

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): LRKT560W-EN-##90

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

Representative (Tested) Model: LRKT560W-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

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<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-I
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	L-TECH CORPORTION		
Brand Name	L-TECH CORP		
Model Number	LRKT560W-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	--	12.21	W
Input Current	--	0.1060	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9599	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	908.47	lm
Initial Lumen Efficacy	--	74.40	lm/w
Correlated color temperature / CCT	2725	--	K
Color rendering index / CRI	92.4	--	
R9 Value	59	--	
Duv	0.0011	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)		355	cd
Beam angle (if applicable)		106.5	°
Zonal lumens in the 0°-60° zone		84.1	%
Zonal lumens in the 60°-90° zone	-----	15.9	%
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

Test Methods

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.

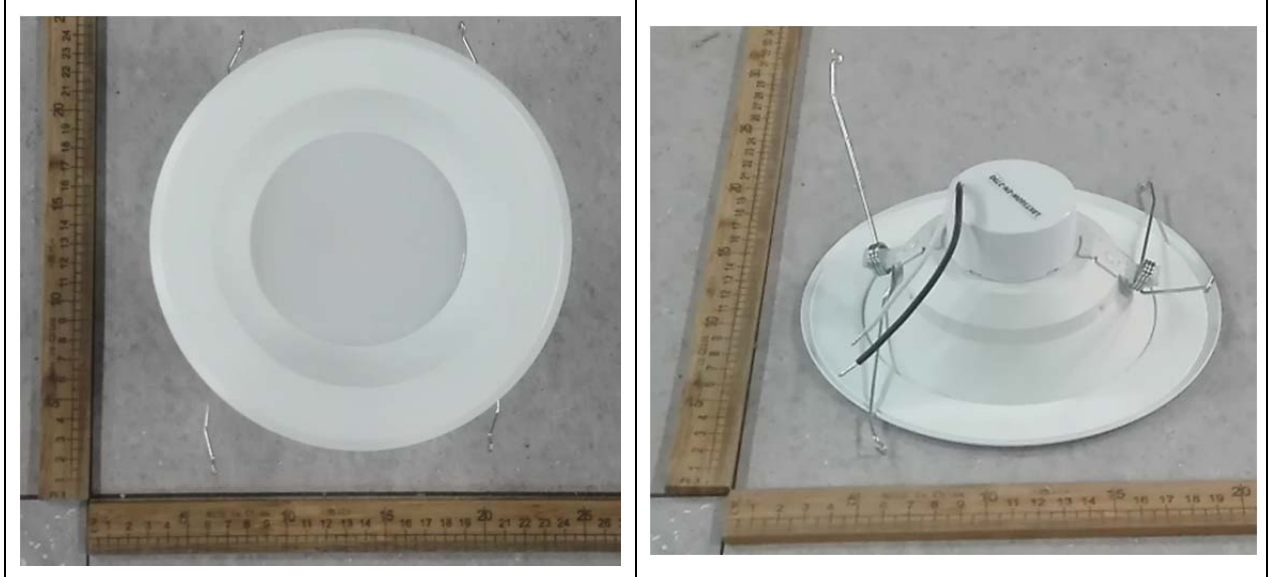
2. Photometric and Electrical Measurements – Integrating Sphere Method:

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.

1. Product Information:

Brand Name	L-TECH CORP
Model Number	LRKT560W-EN-##90
Luminaire Type	Downlights
Rated Voltage / Frequency	120Vac, 50/60 Hz
Nominal Power	13W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,4000K,5000K
LED Manufacturer	Seoul Semiconductor Co., LTD
LED Model	SAWxA32E-xx
Sample Receipt Date	Sep.20,2017
Sample Number	GZE1709109-H-I1,I2,I3

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	LRKT560W-EN-2790		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1709109-H-I1	120.0	60	0.1060	12.21	0.9599
GZE1709109-H-I2	120.0	60	0.1078	12.43	0.9613
GZE1709109-H-I3	120.0	60	0.1093	12.51	0.9541
Average			0.1077	12.38	0.9584

Sphere-Spectroradiometer Method:

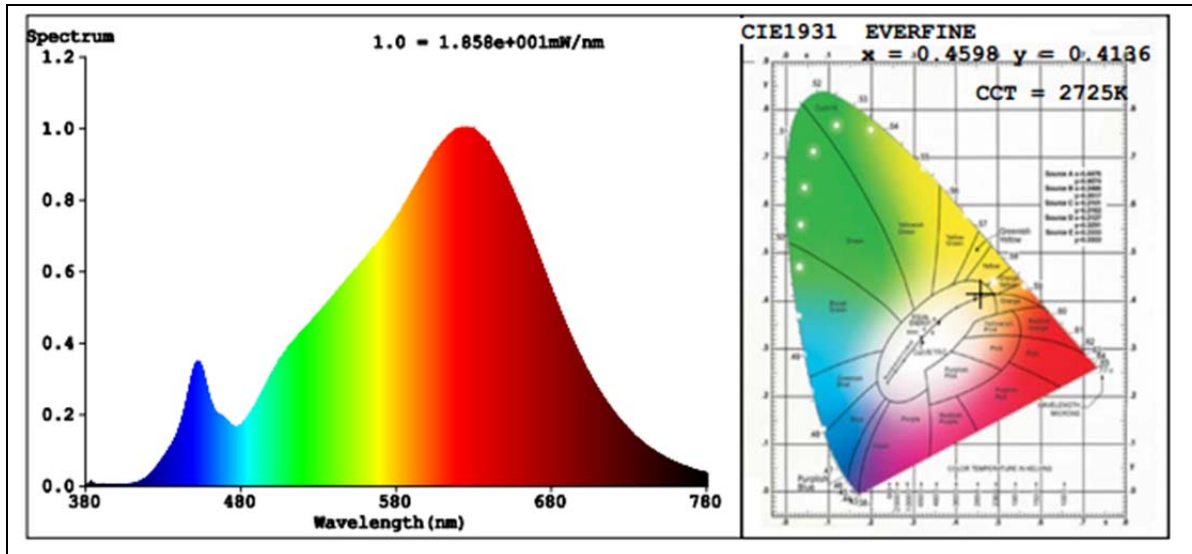
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	92.4
R9	59
CCT (K)	2725
Chromaticity (x, y)	x=0.4598 y=0.4136
Chromaticity (u', v')	u'=0.2611 v'=0.5285
Duv	0.0011

Special Color Rendering Indices			
R1	92	R9	59
R2	95	R10	89
R3	97	R11	94
R4	93	R12	83
R5	92	R13	93
R6	95	R14	98
R7	93	R15	88
R8	82	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	908.47
Luminous Efficacy (lm/W)	74.40
Beam Angle°	106.5
Center Beam Candle Power (cd)	355

Spectral Power Distribution and Chromaticity Diagram



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

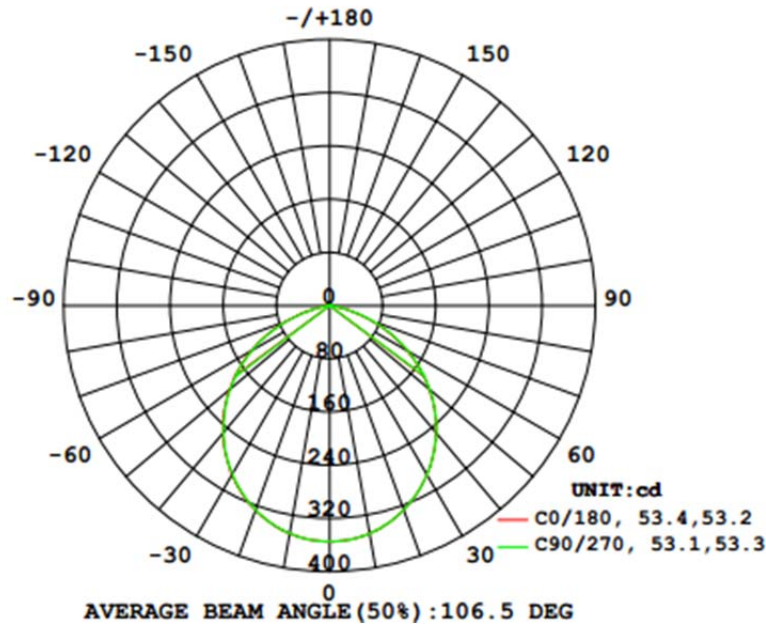
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Zonal Lumen Tabulation

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	272.5	30%
0-40	442.9	48.8%
0-60	764.1	84.1%
60-90	144.2	15.9%
70-100	42.8	4.7%
90-120	0.0	0%
0-90	908.3	100%
90-180	0.0	0%
0-180	908.4	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	33.5	3.7%	90-100	0.0	0%
10-20	95.6	10.5%	100-110	0	0%
20-30	143.4	15.8%	110-120	0.0	0%
30-40	170.4	18.8%	120-130	0.0	0%
40-50	172.5	19.0%	130-140	0.0	0%
50-60	148.7	16.4%	140-150	0.0	0%
60-70	101.4	11.2%	150-160	0.0	0%
70-80	39.3	4.3%	160-170	0.0	0%
80-90	3.6	0.4%	170-180	0.0	0%

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Table--1 UNIT: cd

C (DEG) y (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338	
0	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	355	
5	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	
10	347	348	348	348	348	348	347	347	348	348	348	348	348	347	348	348	
15	339	339	339	339	339	338	338	339	339	339	339	339	339	339	339	339	
20	327	327	327	327	327	326	326	326	327	327	327	327	327	326	327	327	
25	311	312	312	312	311	311	311	311	312	312	312	311	311	311	311	312	
30	293	294	294	294	293	293	292	293	294	294	293	293	293	293	293	293	
35	273	273	274	274	273	272	271	272	273	273	273	272	272	272	272	273	
40	249	250	251	251	250	249	248	249	250	250	249	249	249	249	249	249	
45	224	225	226	225	224	223	223	223	225	225	224	223	223	223	224	224	
50	196	197	198	198	197	196	195	195	197	197	196	195	195	195	196	196	
55	166	167	168	168	167	166	166	166	168	167	167	166	166	166	166	167	
60	135	136	137	137	136	135	135	135	136	136	135	135	134	135	135	135	
65	102	103	104	104	104	103	102	102	104	103	102	102	102	102	102	103	
70	68.8	69.8	70.4	70.7	70.6	70.2	69.8	69.4	70.1	69.5	68.9	68.3	68.0	68.0	68.3	69.1	
75	35.7	36.5	37.1	37.3	37.5	37.4	37.1	36.6	37.0	36.4	35.8	35.2	34.9	34.8	35.1	35.7	
80	9.20	9.68	10.0	10.3	10.5	10.5	10.3	10.0	10.1	9.66	9.26	8.95	8.76	8.71	8.87	9.24	
85	2.66	2.74	2.81	2.86	2.90	2.93	2.91	2.86	2.87	2.79	2.73	2.67	2.62	2.60	2.62	2.67	
90	0.01	0.01	0.02	0.03	0.05	0.05	0.06	0.04	0.05	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	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	
125	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	
130	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	
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-I1	0.0026

Gamma\C	CIE u'	CIE v'	du' v'	CIE u'	CIE v'	du' v'
-75	0.26	0.5271	0.0024	0.2602	0.5271	0.0023
-74	0.2603	0.5272	0.002	0.2603	0.5271	0.0021
-73	0.2605	0.5273	0.0019	0.2606	0.5273	0.0018
-72	0.2608	0.5275	0.0015	0.2607	0.5274	0.0016
-71	0.2608	0.5275	0.0014	0.2609	0.5275	0.0014
-70	0.2609	0.5276	0.0014	0.261	0.5276	0.0013
-69	0.2612	0.5277	0.001	0.2612	0.5277	0.0011
-68	0.2613	0.5278	0.001	0.2612	0.5277	0.001
-67	0.2613	0.5278	0.001	0.2615	0.5278	0.0008
-66	0.2614	0.5279	0.0008	0.2615	0.5279	0.0007
-65	0.2614	0.528	0.0008	0.2615	0.5279	0.0007
-64	0.2617	0.528	0.0004	0.2617	0.528	0.0005
-63	0.2618	0.5281	0.0004	0.2617	0.528	0.0005
-62	0.2618	0.5281	0.0004	0.2617	0.5281	0.0005
-61	0.2618	0.5282	0.0004	0.2619	0.5281	0.0003
-60	0.2618	0.5282	0.0004	0.2619	0.5281	0.0003
-59	0.2621	0.5282	0.0002	0.2619	0.5282	0.0003
-58	0.2622	0.5283	0.0002	0.2619	0.5282	0.0003
-57	0.2621	0.5283	0.0002	0.2621	0.5282	0.0002
-56	0.2621	0.5283	0.0002	0.2622	0.5282	0.0002
-55	0.2621	0.5283	0.0002	0.2622	0.5283	0.0002
-54	0.2622	0.5283	0.0002	0.2622	0.5282	0.0002
-53	0.2621	0.5283	0.0003	0.2624	0.5283	0.0003
-52	0.2622	0.5283	0.0003	0.2624	0.5283	0.0003
-51	0.2622	0.5283	0.0003	0.2624	0.5283	0.0003
-50	0.2622	0.5284	0.0003	0.2624	0.5283	0.0003
-49	0.2622	0.5283	0.0003	0.2624	0.5283	0.0003
-48	0.2625	0.5284	0.0005	0.2624	0.5283	0.0003
-47	0.2626	0.5284	0.0005	0.2625	0.5284	0.0004
-46	0.2625	0.5284	0.0005	0.2626	0.5284	0.0005

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-45	0.2626	0.5284	0.0005	0.2626	0.5284	0.0005
-44	0.2626	0.5284	0.0005	0.2626	0.5283	0.0005
-43	0.2626	0.5284	0.0005	0.2626	0.5283	0.0005
-42	0.2626	0.5284	0.0005	0.2625	0.5283	0.0004
-41	0.2625	0.5284	0.0005	0.2625	0.5283	0.0004
-40	0.2625	0.5283	0.0004	0.2625	0.5283	0.0004
-39	0.2625	0.5283	0.0004	0.2627	0.5283	0.0006
-38	0.2625	0.5283	0.0004	0.2627	0.5283	0.0006
-37	0.2625	0.5283	0.0004	0.2627	0.5283	0.0006
-36	0.2625	0.5283	0.0004	0.2627	0.5283	0.0006
-35	0.2626	0.5283	0.0005	0.2627	0.5283	0.0005
-34	0.2626	0.5283	0.0005	0.2627	0.5283	0.0005
-33	0.2626	0.5283	0.0004	0.2627	0.5282	0.0005
-32	0.2626	0.5282	0.0004	0.2626	0.5282	0.0005
-31	0.2626	0.5282	0.0004	0.2626	0.5282	0.0005
-30	0.2626	0.5282	0.0004	0.2626	0.5282	0.0005
-29	0.2625	0.5282	0.0004	0.2626	0.5282	0.0004
-28	0.2626	0.5282	0.0005	0.2626	0.5282	0.0004
-27	0.2626	0.5282	0.0005	0.2628	0.5282	0.0006
-26	0.2626	0.5282	0.0004	0.2628	0.5282	0.0006
-25	0.2626	0.5281	0.0005	0.2627	0.5281	0.0006
-24	0.2626	0.5281	0.0004	0.2628	0.5281	0.0006
-23	0.2626	0.5281	0.0004	0.2627	0.5281	0.0006
-22	0.2626	0.5281	0.0004	0.2628	0.5281	0.0006
-21	0.2625	0.5281	0.0004	0.2627	0.528	0.0005
-20	0.2625	0.528	0.0003	0.2627	0.528	0.0005
-19	0.2625	0.528	0.0003	0.2627	0.528	0.0005
-18	0.2626	0.5281	0.0004	0.2627	0.528	0.0005
-17	0.2626	0.528	0.0004	0.2627	0.528	0.0005
-16	0.2626	0.528	0.0004	0.2627	0.528	0.0005
-15	0.2626	0.528	0.0004	0.2626	0.5279	0.0005
-14	0.2626	0.528	0.0004	0.2626	0.5279	0.0005
-13	0.2625	0.528	0.0004	0.2626	0.5279	0.0005
-12	0.2625	0.5279	0.0004	0.2626	0.5279	0.0004
-11	0.2625	0.5279	0.0004	0.2626	0.5279	0.0004
-10	0.2625	0.5279	0.0004	0.2626	0.5279	0.0004
-9	0.2625	0.5279	0.0004	0.2626	0.5279	0.0004
-8	0.2625	0.5279	0.0003	0.2626	0.5278	0.0005
-7	0.2625	0.5279	0.0004	0.2625	0.5278	0.0004
-6	0.2624	0.5279	0.0003	0.2625	0.5278	0.0004

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-5	0.2625	0.5279	0.0004	0.2625	0.5278	0.0004
-4	0.2624	0.5279	0.0003	0.2625	0.5278	0.0004
-3	0.2624	0.5278	0.0004	0.2625	0.5278	0.0004
-2	0.2624	0.5278	0.0003	0.2625	0.5278	0.0004
-1	0.2624	0.5278	0.0003	0.2625	0.5278	0.0004
0	0.2625	0.5279	0.0004	0.2625	0.5279	0.0004
1	0.2624	0.5278	0.0004	0.2625	0.5278	0.0004
2	0.2624	0.5278	0.0003	0.2625	0.5278	0.0004
3	0.2624	0.5278	0.0003	0.2625	0.5278	0.0004
4	0.2624	0.5278	0.0003	0.2625	0.5278	0.0004
5	0.2624	0.5278	0.0003	0.2625	0.5278	0.0004
6	0.2624	0.5278	0.0003	0.2625	0.5278	0.0004
7	0.2624	0.5278	0.0003	0.2623	0.5278	0.0003
8	0.2624	0.5278	0.0003	0.2623	0.5278	0.0003
9	0.2624	0.5278	0.0003	0.2623	0.5278	0.0003
10	0.2624	0.5278	0.0003	0.2623	0.5278	0.0003
11	0.2624	0.5278	0.0003	0.2623	0.5278	0.0003
12	0.2624	0.5279	0.0003	0.2623	0.5278	0.0003
13	0.2624	0.5279	0.0003	0.2623	0.5278	0.0003
14	0.2624	0.5279	0.0003	0.2623	0.5278	0.0003
15	0.2624	0.5279	0.0003	0.2624	0.5279	0.0003
16	0.2624	0.5279	0.0003	0.2624	0.5279	0.0003
17	0.2624	0.5279	0.0003	0.2624	0.5279	0.0003
18	0.2624	0.5279	0.0003	0.2623	0.5279	0.0003
19	0.2624	0.528	0.0003	0.2624	0.5279	0.0003
20	0.2624	0.528	0.0003	0.2624	0.5279	0.0003
21	0.2624	0.5279	0.0003	0.2624	0.5279	0.0003
22	0.2624	0.528	0.0003	0.2624	0.5279	0.0003
23	0.2624	0.528	0.0003	0.2624	0.5279	0.0003
24	0.2624	0.528	0.0003	0.2622	0.5279	0.0002
25	0.2625	0.528	0.0003	0.2623	0.5279	0.0002
26	0.2625	0.528	0.0003	0.2623	0.528	0.0001
27	0.2625	0.5281	0.0003	0.2623	0.528	0.0001
28	0.2625	0.5281	0.0003	0.2623	0.528	0.0001
29	0.2625	0.5281	0.0003	0.2623	0.528	0.0001
30	0.2625	0.5281	0.0003	0.2623	0.528	0.0001
31	0.2625	0.5281	0.0003	0.2623	0.5281	0.0001
32	0.2625	0.5281	0.0003	0.2623	0.528	0.0001
33	0.2623	0.5281	0.0001	0.2622	0.528	0
34	0.2623	0.5281	0.0001	0.2622	0.5281	0

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

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35	0.2623	0.5281	0.0001	0.2622	0.5281	0
36	0.2623	0.5281	0.0002	0.2622	0.5281	0
37	0.2623	0.5282	0.0002	0.2622	0.5281	0.0001
38	0.2623	0.5281	0.0002	0.2623	0.5281	0.0001
39	0.2623	0.5282	0.0002	0.2621	0.5281	0.0001
40	0.2623	0.5282	0.0002	0.2621	0.5281	0.0001
41	0.2623	0.5282	0.0002	0.2621	0.5281	0.0001
42	0.2623	0.5282	0.0002	0.2621	0.5281	0.0001
43	0.2621	0.5282	0.0001	0.2621	0.5281	0.0001
44	0.2621	0.5282	0.0001	0.262	0.5281	0.0002
45	0.2621	0.5282	0.0001	0.262	0.5281	0.0002
46	0.2622	0.5282	0.0001	0.262	0.5281	0.0002
47	0.2621	0.5282	0.0001	0.262	0.5281	0.0002
48	0.2621	0.5282	0.0001	0.262	0.5282	0.0002
49	0.2621	0.5282	0.0001	0.262	0.5281	0.0002
50	0.2619	0.5281	0.0002	0.262	0.5281	0.0002
51	0.262	0.5281	0.0002	0.262	0.5281	0.0002
52	0.262	0.5281	0.0002	0.262	0.5281	0.0002
53	0.2619	0.5281	0.0003	0.262	0.5281	0.0002
54	0.2619	0.5281	0.0003	0.2617	0.5281	0.0005
55	0.2619	0.5281	0.0003	0.2617	0.5281	0.0005
56	0.2617	0.5281	0.0005	0.2617	0.528	0.0005
57	0.2617	0.5281	0.0005	0.2617	0.528	0.0005
58	0.2617	0.528	0.0005	0.2617	0.528	0.0005
59	0.2617	0.528	0.0005	0.2617	0.528	0.0005
60	0.2615	0.528	0.0007	0.2617	0.528	0.0005
61	0.2615	0.5279	0.0007	0.2613	0.5279	0.0009
62	0.2615	0.5279	0.0007	0.2613	0.5279	0.0008
63	0.2615	0.5279	0.0007	0.2614	0.5278	0.0009
64	0.2613	0.5278	0.0009	0.2613	0.5278	0.0009
65	0.2613	0.5278	0.0009	0.2613	0.5278	0.0009
66	0.2613	0.5277	0.001	0.261	0.5277	0.0013
67	0.2611	0.5277	0.0012	0.261	0.5276	0.0013
68	0.261	0.5276	0.0012	0.261	0.5276	0.0013
69	0.2608	0.5275	0.0015	0.2609	0.5275	0.0014
70	0.2608	0.5275	0.0015	0.2606	0.5274	0.0017
71	0.2606	0.5273	0.0017	0.2606	0.5273	0.0017
72	0.2605	0.5273	0.0018	0.2606	0.5272	0.0018
73	0.2603	0.5272	0.002	0.2602	0.5271	0.0022
74	0.2602	0.5271	0.0022	0.2602	0.527	0.0022

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75	0.26	0.527	0.0024	0.2599	0.5269	0.0026
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Laboratory: Standard-Tech Co. Ltd Testing Center
NVLAP CODE: 201011-0

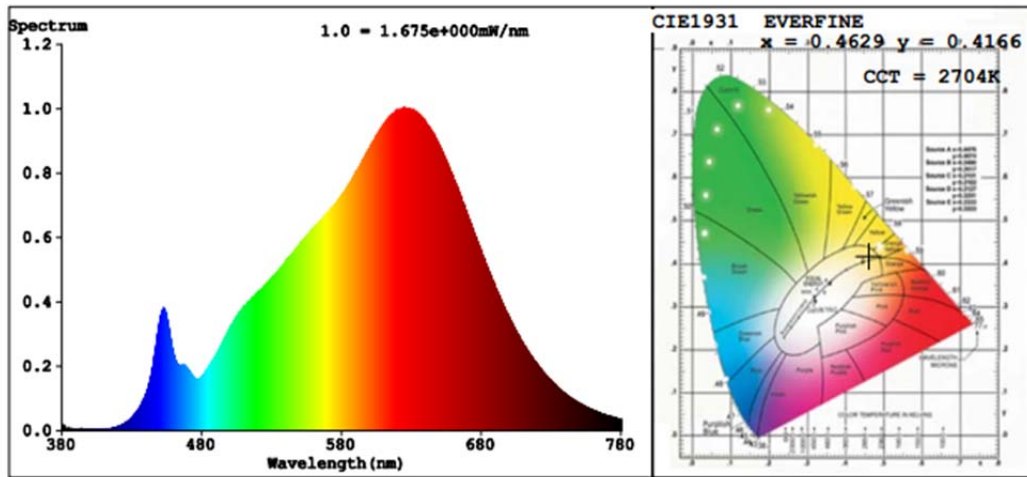
Report Format Number STD/QR4910-A/1

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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-I1	120.0 V / 60 Hz	77.11	2704	93.2	0.2236
GZE1709109-H-I2	120.0 V / 60 Hz	124.7	2708	93.1	0.2334
GZE1709109-H-I3	120.0 V / 60 Hz	138.0	2702	93.1	0.2811
Average		113.27	2705	93.1	0.2460



Colorimetric Parameters

Chromaticity Coordinate: $x=0.4629$ $y=0.4166$ / $u'=0.2618$ $v'=0.5301$ $Dx, Dy=0.0034, 0.0060$
 CCT=2704K (Duv=0.0019) Dominant WL: $\lambda_d = 583.6$ nm Purity=64.0%
 Peak WL: $\lambda_p = 624.8$ nm FWHM=148.6nm
 Render Index: Ra=93.2 CRI=90.5
 R1 =93 R2 =96 R3 =98 R4 =94 R5 =93 R6 =96 R7 =93
 R8 =83 R9 =63 R10=90 R11=95 R12=82 R13=94 R14=98 R15=89

The luminaires [can] ~~can 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	15.4	Dimmer adjusted to lowest light output	< 1 m

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

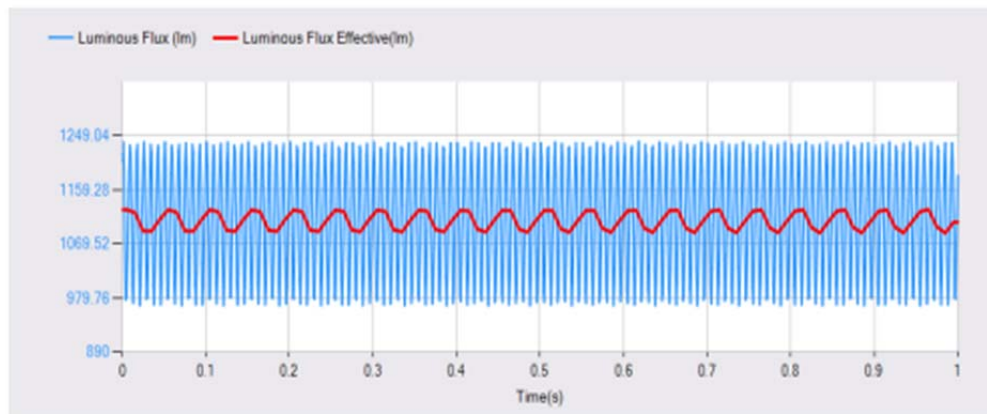
Report Format Number STD/QR4910-A/1

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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-11		120.37	
GZE1709109-H-12		120.41	
GZE1709109-H-13		120.48	
Average		120.42	



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

Report Format Number STD/QR4910-A/1

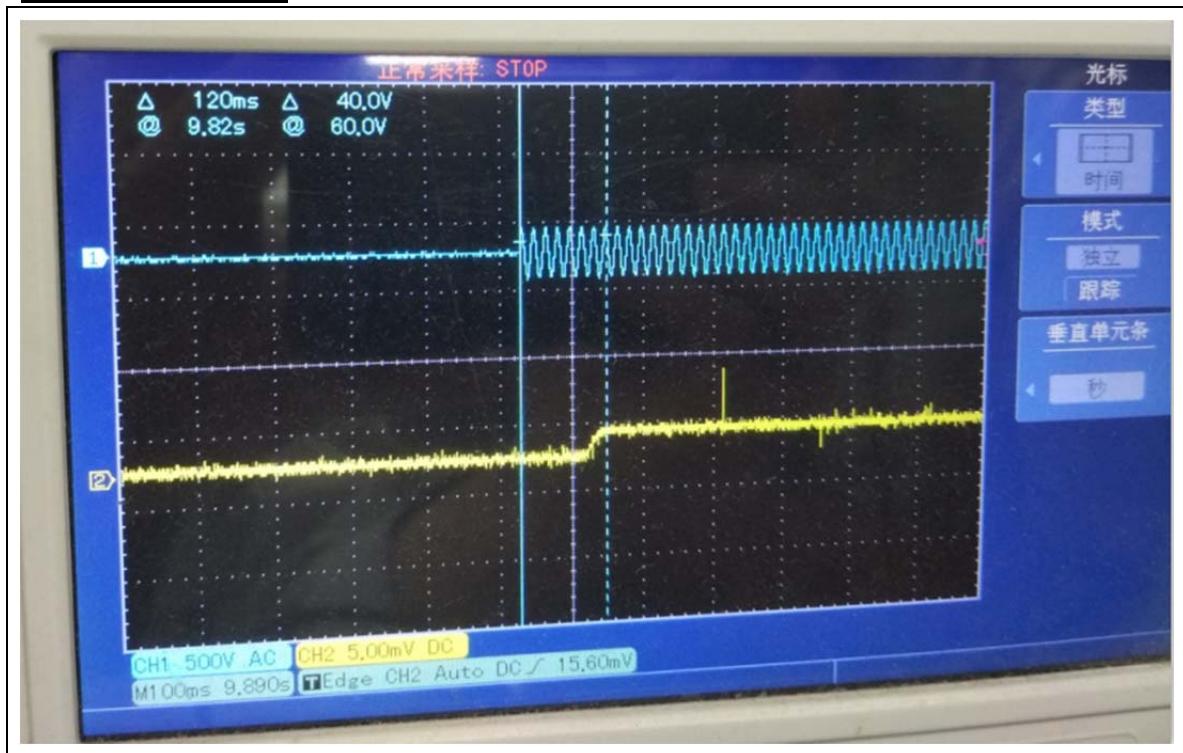
Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

<p>5 Starting Time <i>(Refer to Work Instruction QD28)</i></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-I1	120		
GZE1709109-H-I2	110		
GZE1709109-H-I3	124		
Average	118		

Graph (Start Time):



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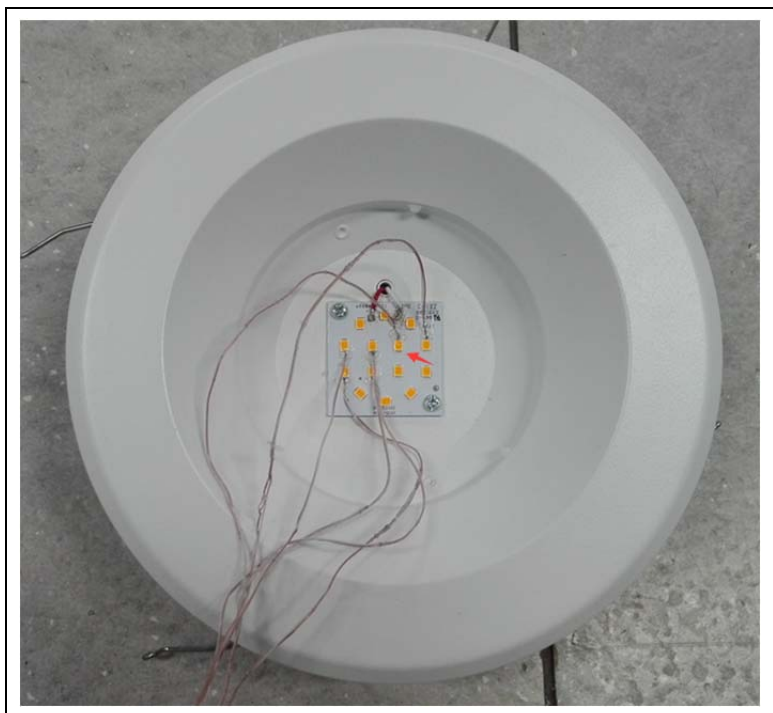
Test voltage: 120V,60Hz

Test date	2017-10-09	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
GZE1709109-H-I1		Pass	
GZE1709109-H-I2		Pass	
GZE1709109-H-I3		Pass	

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)	91.5
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1709109-H-11	SAWxA32E-xx	89.7	105

In-Situ Picture - Ts:



7.2 Maximum Measured Ballast or Driver Case Temperature | **UL1598-2008, 3rd Edition**

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-I1	85.8	105	

In-Situ Picture - Ts:



8 Off-State Power Consumption:**ENERGY STAR® Program Requirements Product
Specification for Luminaires (Light Fixtures) -
Version 2.0**

Test date	2017-10-09	Test Ambient:	25.0 ° C
Model Number	LRKT560W-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 -I1	120.0	60	0	0

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

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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 *******