

## **Energy Star Test Report**

For

### **L-TECH CORPORATION**

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

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

### **SSL downlight retrofits**

Model name(s): LRKT563W-NC-2790

Representative (Tested) Model: LRKT563W-NC-2790

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

Test & Report By:

*Garman Mo*

Engineer: Garman Mo

Date: Apr.11,2018

Review By:

*Univ Xie*

Manager: Univ Xie

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

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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 Testing Center
Date of Test Report	Apr.11,2018
Test Report No.	GZE1803067-H-D
Laboratory Contact Name	Univ Xie

**Product Information:**

Organization Name	L-TECH CORPORTION		
Brand Name	L-TECH CORP		
Model Number	LRKT563W-NC-2790		
SKU (if available)	N/A		
Type of Luminaire (for integral lamps, list base type and lamp type)	SSL downlight retrofits		
Luminaire Aperture (for SSL downlight retrofits)	--	in.	
Luminaire Length	--	mm	
Luminaires Width	--	mm	
Number of Units (modular products)	N/A	s	

**Integrating Sphere**

**Goniophotometer**

**Electrical Measurements:**

**Output**

**Output**

Input Wattage	--	15.56	W
Input Current	--	0.1334	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9717	
Off-State Power	--	0	W

**Photometric Characteristics**

Total Initial Lumen Output	--	1252.6	lm
Initial Lumen Efficacy	--	80.50	lm/w
Correlated color temperature / CCT	2748	--	K
Color rendering index / CRI	91.6	--	
R9 Value	50	--	
Duv	-0.0007	--	
<b>Luminous Intensity Distribution</b>			
Center beam candlepower (if applicable)		503	cd
Beam angle (if applicable)		104.3	°
Zonal lumens in the 0°-60° zone		85.1	%
Zonal lumens in the 60°-90° zone	-----	14.9	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0	%

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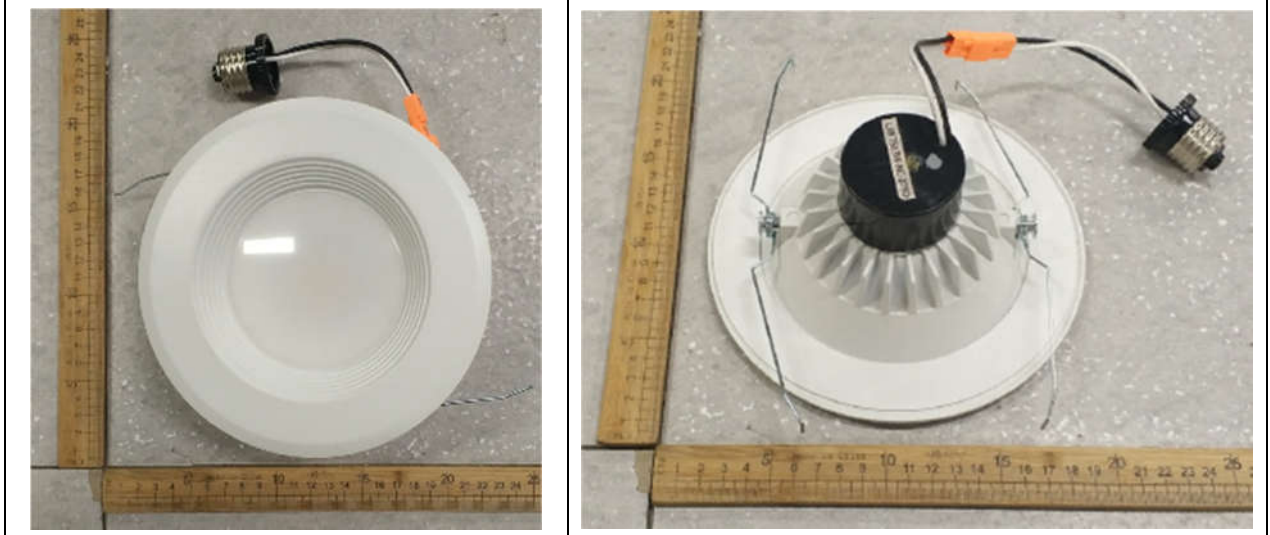
Test Specifications:	
Date of Receipt	Mar.25,2018
Date of Test	Mar.26,2018
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	IES LM-79-2008 Electrical 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 <sup>th</sup> 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><b>Test Methods</b></p> <p><b>1. Photometric and Electrical measurements – Light Distribution Method:</b> 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><b>2. Photometric and Electrical Measurements – Integrating Sphere Method:</b> 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>
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**1. Product Information:**

Brand Name	L-TECH CORP
Model Number	LRKT563W-NC-2790
Luminaire Type	SSL downlight retrofits
Rated Voltage / Frequency	120Vac, 50/60 Hz
Nominal Power	16W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,4000K
LED Manufacturer	Edison Opto Corporation
LED Model	2T03X5WWA9003001
Sample Receipt Date	Mar.25,2018
Sample Number	GZE1803067-H-D1,D2,D3

**Photo**



<b>2.1 Electrical, Photometric and Chromaticity Measurements</b> (Refer to Work Instruction QD25)	<b>IES LM-79 2008</b>
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<b>Test date</b>	2018-03-26	<b>Test Ambient:</b>	25.0 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LRKT563W-NC-2790		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1803067-H-D1	120.0	60	0.1334	15.56	0.9717
GZE1803067-H-D2	120.0	60	0.1334	15.53	0.9704
GZE1803067-H-D3	120.0	60	0.1330	15.50	0.9710
Average			0.1333	15.53	0.9710

**Sphere-Spectroradiometer Method:**

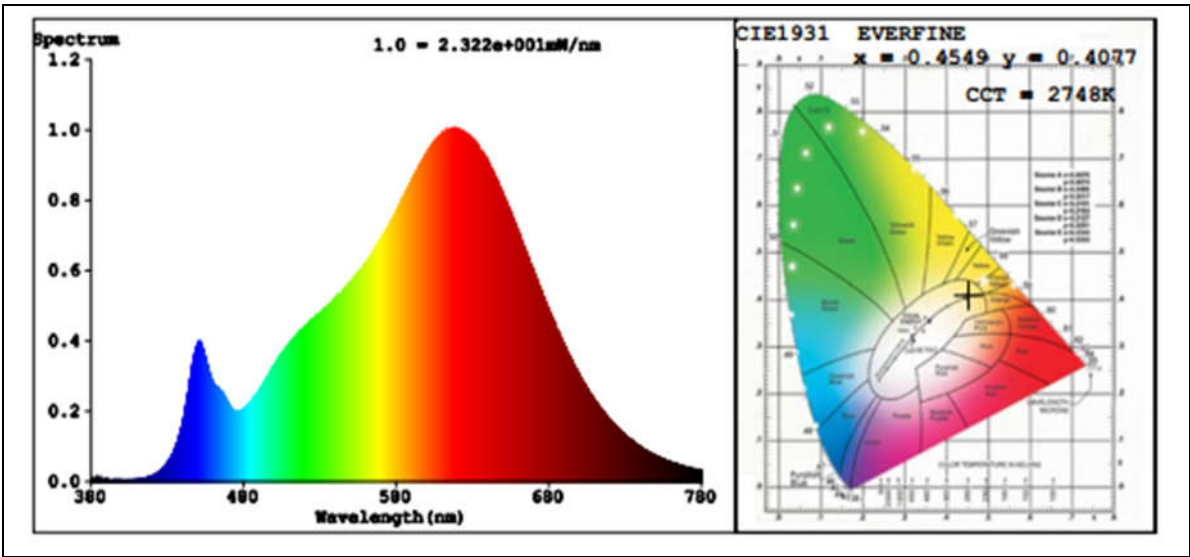
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	91.6
R9	50
CCT (K)	2748
Chromaticity (x, y)	x=0.4549 y=0.4077
Chromaticity (u', v')	u'=0.2606 v'=0.5255
Duv	-0.0007

Special Color Rendering Indices			
R1	92	R9	50
R2	97	R10	92
R3	98	R11	93
R4	91	R12	86
R5	92	R13	93
R6	97	R14	100
R7	89	R15	86
R8	77	--	--

**Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1252.6
Luminous Efficacy (lm/W)	80.50
Beam Angle°	104.3
Center Beam Candle Power (cd)	503

**Spectral Power Distribution and Chromaticity Diagram**



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

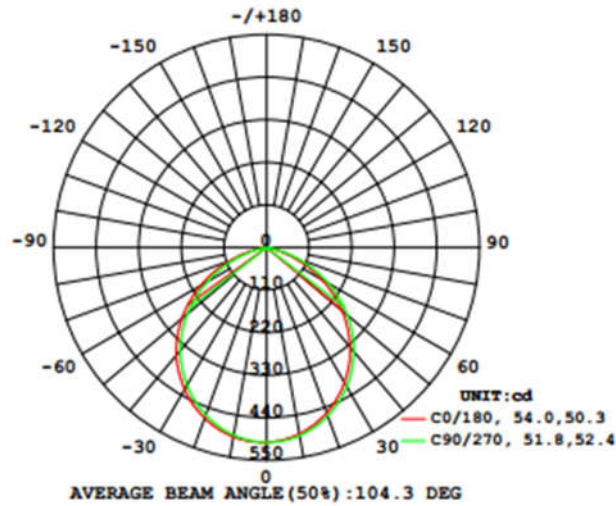
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**Zonal Lumen Tabulation**

**LUMINOUS INTENSITY DISTRIBUTION DIAGRAM**



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	385.0	30.7%
0-40	624.3	49.8%
0-60	1,065.9	85.1%
60-90	186.4	14.9%
70-100	54.5	4.4%
90-120	0.1	0%
0-90	1,252.3	100%
90-180	0.1	0%
0-180	1,252.4	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	47.5	3.8%	90-100	0.0	0%
10-20	135.2	10.8%	100-110	0.0	0%
20-30	202.3	16.2%	110-120	0.0	0%
30-40	239.3	19.1%	120-130	0.0	0%
40-50	239.7	19.1%	130-140	0.0	0%
50-60	201.9	16.1%	140-150	0.0	0%
60-70	131.9	10.5%	150-160	0.0	0%
70-80	48.2	3.9%	160-170	0.0	0%
80-90	6.2	0.5%	170-180	0.0	0%



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	503	503	503	503	503	503	503	503	503	503	503	503	503	503	503	503
5	499	499	499	500	501	501	502	502	502	502	502	501	500	499	499	499
10	489	489	490	492	493	494	496	496	496	496	495	493	492	491	490	489
15	474	475	476	478	480	482	484	485	485	485	483	481	479	477	475	474
20	454	455	457	460	463	465	467	469	469	468	466	463	460	458	456	455
25	430	432	434	437	441	444	446	448	448	447	444	441	438	434	432	431
30	402	404	407	411	414	418	421	423	424	422	419	415	411	407	405	403
35	371	373	376	380	385	389	392	394	395	393	390	385	381	377	374	372
40	336	338	341	346	351	356	360	362	363	361	357	352	347	342	339	336
45	296	299	303	308	313	318	323	325	326	324	320	314	308	303	300	297
50	255	257	262	267	273	278	283	285	286	284	279	273	267	262	258	255
55	210	213	217	223	229	235	239	242	243	240	236	229	223	217	213	211
60	164	167	171	177	183	189	194	196	197	195	190	184	178	172	168	165
65	117	120	124	130	136	142	146	149	150	148	143	137	131	125	121	118
70	71.5	74.5	78.0	82.8	89.0	94.6	99.3	102	103	100	95.8	89.9	83.7	78.0	73.9	71.8
75	30.7	32.6	36.0	40.5	45.5	50.4	54.6	56.8	57.0	54.9	50.9	45.8	40.4	35.7	32.5	30.8
80	9.64	10.0	10.8	12.3	14.3	16.7	19.0	20.3	21.6	20.3	18.0	15.5	12.1	10.7	9.99	9.69
85	3.14	3.50	4.12	4.83	5.76	6.48	7.12	7.39	7.45	7.08	6.45	5.75	4.85	4.12	3.58	3.22
90	0.02	0.02	0.03	0.05	0.17	0.63	0.97	1.18	0.88	0.96	0.67	0.18	0.03	0.03	0.03	0.03
95	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
100	0.01	0.01	0.01	0.02	0.02	0.01	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01
105	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01
110	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01
115	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
120	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
125	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02
130	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
135	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
140	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03
145	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03
150	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
155	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
160	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
165	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
170	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
175	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
180	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.01

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

<b>Test date</b> 2018-03-26	<b>Test Ambient</b> 25.1°C
<b>Sample No.</b>	<b>Maximum Δu'v'</b>
GZE1803067-H-D1	0.0018

Gamma\C	CIE u'	CIE v'	du' v'	CIE u'	CIE v'	du' v'
-75	0.2586	0.5245	0.0013	0.2583	0.5239	0.0017
-74	0.2585	0.5242	0.0014	0.2584	0.5238	0.0017
-73	0.2584	0.5241	0.0016	0.2583	0.5238	0.0017
-72	0.2585	0.524	0.0015	0.2585	0.5238	0.0016
-71	0.2585	0.524	0.0015	0.2587	0.5239	0.0014
-70	0.2588	0.5241	0.0012	0.2588	0.5239	0.0012
-69	0.2587	0.5241	0.0012	0.2589	0.524	0.0011
-68	0.2589	0.5241	0.0011	0.2591	0.5241	0.0009
-67	0.259	0.5242	0.001	0.2591	0.5241	0.0009
-66	0.2591	0.5242	0.0009	0.2593	0.5242	0.0007
-65	0.2592	0.5243	0.0008	0.2593	0.5242	0.0007
-64	0.2592	0.5243	0.0007	0.2593	0.5243	0.0007
-63	0.2594	0.5244	0.0006	0.2595	0.5243	0.0004
-62	0.2595	0.5244	0.0005	0.2595	0.5244	0.0005
-61	0.2595	0.5245	0.0005	0.2597	0.5244	0.0003
-60	0.2596	0.5246	0.0005	0.2598	0.5245	0.0003
-59	0.2596	0.5246	0.0005	0.2598	0.5245	0.0003
-58	0.2597	0.5246	0.0004	0.2598	0.5245	0.0003
-57	0.2597	0.5246	0.0005	0.2599	0.5246	0.0003
-56	0.2598	0.5247	0.0004	0.26	0.5246	0.0004
-55	0.2598	0.5247	0.0005	0.26	0.5246	0.0004
-54	0.26	0.5247	0.0005	0.26	0.5246	0.0004
-53	0.2599	0.5247	0.0005	0.2602	0.5247	0.0005
-52	0.26	0.5248	0.0005	0.2602	0.5247	0.0005
-51	0.2601	0.5248	0.0005	0.2602	0.5247	0.0005
-50	0.26	0.5248	0.0005	0.2602	0.5248	0.0005
-49	0.2601	0.5248	0.0005	0.2602	0.5248	0.0005
-48	0.2602	0.5249	0.0006	0.2602	0.5247	0.0005
-47	0.2602	0.5248	0.0006	0.2604	0.5248	0.0007
-46	0.2602	0.5248	0.0006	0.2604	0.5248	0.0007

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-45	0.2603	0.5249	0.0007	0.2604	0.5248	0.0007
-44	0.2603	0.5249	0.0007	0.2604	0.5248	0.0007
-43	0.2603	0.5249	0.0007	0.2604	0.5248	0.0007
-42	0.2603	0.5249	0.0007	0.2604	0.5248	0.0007
-41	0.2603	0.5249	0.0007	0.2604	0.5248	0.0007
-40	0.2604	0.5249	0.0008	0.2606	0.5249	0.0008
-39	0.2604	0.5249	0.0008	0.2605	0.5249	0.0008
-38	0.2604	0.5249	0.0008	0.2605	0.5248	0.0008
-37	0.2604	0.5249	0.0007	0.2606	0.5249	0.0009
-36	0.2604	0.5249	0.0008	0.2605	0.5248	0.0008
-35	0.2604	0.5249	0.0007	0.2606	0.5248	0.0008
-34	0.2605	0.5249	0.0008	0.2606	0.5248	0.0008
-33	0.2605	0.5249	0.0008	0.2606	0.5248	0.0008
-32	0.2605	0.5249	0.0008	0.2605	0.5248	0.0008
-31	0.2605	0.5249	0.0008	0.2605	0.5248	0.0008
-30	0.2605	0.5249	0.0008	0.2605	0.5248	0.0008
-29	0.2605	0.5249	0.0008	0.2607	0.5248	0.0009
-28	0.2606	0.5248	0.0008	0.2607	0.5248	0.0009
-27	0.2606	0.5248	0.0008	0.2607	0.5248	0.0009
-26	0.2606	0.5248	0.0008	0.2607	0.5248	0.0009
-25	0.2605	0.5248	0.0008	0.2607	0.5248	0.0009
-24	0.2605	0.5248	0.0008	0.2607	0.5248	0.0009
-23	0.2605	0.5248	0.0008	0.2607	0.5247	0.0008
-22	0.2605	0.5248	0.0007	0.2606	0.5247	0.0008
-21	0.2605	0.5248	0.0007	0.2607	0.5247	0.0008
-20	0.2605	0.5247	0.0007	0.2606	0.5247	0.0008
-19	0.2605	0.5247	0.0007	0.2606	0.5247	0.0008
-18	0.2606	0.5248	0.0008	0.2606	0.5247	0.0008
-17	0.2606	0.5247	0.0008	0.2606	0.5247	0.0008
-16	0.2606	0.5247	0.0008	0.2606	0.5247	0.0007
-15	0.2606	0.5247	0.0008	0.2606	0.5246	0.0007
-14	0.2606	0.5247	0.0008	0.2606	0.5247	0.0007
-13	0.2606	0.5247	0.0008	0.2606	0.5246	0.0007
-12	0.2605	0.5247	0.0007	0.2606	0.5246	0.0007
-11	0.2606	0.5247	0.0007	0.2606	0.5246	0.0007
-10	0.2605	0.5247	0.0007	0.2605	0.5246	0.0007
-9	0.2605	0.5246	0.0007	0.2605	0.5246	0.0007
-8	0.2605	0.5246	0.0007	0.2605	0.5246	0.0007
-7	0.2605	0.5246	0.0007	0.2605	0.5246	0.0007
-6	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006

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-5	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
-4	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
-3	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
-2	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
-1	0.2605	0.5246	0.0006	0.2605	0.5245	0.0006
0	0.2605	0.5249	0.0008	0.2605	0.5249	0.0008
1	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
2	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
3	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
4	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
5	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
6	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
7	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
8	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
9	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
10	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
11	0.2605	0.5246	0.0006	0.2605	0.5246	0.0006
12	0.2605	0.5246	0.0007	0.2605	0.5246	0.0006
13	0.2605	0.5246	0.0006	0.2605	0.5246	0.0007
14	0.2605	0.5246	0.0007	0.2605	0.5246	0.0007
15	0.2605	0.5246	0.0007	0.2605	0.5246	0.0007
16	0.2605	0.5246	0.0007	0.2605	0.5246	0.0007
17	0.2605	0.5247	0.0007	0.2606	0.5246	0.0007
18	0.2605	0.5247	0.0007	0.2605	0.5247	0.0007
19	0.2605	0.5247	0.0007	0.2606	0.5247	0.0007
20	0.2605	0.5247	0.0007	0.2604	0.5247	0.0006
21	0.2606	0.5247	0.0007	0.2604	0.5247	0.0006
22	0.2606	0.5247	0.0007	0.2605	0.5247	0.0006
23	0.2606	0.5247	0.0007	0.2604	0.5247	0.0006
24	0.2606	0.5247	0.0007	0.2605	0.5247	0.0006
25	0.2606	0.5247	0.0008	0.2605	0.5247	0.0007
26	0.2606	0.5247	0.0008	0.2605	0.5247	0.0007
27	0.2606	0.5247	0.0008	0.2605	0.5247	0.0007
28	0.2606	0.5248	0.0008	0.2605	0.5247	0.0007
29	0.2606	0.5247	0.0008	0.2605	0.5247	0.0007
30	0.2606	0.5248	0.0008	0.2604	0.5247	0.0006
31	0.2606	0.5248	0.0008	0.2604	0.5247	0.0006
32	0.2606	0.5248	0.0009	0.2604	0.5247	0.0006
33	0.2606	0.5248	0.0008	0.2604	0.5248	0.0006
34	0.2604	0.5248	0.0007	0.2604	0.5248	0.0007

**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>

35	0.2604	0.5248	0.0007	0.2604	0.5248	0.0007
36	0.2605	0.5248	0.0007	0.2604	0.5248	0.0007
37	0.2605	0.5248	0.0007	0.2603	0.5248	0.0006
38	0.2605	0.5248	0.0007	0.2603	0.5248	0.0006
39	0.2605	0.5248	0.0007	0.2603	0.5248	0.0006
40	0.2605	0.5248	0.0007	0.2603	0.5248	0.0006
41	0.2605	0.5248	0.0007	0.2603	0.5248	0.0006
42	0.2605	0.5248	0.0007	0.2602	0.5248	0.0005
43	0.2605	0.5248	0.0007	0.2602	0.5248	0.0005
44	0.2603	0.5248	0.0006	0.2602	0.5248	0.0005
45	0.2603	0.5248	0.0006	0.2602	0.5247	0.0005
46	0.2603	0.5248	0.0006	0.2602	0.5248	0.0005
47	0.2603	0.5248	0.0006	0.2601	0.5247	0.0005
48	0.2603	0.5248	0.0006	0.2601	0.5247	0.0005
49	0.2603	0.5248	0.0006	0.2601	0.5247	0.0005
50	0.2603	0.5248	0.0006	0.2601	0.5247	0.0005
51	0.2601	0.5247	0.0005	0.26	0.5247	0.0004
52	0.2601	0.5247	0.0005	0.26	0.5247	0.0004
53	0.2601	0.5247	0.0005	0.26	0.5246	0.0004
54	0.2601	0.5247	0.0004	0.2598	0.5246	0.0004
55	0.2601	0.5247	0.0004	0.2598	0.5246	0.0004
56	0.2599	0.5246	0.0004	0.2597	0.5246	0.0004
57	0.2599	0.5246	0.0003	0.2597	0.5246	0.0004
58	0.2598	0.5246	0.0003	0.2597	0.5245	0.0004
59	0.2598	0.5246	0.0003	0.2596	0.5245	0.0004
60	0.2598	0.5245	0.0003	0.2596	0.5245	0.0004
61	0.2596	0.5245	0.0004	0.2595	0.5244	0.0005
62	0.2596	0.5244	0.0004	0.2595	0.5244	0.0005
63	0.2596	0.5244	0.0004	0.2594	0.5243	0.0006
64	0.2594	0.5244	0.0005	0.2594	0.5243	0.0006
65	0.2594	0.5243	0.0006	0.2592	0.5243	0.0007
66	0.2594	0.5243	0.0006	0.2591	0.5242	0.0009
67	0.2592	0.5242	0.0008	0.2591	0.5241	0.0008
68	0.2591	0.5241	0.0008	0.259	0.5241	0.001
69	0.2591	0.5241	0.0009	0.2589	0.524	0.0011
70	0.2589	0.524	0.0011	0.2588	0.524	0.0012
71	0.2589	0.524	0.0011	0.2586	0.5239	0.0014
72	0.2587	0.5239	0.0013	0.2585	0.5239	0.0015
73	0.2585	0.5238	0.0015	0.2585	0.5238	0.0016
74	0.2585	0.5238	0.0015	0.2584	0.5239	0.0016

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

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75	0.2583	0.5238	0.0017	0.2582	0.5238	0.0018
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**Laboratory: Standard-Tech Co., Ltd Testing Center**  
**NVLAP CODE: 201011-0**

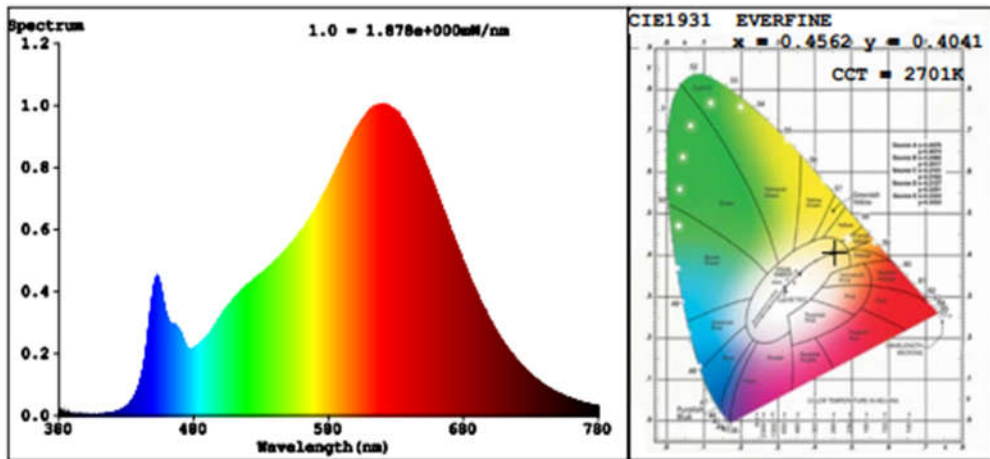
Report Format Number STD/QR4910-A/1

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>

<b>3. Electrical and Photometric Measurements, with dimming</b>	<b>IES LM-79 2008 ENERGY STAR<sup>®</sup> Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b>
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Test date	2018-03-26	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.
GZE1803067-H-D1	120.0 V / 60 Hz	87.43	2701	92.2	0.1884
GZE1803067-H-D2	120.0 V / 60 Hz	81.32	2709	92.3	0.1760
GZE1803067-H-D3	120.0 V / 60 Hz	65.00	2716	92.4	0.1825
Average		77.92	2709	92.3	0.1823



**Colorimetric Parameters**

Chromaticity Coordinate:  $x=0.4562$   $y=0.4041$  /  $u'=0.2630$   $v'=0.5243$   $Dx, Dy: -0.0036, -0.0065$   
 CCT=2701K (Duv=-0.0021) Dominant WL:  $\lambda_d = 584.9\text{nm}$  Purity=58.2%  
 Peak WL:  $\lambda_p = 619.4\text{nm}$  FWHM=137.2nm  
 Render Index: Ra=92.2 CRI=90.3  
 R1 =94 R2 =99 R3 =96 R4 =92 R5 =94 R6 =96 R7 =89  
 R8 =78 R9 =55 R10=97 R11=94 R12=85 R13=95 R14=99 R15=89

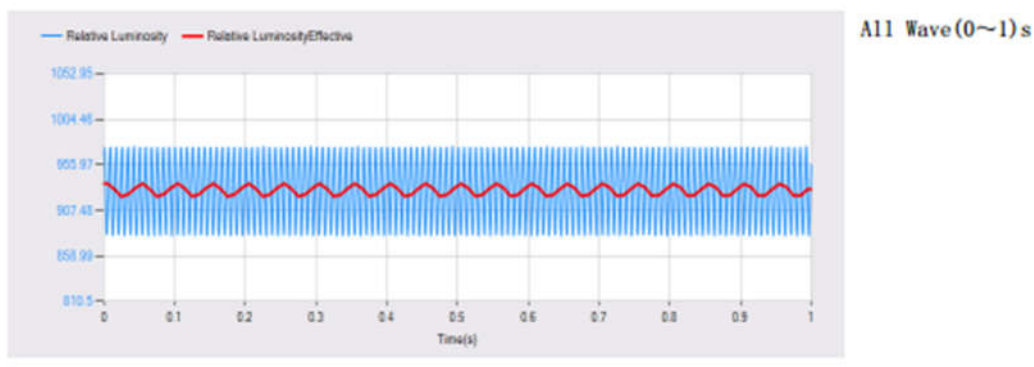
The luminaires [can] ~~lean not~~ provide less than 20% of total light output with continuous dimmer.

Dimmer	Peak Noise Reading (dBA)	Test Condition	Distance between the microphone and the UUT
LEVITON MFG CO INC (E31373), Cat. No. 6681	17.0	Dimmer adjusted to lowest light output	< 1 m



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

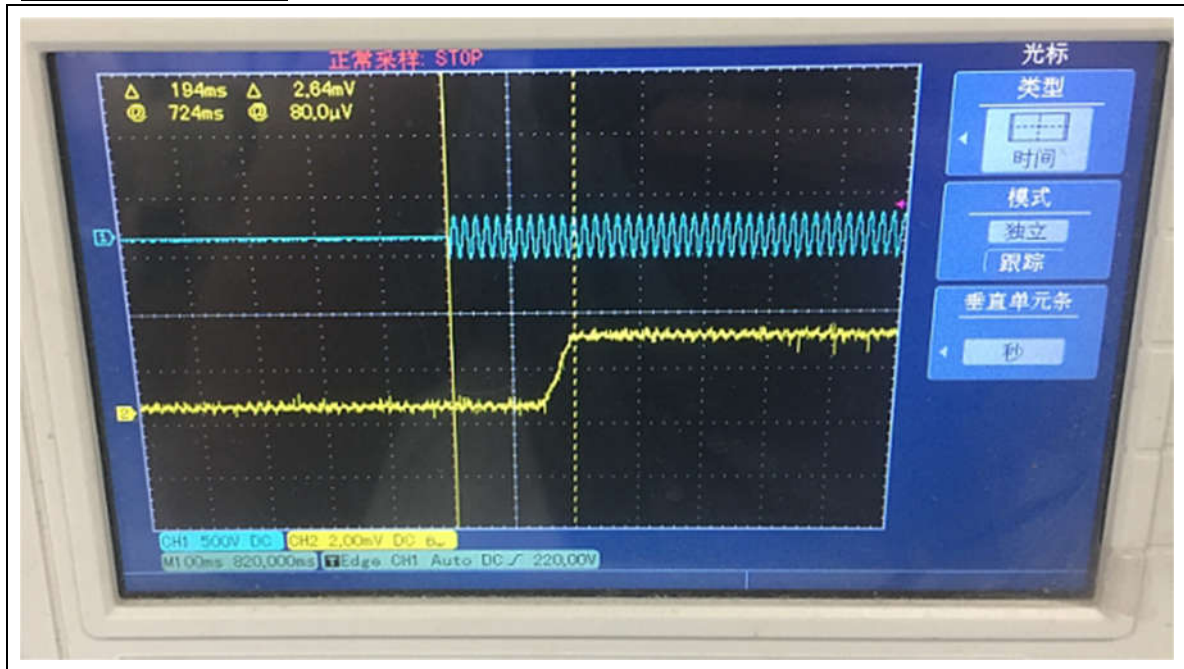
Test date	2018-03-26	Test Ambient:	25.1°C
Sample No.	Operating Frequency (Hz)		
GZE1803067-H-D1	120.02		
GZE1803067-H-D2	120.23		
GZE1803067-H-D3	120.18		
Average	120.14		



<b>5 Starting Time</b> <i>(Refer to Work Instruction QD28)</i>	<b>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b>
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Test date	2018-03-26	Test Ambient:	25.1°C
Sample No.	Start Time (ms)		
GZE1803067-H-D1	194		
GZE1803067-H-D2	164		
GZE1803067-H-D3	156		
Average	171		

**Graph (Start Time):**



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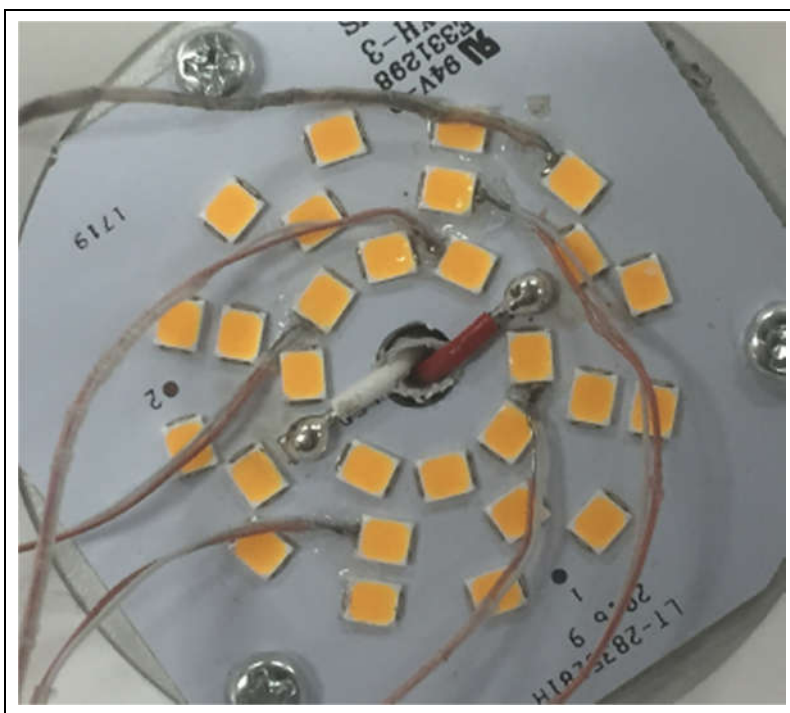
**Test voltage: 120V,60Hz**

Test date	2018-03-26	Test Ambient	25.1°C
<b>Sample No.</b>		<b>Transient Protection Test - Seven Strikes</b>	
GZE1803067-H-D1		Pass	
GZE1803067-H-D2		Pass	
GZE1803067-H-D3		Pass	

<b>7.1 In-Situ Temperature Measurement Test (ISTMT)</b>	<b>UL1598-2008, 3<sup>rd</sup> Edition</b>
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Test date	2018-03-26	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)
GZE1803067-H-D1	2T03X5WWA900300 1	74.3	105

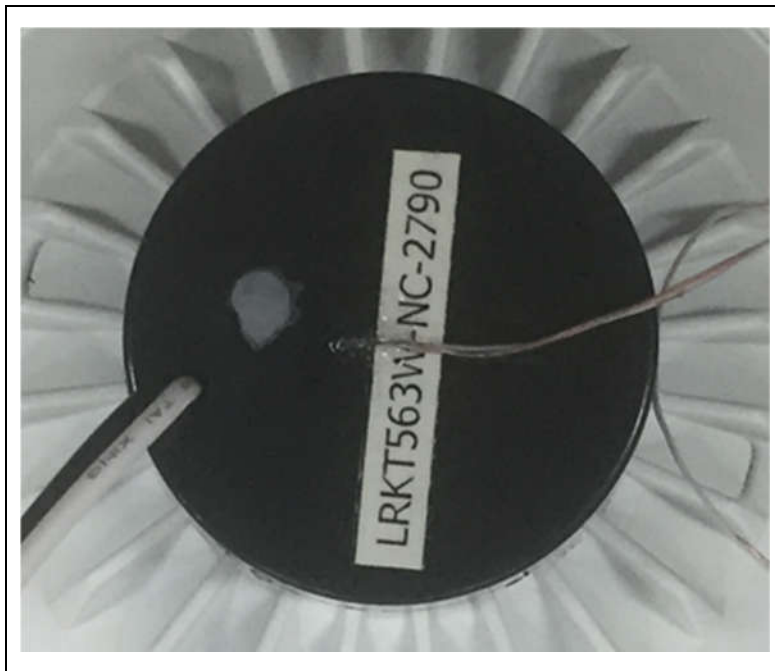
**In-Situ Picture - Ts:**



**7.2 Maximum Measured Ballast or Driver Case Temperature** **UL1598-2008, 3<sup>rd</sup> Edition**

Test date	2018-03-26	Test Ambient	25.1°C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1803067-H-D1	97.1	105	

**In-Situ Picture - Ts:**



<b>8 Off-State Power Consumption:</b>	<b>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b>
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<b>Test date</b>	2018-03-26	<b>Test Ambient:</b>	25.0 ° C
<b>Model Number</b>	LRKT563W-NC-2790	<b>Stabilization Time (min)</b>	90

**Electrical Measurement – when the luminaires turned off:**

<b>Sample No.</b>	<b>Voltage (Vac)</b>	<b>Frequency (Hz )</b>	<b>Current (A)</b>	<b>Power (W)</b>
GZE1803067-H -D1	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 \*\*\*\*\***