

## Energy Star Test Report

For

# L-TECH CORPORTION

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

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

### SSL downlight retrofits

Model name(s): LRKT400W-2790 (LRKT403W-2790)

Representative (Tested) Model: LRKT400W-2790 (LRKT403W-2790)

Model Different: N/A

Test & Report By:

*Candice Liao*

Engineer:Candice Liao

Date: Jan.02,2018

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

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	Jan.02,2018
Test Report No.	GZE1712072-H-A
Laboratory Contact Name	Univ Xie

**Product Information:**

Organization Name	L-TECH CORPORTION		
Brand Name	L-TECH CORP		
Model Number	LRKT400W-2790 (LRKT403W-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	--	14.71	W
Input Current	--	0.1265	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9693	
Off-State Power	--	0	W

**Photometric Characteristics**

Total Initial Lumen Output	--	1022.6	lm
Initial Lumen Efficacy	--	69.52	lm/w
Correlated color temperature / CCT	2728	--	K
Color rendering index / CRI	92.8	--	
R9 Value	57	--	
Duv	-0.0015	--	
<b>Luminous Intensity Distribution</b>			
Center beam candlepower (if applicable)		448	cd
Beam angle (if applicable)		98.1	°
Zonal lumens in the 0°-60° zone		87.8	%
Zonal lumens in the 60°-90° zone	-----	12.2	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0	%

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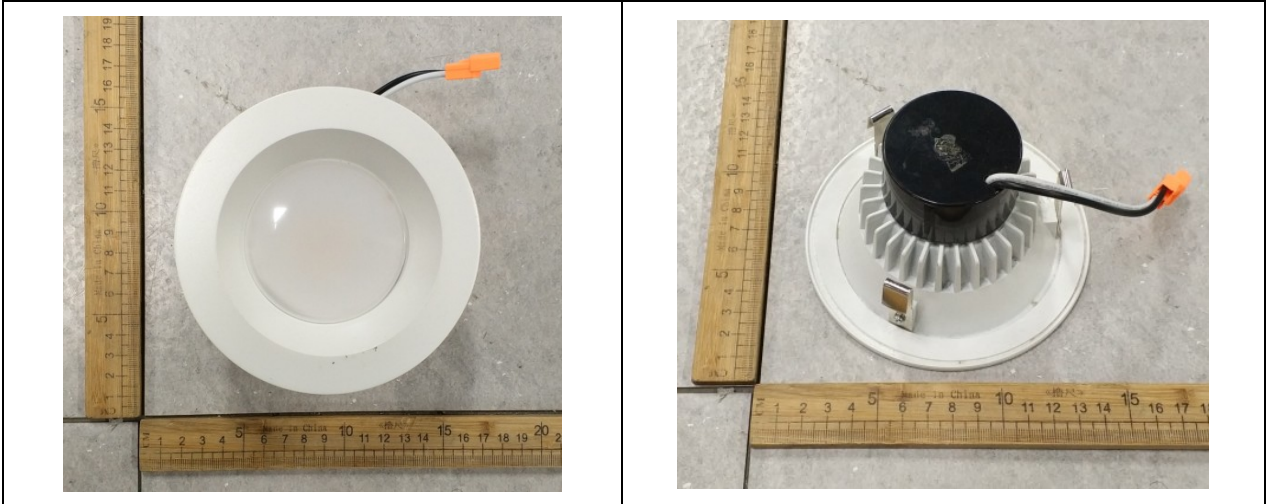
Test Specifications:	
Date of Receipt	Dec.16.2017
Date of Test	Dec.18,2017
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	IES LM-79-2008 Electrical 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	LRKT400W-2790 (LRKT403W-2790)
Luminaire Type	SSL downlight retrofits
Rated Voltage / Frequency	120Vac, 60 Hz
Nominal Power	15W
Rated Initial Lamp Lumen	1000lm
Declared CCT	2700K,3000K, 3500K ,4000K,5000K
LED Manufacturer	Edison Opto Corporation
LED Model	2T03X5WW11000003
Sample Receipt Date	Dec.18.2017
Sample Number	GZE1712072-H-A1,A2,A3(2700K)

**Photo**



<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>	2017-12-18	<b>Test Ambient:</b>	25.0 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LRKT400W-2790 (LRKT403W-2790)		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1712072-H-A1	120.0	60	0.1264	14.71	0.9697
GZE1712072-H-A2	120.0	60	0.1252	14.58	0.9703
GZE1712072-H-A3	120.0	60	0.1278	14.84	0.9679
Average			0.1265	14.71	0.9693

**Sphere-Spectroradiometer Method:**

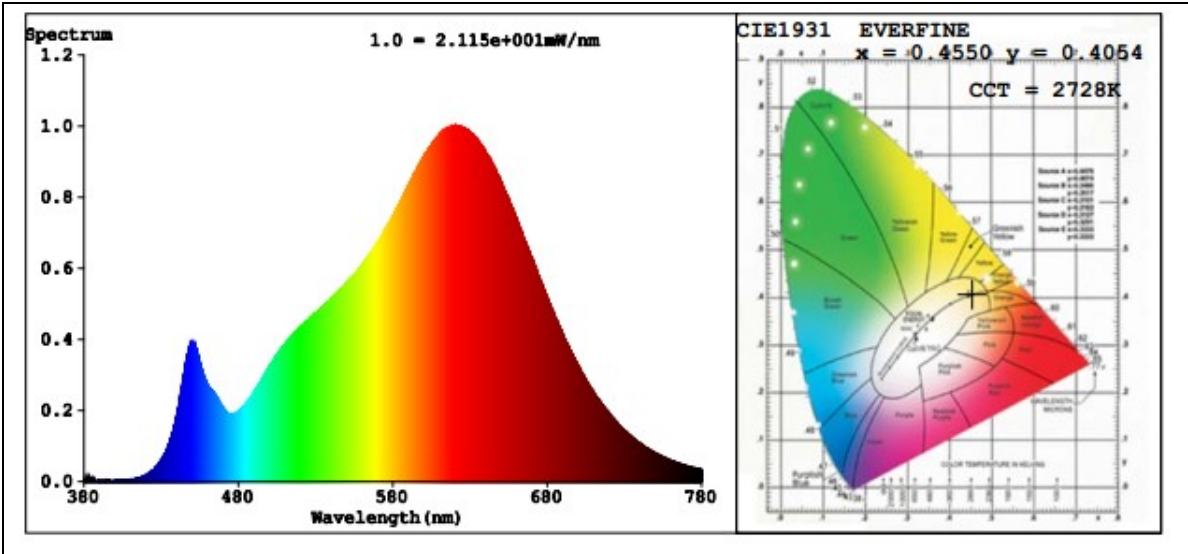
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	92.8
R9	57
CCT (K)	2728
Chromaticity (x, y)	x=0.4550 y=0.4054
Chromaticity (u', v')	u'=0.2617 v'=0.5246
Duv	-0.0015

Special Color Rendering Indices			
R1	93	R9	57
R2	97	R10	94
R3	98	R11	95
R4	93	R12	88
R5	94	R13	95
R6	97	R14	99
R7	90	R15	89
R8	80	--	--

**Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1022.6
Luminous Efficacy (lm/W)	69.52
Beam Angle°	98.1
Center Beam Candle Power (cd)	448

**Spectral Power Distribution and Chromaticity Diagram**



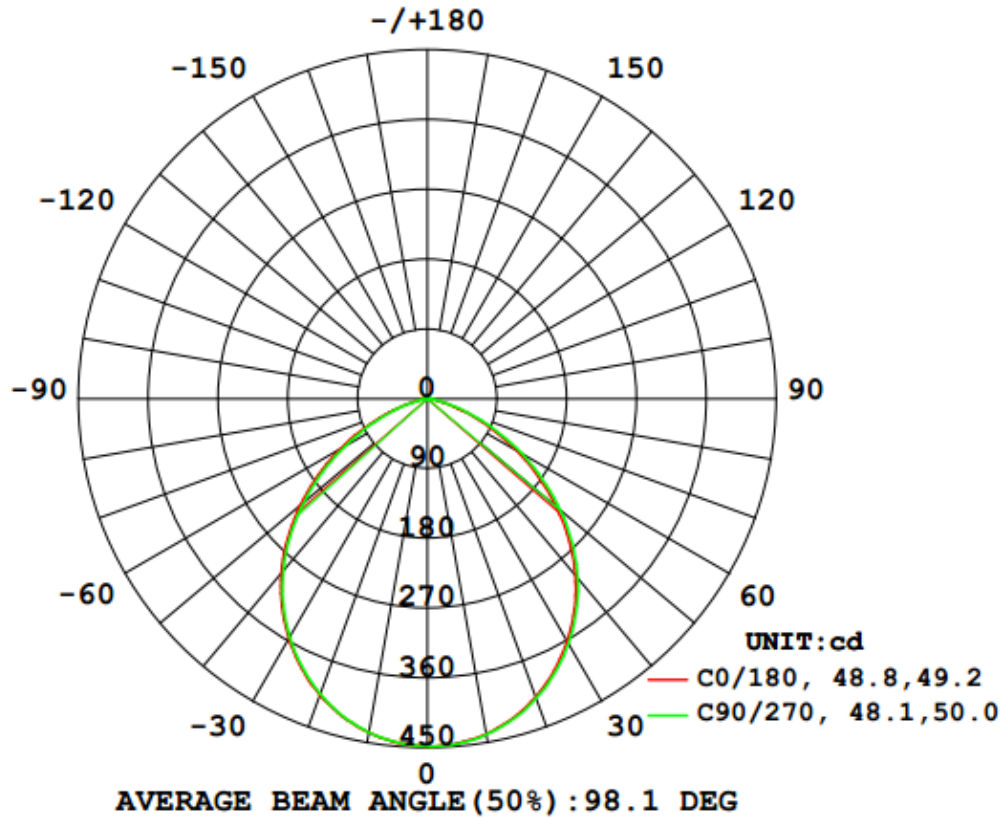
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**Zonal Lumen Tabulation**



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	339.7	33.2%
0-40	545.3	53.3%
0-60	897.9	87.8%
60-90	124.6	12.2%
70-100	34.4	3.4%
90-120	0.0	0%
0-90	1,022.5	100%
90-180	0.0	0%
0-180	1,022.5	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	42.3	4.1%	90-100	0.0	0%
10-20	119.9	11.7%	100-110	0	0%
20-30	177.5	17.4%	110-120	0.0	0%
30-40	205.6	20.1%	120-130	0.0	0%
40-50	197.8	19.3%	130-140	0.0	0%
50-60	154.8	15.1%	140-150	0.0	0%
60-70	90.2	8.8%	150-160	0.0	0%
70-80	29.0	2.8%	160-170	0.0	0%
80-90	5.4	0.5%	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	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448	448	
5	446	446	447	446	446	446	446	445	445	445	445	445	445	445	445	446	
10	439	440	440	440	440	439	438	437	437	436	436	436	437	437	438	439	
15	426	427	428	428	428	427	426	425	424	423	423	423	424	424	425	426	
20	409	411	411	412	411	410	408	407	406	405	404	404	405	406	407	408	
25	387	389	390	390	390	388	387	385	384	382	382	381	382	383	384	386	
30	361	363	364	365	364	363	361	359	357	356	355	354	355	356	358	360	
35	331	334	335	335	335	333	331	329	327	325	324	324	324	326	327	330	
40	297	300	302	302	302	300	297	295	293	291	289	289	289	291	292	295	
45	259	262	265	265	265	263	260	257	255	252	250	250	250	252	254	257	
50	217	221	224	224	224	222	219	216	214	211	209	208	208	210	212	215	
55	175	179	181	182	182	180	177	174	172	169	167	165	166	167	169	173	
60	132	136	139	140	139	138	135	132	130	127	124	123	123	125	127	130	
65	91.5	95.0	97.6	98.8	98.5	96.8	94.4	91.2	89.8	86.6	84.2	83.0	82.9	84.2	86.6	89.8	
70	54.9	58.1	60.4	61.6	61.4	59.9	57.6	54.9	53.1	50.4	48.3	47.1	47.1	48.3	50.3	53.0	
75	25.3	27.5	29.2	30.1	30.0	28.9	27.2	25.4	24.1	22.2	21.5	20.9	20.9	21.6	22.1	24.0	
80	10.9	11.4	11.9	12.2	12.1	11.9	11.5	10.9	10.6	10.1	9.66	9.42	9.42	9.65	10.1	10.6	
85	4.96	5.45	5.81	5.84	5.77	5.60	5.43	4.97	4.65	4.19	3.84	3.55	3.52	3.77	4.21	4.66	
90	0.04	0.06	0.04	0.03	0.04	0.04	0.04	0.05	0.01	0.00	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	0.00	0.00	0.00	
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	0.01	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	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
135	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
140	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	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	0.02	0.02	0.02	0.01	0.01	0.01	0.01	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	0.01	0.01	0.01	0.01	
155	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	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	0.02	0.02	0.01	0.02	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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<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> 2017-12-25	<b>Test Ambient</b> 25.1°C
<b>Sample No.</b>	<b>Maximum Δu'v'</b>
GZE1712072-H-A1	0.0025

Gamma\C	CIE u'	CIE v'	du' v'	CIE u'	CIE v'	du' v'
-72	0.2604	0.5237	0.002	0.26	0.5236	0.0024
-71	0.2603	0.5236	0.0021	0.26	0.5235	0.0024
-70	0.2605	0.5236	0.0019	0.2599	0.5234	0.0025
-69	0.2605	0.5235	0.002	0.26	0.5234	0.0025
-68	0.2606	0.5235	0.0019	0.2601	0.5234	0.0023
-67	0.2606	0.5235	0.0018	0.2601	0.5234	0.0024
-66	0.2606	0.5236	0.0018	0.2603	0.5234	0.0022
-65	0.261	0.5236	0.0015	0.2605	0.5234	0.002
-64	0.261	0.5236	0.0015	0.2605	0.5235	0.002
-63	0.261	0.5237	0.0014	0.2607	0.5235	0.0018
-62	0.2613	0.5238	0.0011	0.2607	0.5236	0.0017
-61	0.2614	0.5238	0.0011	0.2607	0.5236	0.0017
-60	0.2614	0.5239	0.001	0.2609	0.5237	0.0015
-59	0.2614	0.5239	0.001	0.261	0.5237	0.0014
-58	0.2616	0.524	0.0008	0.261	0.5238	0.0014
-57	0.2616	0.524	0.0008	0.2613	0.5238	0.0011
-56	0.2618	0.5241	0.0006	0.2613	0.5239	0.0011
-55	0.2618	0.5241	0.0005	0.2613	0.5239	0.001
-54	0.262	0.5242	0.0004	0.2615	0.524	0.0008
-53	0.262	0.5242	0.0003	0.2616	0.524	0.0008
-52	0.262	0.5242	0.0003	0.2616	0.5241	0.0007
-51	0.2623	0.5243	0	0.2617	0.5241	0.0007
-50	0.2624	0.5243	0.0001	0.2619	0.5241	0.0004
-49	0.2624	0.5243	0.0001	0.2619	0.5242	0.0004
-48	0.2624	0.5244	0.0002	0.262	0.5242	0.0003
-47	0.2625	0.5244	0.0002	0.262	0.5242	0.0003
-46	0.2625	0.5244	0.0002	0.262	0.5242	0.0003
-45	0.2625	0.5244	0.0003	0.2622	0.5243	0.0001
-44	0.2625	0.5244	0.0003	0.2623	0.5243	0.0001

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-43	0.2626	0.5245	0.0004	0.2623	0.5243	0.0001
-42	0.2627	0.5245	0.0004	0.2623	0.5243	0.0001
-41	0.2627	0.5245	0.0004	0.2623	0.5244	0.0001
-40	0.2627	0.5245	0.0004	0.2623	0.5244	0.0001
-39	0.2628	0.5246	0.0006	0.2626	0.5244	0.0003
-38	0.2628	0.5246	0.0006	0.2625	0.5244	0.0003
-37	0.2628	0.5245	0.0006	0.2626	0.5245	0.0003
-36	0.2628	0.5246	0.0006	0.2626	0.5244	0.0004
-35	0.263	0.5246	0.0007	0.2626	0.5244	0.0003
-34	0.263	0.5246	0.0007	0.2626	0.5244	0.0003
-33	0.263	0.5246	0.0007	0.2626	0.5245	0.0004
-32	0.263	0.5246	0.0007	0.2626	0.5244	0.0004
-31	0.263	0.5246	0.0007	0.2626	0.5244	0.0004
-30	0.263	0.5246	0.0007	0.2628	0.5245	0.0006
-29	0.263	0.5246	0.0007	0.2628	0.5245	0.0006
-28	0.2631	0.5246	0.0009	0.2628	0.5245	0.0006
-27	0.2631	0.5246	0.0008	0.2628	0.5245	0.0005
-26	0.2631	0.5246	0.0008	0.2628	0.5245	0.0005
-25	0.2631	0.5246	0.0008	0.2628	0.5245	0.0006
-24	0.2631	0.5246	0.0009	0.2628	0.5245	0.0006
-23	0.2631	0.5246	0.0008	0.2628	0.5245	0.0006
-22	0.2631	0.5245	0.0008	0.2628	0.5244	0.0006
-21	0.2631	0.5245	0.0008	0.2628	0.5244	0.0005
-20	0.2632	0.5246	0.001	0.2629	0.5245	0.0006
-19	0.2632	0.5246	0.001	0.2628	0.5244	0.0005
-18	0.2632	0.5246	0.0009	0.2628	0.5244	0.0005
-17	0.2632	0.5246	0.0009	0.2628	0.5244	0.0005
-16	0.2632	0.5245	0.0009	0.2628	0.5244	0.0005
-15	0.2632	0.5245	0.0009	0.2628	0.5244	0.0005
-14	0.2632	0.5245	0.0009	0.2628	0.5244	0.0005
-13	0.2632	0.5245	0.0009	0.2628	0.5244	0.0005
-12	0.2632	0.5245	0.0009	0.2628	0.5244	0.0005
-11	0.2631	0.5245	0.0009	0.2628	0.5244	0.0005
-10	0.2632	0.5245	0.0009	0.2628	0.5243	0.0005
-9	0.2632	0.5245	0.0009	0.2628	0.5243	0.0005
-8	0.2632	0.5245	0.0009	0.2627	0.5243	0.0004
-7	0.2631	0.5245	0.0009	0.2627	0.5243	0.0004
-6	0.2631	0.5245	0.0008	0.2628	0.5243	0.0005
-5	0.2632	0.5245	0.0009	0.2627	0.5243	0.0004

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-4	0.2631	0.5245	0.0009	0.2627	0.5243	0.0004
-3	0.2631	0.5245	0.0009	0.2627	0.5243	0.0004
-2	0.2631	0.5244	0.0008	0.2627	0.5243	0.0004
-1	0.2631	0.5244	0.0008	0.2627	0.5243	0.0004
0	0.2631	0.5246	0.0009	0.2631	0.5246	0.0009
1	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
2	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
3	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
4	0.2631	0.5244	0.0008	0.2627	0.5243	0.0004
5	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
6	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
7	0.2631	0.5245	0.0008	0.2628	0.5243	0.0004
8	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
9	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
10	0.2631	0.5244	0.0008	0.2627	0.5243	0.0004
11	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
12	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
13	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
14	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
15	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
16	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
17	0.2631	0.5245	0.0008	0.2627	0.5244	0.0004
18	0.2631	0.5245	0.0008	0.2627	0.5243	0.0004
19	0.2631	0.5245	0.0008	0.2627	0.5244	0.0004
20	0.2631	0.5245	0.0008	0.2627	0.5244	0.0004
21	0.2631	0.5245	0.0008	0.2626	0.5243	0.0003
22	0.2631	0.5245	0.0008	0.2626	0.5243	0.0003
23	0.2631	0.5245	0.0008	0.2626	0.5244	0.0003
24	0.2631	0.5245	0.0008	0.2626	0.5244	0.0003
25	0.2631	0.5245	0.0008	0.2626	0.5244	0.0003
26	0.263	0.5245	0.0008	0.2626	0.5244	0.0003
27	0.263	0.5245	0.0008	0.2626	0.5244	0.0003
28	0.2631	0.5246	0.0008	0.2626	0.5244	0.0003
29	0.263	0.5246	0.0008	0.2626	0.5244	0.0003
30	0.263	0.5246	0.0008	0.2624	0.5244	0.0001
31	0.263	0.5246	0.0007	0.2624	0.5244	0.0001
32	0.2628	0.5245	0.0005	0.2624	0.5244	0.0002
33	0.2628	0.5245	0.0005	0.2624	0.5244	0.0002
34	0.2628	0.5245	0.0005	0.2624	0.5244	0.0001

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35	0.2628	0.5245	0.0005	0.2624	0.5243	0.0001
36	0.2628	0.5245	0.0005	0.2623	0.5243	0.0001
37	0.2628	0.5245	0.0005	0.2623	0.5243	0.0001
38	0.2627	0.5245	0.0005	0.2623	0.5243	0
39	0.2627	0.5245	0.0005	0.2622	0.5243	0.0001
40	0.2627	0.5245	0.0004	0.2623	0.5243	0.0001
41	0.2625	0.5244	0.0002	0.2621	0.5243	0.0002
42	0.2625	0.5244	0.0002	0.2621	0.5243	0.0002
43	0.2625	0.5244	0.0002	0.2621	0.5243	0.0002
44	0.2625	0.5244	0.0002	0.2621	0.5243	0.0002
45	0.2624	0.5244	0.0002	0.2619	0.5242	0.0004
46	0.2624	0.5244	0.0001	0.2619	0.5242	0.0004
47	0.2622	0.5243	0.0001	0.2619	0.5242	0.0004
48	0.2622	0.5243	0.0001	0.2617	0.5242	0.0006
49	0.2622	0.5243	0.0002	0.2617	0.5241	0.0006
50	0.2621	0.5243	0.0002	0.2617	0.5241	0.0006
51	0.2621	0.5242	0.0002	0.2616	0.5241	0.0008
52	0.2619	0.5242	0.0004	0.2616	0.5241	0.0008
53	0.2619	0.5242	0.0005	0.2615	0.524	0.0008
54	0.2618	0.5241	0.0005	0.2614	0.524	0.001
55	0.2618	0.5241	0.0006	0.2613	0.5239	0.001
56	0.2616	0.524	0.0008	0.2612	0.5239	0.0012
57	0.2616	0.524	0.0008	0.2612	0.5239	0.0012
58	0.2615	0.524	0.0008	0.2611	0.5238	0.0013
59	0.2613	0.5239	0.0011	0.2611	0.5238	0.0013
60	0.2613	0.5238	0.0011	0.2611	0.5237	0.0013
61	0.2612	0.5238	0.0012	0.2608	0.5236	0.0017
62	0.261	0.5238	0.0014	0.2607	0.5236	0.0017
63	0.261	0.5237	0.0014	0.2606	0.5236	0.0018
64	0.2608	0.5237	0.0016	0.2606	0.5236	0.0019
65	0.2608	0.5237	0.0016	0.2606	0.5235	0.0019
66	0.2608	0.5237	0.0016	0.2603	0.5235	0.0022
67	0.2606	0.5236	0.0018	0.2603	0.5234	0.0022
68	0.2605	0.5236	0.0019	0.2603	0.5235	0.0022
69	0.2605	0.5236	0.0019	0.26	0.5234	0.0024
70	0.2604	0.5236	0.002	0.2601	0.5234	0.0024
71	0.2603	0.5237	0.0021	0.2602	0.5235	0.0023
72	0.2604	0.5238	0.002	0.26	0.5235	0.0025

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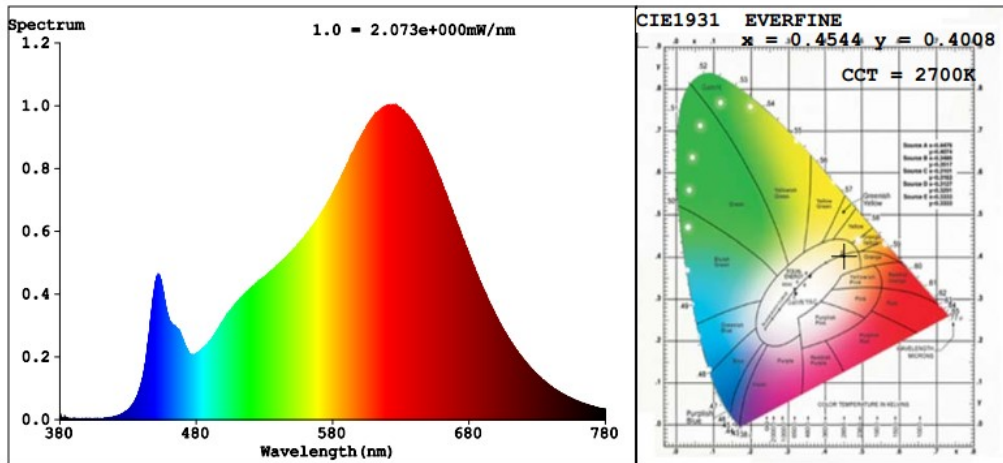
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<b>3. Electrical and Photometric Measurements, with dimming</b>	<b>IES LM-79 2008 ENERGY STAR<sup>®</sup> Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b>
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<b>Test date</b>	2017-12-25	<b>Test Ambient:</b>	25.1°C		
<b>Dimmer Model</b>		LEVITON MFG CO INC (E31373), Cat. No. 6681			
Sample No.	Input	Luminous flux (lm)	CCT (K)	CRI	P.F.
GZE1712072-H-A1	120.0 V / 60 Hz	94.60	2700	93.6	0.2155
GZE1712072-H-A3	120.0 V / 60 Hz	80.82	2703	93.6	0.1863
GZE1712072-H-A2	120.0 V / 60 Hz	66.85	2697	93.6	0.1638
<b>Average</b>		<b>80.76</b>	<b>2700</b>	<b>93.6</b>	<b>0.1885</b>



**Colorimetric Parameters**

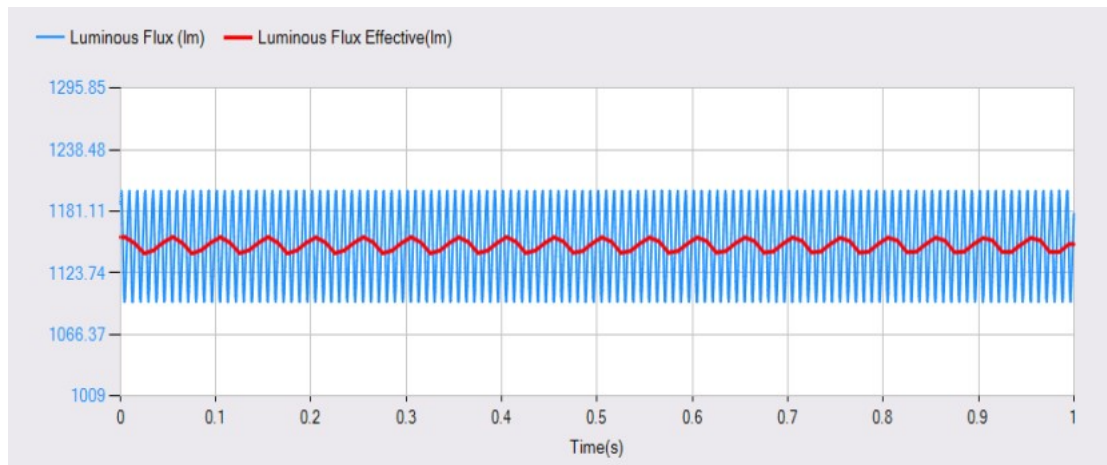
Chromaticity Coordinate:  $x=0.4544$   $y=0.4008$   $u'=0.2634$   $v'=0.5227$   $Dx, Dy: -0.0054, -0.0098$   
 CCT=2700K (Duv=-0.0032) Dominant WL:  $\lambda_d = 585.3\text{nm}$  Purity=56.7%  
 Peak WL:  $\lambda_p = 623.3\text{nm}$  FWHM=140.0nm  
 Render Index:  $R_a = 93.6$  CRI=92.1  
 R1 =96 R2 =99 R3 =97 R4 =94 R5 =96 R6 =96 R7 =90  
 R8 =82 R9 =63 R10=98 R11=96 R12=86 R13=97 R14=99 R15=91

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

Dimmer	Peak Noise Reading (dBA)	Test Condition	Distance between the microphone and the UUT
LEVITON MFG CO INC (E31373), Cat. No. 6681	16.3	Dimmer adjusted to lowest light output	< 1 m

<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>	

Test date	2017-12-25	Test Ambient:	25.1°C
Sample No.		Operating Frequency (Hz)	
GZE1712072-H-A1		120.02	
GZE1712072-H-A3		120.02	
GZE1712072-H-A2		120.02	
Average		120.02	



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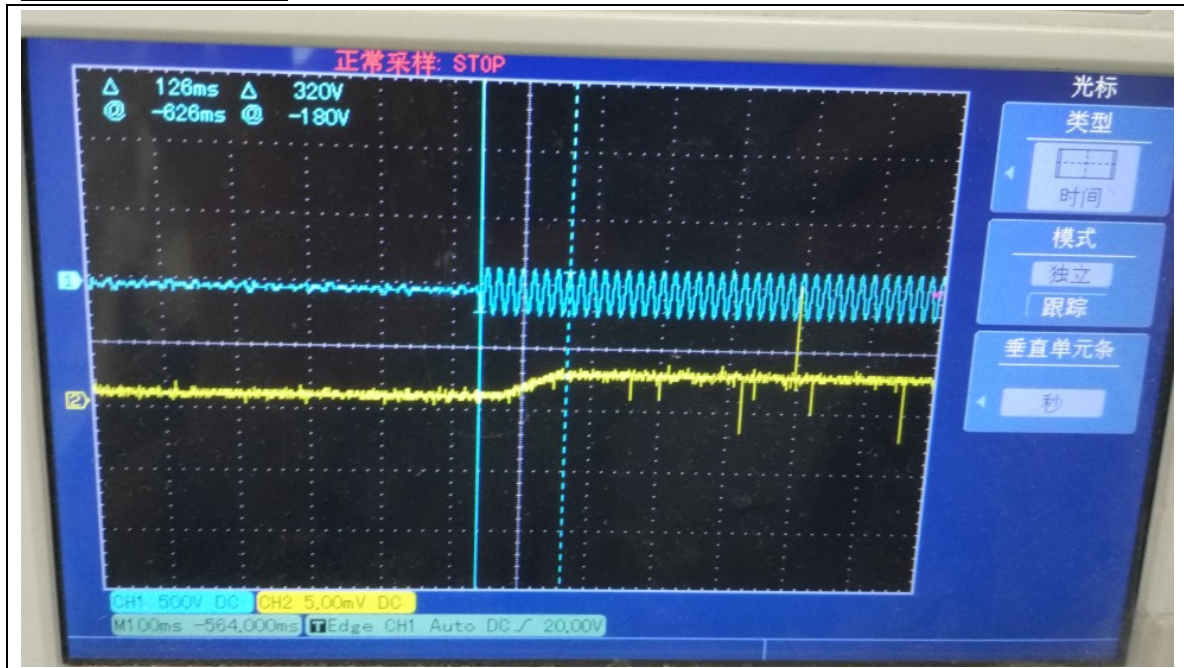
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<p><b>5 Starting Time</b>  <i>(Refer to Work Instruction QD28)</i></p>	<p><b>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b></p>
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Test date	2017-12-25	Test Ambient:	25.1°C
Sample No.	Start Time (ms)		
GZE1712072-H-A1	126		
GZE1712072-H-A3	108		
GZE1712072-H-A2	128		
Average	121		

**Graph (Start Time):**



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

<b>Test date</b>	2017-12-25	<b>Test Ambient</b>	25.1°C
<b>Sample No.</b>		<b>Transient Protection Test - Seven Strikes</b>	
GZE1712072-H-A1		Pass	
GZE1712072-H-A3		Pass	
GZE1712072-H-A2		Pass	

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<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	2017-12-30	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	148.0
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1712072-H-A1	2T03X5WW11000003	87.9	105

**In-Situ Picture - Ts:**



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

Test date	2017-12-30	Test Ambient	25.1°C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1712072-H-A1	88.3	90	

**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>	2017-12-25	<b>Test Ambient:</b>	25.0 °C
<b>Model Number</b>	LRKT400W-2790 (LRKT403W-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>
GZE1712072-H-A1	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 \*\*\*\*\***