.0011
-26	0.2624	0.5232	0.0005	0.2629	0.5233	0.001
-25	0.2624	0.5232	0.0005	0.2632	0.5234	0.0012
-24	0.2624	0.5232	0.0005	0.2632	0.5234	0.0013
-23	0.2624	0.5232	0.0005	0.2632	0.5234	0.0013
-22	0.2624	0.5232	0.0005	0.2632	0.5234	0.0013
-21	0.2624	0.5232	0.0005	0.2632	0.5234	0.0013
-20	0.2624	0.5232	0.0005	0.2632	0.5234	0.0013
-19	0.2625	0.5232	0.0006	0.2632	0.5234	0.0013
-18	0.2625	0.5232	0.0006	0.2632	0.5234	0.0013
-17	0.2626	0.5232	0.0006	0.2632	0.5234	0.0013
-16	0.2625	0.5232	0.0006	0.2632	0.5233	0.0013
-15	0.2625	0.5232	0.0006	0.2632	0.5234	0.0013
-14	0.2625	0.5232	0.0006	0.2632	0.5234	0.0013
-13	0.2625	0.5232	0.0006	0.2632	0.5233	0.0013
-12	0.2625	0.5232	0.0006	0.2632	0.5233	0.0013
-11	0.2625	0.5232	0.0006	0.2632	0.5234	0.0013
-10	0.2625	0.5232	0.0006	0.2632	0.5233	0.0013
-9	0.2625	0.5231	0.0006	0.2632	0.5233	0.0012
-8	0.2625	0.5232	0.0006	0.2632	0.5233	0.0012
-7	0.2625	0.5231	0.0006	0.2632	0.5233	0.0013
-6	0.2625	0.5232	0.0006	0.2632	0.5233	0.0012
-5	0.2625	0.5232	0.0006	0.2632	0.5233	0.0012
-4	0.2625	0.5231	0.0006	0.2631	0.5233	0.0012

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-3	0.2625	0.5231	0.0006	0.2632	0.5233	0.0012
-2	0.2624	0.5231	0.0005	0.2632	0.5233	0.0012
-1	0.2625	0.5231	0.0005	0.2632	0.5233	0.0012
0	0.2625	0.5232	0.0006	0.2625	0.5232	0.0006
1	0.2624	0.5232	0.0005	0.2632	0.5233	0.0012
2	0.2624	0.5231	0.0005	0.2632	0.5233	0.0012
3	0.2625	0.5231	0.0005	0.2632	0.5233	0.0012
4	0.2625	0.5231	0.0005	0.2632	0.5233	0.0012
5	0.2624	0.5231	0.0005	0.2632	0.5233	0.0012
6	0.2625	0.5231	0.0005	0.2632	0.5233	0.0012
7	0.2625	0.5231	0.0005	0.2632	0.5233	0.0012
8	0.2624	0.5231	0.0005	0.263	0.5233	0.0011
9	0.2624	0.5231	0.0005	0.263	0.5233	0.0011
10	0.2625	0.5231	0.0005	0.263	0.5233	0.0011
11	0.2624	0.5231	0.0005	0.263	0.5233	0.0011
12	0.2624	0.5231	0.0005	0.263	0.5233	0.0011
13	0.2624	0.5231	0.0005	0.263	0.5233	0.001
14	0.2624	0.5232	0.0005	0.263	0.5233	0.0011
15	0.2624	0.5232	0.0005	0.263	0.5233	0.0011
16	0.2624	0.5231	0.0005	0.263	0.5233	0.0011
17	0.2624	0.5232	0.0005	0.263	0.5233	0.0011
18	0.2624	0.5232	0.0005	0.263	0.5233	0.0011
19	0.2624	0.5231	0.0005	0.263	0.5233	0.0011
20	0.2624	0.5231	0.0004	0.263	0.5233	0.001
21	0.2624	0.5231	0.0005	0.263	0.5233	0.0011
22	0.2624	0.5231	0.0004	0.263	0.5233	0.0011
23	0.2623	0.5232	0.0004	0.263	0.5233	0.0011
24	0.2624	0.5231	0.0004	0.2628	0.5233	0.0009
25	0.2624	0.5231	0.0004	0.2628	0.5232	0.0009
26	0.2623	0.5231	0.0004	0.2628	0.5232	0.0009
27	0.2623	0.5231	0.0004	0.2628	0.5232	0.0009
28	0.2623	0.5231	0.0004	0.2628	0.5232	0.0009
29	0.2623	0.5231	0.0004	0.2628	0.5232	0.0009
30	0.2623	0.5231	0.0004	0.2628	0.5232	0.0009
31	0.2623	0.5231	0.0003	0.2627	0.5232	0.0007
32	0.2622	0.5231	0.0003	0.2626	0.5232	0.0007
33	0.262	0.5231	0.0001	0.2626	0.5232	0.0007
34	0.2621	0.5231	0.0002	0.2626	0.5232	0.0007
35	0.262	0.5231	0.0001	0.2626	0.5232	0.0007
36	0.262	0.523	0.0001	0.2626	0.5231	0.0006

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37	0.262	0.523	0.0001	0.2624	0.5231	0.0005
38	0.262	0.523	0.0001	0.2624	0.5231	0.0005
39	0.262	0.523	0.0001	0.2624	0.5231	0.0005
40	0.2619	0.523	0.0001	0.2624	0.5231	0.0004
41	0.2619	0.5229	0.0001	0.2624	0.523	0.0004
42	0.2617	0.5229	0.0003	0.2622	0.523	0.0002
43	0.2617	0.5229	0.0003	0.2622	0.523	0.0002
44	0.2617	0.5229	0.0003	0.2622	0.523	0.0002
45	0.2616	0.5228	0.0004	0.2622	0.5229	0.0002
46	0.2616	0.5228	0.0004	0.262	0.5229	0
47	0.2616	0.5228	0.0004	0.262	0.5229	0
48	0.2613	0.5227	0.0007	0.262	0.5229	0.0001
49	0.2613	0.5227	0.0007	0.262	0.5228	0.0001
50	0.2613	0.5227	0.0007	0.2619	0.5228	0.0001
51	0.2613	0.5227	0.0008	0.2619	0.5228	0.0002
52	0.2612	0.5226	0.0008	0.2619	0.5227	0.0002
53	0.2612	0.5226	0.0009	0.2618	0.5227	0.0003
54	0.2609	0.5225	0.0011	0.2614	0.5226	0.0006
55	0.2609	0.5225	0.0012	0.2614	0.5226	0.0007
56	0.2609	0.5224	0.0012	0.2614	0.5225	0.0007
57	0.2608	0.5224	0.0013	0.2613	0.5225	0.0008
58	0.2606	0.5223	0.0015	0.2612	0.5224	0.0009
59	0.2605	0.5223	0.0016	0.2612	0.5224	0.001
60	0.2604	0.5222	0.0017	0.2608	0.5223	0.0013
61	0.2602	0.5221	0.002	0.2608	0.5222	0.0014
62	0.2601	0.5221	0.0021	0.2608	0.5222	0.0014
63	0.26	0.522	0.0022	0.2607	0.5221	0.0015
64	0.2597	0.5219	0.0025	0.2603	0.522	0.0019
65	0.2597	0.5219	0.0026	0.2603	0.522	0.002
66	0.2594	0.5218	0.0029	0.2602	0.522	0.002
67	0.2593	0.5217	0.0029	0.2598	0.5219	0.0024
68	0.2591	0.5217	0.0032	0.2598	0.5219	0.0024
69	0.2589	0.5217	0.0034	0.2599	0.522	0.0023
70	0.2589	0.5218	0.0033	0.2597	0.522	0.0025
71	0.2589	0.5219	0.0033	0.2598	0.5222	0.0023
72	0.2589	0.5221	0.0032	0.2598	0.5224	0.0023
73	0.2591	0.5224	0.0029	0.2601	0.5227	0.0019

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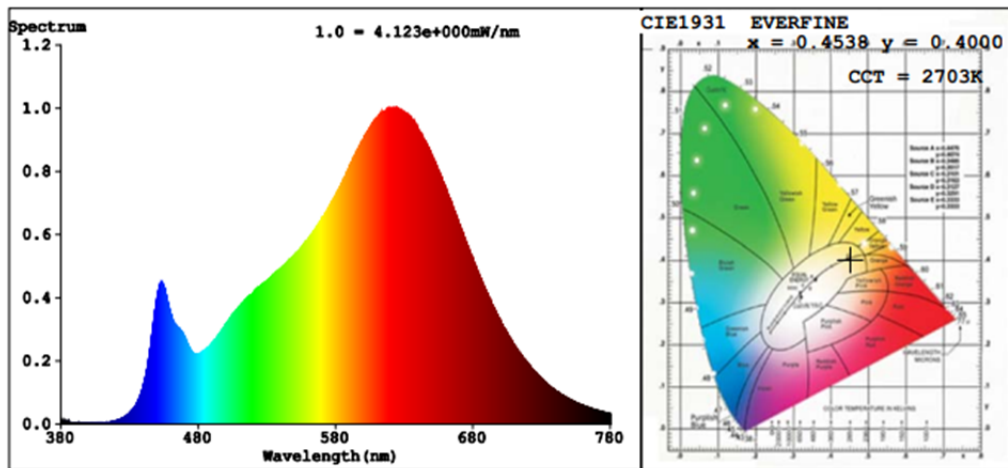
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3. Electrical and Photometric Measurements, with dimming	IES LM-79 2008 ENERGY STAR[®] Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
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Test date	2017-10-09	Test Ambient:	25.1°C		
Dimmer Model		LEVITON MFG CO INC (E31373), Cat. No. 6681			
Sample No.	Input	Luminous flux (lm)	CCT (K)	CRI	P.F.
GZE1709109-H-H1	120.0 V / 60 Hz	192.3	2703	93.2	0.2615
GZE1709109-H-H2	120.0 V / 60 Hz	149.1	2703	93.3	0.2167
GZE1709109-H-H3	120.0 V / 60 Hz	137.1	2705	93.4	0.2502
Average		159.5	2704	93.3	0.2428



Colorimetric Parameters

Chromaticity Coordinate: $x=0.4538$ $y=0.4000$ / $u'=0.2633$ $v'=0.5223$ $Dx, Dy: -0.0059, -0.0105$
 CCT=2703K (Duv=-0.0035) Dominant WL: $\lambda_d = 585.4\text{nm}$ Purity=56.3%
 Peak WL: $\lambda_p = 622.5\text{nm}$ FWHM=139.6nm
 Render Index: Ra=93.2 CRI=91.7
 R1 =95 R2 =99 R3 =96 R4 =94 R5 =96 R6 =95 R7 =89
 R8 =81 R9 =62 R10=99 R11=96 R12=86 R13=97 R14=99 R15=91

The luminaires [can] ~~lean not~~ provide less than 20% of total light output with continuous dimmer.

Dimmer	Peak Noise Reading (dBA)	Test Condition	Distance between the microphone and the UUT
LEVITON MFG CO INC (E31373), Cat. No. 6681	19.3	Dimmer adjusted to lowest light output	< 1 m

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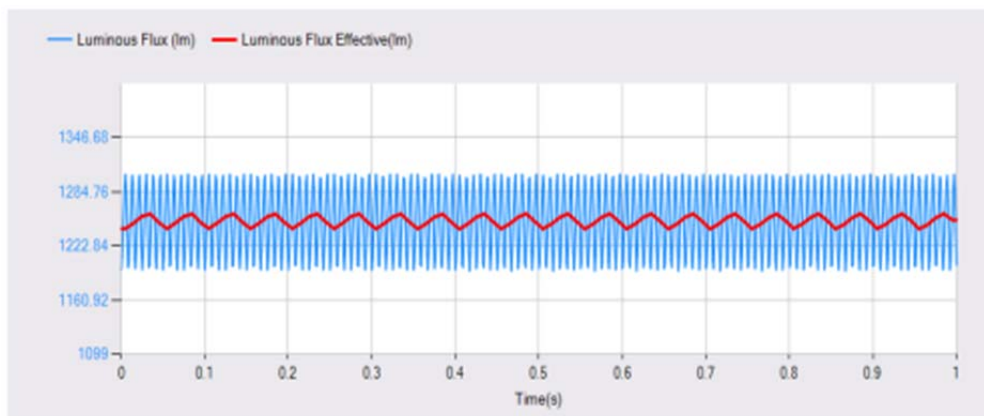
Report Format Number STD/QR4910-A/1

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4 Operating Frequency	ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
Noted: This test and data are not covered by NVLAP accreditation	

Test date	2017-10-09	Test Ambient:	25.1°C
Sample No.	Operating Frequency (Hz)		
GZE1709109-H-H1	120.37		
GZE1709109-H-H2	120.22		
GZE1709109-H-H3	120.41		
Average	120.33		



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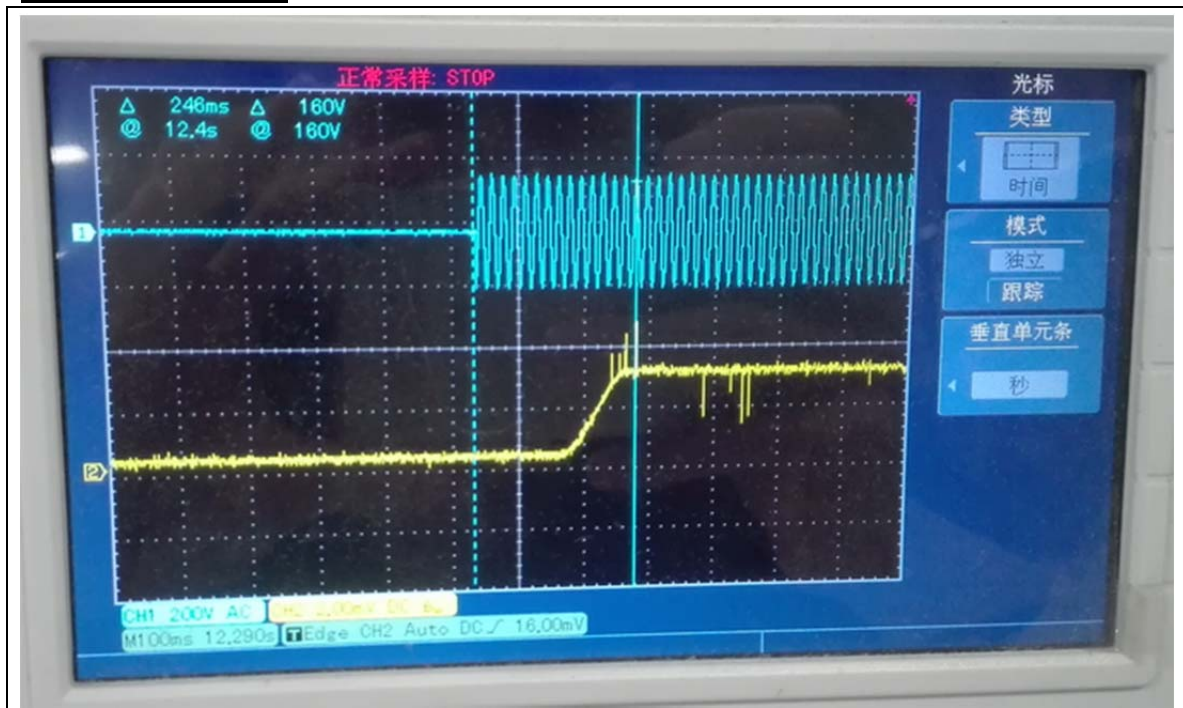
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<p>5 Starting Time (Refer to Work Instruction QD28)</p>	<p>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</p>
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Test date	2017-10-09	Test Ambient:	25.1°C
Sample No.	Start Time (ms)		
GZE1709109-H-H1	246		
GZE1709109-H-H2	240		
GZE1709109-H-H3	226		
Average	237		

Graph (Start Time):



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6. Transient Protection Test <i>(Refer to Work Instruction QD34)</i>	ANSI/IEEE C62.41 ENERGY STAR® Program Requirements for Luminaires – Version 2.0
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Test voltage: 120V,60Hz

Test date	2017-10-09	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
GZE1709109-H-H1		Pass	
GZE1709109-H-H2		Pass	
GZE1709109-H-H3		Pass	

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

Report Format Number STD/QR4910-A/1

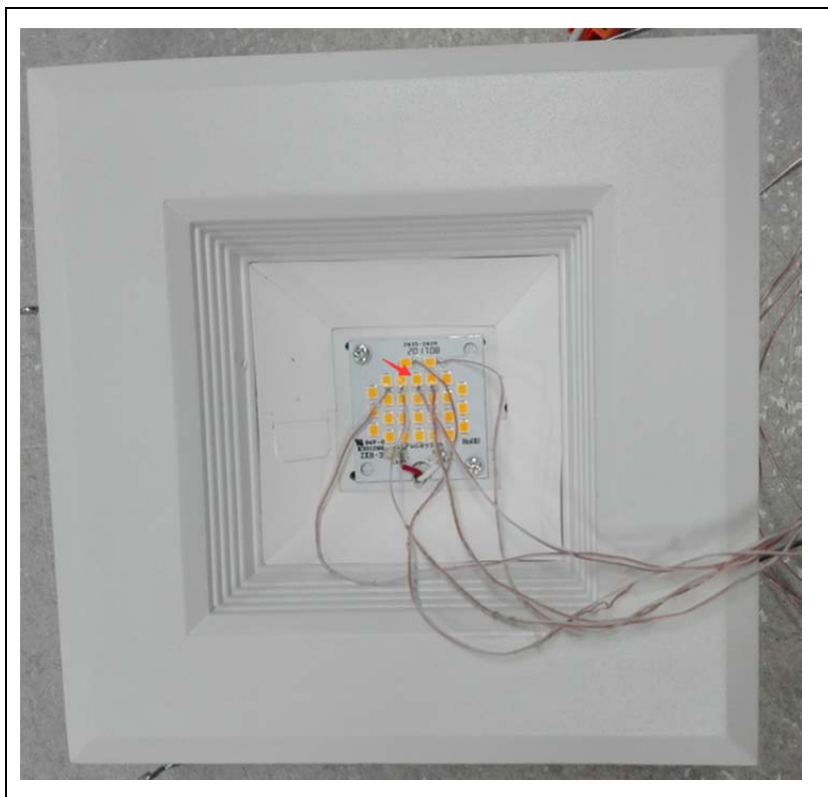
Address: Standard-Tech Building, No.6 Guanhong Road,Guangzhou Science City, Guangzhou 510663, China

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

7.1 In-Situ Temperature Measurement Test (ISTMT)	UL1598-2008, 3rd Edition
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Test date	2017-10-09	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	148
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1709109-H-H1	2T03X5WW11000003	75.7	105

In-Situ Picture - Ts:



7.2 Maximum Measured Ballast or Driver Case Temperature	UL1598-2008, 3rd Edition
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Test date	2017-10-09	Test Ambient	25.1°C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1709109-H-H1	89.4	105	

In-Situ Picture - Ts:



8 Off-State Power Consumption:	ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
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Test date	2017-10-09	Test Ambient:	25.0 ° C
Model Number	LRKT543W-EN-2790	Stabilization Time (min)	90

Electrical Measurement – when the luminaires turned off:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)
GZE1709109-H -H1	120.0	60	0	0

8. 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
EE-09	Goniophotometer system	2017-07-01	2018-06-30
D908S	Standard Lamp	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
PF210	Power Meter for Goniophotometer	2017-07-01	2018-06-30
EE-015	Flux Meter	2017-07-01	2018-06-30
ST-R-277	Oscillograph	2017-07-01	2018-06-30
ST-R-EM01	Surge Generator	2017-07-01	2018-06-30
ST-R-EM02	EMC Coupler/Decoupler Module	2017-07-01	2018-06-30
Uncertainty Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

******* END OF DATASHEET PACKAGE *******