

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): LSKT622W-##90

LSKT655W-##90

Remark: "##" in the model name stands for different CCT as bellow:

27=2700K,30=3000K,40=4000K,50=5000K

Representative (Tested) Model: LSKT622W-2790

LSKT655W-2790

Model Different: All construction and rating are the same, except the
installation of driver.

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

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

Product Information:

Organization Name	L-TECH CORPORTION		
Brand Name	L-TECH CORP		
Model Number	LSKT622W-##90 LSKT655W-##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	--	1042.5	lm
Initial Lumen Efficacy	--	73.88	lm/w
Correlated color temperature / CCT	2745	--	K
Color rendering index / CRI	93.7	--	
R9 Value	62	--	
Duv	-0.0019	--	

Luminous Intensity Distribution

Center beam candlepower (if applicable)	-----	105.9	cd
Beam angle (if applicable)		393	°
Zonal lumens in the 0°-60° zone		80.7	%
Zonal lumens in the 60°-90° zone		19.3	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0	%

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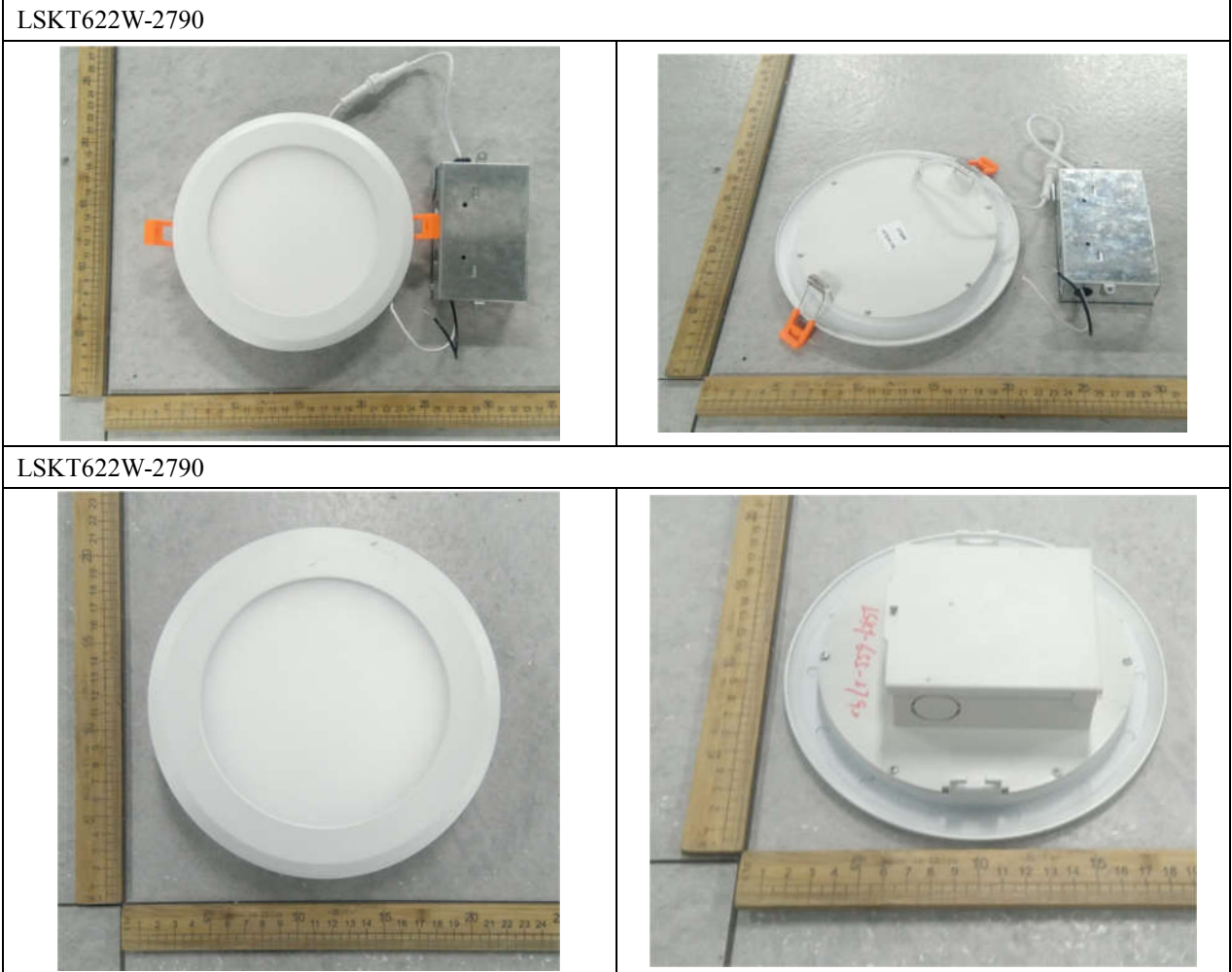
Test Specifications:	
Date of Receipt	Sep.20,2017
Date of Test	Sep.25,2017
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	IES LM-79-2008 Electrical 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 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	LSKT622W-##90 LSKT655W-##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	Edison Opto Corporation
LED Model	2T03X2WW11000002
Sample Receipt Date	Sep.20,2017
Sample Number	GZE1709109-H-C1,C2,C3 GZE1712059-H-G1,G2,G3

Photo



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2.1 Electrical, Photometric and Chromaticity Measurements <i>(Refer to Work Instruction QD25)</i>	IES LM-79 2008
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Test date	2017-09-25	Test Ambient:	25.0 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LSKT622W-2790		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1709109-H-C1	120.0	60	0.1205	14.11	0.9759
GZE1709109-H-C2	120.0	60	0.1240	14.52	0.9760
GZE1709109-H-C3	120.0	60	0.1225	14.33	0.9751
Average			0.1223	14.32	0.9757

Sphere-Spectroradiometer Method:

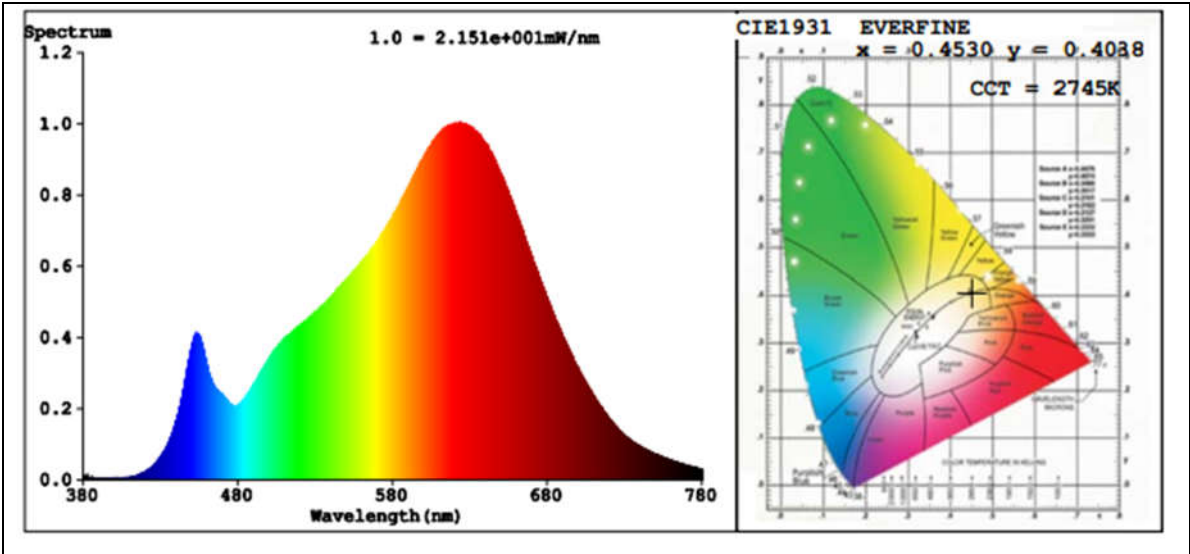
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	93.7
R9	62
CCT (K)	2745
Chromaticity (x, y)	x=0.4530 y=0.4038
Chromaticity (u', v')	u'=0.2611 v'=0.5237
Duv	-0.0019

Special Color Rendering Indices			
R1	95	R9	62
R2	99	R10	96
R3	98	R11	96
R4	94	R12	88
R5	95	R13	96
R6	97	R14	100
R7	91	R15	90
R8	82	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1042.5
Luminous Efficacy (lm/W)	73.88
Beam Angle°	105.9
Center Beam Candle Power (cd)	393

Spectral Power Distribution and Chromaticity Diagram



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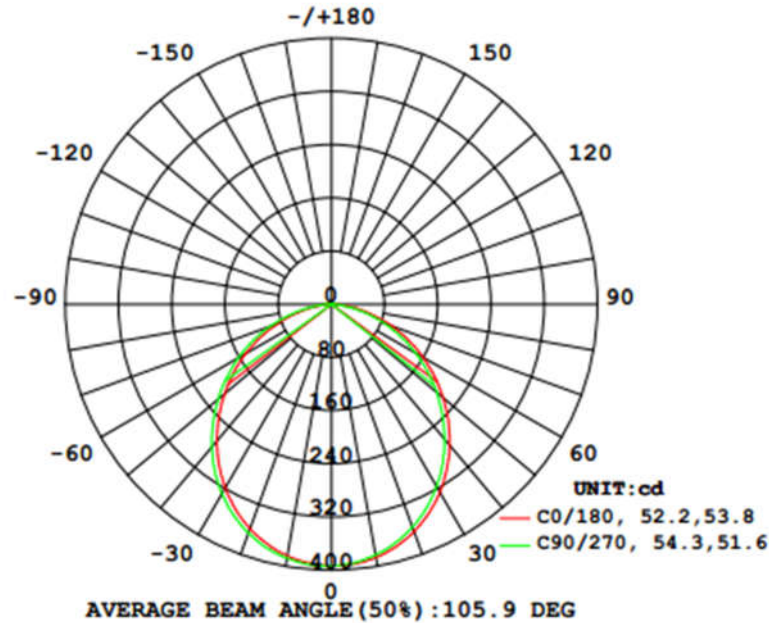
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Zonal Lumen Tabulation

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	301.2	28.9%
0-40	488.0	46.8%
0-60	841.1	80.7%
60-90	201.3	19.3%
70-100	79.9	7.7%
90-120	0.0	0%
0-90	1,042.3	100%
90-180	0.1	0%
0-180	1,042.4	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	37.2	3.6%	90-100	0.0	0%
10-20	105.8	10.2%	100-110	0.0	0%
20-30	158.3	15.2%	110-120	0.0	0%
30-40	186.7	17.9%	120-130	0.0	0%
40-50	188.3	18.1%	130-140	0.0	0%
50-60	164.8	15.8%	140-150	0.0	0%
60-70	121.4	11.6%	150-160	0.0	0%
70-80	65.4	6.3%	160-170	0.0	0%
80-90	14.5	1.4%	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	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393
5	392	392	391	391	390	390	390	390	391	391	392	392	393	393	393	393
10	387	386	384	384	383	382	382	383	384	385	386	387	388	388	388	388
15	377	376	374	373	372	371	371	371	374	375	377	378	379	380	380	379
20	364	362	360	358	357	356	355	356	359	361	363	365	366	367	367	367
25	347	344	342	340	338	337	336	337	341	343	345	348	349	351	351	350
30	326	324	321	318	316	315	314	315	319	322	325	327	329	331	331	330
35	303	300	297	294	292	290	290	290	295	298	301	304	306	307	308	307
40	277	274	270	267	265	263	262	263	268	271	275	278	280	282	282	281
45	249	246	242	239	236	235	234	235	240	243	246	249	252	254	255	254
50	220	216	213	209	207	205	204	205	210	213	217	220	223	225	225	224
55	189	186	183	179	176	174	174	175	180	183	186	190	192	194	195	194
60	158	155	152	148	146	144	143	144	149	152	156	159	162	164	165	164
65	127	124	121	118	115	113	112	113	118	121	124	128	131	132	133	133
70	96.5	93.5	90.2	87.0	84.2	82.5	81.5	82.2	86.9	89.7	93.1	96.4	99.1	101	102	101
75	66.5	63.8	60.7	57.7	55.2	53.5	52.5	53.1	56.8	59.4	62.6	65.6	68.3	70.1	71.2	70.4
80	37.9	35.5	32.9	30.3	28.2	26.7	25.8	26.3	29.2	31.5	34.1	36.8	39.2	40.8	41.8	41.3
85	14.0	12.4	10.6	9.01	8.32	7.48	6.94	7.06	8.06	9.49	11.3	13.1	15.2	16.4	17.2	16.8
90	0.73	0.18	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.39	1.36	1.98	2.21	1.72
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	0.01	0.00	0.01	0.00	0.00	0.00
105	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	0.00	0.00	0.00
110	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
115	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	0.01	0.01
120	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
125	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
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	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.01
140	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
145	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
150	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
155	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
160	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
165	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
170	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	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	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
180	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

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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 2017-09-25	Test Ambient 25.1°C
Sample No.	Maximum Δu'v'
GZE1709109-H-C1	0.0016

Gamma\C	CIE u'	CIE v'	du' v'	CIE u'	CIE v'	du' v'
-80	0.2623	0.5235	0.0002	0.2612	0.5231	0.0014
-79	0.2622	0.5235	0.0003	0.2611	0.5231	0.0015
-78	0.2624	0.5236	0.0001	0.2612	0.5231	0.0014
-77	0.2623	0.5235	0.0002	0.2613	0.5232	0.0013
-76	0.2622	0.5235	0.0003	0.2612	0.5231	0.0014
-75	0.2625	0.5236	0	0.2613	0.5231	0.0012
-74	0.2624	0.5236	0.0001	0.2613	0.5231	0.0013
-73	0.2624	0.5235	0.0001	0.2614	0.5232	0.0012
-72	0.2626	0.5236	0.0001	0.2613	0.5232	0.0012
-71	0.2626	0.5236	0.0001	0.2615	0.5232	0.0011
-70	0.2625	0.5236	0	0.2614	0.5232	0.0012
-69	0.2625	0.5236	0	0.2614	0.5232	0.0012
-68	0.2624	0.5236	0.0001	0.2616	0.5232	0.001
-67	0.2627	0.5236	0.0002	0.2615	0.5232	0.001
-66	0.2627	0.5237	0.0002	0.2615	0.5232	0.0011
-65	0.2627	0.5236	0.0002	0.2615	0.5232	0.0011
-64	0.2627	0.5237	0.0002	0.2616	0.5232	0.0009
-63	0.2626	0.5236	0.0001	0.2616	0.5233	0.0009
-62	0.2627	0.5237	0.0002	0.2616	0.5233	0.0009
-61	0.2627	0.5237	0.0002	0.2616	0.5233	0.001
-60	0.2627	0.5237	0.0002	0.2617	0.5233	0.0008
-59	0.2628	0.5237	0.0003	0.2618	0.5233	0.0008
-58	0.2628	0.5237	0.0003	0.2618	0.5233	0.0008
-57	0.2628	0.5237	0.0003	0.2617	0.5233	0.0008
-56	0.2629	0.5237	0.0004	0.2619	0.5233	0.0006
-55	0.2629	0.5237	0.0004	0.2619	0.5233	0.0006
-54	0.2629	0.5237	0.0004	0.2619	0.5233	0.0006
-53	0.263	0.5238	0.0005	0.2619	0.5234	0.0006
-52	0.263	0.5238	0.0005	0.2619	0.5233	0.0007
-51	0.263	0.5238	0.0005	0.2619	0.5234	0.0007

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-50	0.263	0.5238	0.0005	0.2621	0.5234	0.0005
-49	0.2631	0.5238	0.0006	0.2621	0.5234	0.0005
-48	0.2631	0.5238	0.0006	0.2621	0.5234	0.0005
-47	0.2631	0.5238	0.0006	0.262	0.5234	0.0005
-46	0.263	0.5238	0.0006	0.262	0.5234	0.0005
-45	0.2632	0.5238	0.0007	0.262	0.5234	0.0005
-44	0.2632	0.5238	0.0007	0.262	0.5234	0.0005
-43	0.2631	0.5238	0.0007	0.262	0.5234	0.0005
-42	0.2631	0.5238	0.0007	0.2622	0.5235	0.0003
-41	0.2633	0.5239	0.0008	0.2622	0.5234	0.0003
-40	0.2633	0.5239	0.0008	0.2622	0.5235	0.0003
-39	0.2632	0.5239	0.0008	0.2622	0.5235	0.0003
-38	0.2632	0.5239	0.0008	0.2622	0.5235	0.0003
-37	0.2632	0.5239	0.0008	0.2622	0.5235	0.0003
-36	0.2632	0.5239	0.0008	0.2622	0.5235	0.0004
-35	0.2633	0.5239	0.0009	0.2622	0.5235	0.0004
-34	0.2633	0.5239	0.0009	0.2621	0.5235	0.0004
-33	0.2633	0.5239	0.0009	0.2621	0.5235	0.0004
-32	0.2632	0.5239	0.0008	0.2623	0.5235	0.0002
-31	0.2632	0.5239	0.0008	0.2623	0.5235	0.0002
-30	0.2632	0.5239	0.0008	0.2623	0.5235	0.0003
-29	0.2632	0.5239	0.0008	0.2623	0.5235	0.0003
-28	0.2633	0.5239	0.0009	0.2622	0.5235	0.0003
-27	0.2633	0.5239	0.0009	0.2622	0.5235	0.0003
-26	0.2633	0.5239	0.0009	0.2622	0.5235	0.0003
-25	0.2633	0.5239	0.0008	0.2622	0.5235	0.0003
-24	0.2632	0.5239	0.0008	0.2621	0.5235	0.0004
-23	0.2632	0.5239	0.0008	0.2621	0.5235	0.0004
-22	0.2632	0.5239	0.0008	0.2621	0.5234	0.0004
-21	0.2632	0.5239	0.0008	0.2621	0.5235	0.0004
-20	0.2632	0.5239	0.0007	0.262	0.5234	0.0005
-19	0.2631	0.5239	0.0007	0.2621	0.5234	0.0004
-18	0.2631	0.5239	0.0007	0.2621	0.5235	0.0005
-17	0.2632	0.5239	0.0008	0.262	0.5234	0.0005
-16	0.2633	0.5239	0.0008	0.262	0.5234	0.0005
-15	0.2632	0.5239	0.0008	0.262	0.5234	0.0005
-14	0.2632	0.5239	0.0008	0.262	0.5234	0.0005
-13	0.2632	0.5239	0.0008	0.262	0.5234	0.0005
-12	0.2632	0.5239	0.0007	0.262	0.5234	0.0006
-11	0.2632	0.5239	0.0007	0.2619	0.5234	0.0006

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-10	0.2632	0.5239	0.0007	0.2619	0.5234	0.0006
-9	0.2632	0.5239	0.0007	0.2619	0.5234	0.0006
-8	0.2632	0.5239	0.0007	0.2619	0.5234	0.0006
-7	0.2631	0.5239	0.0007	0.2619	0.5234	0.0006
-6	0.2632	0.5239	0.0007	0.2619	0.5234	0.0006
-5	0.2631	0.5239	0.0007	0.2619	0.5234	0.0007
-4	0.2631	0.5239	0.0007	0.2619	0.5234	0.0007
-3	0.2631	0.5238	0.0007	0.2619	0.5234	0.0007
-2	0.2631	0.5238	0.0007	0.2619	0.5234	0.0006
-1	0.2631	0.5239	0.0007	0.2619	0.5234	0.0007
0	0.2633	0.524	0.0009	0.2633	0.524	0.0009
1	0.2632	0.5239	0.0007	0.2619	0.5234	0.0006
2	0.2631	0.5239	0.0007	0.2619	0.5234	0.0006
3	0.2631	0.5239	0.0007	0.2619	0.5234	0.0006
4	0.2631	0.5239	0.0007	0.2619	0.5234	0.0006
5	0.2632	0.5239	0.0007	0.2619	0.5234	0.0006
6	0.2632	0.5239	0.0007	0.2619	0.5234	0.0006
7	0.2632	0.5239	0.0007	0.2619	0.5234	0.0006
8	0.2632	0.5239	0.0007	0.2619	0.5234	0.0006
9	0.2632	0.5239	0.0008	0.2619	0.5234	0.0006
10	0.2632	0.5239	0.0008	0.2619	0.5234	0.0006
11	0.2632	0.5239	0.0008	0.2619	0.5234	0.0006
12	0.2632	0.5239	0.0008	0.262	0.5234	0.0005
13	0.2632	0.5239	0.0008	0.262	0.5234	0.0005
14	0.2633	0.5239	0.0008	0.262	0.5234	0.0005
15	0.2633	0.5239	0.0009	0.262	0.5234	0.0005
16	0.2633	0.5239	0.0008	0.262	0.5235	0.0005
17	0.2633	0.5239	0.0009	0.262	0.5234	0.0005
18	0.2633	0.5239	0.0009	0.2621	0.5234	0.0005
19	0.2634	0.5239	0.0009	0.2619	0.5234	0.0006
20	0.2633	0.5239	0.0009	0.262	0.5234	0.0006
21	0.2634	0.5239	0.0009	0.262	0.5234	0.0006
22	0.2634	0.5239	0.001	0.262	0.5234	0.0005
23	0.2634	0.5239	0.001	0.262	0.5234	0.0005
24	0.2634	0.5239	0.001	0.262	0.5235	0.0005
25	0.2635	0.5239	0.001	0.262	0.5235	0.0005
26	0.2635	0.524	0.001	0.2621	0.5234	0.0004
27	0.2635	0.5239	0.0011	0.2621	0.5235	0.0004
28	0.2635	0.524	0.0011	0.262	0.5234	0.0006
29	0.2635	0.524	0.0011	0.262	0.5235	0.0005

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30	0.2635	0.524	0.0011	0.262	0.5234	0.0005
31	0.2633	0.5239	0.0009	0.262	0.5234	0.0005
32	0.2633	0.5239	0.0009	0.2621	0.5235	0.0005
33	0.2634	0.524	0.0009	0.2621	0.5235	0.0005
34	0.2634	0.5239	0.001	0.2621	0.5235	0.0004
35	0.2634	0.5239	0.001	0.2619	0.5234	0.0006
36	0.2634	0.5239	0.001	0.2619	0.5234	0.0006
37	0.2634	0.5239	0.001	0.262	0.5234	0.0005
38	0.2634	0.524	0.001	0.262	0.5234	0.0005
39	0.2634	0.5239	0.001	0.262	0.5234	0.0005
40	0.2635	0.5239	0.001	0.262	0.5234	0.0005
41	0.2632	0.5239	0.0008	0.2619	0.5234	0.0006
42	0.2632	0.5239	0.0008	0.2619	0.5234	0.0006
43	0.2632	0.5239	0.0008	0.2619	0.5234	0.0006
44	0.2633	0.5239	0.0009	0.2619	0.5234	0.0006
45	0.2633	0.5239	0.0008	0.2619	0.5234	0.0006
46	0.2633	0.5239	0.0008	0.2618	0.5234	0.0007
47	0.2633	0.5239	0.0008	0.2618	0.5234	0.0007
48	0.2633	0.5239	0.0009	0.2618	0.5234	0.0007
49	0.2631	0.5238	0.0007	0.2618	0.5234	0.0007
50	0.2631	0.5238	0.0007	0.2617	0.5233	0.0008
51	0.2631	0.5238	0.0007	0.2617	0.5233	0.0008
52	0.2631	0.5238	0.0007	0.2617	0.5233	0.0008
53	0.2631	0.5238	0.0007	0.2616	0.5233	0.0009
54	0.2631	0.5238	0.0007	0.2616	0.5233	0.0009
55	0.263	0.5238	0.0005	0.2617	0.5233	0.0009
56	0.263	0.5238	0.0005	0.2615	0.5233	0.001
57	0.263	0.5238	0.0005	0.2616	0.5233	0.001
58	0.263	0.5238	0.0005	0.2616	0.5233	0.001
59	0.263	0.5238	0.0005	0.2615	0.5232	0.0011
60	0.2628	0.5237	0.0003	0.2615	0.5232	0.0011
61	0.2628	0.5237	0.0004	0.2615	0.5232	0.001
62	0.2629	0.5237	0.0004	0.2614	0.5232	0.0012
63	0.2628	0.5237	0.0004	0.2614	0.5232	0.0011
64	0.2627	0.5237	0.0002	0.2614	0.5232	0.0012
65	0.2627	0.5237	0.0002	0.2614	0.5232	0.0012
66	0.2628	0.5237	0.0003	0.2613	0.5232	0.0013
67	0.2626	0.5237	0.0001	0.2613	0.5232	0.0012
68	0.2626	0.5236	0.0001	0.2612	0.5232	0.0013
69	0.2627	0.5236	0.0002	0.2613	0.5232	0.0013

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70	0.2625	0.5236	0	0.2612	0.5232	0.0014
71	0.2626	0.5236	0.0001	0.2613	0.5231	0.0013
72	0.2626	0.5236	0.0001	0.2613	0.5231	0.0013
73	0.2625	0.5236	0	0.261	0.5231	0.0015
74	0.2625	0.5236	0	0.2611	0.5231	0.0014
75	0.2624	0.5236	0.0001	0.2611	0.5231	0.0015
76	0.2623	0.5236	0.0002	0.2611	0.5231	0.0015
77	0.2624	0.5236	0.0001	0.261	0.5231	0.0016
78	0.2623	0.5236	0.0002	0.261	0.5231	0.0016
79	0.2623	0.5235	0.0002	0.2611	0.5231	0.0015
80	0.2622	0.5235	0.0003	0.261	0.5231	0.0016

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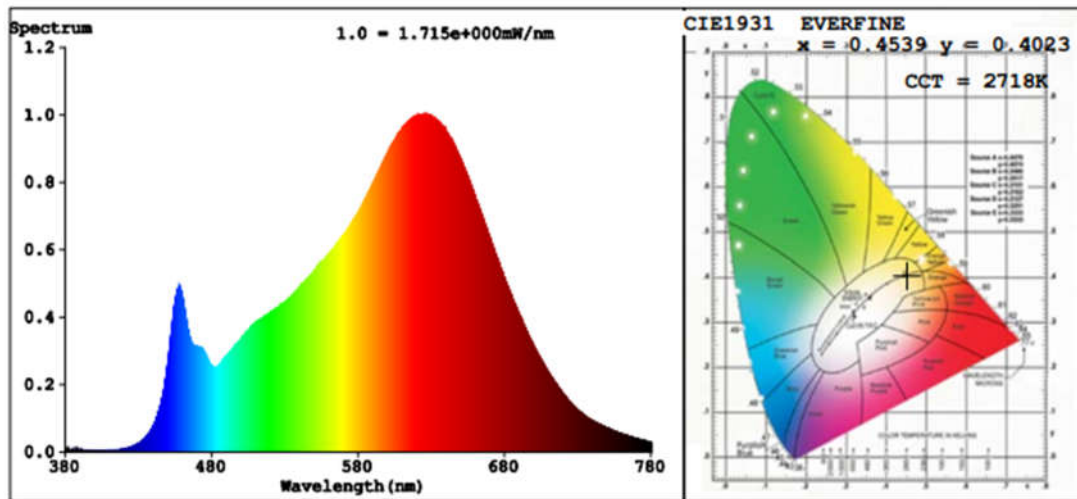
Report Format Number STD/QR4910-A/1

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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	2017-09-25	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-C1	120.0 V / 60 Hz	77.38	2718	93.4	0.1284
GZE1709109-H-C2	120.0 V / 60 Hz	56.22	2717	93.3	0.1092
GZE1709109-H-C3	120.0 V / 60 Hz	83.95	2719	93.4	0.1355
Average		72.52	2718	93.4	0.1244



Colorimetric Parameters

Chromaticity Coordinate: $x=0.4539$ $y=0.4023$ / $u'=0.2624$ $v'=0.5232$
 CCT=2718K (Duv=-0.0026) Dominant WL:Ld =585.0nm Purity=57.0%
 Peak WL:Lp=626.4nm FWHM=138.0nm
 Render Index:Ra=93.4 CRI=92.1
 R1 =97 R2 =98 R3 =95 R4 =94 R5 =97 R6 =93 R7 =89
 R8 =83 R9 =68 R10=97 R11=97 R12=83 R13=99 R14=98 R15=93

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	18.9	Dimmer adjusted to lowest light output	< 1 m

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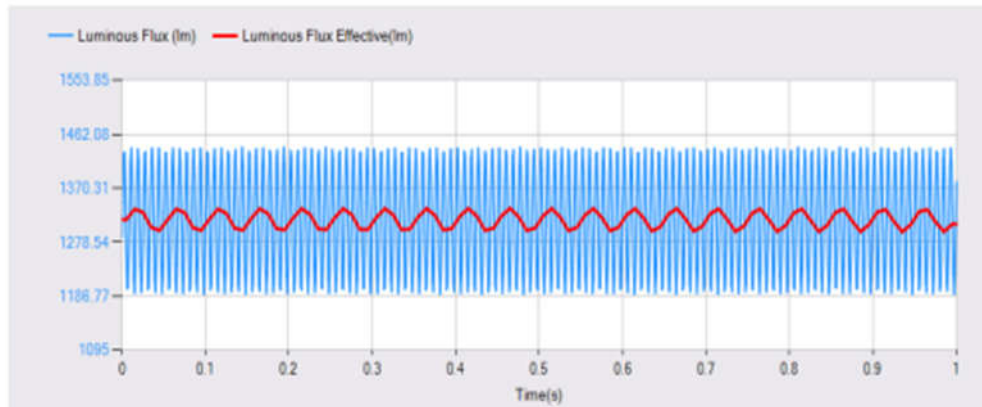
Report Format Number STD/QR4910-A/1

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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	

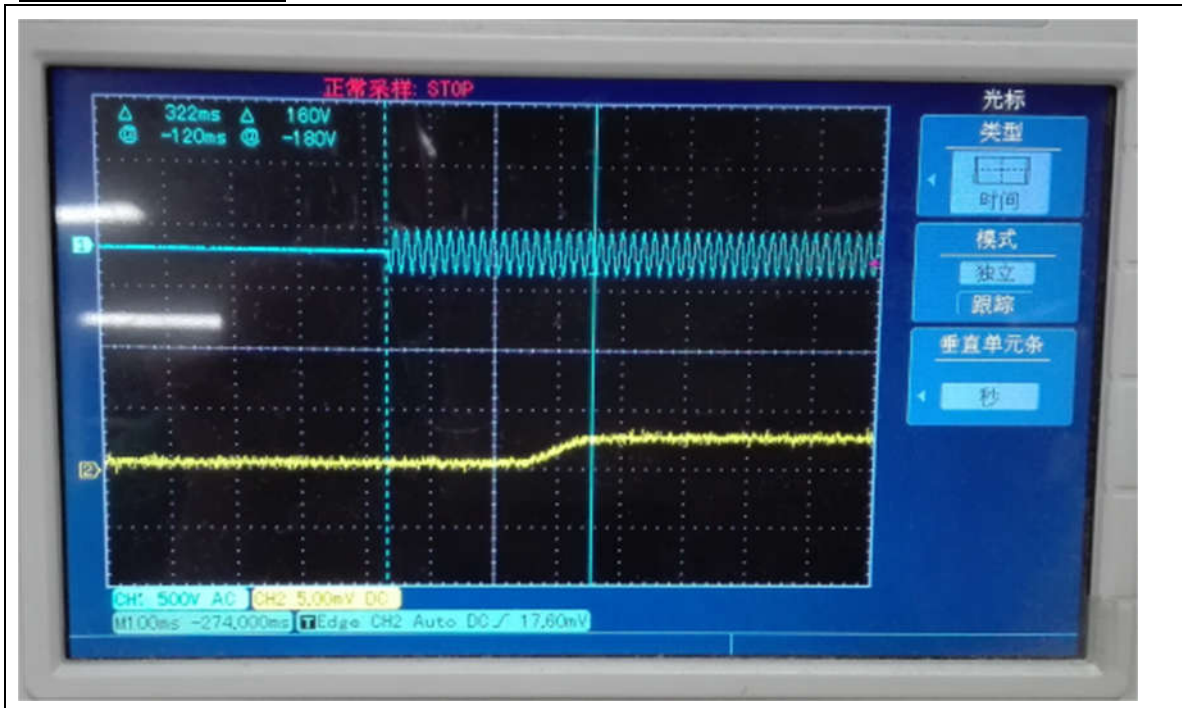
Test date	2017-09-25	Test Ambient:	25.1°C
Sample No.	Operating Frequency (Hz)		
GZE1709109-H-C1	120.37		
GZE1709109-H-C2	120.29		
GZE1709109-H-C3	120.27		
Average	120.31		



<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	2017-09-25	Test Ambient:	25.1°C
Sample No.	Start Time (ms)		
GZE1709109-H-C1	322		
GZE1709109-H-C2	262		
GZE1709109-H-C3	240		
Average	275		

Graph (Start Time):



<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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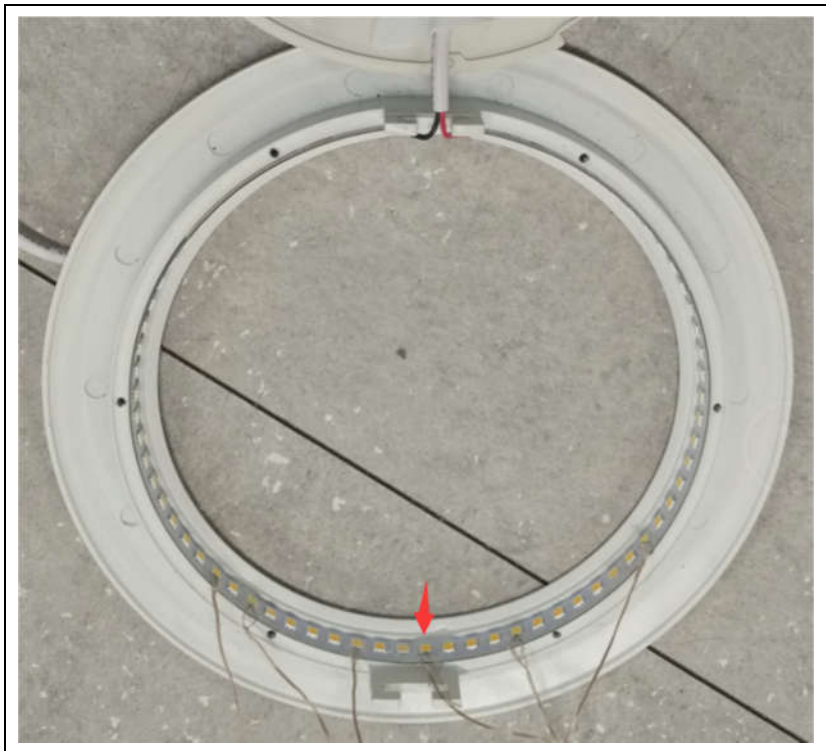
Test voltage: 120V,60Hz

Test date	2017-09-25	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
GZE1709109-H-C1		Pass	
GZE1709109-H-C2		Pass	
GZE1709109-H-C3		Pass	

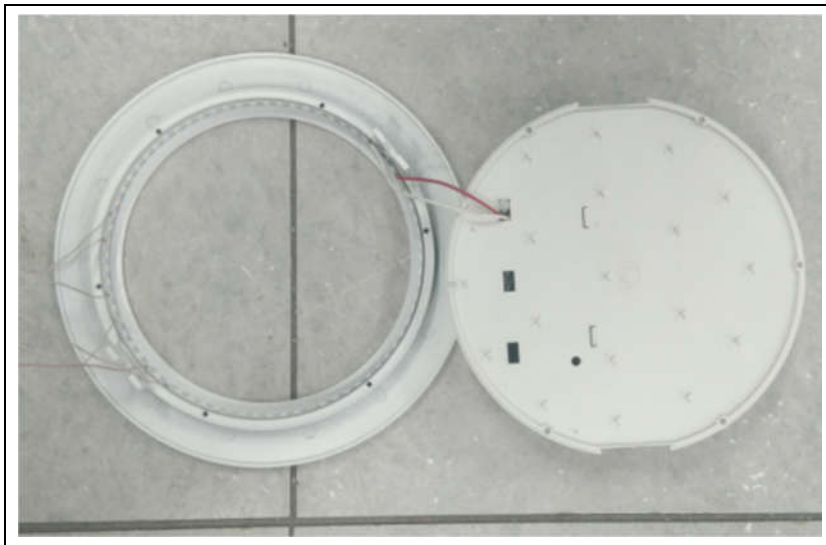
7.1 In-Situ Temperature Measurement Test (ISTMT)	UL1598-2008, 3rd Edition
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Test date	2017-09-25	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	53.7
Model Number	LSKT622W-2790		
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1709109-H-C1	2T03X2WW11000002	53.4	105

In-Situ Picture - Ts:



Test date	2017-12-20	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	57.1
Model Number	LSKT655W-2790		
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1712059-H-G1	2T03X2WW11000002	74.0	105

In-Situ Picture - Ts:

Laboratory: Standard-Tech Co. Ltd Testing Center
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Report Format Number STD/QR4910-A/1

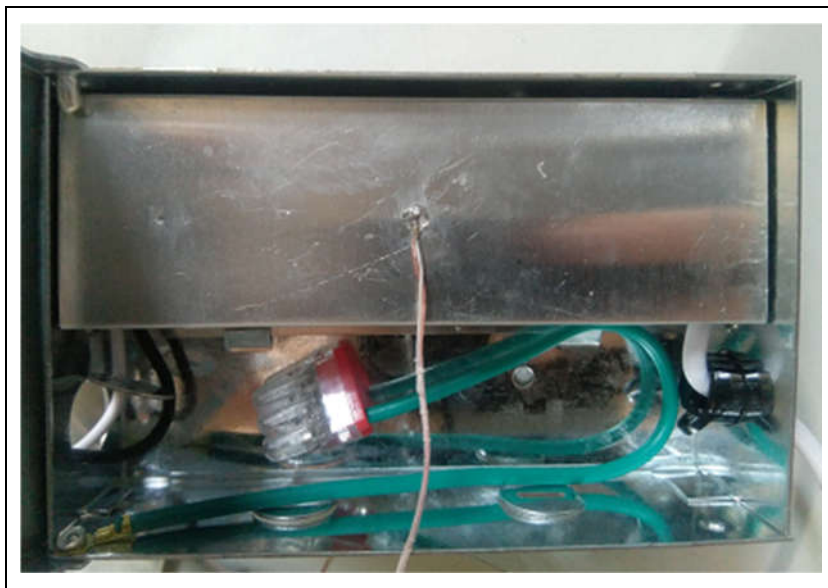
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7.2 Maximum Measured Ballast or Driver Case Temperature **UL1598-2008, 3rd Edition**

Test date	2017-09-25	Test Ambient	25.1°C
Model Number	LSKT622W-2790		
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1709109-H-C1	47.5	105	

In-Situ Picture - Ts:



Test date	2017-12-20	Test Ambient	25.1°C
Model Number	LSKT655W-2790		
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1712059-H-G1	90.7	105	

In-Situ Picture - Ts:

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8 Off-State Power Consumption:	ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
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Test date	2017-09-25	Test Ambient:	25.0 °C
Model Number	LSKT622W-2790	Stabilization Time (min)	90

Electrical Measurement – when the luminaires turned off:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)
GZE1709109-H -C1	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 *******