

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): LRKT411W-EN-##90

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

Representative (Tested) Model: LRKT411W-EN-2790

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

Test & Report By:

Bill Luo

Engineer: Bill Luo

Date: Oct.16,2017

Review By:

Tommy Liang

Manager: Tommy Liang

- Note: 1.The results contained in this report pertain only to the tested samples.
2.This report does not imply product certification, approval, or endorsement by NVLAP, NIST,
or any agency of the Federal Government.

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

Report Format Number STD/QR4910-A/1

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

Tel: 8620-3229 0320 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	Oct.16,2017
Test Report No.	GZE1709109-H-F
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	L-TECH CORPORTION		
Brand Name	L-TECH CORP		
Model Number	LRKT411W-EN-##90		
SKU (if available)	N/A		
Type of Luminaire (for integral lamps, list base type and lamp type)	Downlights		
Luminaire Aperture (for Downlightss)	--	in.	
Luminaire Length	--	mm	
Luminaires Width	--	mm	
Number of Units (modular products)	N/A	s	

Integrating Sphere

Goniophotometer

Electrical Measurements:

	Output	Output	
Input Wattage	--	8.778	W
Input Current	--	0.0762	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9600	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	649.50	lm
Initial Lumen Efficacy	--	73.99	lm/w
Correlated color temperature / CCT	2751	--	K
Color rendering index / CRI	92.9	--	
R9 Value	57	--	
Duv	-0.0013	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)		245	cd
Beam angle (if applicable)		103.8	°
Zonal lumens in the 0°-60° zone		79.3	%
Zonal lumens in the 60°-90° zone	-----	20.6	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0	%

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Test Specifications:	
Date of Receipt	Sep.20,2017
Date of Test	Oct.09,2017
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry IESNA LM-16-93 Practical Guide to Colorimetry of Light Source IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems UL1993 4 th Edition, Self-Ballasted Lamps and Lamp Adapters ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) – Version 2.0
Reference Work Instruction	QD25
Remark	Below test and data are not covered by NVLAP accreditation: - Operating Frequency

Test Methods

1. Photometric and Electrical measurements – Light Distribution Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.

2. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25° C ± 1° C. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at least 5 nm intervals over the range of 380 to 780 nm.

1. Product Information:

Brand Name	L-TECH CORP
Model Number	LRKT411W-EN-##90
Luminaire Type	Downlights
Rated Voltage / Frequency	120Vac, 50/60 Hz
Nominal Power	9W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,4000K,5000K
LED Manufacturer	Edison Opto Corporation
LED Model	2T03X5WW11000003
Sample Receipt Date	Sep.20,2017
Sample Number	GZE1709109-H-F1,F2,F3

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	2017-10-09	Test Ambient:	25.0 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LRKT411W-EN-2790		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1709109-H-F1	120.0	60	0.0762	8.778	0.9600
GZE1709109-H-F2	120.0	60	0.0745	8.591	0.9612
GZE1709109-H-F3	120.0	60	0.0749	8.633	0.9604
Average			0.0752	8.667	0.9605

Sphere-Spectroradiometer Method:

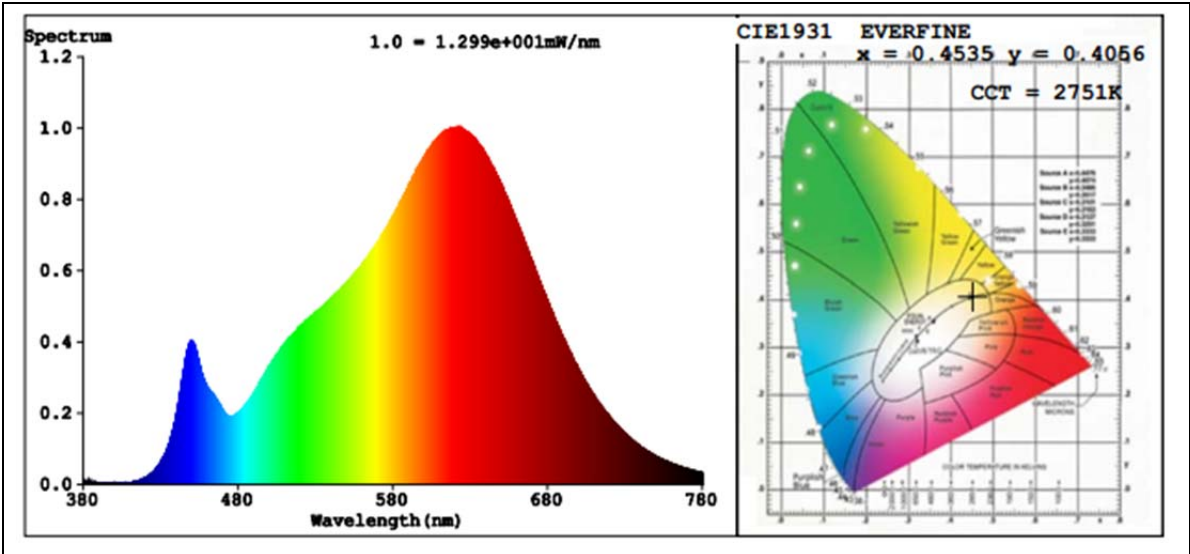
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	92.9
R9	57
CCT (K)	2751
Chromaticity (x, y)	x=0.4535 y=0.4056
Chromaticity (u', v')	u'=0.2606 v'=0.5245
Duv	-0.0013

Special Color Rendering Indices			
R1	93	R9	57
R2	97	R10	93
R3	98	R11	95
R4	93	R12	88
R5	94	R13	95
R6	97	R14	99
R7	91	R15	89
R8	80	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	649.50
Luminous Efficacy (lm/W)	73.99
Beam Angle°	103.8
Center Beam Candle Power (cd)	245

Spectral Power Distribution and Chromaticity Diagram



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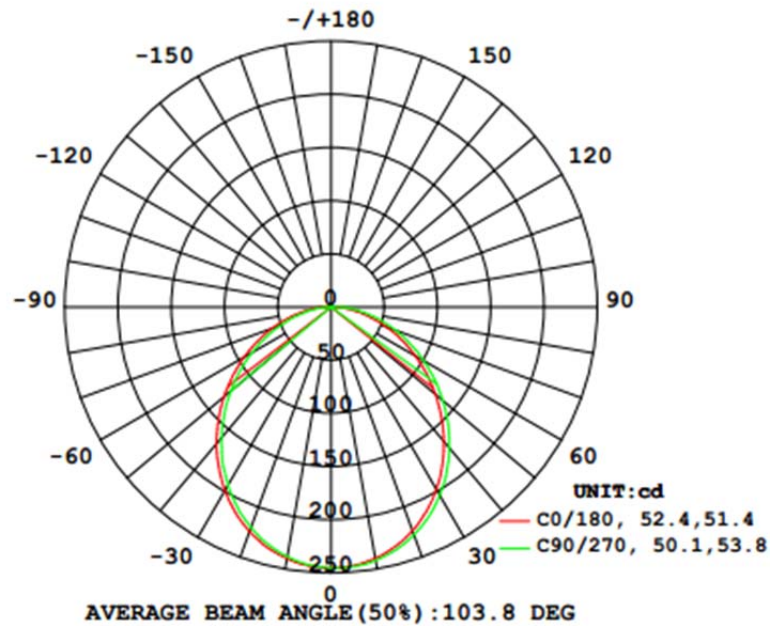
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Zonal Lumen Tabulation

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	186.7	28.8%
0-40	301.3	46.4%
0-60	515.1	79.3%
60-90	134.0	20.6%
70-100	60.0	9.2%
90-120	0.3	0%
0-90	649.1	100%
90-180	0.3	0%
0-180	649.4	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	23.2	3.6%	90-100	0.3	0%
10-20	65.8	10.1%	100-110	0	0%
20-30	97.8	15.1%	110-120	0	0%
30-40	114.5	17.6%	120-130	0.0	0%
40-50	114.4	17.6%	130-140	0.0	0%
50-60	99.5	15.3%	140-150	0.0	0%
60-70	74.3	11.4%	150-160	0.0	0%
70-80	43.7	6.7%	160-170	0.0	0%
80-90	16.0	2.5%	170-180	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	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245
5	244	244	245	245	245	245	245	244	244	244	243	243	243	243	243	244
10	240	240	241	242	242	242	241	241	240	239	239	238	238	238	239	239
15	233	234	235	236	236	236	235	234	234	232	231	231	231	231	231	232
20	224	225	226	227	228	227	227	225	224	223	222	221	221	221	221	223
25	212	214	215	217	217	217	216	214	213	211	210	209	208	208	209	211
30	198	200	202	203	204	204	203	201	199	197	196	194	194	194	195	197
35	182	185	187	188	189	189	188	186	184	182	180	178	178	178	179	181
40	165	167	170	172	173	173	171	169	168	165	163	161	160	160	162	164
45	147	149	152	154	155	155	154	151	150	147	145	143	142	142	143	145
50	128	131	134	136	137	137	135	133	131	129	126	124	123	123	124	127
55	109	112	115	117	119	118	117	115	113	110	108	105	104	104	106	108
60	90.9	93.7	96.4	98.8	100	100	98.6	96.3	94.7	91.8	89.2	87.1	85.9	85.9	87.1	89.3
65	73.3	76.0	78.4	80.3	82.0	81.9	80.8	78.6	76.7	73.9	71.3	69.2	68.0	68.0	69.1	71.2
70	55.8	58.5	61.3	63.5	64.9	64.9	63.6	61.4	59.3	56.6	54.0	52.0	50.8	50.7	51.8	53.8
75	39.3	41.8	44.4	46.6	47.9	47.9	46.8	44.8	42.8	40.2	37.8	35.8	34.8	34.6	35.6	37.3
80	24.6	26.8	29.2	31.1	32.2	32.3	31.3	29.5	27.7	25.5	23.5	21.9	20.9	20.8	21.4	22.9
85	12.8	14.6	16.5	18.0	18.4	18.9	18.3	16.8	15.5	13.7	12.2	10.9	10.1	9.89	10.4	11.5
90	2.11	3.83	4.31	6.45	6.05	6.82	6.71	4.55	4.13	3.57	2.23	0.98	0.76	0.74	1.51	2.29
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125	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	0.00	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	0.00	0.00	0.00	0.00	0.01
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01
140	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01
145	0.01	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
150	0.01	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
155	0.01	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
160	0.01	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	0.00
165	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.00
170	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
175	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
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

Test date 2017-10-09	Test Ambient 25.1°C
Sample No.	Maximum Δu'v'
GZE1709109-H-F1	0.0016

Gamma\C	CIE u'	CIE v'	du' v'	CIE u'	CIE v'	du' v'
-82	0.2606	0.5238	0.0008	0.2607	0.5235	0.0007
-81	0.2608	0.5237	0.0006	0.2604	0.5234	0.0009
-80	0.2606	0.5237	0.0008	0.2604	0.5233	0.0009
-79	0.2606	0.5236	0.0008	0.2604	0.5233	0.0009
-78	0.2606	0.5236	0.0008	0.2602	0.5232	0.0011
-77	0.2606	0.5236	0.0008	0.2603	0.5232	0.0011
-76	0.2605	0.5235	0.0009	0.2602	0.5232	0.0012
-75	0.2607	0.5236	0.0006	0.2602	0.5232	0.0012
-74	0.2606	0.5235	0.0007	0.2602	0.5231	0.0013
-73	0.2606	0.5235	0.0008	0.2602	0.5231	0.0012
-72	0.2606	0.5235	0.0007	0.2602	0.5231	0.0013
-71	0.2606	0.5235	0.0008	0.2603	0.5231	0.0012
-70	0.2608	0.5236	0.0005	0.2602	0.5231	0.0012
-69	0.2608	0.5236	0.0006	0.2602	0.5231	0.0013
-68	0.2608	0.5236	0.0006	0.2603	0.5231	0.0011
-67	0.2608	0.5235	0.0006	0.2603	0.5231	0.0011
-66	0.2607	0.5235	0.0006	0.2602	0.5231	0.0012
-65	0.2608	0.5236	0.0005	0.2604	0.5232	0.001
-64	0.2608	0.5236	0.0006	0.2604	0.5232	0.001
-63	0.2609	0.5236	0.0004	0.2604	0.5232	0.001
-62	0.2609	0.5236	0.0005	0.2605	0.5232	0.0009
-61	0.2609	0.5236	0.0005	0.2605	0.5232	0.0009
-60	0.261	0.5236	0.0004	0.2605	0.5232	0.0009
-59	0.261	0.5236	0.0003	0.2605	0.5232	0.0009
-58	0.261	0.5236	0.0004	0.2605	0.5232	0.0009
-57	0.2613	0.5237	0.0002	0.2607	0.5233	0.0007
-56	0.2613	0.5237	0.0002	0.2607	0.5233	0.0007
-55	0.2613	0.5237	0.0002	0.2607	0.5233	0.0006
-54	0.2613	0.5237	0.0002	0.2607	0.5233	0.0007
-53	0.2613	0.5237	0.0002	0.2607	0.5233	0.0006

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-52	0.2614	0.5237	0.0002	0.2609	0.5233	0.0004
-51	0.2614	0.5237	0.0002	0.261	0.5234	0.0004
-50	0.2614	0.5237	0.0002	0.261	0.5234	0.0004
-49	0.2615	0.5238	0.0003	0.261	0.5234	0.0004
-48	0.2615	0.5238	0.0003	0.261	0.5234	0.0004
-47	0.2615	0.5238	0.0003	0.261	0.5234	0.0004
-46	0.2615	0.5238	0.0003	0.2612	0.5234	0.0002
-45	0.2617	0.5238	0.0005	0.2612	0.5234	0.0001
-44	0.2617	0.5238	0.0004	0.2613	0.5234	0.0001
-43	0.2617	0.5238	0.0005	0.2613	0.5235	0.0001
-42	0.2617	0.5238	0.0005	0.2613	0.5235	0.0001
-41	0.2618	0.5238	0.0006	0.2613	0.5235	0
-40	0.2618	0.5238	0.0006	0.2613	0.5235	0
-39	0.2619	0.5238	0.0006	0.2615	0.5235	0.0002
-38	0.2619	0.5238	0.0006	0.2615	0.5235	0.0002
-37	0.2619	0.5238	0.0006	0.2616	0.5235	0.0002
-36	0.2619	0.5238	0.0006	0.2616	0.5235	0.0002
-35	0.262	0.5239	0.0008	0.2616	0.5235	0.0002
-34	0.262	0.5239	0.0008	0.2616	0.5235	0.0002
-33	0.2621	0.5238	0.0008	0.2616	0.5235	0.0002
-32	0.2621	0.5238	0.0008	0.2616	0.5235	0.0002
-31	0.2621	0.5238	0.0008	0.2616	0.5235	0.0002
-30	0.2621	0.5238	0.0008	0.2618	0.5235	0.0004
-29	0.2622	0.5238	0.0009	0.2618	0.5235	0.0004
-28	0.2622	0.5238	0.0009	0.2618	0.5235	0.0004
-27	0.2622	0.5238	0.0009	0.2618	0.5235	0.0005
-26	0.2622	0.5238	0.0009	0.2618	0.5235	0.0004
-25	0.2622	0.5238	0.0009	0.2618	0.5235	0.0005
-24	0.2622	0.5238	0.0009	0.2618	0.5235	0.0005
-23	0.2622	0.5238	0.0009	0.2618	0.5235	0.0004
-22	0.2622	0.5237	0.0009	0.2618	0.5235	0.0005
-21	0.2623	0.5238	0.001	0.2618	0.5235	0.0004
-20	0.2623	0.5238	0.001	0.2618	0.5235	0.0004
-19	0.2623	0.5237	0.001	0.2618	0.5235	0.0004
-18	0.2623	0.5237	0.001	0.2618	0.5234	0.0004
-17	0.2623	0.5237	0.001	0.2618	0.5234	0.0004
-16	0.2623	0.5237	0.0009	0.2618	0.5234	0.0004
-15	0.2622	0.5237	0.0009	0.2617	0.5234	0.0004
-14	0.2623	0.5237	0.0009	0.2617	0.5234	0.0004
-13	0.2623	0.5237	0.001	0.2617	0.5234	0.0004

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-12	0.2622	0.5237	0.0009	0.2617	0.5234	0.0004
-11	0.2622	0.5237	0.0009	0.2617	0.5234	0.0004
-10	0.2622	0.5236	0.0009	0.2617	0.5233	0.0004
-9	0.2622	0.5236	0.0009	0.2617	0.5234	0.0004
-8	0.2622	0.5236	0.0009	0.2617	0.5233	0.0004
-7	0.2622	0.5236	0.0009	0.2617	0.5233	0.0003
-6	0.2622	0.5236	0.0009	0.2616	0.5233	0.0003
-5	0.2623	0.5236	0.001	0.2617	0.5233	0.0004
-4	0.2623	0.5236	0.001	0.2617	0.5233	0.0004
-3	0.2623	0.5236	0.001	0.2616	0.5233	0.0004
-2	0.2623	0.5236	0.001	0.2616	0.5233	0.0004
-1	0.2623	0.5236	0.001	0.2616	0.5233	0.0003
0	0.262	0.524	0.0008	0.262	0.524	0.0008
1	0.2623	0.5236	0.0009	0.2616	0.5233	0.0004
2	0.2623	0.5236	0.001	0.2616	0.5233	0.0003
3	0.2623	0.5236	0.0009	0.2616	0.5233	0.0003
4	0.2623	0.5236	0.001	0.2616	0.5233	0.0003
5	0.2623	0.5236	0.0009	0.2616	0.5233	0.0003
6	0.2623	0.5236	0.0009	0.2616	0.5233	0.0004
7	0.2623	0.5236	0.0009	0.2616	0.5233	0.0003
8	0.2623	0.5236	0.0009	0.2616	0.5233	0.0003
9	0.2623	0.5236	0.0009	0.2616	0.5233	0.0003
10	0.2623	0.5236	0.0009	0.2616	0.5233	0.0003
11	0.2623	0.5236	0.0009	0.2616	0.5233	0.0003
12	0.2623	0.5237	0.0009	0.2616	0.5233	0.0003
13	0.2623	0.5237	0.0009	0.2616	0.5233	0.0003
14	0.2622	0.5237	0.0009	0.2616	0.5233	0.0003
15	0.2622	0.5237	0.0009	0.2616	0.5233	0.0003
16	0.2622	0.5237	0.0009	0.2616	0.5234	0.0003
17	0.2622	0.5237	0.0009	0.2616	0.5234	0.0003
18	0.2622	0.5237	0.0009	0.2616	0.5234	0.0003
19	0.2623	0.5237	0.0009	0.2616	0.5233	0.0003
20	0.2622	0.5237	0.0009	0.2617	0.5234	0.0004
21	0.2622	0.5237	0.0009	0.2616	0.5234	0.0003
22	0.2622	0.5237	0.0009	0.2616	0.5234	0.0003
23	0.2622	0.5237	0.0009	0.2615	0.5234	0.0002
24	0.2622	0.5237	0.0009	0.2615	0.5234	0.0002
25	0.2622	0.5237	0.0009	0.2615	0.5234	0.0002
26	0.2622	0.5237	0.0009	0.2615	0.5234	0.0002
27	0.262	0.5237	0.0007	0.2615	0.5234	0.0002

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28	0.2621	0.5237	0.0007	0.2615	0.5234	0.0002
29	0.262	0.5237	0.0007	0.2615	0.5234	0.0002
30	0.262	0.5237	0.0007	0.2615	0.5234	0.0002
31	0.262	0.5237	0.0007	0.2615	0.5234	0.0002
32	0.262	0.5237	0.0007	0.2614	0.5234	0.0001
33	0.262	0.5237	0.0007	0.2614	0.5234	0.0001
34	0.2619	0.5237	0.0006	0.2614	0.5234	0.0001
35	0.262	0.5237	0.0006	0.2613	0.5234	0.0001
36	0.2619	0.5238	0.0006	0.2614	0.5234	0.0001
37	0.2619	0.5237	0.0006	0.2613	0.5234	0.0001
38	0.2617	0.5237	0.0004	0.2612	0.5234	0.0002
39	0.2617	0.5237	0.0004	0.2612	0.5234	0.0002
40	0.2617	0.5237	0.0004	0.2612	0.5234	0.0002
41	0.2617	0.5237	0.0004	0.2612	0.5234	0.0002
42	0.2616	0.5237	0.0004	0.2612	0.5234	0.0002
43	0.2617	0.5237	0.0004	0.2612	0.5234	0.0002
44	0.2616	0.5237	0.0004	0.261	0.5234	0.0003
45	0.2616	0.5237	0.0003	0.261	0.5234	0.0003
46	0.2616	0.5237	0.0003	0.261	0.5234	0.0003
47	0.2614	0.5237	0.0002	0.261	0.5234	0.0004
48	0.2614	0.5236	0.0001	0.2609	0.5234	0.0005
49	0.2614	0.5236	0.0001	0.2608	0.5234	0.0005
50	0.2614	0.5236	0.0001	0.2608	0.5234	0.0005
51	0.2614	0.5236	0.0001	0.2608	0.5234	0.0005
52	0.2613	0.5236	0.0001	0.2607	0.5233	0.0007
53	0.2611	0.5235	0.0002	0.2607	0.5233	0.0007
54	0.2611	0.5236	0.0002	0.2607	0.5233	0.0007
55	0.2611	0.5235	0.0003	0.2607	0.5233	0.0007
56	0.2611	0.5235	0.0003	0.2605	0.5233	0.0008
57	0.2611	0.5235	0.0003	0.2606	0.5233	0.0008
58	0.2609	0.5235	0.0005	0.2605	0.5232	0.0009
59	0.2608	0.5235	0.0005	0.2604	0.5232	0.001
60	0.2608	0.5235	0.0005	0.2604	0.5232	0.001
61	0.2608	0.5234	0.0005	0.2604	0.5232	0.001
62	0.2608	0.5234	0.0005	0.2604	0.5232	0.001
63	0.2607	0.5234	0.0007	0.2604	0.5232	0.001
64	0.2607	0.5234	0.0007	0.2604	0.5232	0.001
65	0.2607	0.5234	0.0007	0.2604	0.5232	0.001
66	0.2607	0.5234	0.0007	0.2601	0.5231	0.0013
67	0.2605	0.5233	0.0009	0.2601	0.5231	0.0013

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68	0.2605	0.5234	0.0008	0.2601	0.5231	0.0013
69	0.2606	0.5233	0.0008	0.2601	0.5231	0.0014
70	0.2606	0.5233	0.0008	0.2601	0.5231	0.0013
71	0.2604	0.5233	0.0009	0.26	0.5231	0.0014
72	0.2605	0.5233	0.0009	0.26	0.5231	0.0014
73	0.2605	0.5233	0.0009	0.2601	0.5231	0.0013
74	0.2604	0.5233	0.0009	0.2601	0.5231	0.0013
75	0.2605	0.5233	0.0009	0.2598	0.523	0.0016
76	0.2604	0.5233	0.001	0.2599	0.5231	0.0015
77	0.2605	0.5233	0.0009	0.2599	0.5231	0.0016
78	0.2604	0.5233	0.001	0.2599	0.5231	0.0015
79	0.2605	0.5233	0.0009	0.26	0.5231	0.0014
80	0.2604	0.5233	0.0009	0.2598	0.5231	0.0016
81	0.2606	0.5234	0.0008	0.2599	0.5231	0.0015
82	0.2606	0.5234	0.0008	0.2599	0.5231	0.0015

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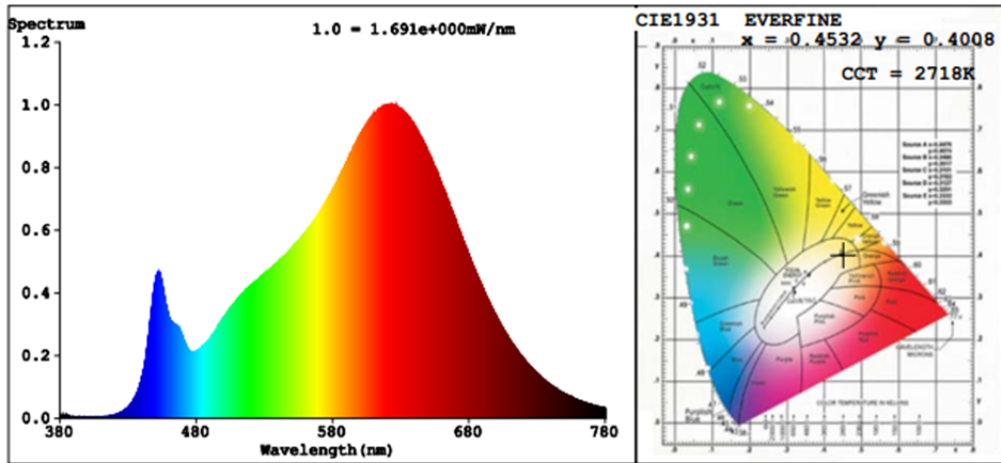
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3. Electrical and Photometric Measurements, with dimming	IES LM-79 2008 ENERGY STAR[®] Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
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Test date	2017-10-09	Test Ambient:	25.1°C		
Dimmer Model		LEVITON MFG CO INC (E31373), Cat. No. 6681			
Sample No.	Input	Luminous flux (lm)	CCT (K)	CRI	P.F.
GZE1709109-H-F1	120.0 V / 60 Hz	77.28	2718	93.4	0.2301
GZE1709109-H-F2	120.0 V / 60 Hz	54.67	2719	93.5	0.1955
GZE1709109-H-F3	120.0 V / 60 Hz	59.92	2719	93.5	0.1820
Average		63.96	2719	93.5	0.2025



Colorimetric Parameters

Chromaticity Coordinate: $x=0.4532$ $y=0.4008$ $u'=0.2626$ $v'=0.5225$ $Dx, Dy: -0.0053, -0.0095$
 CCT=2718K (Duv=-0.0031) Dominant WL:Ld =585.2nm Purity=56.3%
 Peak WL:Lp=623.3nm FWHM=141.3nm
 Render Index:Ra=93.4 CRI=91.8
 R1 =95 R2 =99 R3 =97 R4 =94 R5 =96 R6 =96 R7 =90
 R8 =81 R9 =62 R10=98 R11=96 R12=86 R13=97 R14=99 R15=91

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

Dimmer	Peak Noise Reading (dBA)	Test Condition	Distance between the microphone and the UUT
LEVITON MFG CO INC (E31373), Cat. No. 6681	17.2	Dimmer adjusted to lowest light output	< 1 m

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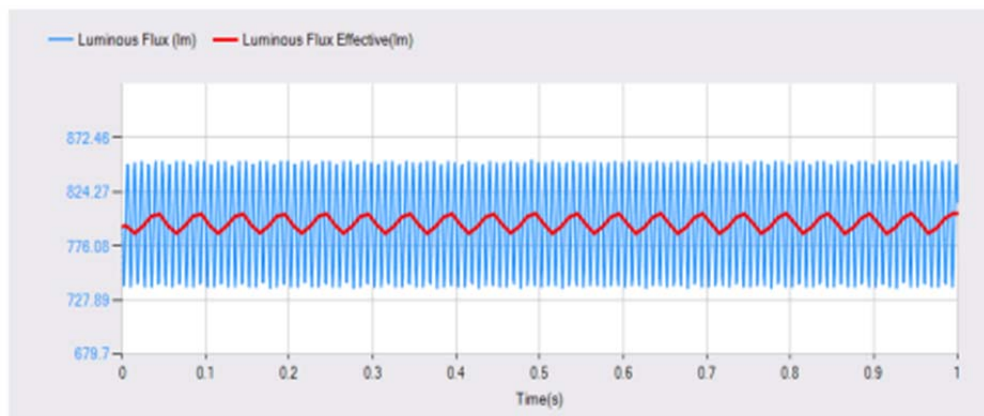
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4 Operating Frequency	ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
Noted: This test and data are not covered by NVLAP accreditation	

Test date	2017-10-09	Test Ambient:	25.1°C
Sample No.	Operating Frequency (Hz)		
GZE1709109-H-F1	120.37		
GZE1709109-H-F2	120.35		
GZE1709109-H-F3	120.44		
Average	120.39		



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

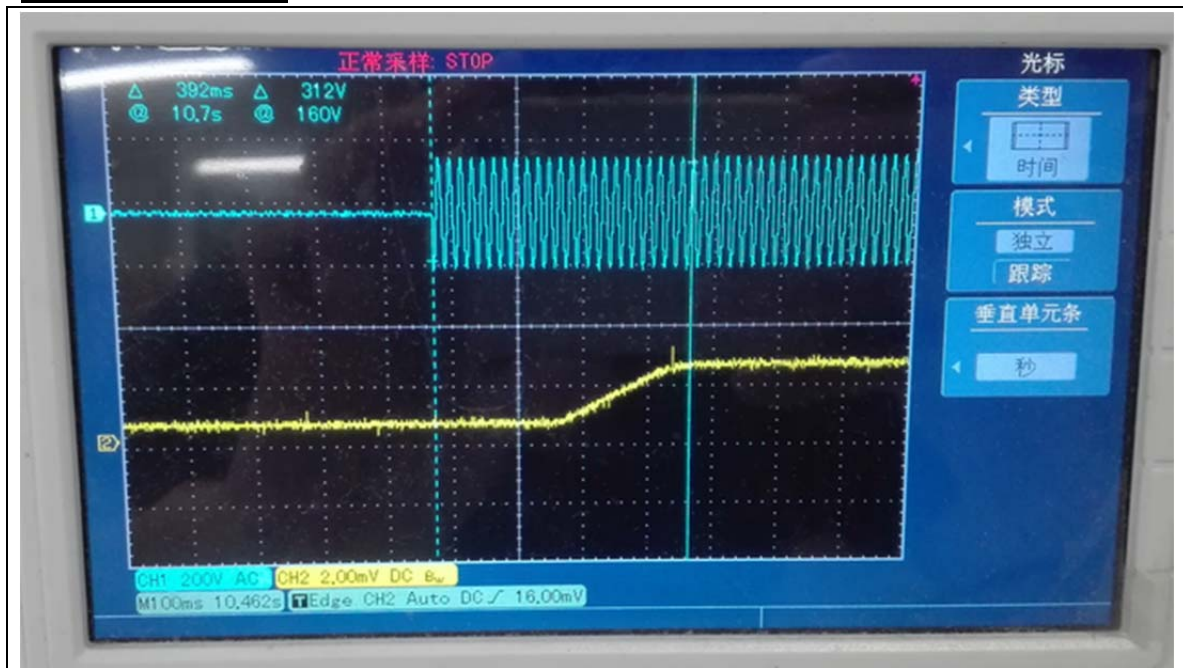
Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

<p>5 Starting Time (Refer to Work Instruction QD28)</p>	<p>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</p>
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Test date	2017-10-09	Test Ambient:	25.1°C
Sample No.	Start Time (ms)		
GZE1709109-H-F1	392		
GZE1709109-H-F2	432		
GZE1709109-H-F3	404		
Average	409		

Graph (Start Time):



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 NVLAP CODE: 201011-0

Report Format Number STD/QR4910-A/1

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

Test date	2017-10-09	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
GZE1709109-H-F1		Pass	
GZE1709109-H-F2		Pass	
GZE1709109-H-F3		Pass	

7.1 In-Situ Temperature Measurement Test (ISTMT)	UL1598-2008, 3rd Edition
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Test date	2017-10-09	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	148
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1709109-H-F1	2T03X5WW11000003	90.8	105

In-Situ Picture - Ts:



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

Test date	2017-10-09	Test Ambient	25.1°C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1709109-H-F1	75.7	105	

In-Situ Picture - Ts:



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

Test date	2017-10-09	Test Ambient:	25.0 ° C
Model Number	LRKT411W-EN-2790	Stabilization Time (min)	90

Electrical Measurement – when the luminaires turned off:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)
GZE1709109-H -F1	120.0	60	0	0

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

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8. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2017-07-01	2018-06-30
ST-R-331	Spectral analysis system HAAS-2000	2017-07-01	2018-06-30
EE-09	Goniophotometer system	2017-07-01	2018-06-30
D908S	Standard Lamp	2017-07-01	2018-06-30
D204	Standard Lamp	2017-07-01	2018-06-30
PF2010	Power Meter for Integrating Sphere	2017-07-01	2018-06-30
PF210	Power Meter for Goniophotometer	2017-07-01	2018-06-30
EE-015	Flux Meter	2017-07-01	2018-06-30
ST-R-277	Oscillograph	2017-07-01	2018-06-30
ST-R-EM01	Surge Generator	2017-07-01	2018-06-30
ST-R-EM02	EMC Coupler/Decoupler Module	2017-07-01	2018-06-30
Uncertainty Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

******* END OF DATASHEET PACKAGE *******