

## **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): LSKT624W-##90  
LSKT654W-##90

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

Representative (Tested) Model: LSKT624W-2790  
LSKT654W-2790

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

Test & Report By:

*Bill Luo*

Engineer: Bill Luo

Date: Sep.28,2017

Updated: Dec.25,2017

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	Sep.27,2017
Test Report No.	GZE1709109-H-D-R
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	L-TECH CORPORTION		
Brand Name	L-TECH CORP		
Model Number	LSKT624W-##90 LSKT654W-##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	--	14.11	W
Input Current	--	0.1205	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9759	
Off-State Power	--	0	W

**Photometric Characteristics**

Total Initial Lumen Output	--	901.64	lm
Initial Lumen Efficacy	--	63.90	lm/w
Correlated color temperature / CCT	2658	--	K
Color rendering index / CRI	92.0	--	
R9 Value	57	--	
Duv	0.0017	--	

**Luminous Intensity Distribution**

Center beam candlepower (if applicable)		317	cd
Beam angle (if applicable)		111.3	°
Zonal lumens in the 0°-60° zone	-----	80	%
Zonal lumens in the 60°-90° zone		20	%
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	Sep.25,2017
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 <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

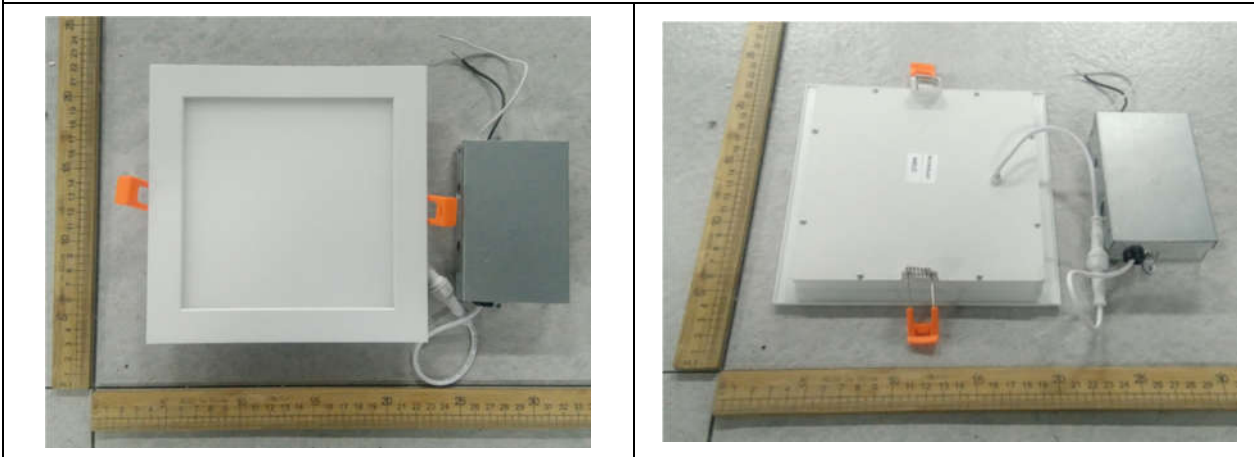
<p><b>Test Methods</b></p> <p><b>1. Photometric and Electrical measurements – Light Distribution Method:</b>          Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the 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:**

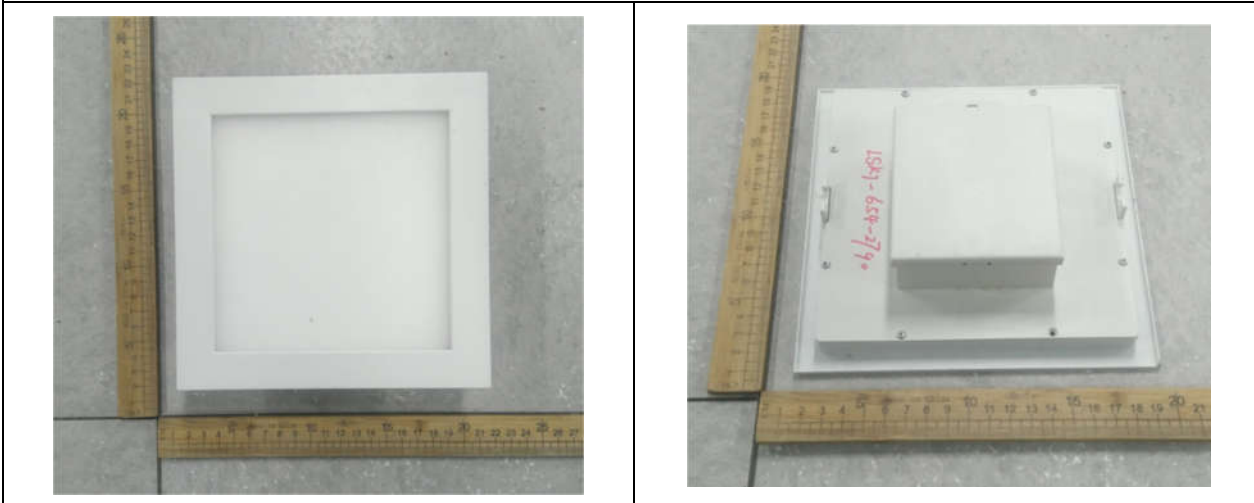
Brand Name	L-TECH CORP
Model Number	LSKT624W-##90 LSKT654W-##90
Luminaire Type	Downlights
Rated Voltage / Frequency	120Vac, 50/60 Hz
Nominal Power	15W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,4000K,5000K
LED Manufacturer	Seoul Semiconductor Co., LTD
LED Model	SAWxA32E-xx
Sample Receipt Date	Sep.20,2017
Sample Number	GZE1709109-H-D1,D2,D3

**Photo**

LSKT624W-2790



LSKT654W-2790



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**NVLAP CODE: 201011-0**

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<b>2.1 Electrical, Photometric and Chromaticity Measurements</b> <i>(Refer to Work Instruction QD25)</i>	<b>IES LM-79 2008</b>
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<b>Test date</b>	2017-09-25	<b>Test Ambient:</b>	25.0 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LSKT624W-2790		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1709109-H-D1	120.0	60	0.1205	14.11	0.9759
GZE1709109-H-D2	120.0	60	0.1230	14.39	0.9752
GZE1709109-H-D3	120.0	60	0.1211	14.16	0.9746
Average			0.1215	14.22	0.9752

**Sphere-Spectroradiometer Method:**

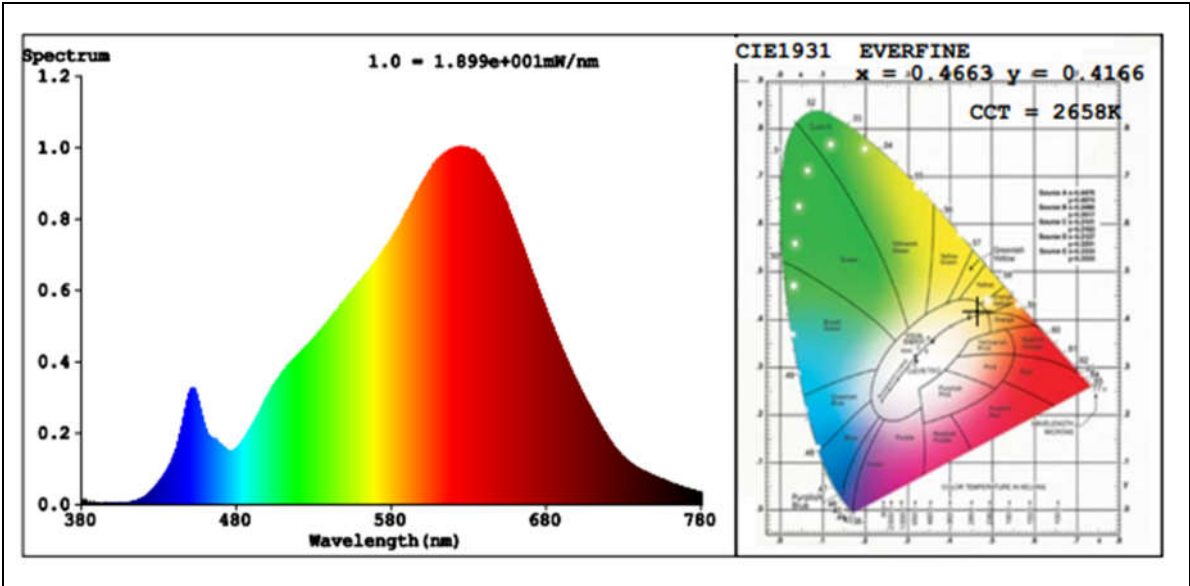
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	92.0
R9	57
CCT (K)	2658
Chromaticity (x, y)	x=0.4663 y=0.4166
Chromaticity (u', v')	u'=0.2639 v'=0.5306
Duv	0.0017

Special Color Rendering Indices			
R1	92	R9	57
R2	95	R10	88
R3	98	R11	93
R4	92	R12	83
R5	91	R13	92
R6	95	R14	98
R7	92	R15	87
R8	81	--	--

**Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	901.64
Luminous Efficacy (lm/W)	63.90
Beam Angle°	111.3
Center Beam Candle Power (cd)	317

**Spectral Power Distribution and Chromaticity Diagram**



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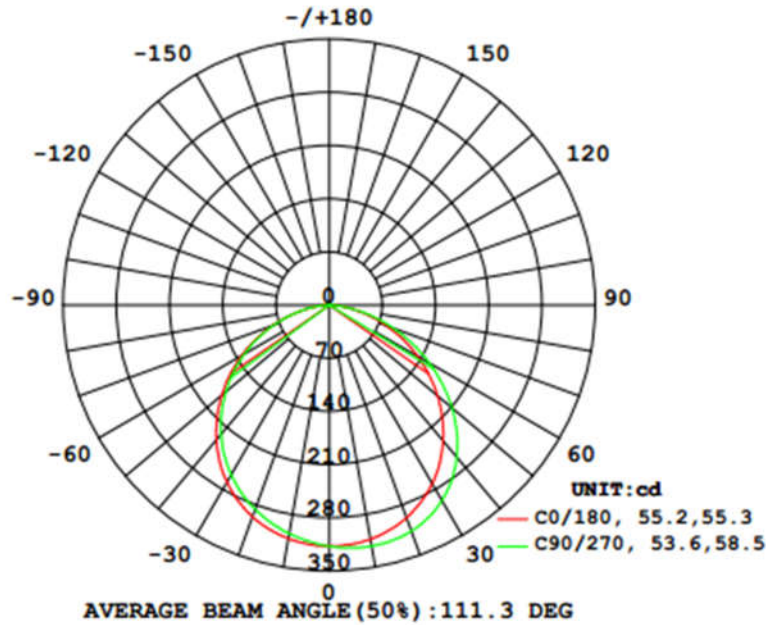
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**Zonal Lumen Tabulation**

**LUMINOUS INTENSITY DISTRIBUTION DIAGRAM**



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	249.5	27.7%
0-40	410.0	45.5%
0-60	721.6	80%
60-90	179.9	20%
70-100	71.5	7.9%
90-120	0.0	0%
0-90	901.5	100%
90-180	0.0	0%
0-180	901.5	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	30.1	3.3%	90-100	0.0	0%
10-20	86.8	9.6%	100-110	0	0%
20-30	132.7	14.7%	110-120	0.0	0%
30-40	160.5	17.8%	120-130	0.0	0%
40-50	165.1	18.3%	130-140	0.0	0%
50-60	146.5	16.2%	140-150	0.0	0%
60-70	108.4	12.0%	150-160	0.0	0%
70-80	58.7	6.5%	160-170	0.0	0%
80-90	12.8	1.4%	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	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317
5	316	318	319	320	321	320	319	317	316	314	313	312	312	313	313	315
10	313	316	319	321	322	321	318	315	312	309	307	306	305	306	307	310
15	307	311	316	319	321	319	315	310	305	301	298	297	297	297	299	303
20	298	304	310	315	316	314	309	302	296	291	288	286	286	287	289	293
25	286	293	301	307	309	306	299	291	284	279	275	273	273	274	276	281
30	271	279	288	294	297	293	286	277	269	264	260	258	258	259	262	266
35	253	262	271	278	281	277	269	259	252	246	242	241	241	242	244	248
40	233	241	251	258	261	257	249	239	231	226	223	222	222	223	224	228
45	211	218	227	235	237	234	225	216	209	204	201	200	200	201	203	206
50	186	193	201	208	211	207	200	191	185	181	178	178	178	178	180	183
55	160	166	174	180	182	179	172	164	160	156	154	154	154	155	156	158
60	134	139	145	150	152	149	143	137	133	131	129	129	129	130	131	132
65	107	111	115	119	121	119	114	109	107	105	104	104	104	104	105	106
70	80.1	82.8	85.9	88.9	89.9	88.3	84.9	81.4	79.9	78.6	78.2	78.3	78.5	78.8	79.1	79.9
75	54.2	55.7	57.5	59.4	60.1	59.0	56.8	54.8	53.8	53.2	53.0	53.3	53.5	53.7	53.7	54.2
80	29.6	30.1	30.8	31.8	32.0	31.4	30.3	29.4	29.4	29.3	29.4	29.9	30.0	30.0	29.9	30.0
85	9.74	9.62	9.59	9.61	9.60	9.47	9.26	9.20	9.66	9.92	10.1	10.4	10.5	10.5	10.4	10.3
90	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	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	0.01	0.00	0.00	0.00	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	0.00	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	0.00	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
135	0.01	0.01	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
145	0.01	0.01	0.01	0.00	0.00	0.00	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	0.00	0.00	0.00	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	0.00	0.01	0.00	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	0.00	0.01	0.00	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	0.00	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	0.00	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	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
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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<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> 2017-09-25	<b>Test Ambient</b> 25.1°C
<b>Sample No.</b>	<b>Maximum Δu'v'</b>
GZE1709109-H-D1	0.001

Gamma\C	CIE u'	CIE v'	du' v'	CIE u'	CIE v'	du' v'
-79	0.2638	0.5295	0.0006	0.2639	0.5294	0.0005
-78	0.264	0.5296	0.0004	0.264	0.5295	0.0004
-77	0.2639	0.5295	0.0005	0.2639	0.5294	0.0005
-76	0.2641	0.5295	0.0003	0.264	0.5295	0.0004
-75	0.264	0.5295	0.0004	0.2641	0.5295	0.0003
-74	0.2639	0.5295	0.0005	0.264	0.5295	0.0004
-73	0.2641	0.5296	0.0003	0.2641	0.5295	0.0003
-72	0.2641	0.5295	0.0003	0.2641	0.5295	0.0003
-71	0.264	0.5295	0.0004	0.264	0.5295	0.0004
-70	0.2639	0.5295	0.0004	0.2642	0.5295	0.0002
-69	0.2642	0.5296	0.0002	0.2641	0.5295	0.0003
-68	0.2642	0.5296	0.0002	0.2641	0.5295	0.0003
-67	0.2641	0.5296	0.0002	0.2642	0.5295	0.0002
-66	0.2641	0.5296	0.0003	0.2642	0.5295	0.0002
-65	0.264	0.5296	0.0003	0.2642	0.5295	0.0002
-64	0.2643	0.5296	0.0001	0.2643	0.5295	0.0001
-63	0.2643	0.5296	0.0001	0.2643	0.5295	0.0001
-62	0.2643	0.5296	0.0001	0.2643	0.5295	0.0001
-61	0.2643	0.5296	0.0001	0.2642	0.5295	0.0002
-60	0.2642	0.5296	0.0002	0.2644	0.5296	0
-59	0.2642	0.5296	0.0002	0.2644	0.5296	0
-58	0.2641	0.5296	0.0003	0.2644	0.5296	0
-57	0.2644	0.5296	0.0001	0.2643	0.5296	0.0001
-56	0.2644	0.5296	0	0.2643	0.5295	0.0001
-55	0.2644	0.5296	0	0.2645	0.5296	0.0001
-54	0.2644	0.5296	0	0.2644	0.5296	0
-53	0.2643	0.5296	0.0001	0.2644	0.5296	0
-52	0.2643	0.5296	0.0001	0.2644	0.5296	0
-51	0.2643	0.5296	0.0001	0.2644	0.5296	0
-50	0.2643	0.5296	0.0001	0.2643	0.5296	0

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-49	0.2642	0.5296	0.0002	0.2643	0.5296	0
-48	0.2644	0.5296	0	0.2645	0.5296	0.0001
-47	0.2643	0.5296	0.0001	0.2645	0.5296	0.0001
-46	0.2643	0.5296	0.0001	0.2645	0.5296	0.0001
-45	0.2643	0.5296	0.0001	0.2645	0.5296	0.0001
-44	0.2644	0.5296	0	0.2644	0.5296	0
-43	0.2643	0.5296	0	0.2644	0.5296	0
-42	0.2643	0.5296	0.0001	0.2644	0.5296	0
-41	0.2643	0.5296	0.0001	0.2643	0.5296	0
-40	0.2642	0.5296	0.0002	0.2645	0.5296	0.0001
-39	0.2642	0.5296	0.0002	0.2645	0.5296	0.0001
-38	0.2643	0.5296	0.0001	0.2645	0.5296	0.0001
-37	0.2643	0.5296	0.0001	0.2644	0.5296	0
-36	0.2642	0.5296	0.0002	0.2644	0.5296	0
-35	0.2642	0.5296	0.0002	0.2644	0.5296	0
-34	0.2642	0.5295	0.0002	0.2643	0.5295	0.0001
-33	0.2642	0.5295	0.0002	0.2643	0.5296	0.0001
-32	0.2641	0.5295	0.0003	0.2643	0.5295	0.0001
-31	0.2642	0.5295	0.0002	0.2643	0.5295	0.0001
-30	0.2642	0.5295	0.0002	0.2642	0.5295	0.0002
-29	0.2642	0.5295	0.0002	0.2642	0.5295	0.0002
-28	0.2641	0.5295	0.0003	0.2644	0.5295	0.0001
-27	0.2641	0.5295	0.0003	0.2643	0.5295	0.0001
-26	0.2641	0.5295	0.0003	0.2643	0.5295	0.0001
-25	0.264	0.5295	0.0004	0.2643	0.5295	0.0001
-24	0.264	0.5295	0.0004	0.2643	0.5295	0.0001
-23	0.264	0.5295	0.0004	0.2642	0.5295	0.0002
-22	0.2639	0.5294	0.0005	0.2642	0.5295	0.0002
-21	0.2641	0.5295	0.0003	0.2642	0.5295	0.0002
-20	0.264	0.5294	0.0004	0.2642	0.5295	0.0002
-19	0.264	0.5294	0.0004	0.2642	0.5295	0.0002
-18	0.264	0.5294	0.0004	0.2642	0.5295	0.0003
-17	0.264	0.5294	0.0004	0.2641	0.5295	0.0003
-16	0.264	0.5294	0.0005	0.2641	0.5295	0.0003
-15	0.2639	0.5294	0.0005	0.2641	0.5295	0.0003
-14	0.2639	0.5294	0.0005	0.2641	0.5295	0.0003
-13	0.2639	0.5294	0.0005	0.2641	0.5295	0.0003
-12	0.2639	0.5294	0.0005	0.264	0.5295	0.0004
-11	0.2638	0.5294	0.0006	0.2641	0.5295	0.0004
-10	0.2638	0.5294	0.0006	0.2641	0.5294	0.0004

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-9	0.2638	0.5294	0.0006	0.264	0.5295	0.0004
-8	0.2638	0.5294	0.0006	0.264	0.5294	0.0004
-7	0.2638	0.5294	0.0006	0.264	0.5294	0.0004
-6	0.2638	0.5294	0.0006	0.264	0.5294	0.0004
-5	0.2638	0.5294	0.0006	0.264	0.5294	0.0004
-4	0.2638	0.5294	0.0006	0.264	0.5294	0.0004
-3	0.2638	0.5294	0.0007	0.264	0.5294	0.0004
-2	0.2638	0.5294	0.0007	0.264	0.5295	0.0004
-1	0.2638	0.5294	0.0007	0.264	0.5294	0.0004
0	0.264	0.5295	0.0004	0.264	0.5295	0.0004
1	0.2638	0.5294	0.0007	0.264	0.5295	0.0004
2	0.2638	0.5294	0.0007	0.264	0.5294	0.0004
3	0.2638	0.5294	0.0007	0.264	0.5295	0.0004
4	0.2638	0.5294	0.0007	0.2641	0.5295	0.0003
5	0.2638	0.5294	0.0007	0.2641	0.5294	0.0003
6	0.2638	0.5294	0.0006	0.2641	0.5295	0.0003
7	0.2638	0.5294	0.0007	0.2641	0.5295	0.0003
8	0.2638	0.5294	0.0006	0.2641	0.5295	0.0003
9	0.2638	0.5294	0.0006	0.2642	0.5295	0.0002
10	0.2638	0.5294	0.0006	0.2642	0.5295	0.0002
11	0.2638	0.5294	0.0006	0.2642	0.5295	0.0002
12	0.2638	0.5294	0.0006	0.2642	0.5295	0.0002
13	0.2638	0.5294	0.0006	0.2643	0.5295	0.0001
14	0.2638	0.5294	0.0006	0.2643	0.5295	0.0001
15	0.2639	0.5294	0.0006	0.2643	0.5295	0.0001
16	0.2638	0.5294	0.0006	0.2644	0.5295	0.0001
17	0.2639	0.5294	0.0005	0.2644	0.5295	0
18	0.2639	0.5294	0.0005	0.2644	0.5296	0
19	0.2639	0.5294	0.0005	0.2645	0.5296	0.0001
20	0.2639	0.5294	0.0005	0.2645	0.5296	0.0001
21	0.2639	0.5294	0.0005	0.2645	0.5296	0.0001
22	0.264	0.5294	0.0005	0.2646	0.5296	0.0002
23	0.264	0.5294	0.0004	0.2646	0.5296	0.0003
24	0.264	0.5294	0.0004	0.2647	0.5296	0.0003
25	0.2641	0.5295	0.0004	0.2647	0.5296	0.0003
26	0.2641	0.5295	0.0003	0.2647	0.5297	0.0004
27	0.264	0.5295	0.0004	0.2647	0.5297	0.0003
28	0.2641	0.5295	0.0003	0.2647	0.5297	0.0003
29	0.2641	0.5295	0.0003	0.2647	0.5297	0.0004
30	0.2641	0.5295	0.0003	0.2648	0.5297	0.0004

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31	0.2642	0.5295	0.0002	0.2648	0.5297	0.0005
32	0.2642	0.5295	0.0002	0.2649	0.5297	0.0005
33	0.2642	0.5295	0.0002	0.2649	0.5297	0.0006
34	0.2642	0.5295	0.0002	0.265	0.5298	0.0006
35	0.2642	0.5295	0.0002	0.265	0.5298	0.0007
36	0.2641	0.5295	0.0003	0.2651	0.5298	0.0007
37	0.2641	0.5295	0.0003	0.265	0.5298	0.0006
38	0.2642	0.5295	0.0002	0.265	0.5298	0.0007
39	0.2642	0.5295	0.0002	0.2651	0.5298	0.0007
40	0.2642	0.5295	0.0002	0.2651	0.5298	0.0008
41	0.2642	0.5295	0.0002	0.2652	0.5298	0.0008
42	0.2642	0.5295	0.0001	0.2652	0.5298	0.0009
43	0.2642	0.5295	0.0001	0.2653	0.5298	0.0009
44	0.2643	0.5296	0.0001	0.2652	0.5298	0.0008
45	0.2641	0.5295	0.0003	0.2652	0.5299	0.0009
46	0.2641	0.5295	0.0003	0.2653	0.5298	0.0009
47	0.2642	0.5295	0.0002	0.2653	0.5299	0.001
48	0.2642	0.5295	0.0002	0.2653	0.5299	0.001
49	0.2642	0.5295	0.0002	0.2652	0.5298	0.0009
50	0.2642	0.5296	0.0002	0.2653	0.5299	0.0009
51	0.2642	0.5295	0.0002	0.2653	0.5299	0.001
52	0.2642	0.5295	0.0001	0.2653	0.5299	0.001
53	0.2641	0.5295	0.0003	0.2652	0.5298	0.0009
54	0.2641	0.5295	0.0003	0.2653	0.5299	0.0009
55	0.2641	0.5295	0.0003	0.2653	0.5299	0.001
56	0.2642	0.5295	0.0002	0.2652	0.5299	0.0009
57	0.2641	0.5295	0.0002	0.2652	0.5299	0.0009
58	0.264	0.5295	0.0004	0.2653	0.5299	0.0009
59	0.264	0.5295	0.0004	0.2652	0.5299	0.0008
60	0.264	0.5295	0.0004	0.2652	0.5299	0.0009
61	0.2641	0.5295	0.0003	0.2653	0.5299	0.0009
62	0.2641	0.5295	0.0003	0.2651	0.5298	0.0008
63	0.2639	0.5295	0.0005	0.2652	0.5299	0.0009
64	0.2639	0.5295	0.0005	0.2651	0.5298	0.0008
65	0.264	0.5295	0.0004	0.2652	0.5298	0.0008
66	0.2638	0.5294	0.0006	0.2652	0.5299	0.0009
67	0.2638	0.5295	0.0006	0.2653	0.5298	0.0009
68	0.2639	0.5294	0.0005	0.2653	0.5298	0.0009
69	0.2639	0.5295	0.0005	0.265	0.5298	0.0007
70	0.2638	0.5294	0.0006	0.2651	0.5298	0.0007

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71	0.2638	0.5294	0.0006	0.2651	0.5298	0.0008
72	0.2637	0.5294	0.0007	0.2652	0.5298	0.0009
73	0.2638	0.5294	0.0007	0.2649	0.5298	0.0006
74	0.2638	0.5294	0.0006	0.265	0.5298	0.0007
75	0.2637	0.5294	0.0007	0.265	0.5298	0.0006
76	0.2636	0.5294	0.0008	0.265	0.5298	0.0006
77	0.2637	0.5294	0.0007	0.265	0.5298	0.0006
78	0.2636	0.5294	0.0008	0.265	0.5298	0.0006
79	0.2637	0.5294	0.0007	0.265	0.5298	0.0007

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**NVLAP CODE: 201011-0**

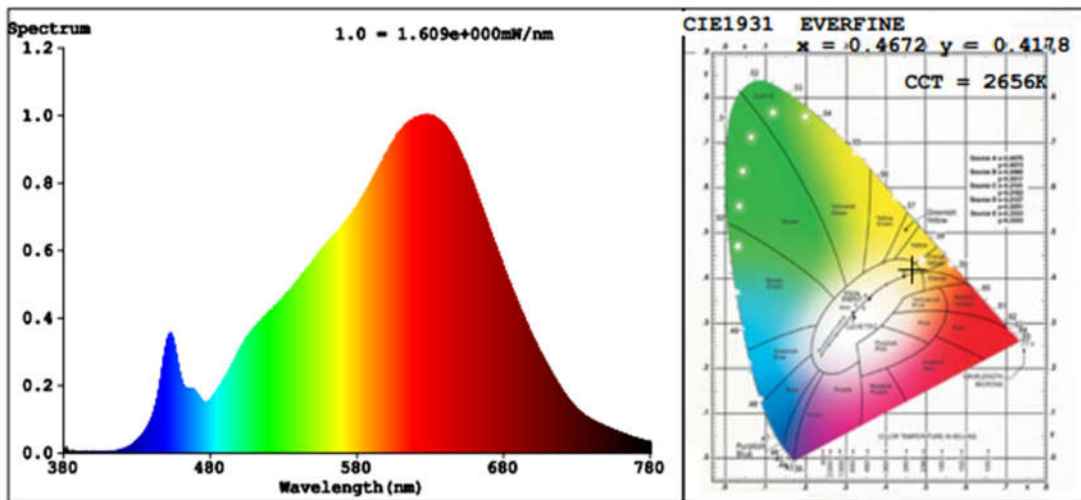
Report Format Number STD/QR4910-A/1

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<b>3. Electrical and Photometric Measurements, with dimming</b>	<b>IES LM-79 2008</b> <b>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b>
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Test date	2017-09-25	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-D1	120.0 V / 60 Hz	74.56	2656	92.7	0.1399
GZE1709109-H-D2	120.0 V / 60 Hz	80.67	2657	92.7	0.1560
GZE1709109-H-D3	120.0 V / 60 Hz	52.35	2656	92.8	0.1427
Average		69.19	2656	92.7	0.1462



**Colorimetric Parameters**

Chromaticity Coordinate:  $x=0.4672$   $y=0.4178/u'=0.2639$   $v'=0.5312$   
 CCT=2656K (Duv=0.0021) Dominant WL:Ld =583.8nm Purity=65.6%  
 Peak WL:Lp=628.0nm FWHM=146.0nm  
 Render Index: Ra=92.7 CRI=89.9  
 R1 =92 R2 =96 R3 =98 R4 =93 R5 =92 R6 =95 R7 =93  
 R8 =82 R9 =60 R10=89 R11=94 R12=82 R13=93 R14=98 R15=88

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	17.6	Dimmer adjusted to lowest light output	< 1 m

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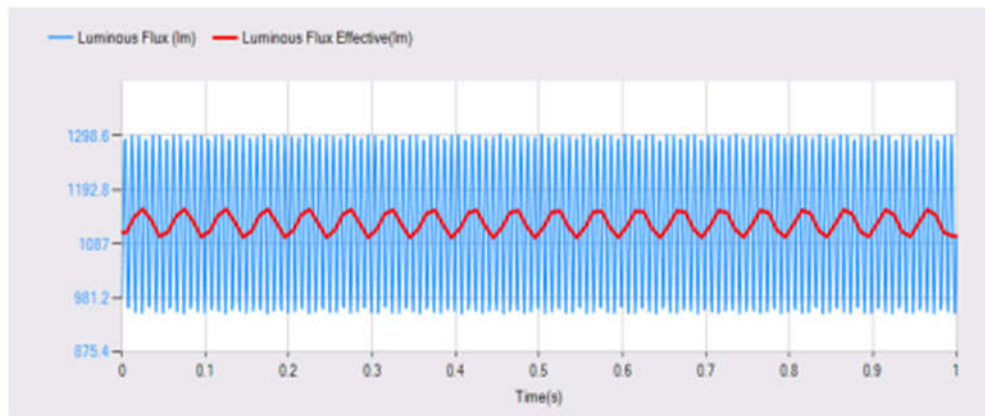
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<b>4 Operating Frequency</b>	<b>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b>
<b>Noted: This test and data are not covered by NVLAP accreditation</b>	

<b>Test date</b>	2017-09-25	<b>Test Ambient:</b>	25.1°C
<b>Sample No.</b>	<b>Operating Frequency (Hz)</b>		
GZE1709109-H-D1	120.37		
GZE1709109-H-D2	120.33		
GZE1709109-H-D3	120.39		
Average	120.36		



**Laboratory: Standard-Tech Co. Ltd Testing Center**  
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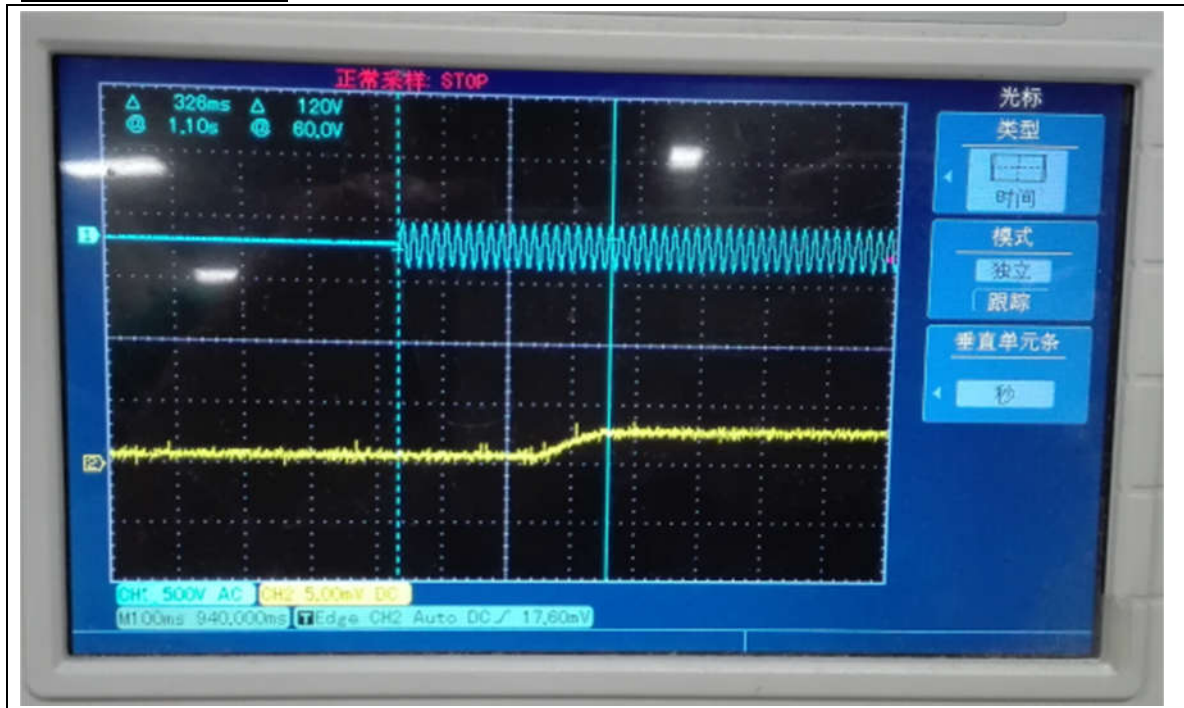
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<b>5 Starting Time</b> <i>(Refer to Work Instruction QD28)</i>	<b>ENERGY STAR<sup>®</sup> Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b>
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Test date	2017-09-25	Test Ambient:	25.1°C
Sample No.	Start Time (ms)		
GZE1709109-H-D1	326		
GZE1709109-H-D2	344		
GZE1709109-H-D3	332		
Average	334		

**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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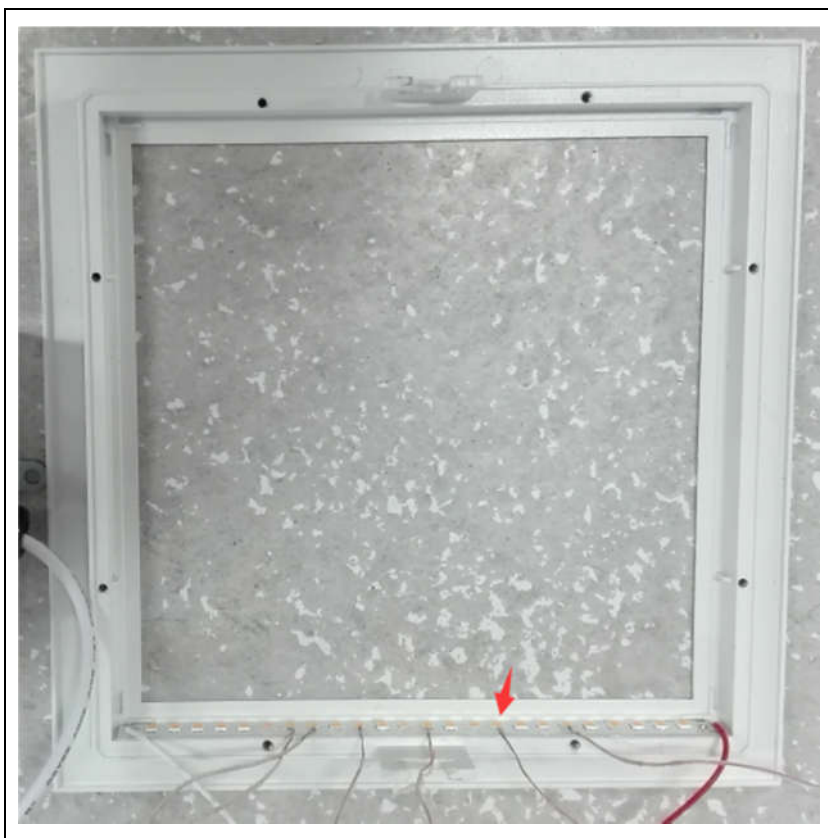
**Test voltage: 120V,60Hz**

<b>Test date</b>	2017-09-25	<b>Test Ambient</b>	25.1°C
<b>Sample No.</b>		<b>Transient Protection Test - Seven Strikes</b>	
GZE1709109-H-D1		Pass	
GZE1709109-H-D2		Pass	
GZE1709109-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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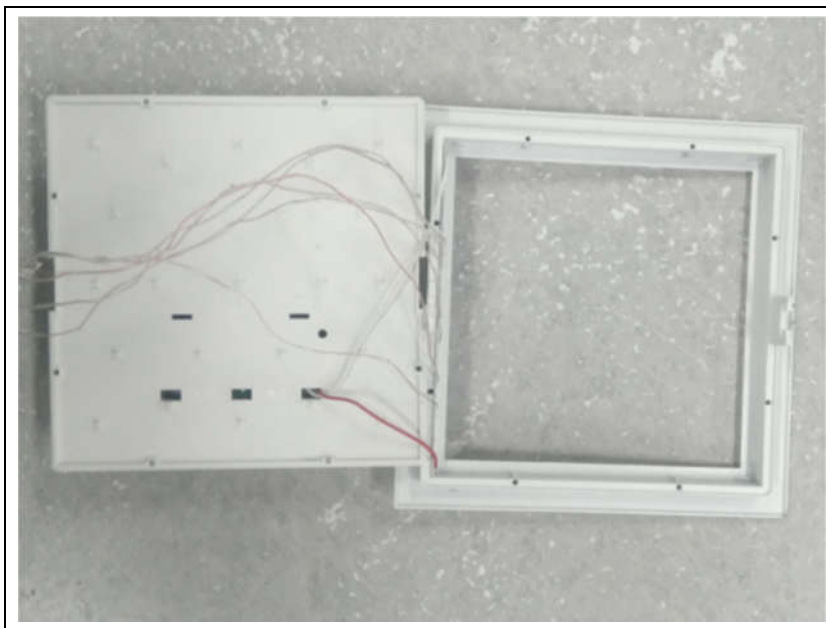
Test date	2017-09-25	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	59.0
Model Number	LSKT624W-2790		
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1709109-H-D1	SAWxA32E-xx	66.1	105

**In-Situ Picture - Ts:**




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Test date	2017-12-20	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	58.1
Model Number	LSKT654W-2790		
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1712059-H-H1	SAWxA32E-xx	94.3	105

**In-Situ Picture - Ts:**

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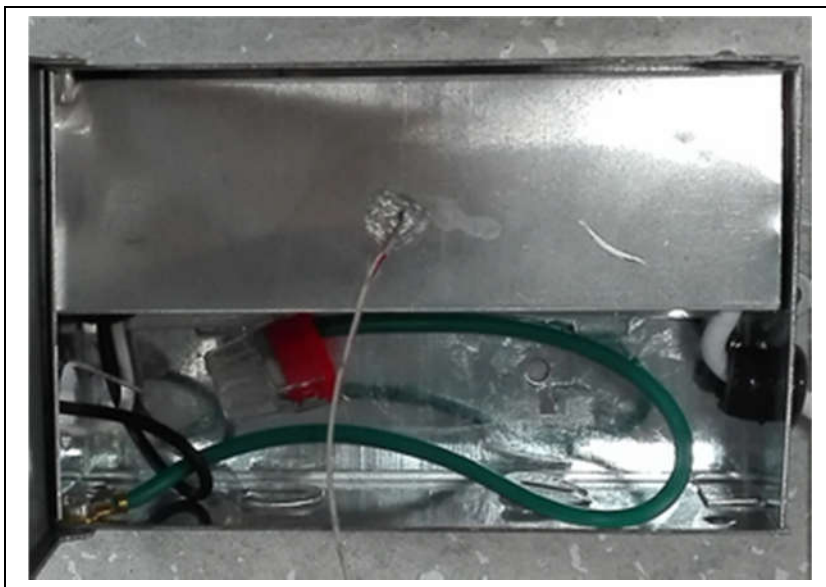
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<b>7.2 Maximum Measured Ballast or Driver Case Temperature</b>	<b>UL1598-2008, 3<sup>rd</sup> Edition</b>
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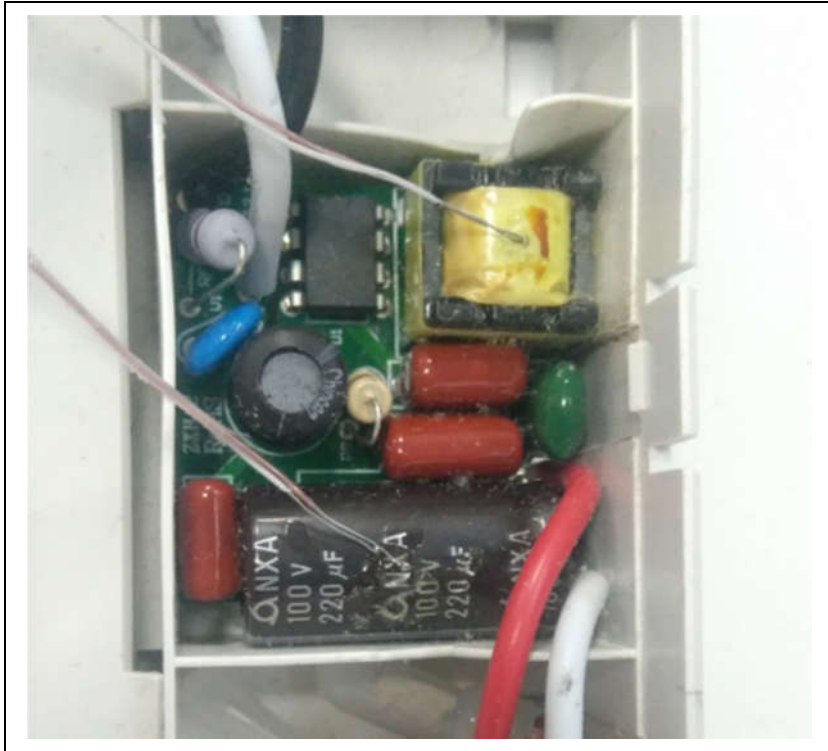
Test date	2017-09-25	Test Ambient	25.1°C
Model Number	LSKT624W-2790		
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1709109-H-D1	49.4	105	

**In-Situ Picture - Ts:**



Test date	2017-12-20	Test Ambient	25.1°C
Model Number	LSKT654W-2790		
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1712059-H-H1	94.5	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>	2017-09-25	<b>Test Ambient:</b>	25.0 ° C
<b>Model Number</b>	LSKT624W-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>
GZE1709109-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 \*\*\*\*\***