

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): LSKT424W-##90

LSKT454W-##90

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

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

Representative (Tested) Model: LSKT424W-2790

LSKT454W-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

Tel: 8620-3229 0320

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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-B-R
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	L-TECH CORPORTION		
Brand Name	L-TECH CORP		
Model Number	LSKT424W-##90 LSKT454W-##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	--	8.455	W
Input Current	--	0.0732	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9622	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	559.21	lm
Initial Lumen Efficacy	--	66.14	lm/w
Correlated color temperature / CCT	2628	--	K
Color rendering index / CRI	92.1	--	
R9 Value	57	--	
Duv	0.0017	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)		203	cd
Beam angle (if applicable)		109.3	°
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 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:

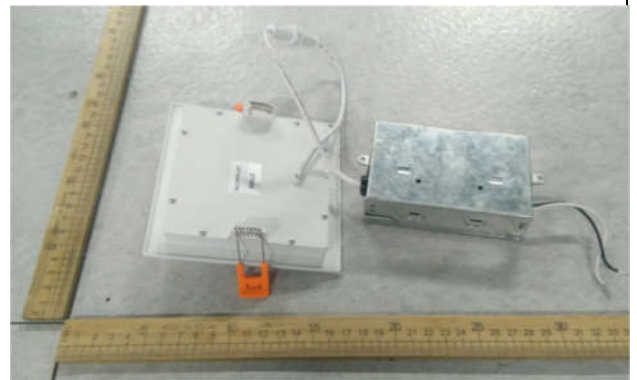
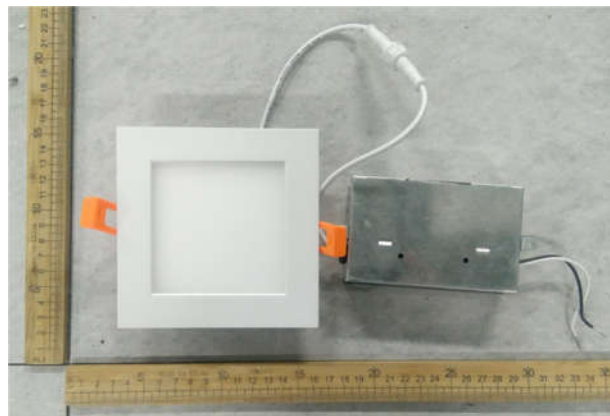
Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25° C ± 1° C. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the 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:

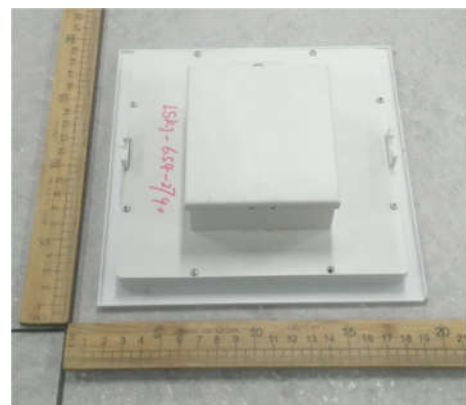
Brand Name	L-TECH CORP
Model Number	LSKT424W-##90 LSKT454W-##90
Luminaire Type	Downlights
Rated Voltage / Frequency	120Vac, 50/60 Hz
Nominal Power	10W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,4000K,5000K
LED Manufacturer	Seoul Semiconductor Co., LTD
LED Model	SAWxA32E-xx
Sample Receipt Date	Sep.20,2017
Sample Number	GZE1709109-H-B1,B2,B3 GZE1712059-H- F1,F2,F3

Photo

LSKT424W-2790



LSKT454W-2790



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	LSKT424W-2790		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1709109-H-B1	120.0	60	0.0732	8.455	0.9622
GZE1709109-H-B2	120.0	60	0.0743	8.584	0.9631
GZE1709109-H-B3	120.0	60	0.0722	8.339	0.9630
Average			0.0732	8.459	0.9628

Sphere-Spectroradiometer Method:

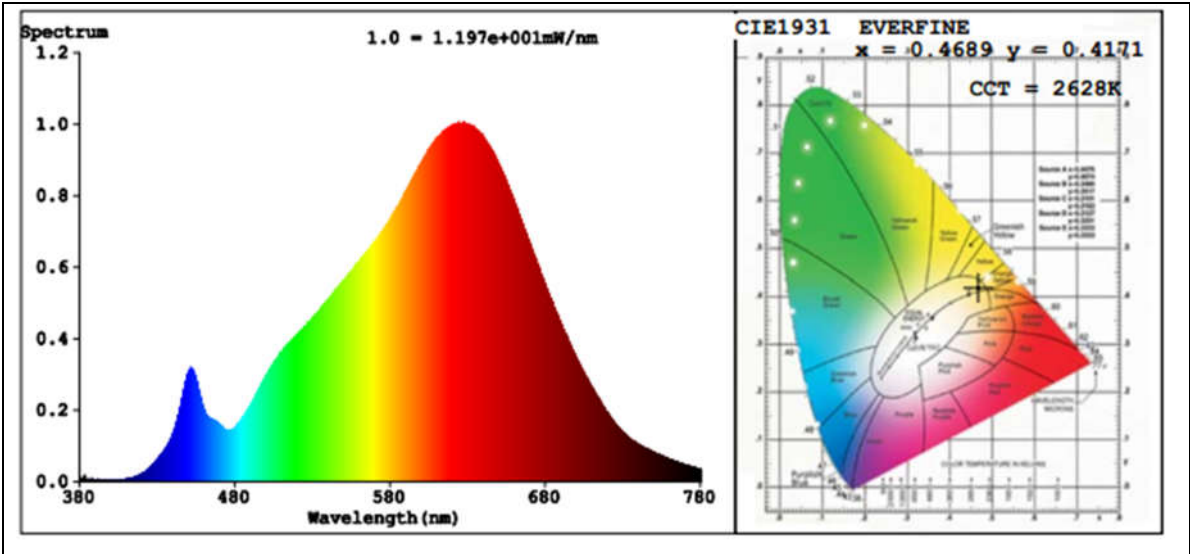
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	92.1
R9	57
CCT (K)	2628
Chromaticity (x, y)	x=0.4689 y=0.4171
Chromaticity (u', v')	u'=0.2654 v'=0.5311
Duv	0.0017

Special Color Rendering Indices			
R1	92	R9	57
R2	95	R10	88
R3	98	R11	94
R4	93	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)	559.21
Luminous Efficacy (lm/W)	66.14
Beam Angle°	109.3
Center Beam Candle Power (cd)	203

Spectral Power Distribution and Chromaticity Diagram



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

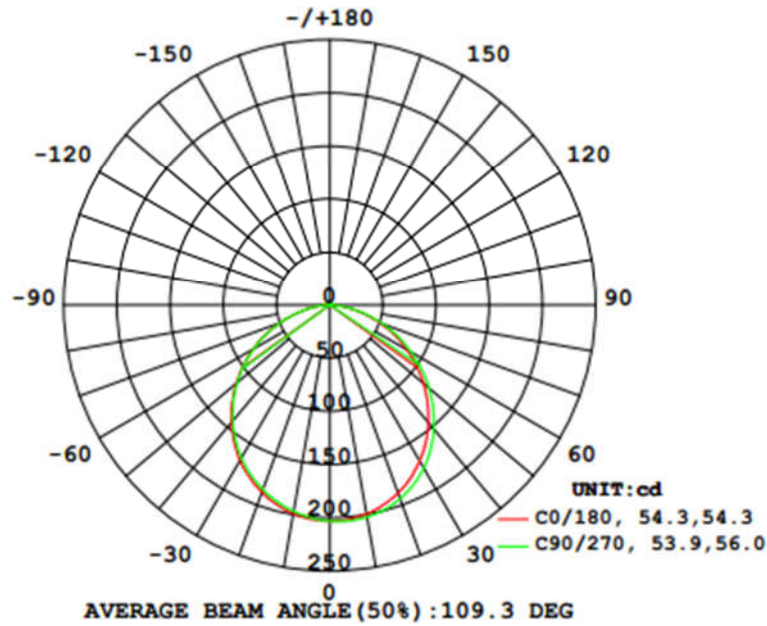
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Zonal Lumen Tabulation

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	157.1	28.1%
0-40	256.3	45.8%
0-60	447.5	80%
60-90	111.6	20%
70-100	44.5	8%
90-120	0.0	0%
0-90	559.1	100%
90-180	0.0	0%
0-180	559.1	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	19.2	3.4%	90-100	0.0	0%
10-20	54.9	9.8%	100-110	0	0%
20-30	83.0	14.8%	110-120	0	0%
30-40	99.2	17.7%	120-130	0	0%
40-50	101.3	18.1%	130-140	0	0%
50-60	89.9	16.1%	140-150	0	0%
60-70	67.1	12.0%	150-160	0	0%
70-80	36.5	6.5%	160-170	0	0%
80-90	8.0	1.4%	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	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203
5	202	203	203	203	204	203	203	202	202	201	201	201	201	201	201	202
10	199	200	201	202	202	202	201	200	199	198	197	197	197	197	198	199
15	195	196	198	199	199	198	197	195	194	193	192	191	191	192	192	193
20	188	190	192	193	194	193	191	189	187	186	185	184	184	185	185	187
25	179	182	184	186	186	185	183	181	179	177	176	176	176	176	177	178
30	169	172	174	176	177	176	173	170	169	167	166	166	166	166	167	168
35	157	160	163	165	165	164	161	159	157	155	155	155	155	155	155	157
40	144	147	150	152	152	151	148	145	144	142	142	142	142	142	143	144
45	130	132	135	137	138	136	134	131	130	128	128	128	128	128	129	130
50	115	117	120	121	122	121	119	116	115	114	113	113	114	114	114	115
55	99.5	101	103	105	105	104	102	100	99.3	98.4	98.2	98.3	98.4	98.7	98.9	99.3
60	83.2	84.7	86.5	87.8	88.1	87.3	85.7	83.9	83.3	82.6	82.5	82.6	82.7	82.9	83.1	83.4
65	67.3	68.4	69.8	70.8	71.1	70.4	69.1	67.7	66.8	66.3	66.3	66.4	66.5	66.7	66.8	67.0
70	50.6	51.4	52.3	53.2	53.4	52.8	51.8	50.8	50.3	49.9	49.8	50.0	50.2	50.3	50.3	50.5
75	34.1	34.6	35.1	35.8	35.9	35.5	34.6	34.1	34.0	33.7	33.6	33.9	34.0	34.1	33.9	34.2
80	18.7	18.9	19.1	19.5	19.6	19.3	18.7	18.5	18.8	18.6	18.5	18.7	18.9	18.8	18.7	18.9
85	6.30	6.24	6.29	6.36	6.42	6.28	6.15	6.10	6.20	6.11	6.09	6.09	6.19	6.14	6.18	6.30
90	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00	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	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00
130	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
135	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
140	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
145	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
150	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
155	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
160	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
165	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
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

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-B1	0.0007

Gamma\C	CIE u'	CIE v'	du' v'	CIE u'	CIE v'	du' v'
-79	0.266	0.5303	0.0004	0.2659	0.5302	0.0006
-78	0.2659	0.5303	0.0005	0.2659	0.5302	0.0005
-77	0.2661	0.5303	0.0003	0.266	0.5302	0.0004
-76	0.266	0.5303	0.0004	0.2659	0.5302	0.0005
-75	0.2659	0.5303	0.0005	0.266	0.5303	0.0004
-74	0.2662	0.5303	0.0003	0.266	0.5303	0.0005
-73	0.2661	0.5303	0.0003	0.2661	0.5303	0.0003
-72	0.266	0.5303	0.0004	0.266	0.5303	0.0004
-71	0.2661	0.5303	0.0003	0.2662	0.5303	0.0003
-70	0.266	0.5303	0.0004	0.2661	0.5303	0.0003
-69	0.2663	0.5304	0.0001	0.266	0.5303	0.0004
-68	0.2662	0.5304	0.0002	0.2662	0.5303	0.0002
-67	0.2662	0.5304	0.0002	0.2662	0.5303	0.0002
-66	0.2661	0.5304	0.0003	0.2661	0.5303	0.0003
-65	0.2661	0.5304	0.0003	0.2661	0.5303	0.0003
-64	0.2664	0.5304	0	0.2663	0.5303	0.0002
-63	0.2664	0.5304	0	0.2662	0.5303	0.0002
-62	0.2664	0.5304	0	0.2662	0.5303	0.0002
-61	0.2663	0.5304	0.0001	0.2662	0.5303	0.0003
-60	0.2663	0.5304	0.0001	0.2663	0.5303	0.0001
-59	0.2663	0.5304	0.0001	0.2663	0.5303	0.0001
-58	0.2662	0.5304	0.0002	0.2663	0.5303	0.0001
-57	0.2666	0.5304	0.0002	0.2662	0.5303	0.0002
-56	0.2665	0.5304	0.0001	0.2662	0.5303	0.0002
-55	0.2665	0.5304	0.0001	0.2664	0.5304	0
-54	0.2665	0.5304	0.0001	0.2664	0.5304	0
-53	0.2665	0.5304	0.0001	0.2664	0.5304	0
-52	0.2665	0.5304	0.0001	0.2664	0.5304	0
-51	0.2665	0.5304	0.0001	0.2663	0.5304	0.0001

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-50	0.2664	0.5304	0	0.2663	0.5304	0.0001
-49	0.2664	0.5304	0	0.2665	0.5304	0.0001
-48	0.2665	0.5304	0.0002	0.2665	0.5304	0.0001
-47	0.2665	0.5304	0.0001	0.2665	0.5304	0.0001
-46	0.2665	0.5304	0.0001	0.2665	0.5304	0.0001
-45	0.2665	0.5304	0.0001	0.2665	0.5304	0.0001
-44	0.2666	0.5305	0.0002	0.2664	0.5304	0
-43	0.2666	0.5305	0.0002	0.2664	0.5303	0.0001
-42	0.2665	0.5304	0.0001	0.2664	0.5304	0
-41	0.2665	0.5304	0.0001	0.2665	0.5304	0.0002
-40	0.2665	0.5304	0.0001	0.2666	0.5304	0.0002
-39	0.2664	0.5304	0.0001	0.2665	0.5304	0.0001
-38	0.2666	0.5305	0.0002	0.2665	0.5304	0.0001
-37	0.2665	0.5305	0.0002	0.2665	0.5304	0.0001
-36	0.2665	0.5305	0.0001	0.2665	0.5304	0.0001
-35	0.2665	0.5305	0.0001	0.2664	0.5304	0.0001
-34	0.2665	0.5304	0.0001	0.2664	0.5304	0
-33	0.2664	0.5305	0.0001	0.2664	0.5304	0
-32	0.2666	0.5305	0.0002	0.2664	0.5304	0.0001
-31	0.2666	0.5304	0.0002	0.2664	0.5303	0.0001
-30	0.2665	0.5305	0.0002	0.2665	0.5304	0.0001
-29	0.2665	0.5304	0.0001	0.2665	0.5304	0.0001
-28	0.2665	0.5304	0.0001	0.2665	0.5304	0.0001
-27	0.2665	0.5304	0.0001	0.2665	0.5304	0.0001
-26	0.2664	0.5304	0	0.2664	0.5303	0.0001
-25	0.2664	0.5304	0	0.2664	0.5304	0.0001
-24	0.2664	0.5304	0	0.2664	0.5303	0.0001
-23	0.2665	0.5304	0.0001	0.2664	0.5303	0.0001
-22	0.2665	0.5304	0.0001	0.2663	0.5303	0.0001
-21	0.2664	0.5304	0	0.2663	0.5303	0.0001
-20	0.2664	0.5304	0	0.2663	0.5303	0.0001
-19	0.2664	0.5304	0	0.2663	0.5303	0.0001
-18	0.2664	0.5304	0	0.2663	0.5303	0.0002
-17	0.2664	0.5304	0	0.2662	0.5303	0.0002
-16	0.2663	0.5304	0.0001	0.2662	0.5303	0.0002
-15	0.2663	0.5304	0.0001	0.2662	0.5303	0.0002
-14	0.2663	0.5304	0.0001	0.2662	0.5303	0.0002
-13	0.2663	0.5304	0.0001	0.2662	0.5303	0.0002
-12	0.2663	0.5304	0.0002	0.2662	0.5303	0.0003
-11	0.2662	0.5304	0.0002	0.2661	0.5303	0.0003

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-10	0.2662	0.5304	0.0002	0.2661	0.5303	0.0003
-9	0.2662	0.5303	0.0002	0.2661	0.5303	0.0003
-8	0.2662	0.5303	0.0002	0.2661	0.5303	0.0003
-7	0.2662	0.5304	0.0002	0.2661	0.5303	0.0003
-6	0.2662	0.5303	0.0002	0.2661	0.5303	0.0003
-5	0.2663	0.5304	0.0001	0.2661	0.5303	0.0004
-4	0.2663	0.5304	0.0001	0.2661	0.5303	0.0003
-3	0.2663	0.5304	0.0001	0.2661	0.5303	0.0003
-2	0.2663	0.5304	0.0001	0.2661	0.5303	0.0003
-1	0.2663	0.5303	0.0001	0.2661	0.5303	0.0003
0	0.2663	0.5304	0.0001	0.2663	0.5304	0.0001
1	0.2663	0.5304	0.0001	0.2661	0.5303	0.0003
2	0.2663	0.5304	0.0001	0.2661	0.5303	0.0003
3	0.2663	0.5304	0.0001	0.2661	0.5303	0.0003
4	0.2662	0.5304	0.0002	0.2661	0.5303	0.0003
5	0.2662	0.5304	0.0002	0.2662	0.5303	0.0003
6	0.2663	0.5303	0.0001	0.2662	0.5303	0.0003
7	0.2663	0.5303	0.0001	0.2662	0.5303	0.0002
8	0.2663	0.5304	0.0001	0.2662	0.5303	0.0002
9	0.2663	0.5304	0.0001	0.2662	0.5303	0.0002
10	0.2663	0.5304	0.0001	0.2662	0.5303	0.0002
11	0.2663	0.5304	0.0001	0.2663	0.5303	0.0002
12	0.2663	0.5304	0.0001	0.2663	0.5303	0.0001
13	0.2663	0.5304	0.0001	0.2663	0.5303	0.0001
14	0.2663	0.5304	0.0001	0.2663	0.5304	0.0001
15	0.2664	0.5304	0	0.2663	0.5304	0.0001
16	0.2664	0.5304	0	0.2664	0.5304	0
17	0.2664	0.5304	0	0.2664	0.5304	0
18	0.2664	0.5304	0	0.2664	0.5304	0
19	0.2664	0.5304	0	0.2664	0.5304	0.0001
20	0.2664	0.5304	0	0.2665	0.5304	0.0001
21	0.2664	0.5304	0	0.2665	0.5304	0.0001
22	0.2664	0.5304	0	0.2665	0.5304	0.0001
23	0.2664	0.5304	0.0001	0.2664	0.5304	0
24	0.2665	0.5304	0.0001	0.2665	0.5304	0.0001
25	0.2665	0.5304	0.0001	0.2665	0.5304	0.0001
26	0.2665	0.5304	0.0001	0.2665	0.5305	0.0002
27	0.2665	0.5304	0.0001	0.2666	0.5304	0.0002
28	0.2665	0.5304	0.0001	0.2666	0.5305	0.0002
29	0.2664	0.5304	0	0.2666	0.5305	0.0002

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

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30	0.2664	0.5304	0	0.2667	0.5305	0.0003
31	0.2664	0.5304	0	0.2667	0.5305	0.0003
32	0.2664	0.5304	0	0.2667	0.5305	0.0004
33	0.2664	0.5304	0.0001	0.2666	0.5305	0.0002
34	0.2664	0.5304	0.0001	0.2667	0.5305	0.0003
35	0.2665	0.5304	0.0001	0.2667	0.5305	0.0003
36	0.2665	0.5304	0.0001	0.2667	0.5305	0.0003
37	0.2665	0.5304	0.0001	0.2667	0.5305	0.0004
38	0.2665	0.5304	0.0001	0.2668	0.5305	0.0004
39	0.2665	0.5304	0.0001	0.2668	0.5305	0.0004
40	0.2663	0.5304	0.0001	0.2667	0.5305	0.0003
41	0.2664	0.5304	0	0.2667	0.5305	0.0003
42	0.2664	0.5304	0	0.2667	0.5305	0.0004
43	0.2664	0.5304	0	0.2668	0.5305	0.0004
44	0.2664	0.5304	0	0.2668	0.5305	0.0004
45	0.2664	0.5304	0	0.2667	0.5305	0.0003
46	0.2664	0.5304	0	0.2667	0.5305	0.0003
47	0.2664	0.5304	0	0.2667	0.5305	0.0003
48	0.2664	0.5304	0	0.2667	0.5305	0.0003
49	0.2662	0.5304	0.0001	0.2667	0.5305	0.0004
50	0.2663	0.5304	0.0001	0.2666	0.5305	0.0003
51	0.2663	0.5304	0.0001	0.2667	0.5305	0.0003
52	0.2663	0.5304	0.0001	0.2667	0.5305	0.0003
53	0.2663	0.5304	0.0001	0.2667	0.5305	0.0003
54	0.2663	0.5304	0.0001	0.2666	0.5305	0.0002
55	0.2661	0.5304	0.0003	0.2666	0.5305	0.0002
56	0.2662	0.5304	0.0002	0.2666	0.5305	0.0003
57	0.2662	0.5304	0.0002	0.2665	0.5305	0.0001
58	0.2662	0.5304	0.0002	0.2666	0.5305	0.0002
59	0.2662	0.5304	0.0002	0.2665	0.5305	0.0002
60	0.266	0.5303	0.0004	0.2665	0.5305	0.0001
61	0.266	0.5303	0.0004	0.2665	0.5305	0.0001
62	0.2661	0.5303	0.0003	0.2665	0.5305	0.0001
63	0.2661	0.5304	0.0003	0.2664	0.5305	0.0001
64	0.2661	0.5303	0.0003	0.2664	0.5305	0.0001
65	0.2659	0.5303	0.0005	0.2663	0.5304	0.0001
66	0.266	0.5303	0.0004	0.2664	0.5304	0
67	0.266	0.5303	0.0004	0.2664	0.5305	0.0001
68	0.2658	0.5303	0.0006	0.2665	0.5305	0.0001
69	0.2659	0.5303	0.0005	0.2665	0.5305	0.0001

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70	0.266	0.5303	0.0004	0.2662	0.5304	0.0002
71	0.2658	0.5303	0.0006	0.2663	0.5304	0.0001
72	0.2659	0.5303	0.0005	0.2662	0.5304	0.0002
73	0.2659	0.5303	0.0005	0.2663	0.5304	0.0001
74	0.2658	0.5303	0.0006	0.2663	0.5304	0.0001
75	0.2659	0.5303	0.0005	0.2661	0.5304	0.0003
76	0.2657	0.5303	0.0007	0.2662	0.5304	0.0002
77	0.2657	0.5303	0.0007	0.2663	0.5304	0.0001
78	0.2658	0.5303	0.0007	0.266	0.5304	0.0003
79	0.2657	0.5302	0.0007	0.2662	0.5304	0.0002

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

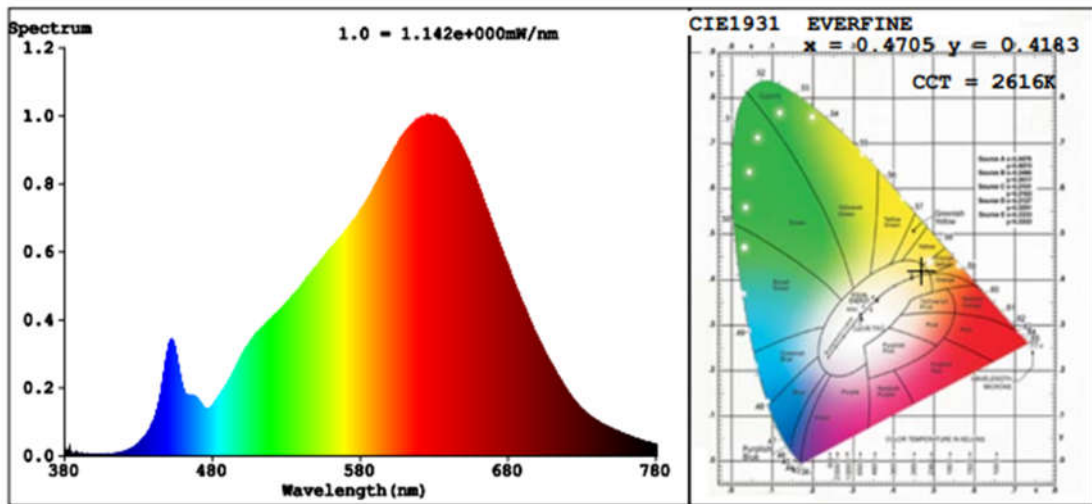
Report Format Number STD/QR4910-A/1

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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-B1	120.0 V / 60 Hz	51.80	2616	92.8	0.1440
GZE1709109-H-B2	120.0 V / 60 Hz	54.61	2614	92.7	0.1357
GZE1709109-H-B3	120.0 V / 60 Hz	31.65	2613	92.8	0.1303
Average		46.02	2614	92.8	0.1367



Colorimetric Parameters

Chromaticity Coordinate: $x=0.4705$ $y=0.4183/u'=0.2658$ $v'=0.5318$
 CCT=2616K (Duv=0.0020) Dominant WL:Ld =584.0nm Purity=66.8%
 Peak WL:Lp=627.2nm FWHM=143.9nm
 Render Index: Ra=92.8 CRI=90.0
 R1 =93 R2 =96 R3 =98 R4 =93 R5 =92 R6 =96 R7 =93
 R8 =82 R9 =60 R10=89 R11=94 R12=83 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	19.1	Dimmer adjusted to lowest light output	< 1 m

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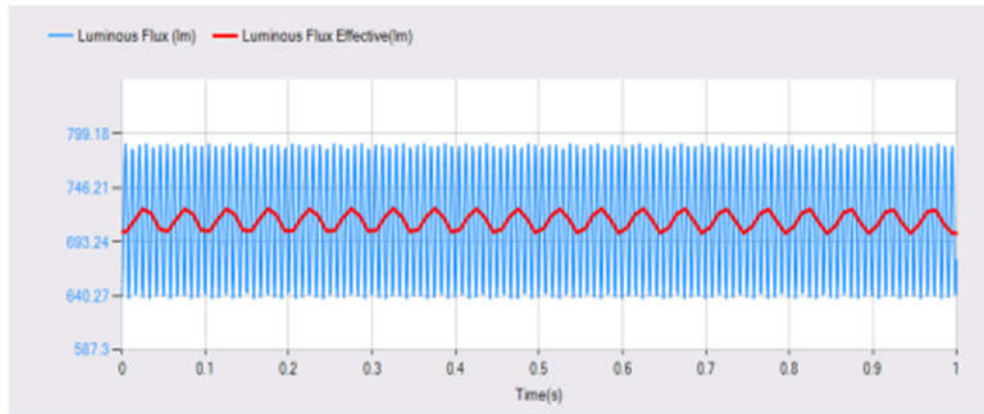
Report Format Number STD/QR4910-A/1

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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-B1	120.37		
GZE1709109-H-B2	120.45		
GZE1709109-H-B3	120.38		
Average	120.40		



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

Report Format Number STD/QR4910-A/1

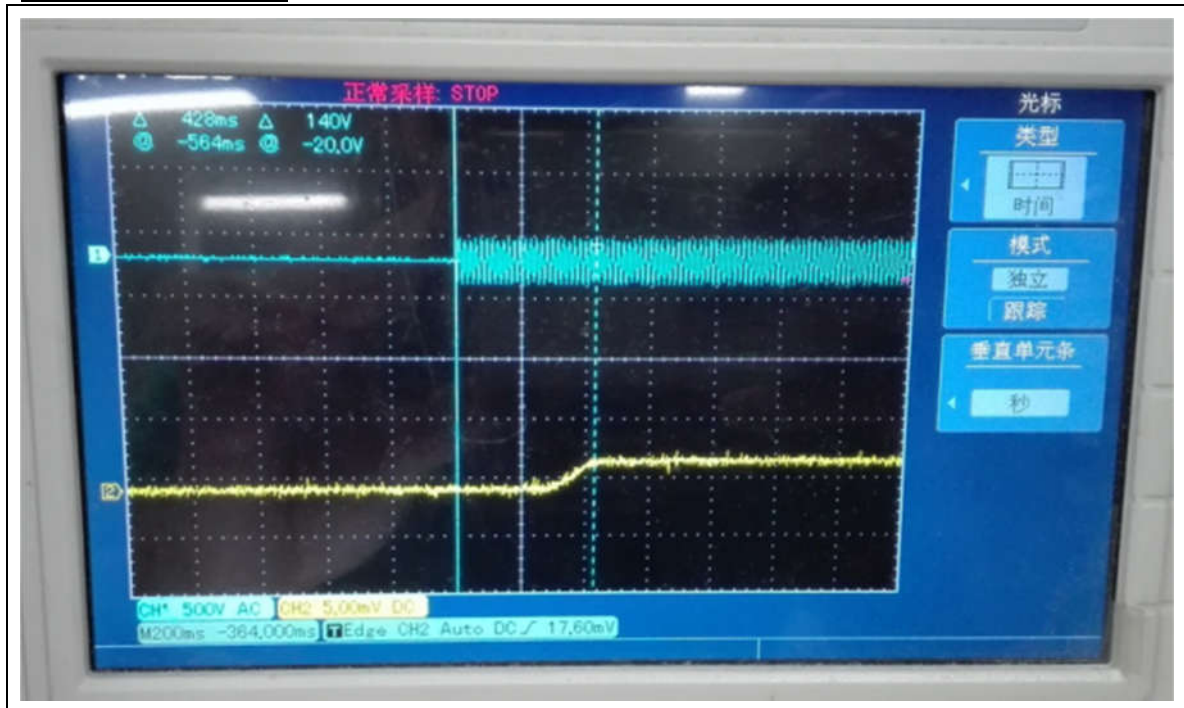
Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

5 Starting Time <i>(Refer to Work Instruction QD28)</i>	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
Sample No.	Start Time (ms)		
GZE1709109-H-B1	428		
GZE1709109-H-B2	404		
GZE1709109-H-B3	432		
Average	421		

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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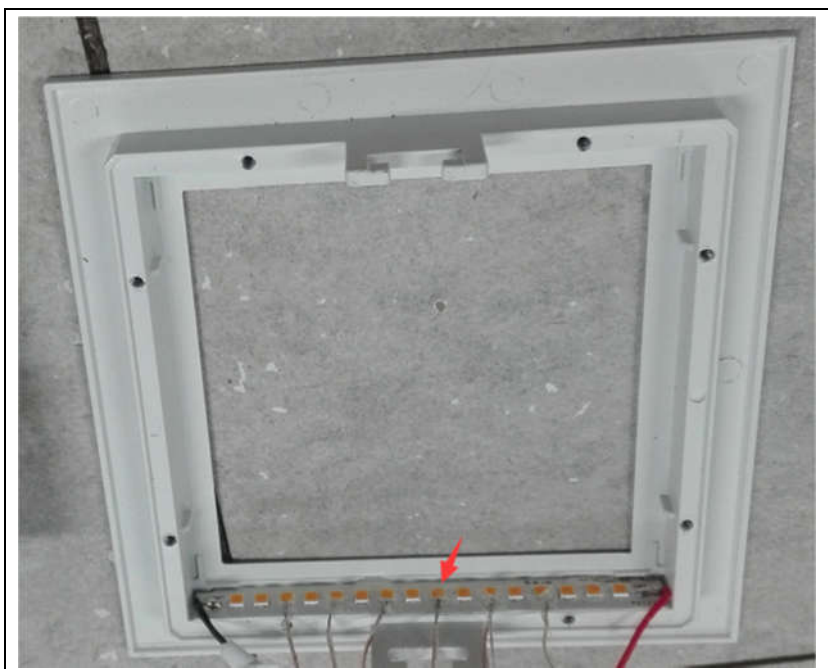
Test voltage: 120V,60Hz

Test date	2017-09-25	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
GZE1709109-H-B1		Pass	
GZE1709109-H-B2		Pass	
GZE1709109-H-B3		Pass	

7.1 In-Situ Temperature Measurement Test (ISTMT)	UL1598-2008, 3rd Edition
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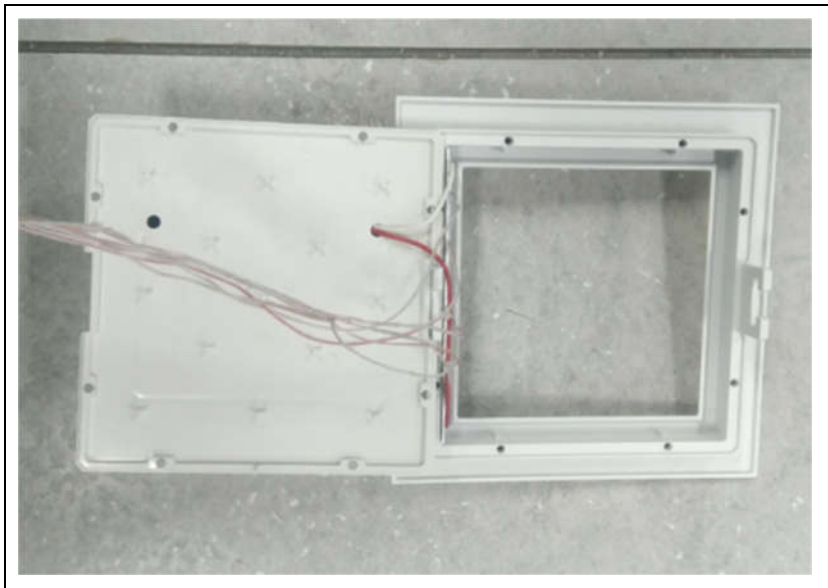
Test date	2017-09-25	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	56.5
Model Number	LSKT424W-2790		
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1709109-H-B1	SAWxA32E-xx	63.5	105

In-Situ Picture - Ts:



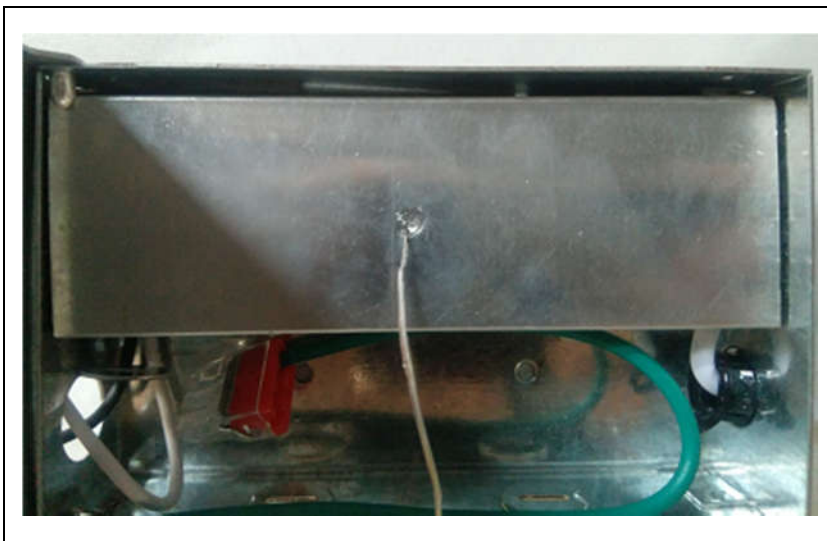
Test date	2017-12-20	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	56.0
Model Number	LSKT454W-2790		
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1712059-H-F1	SAWxA32E-xx	78.6	105

In-Situ Picture - Ts:



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	LSKT424W-2790		
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1709109-H-B1	44.5	105	

In-Situ Picture - Ts:**Laboratory: Standard-Tech Co. Ltd Testing Center****NVLAP CODE: 201011-0**

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Test date	2017-12-20	Test Ambient	25.1°C
Model Number	LSKT454W-2790		
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1712059-H-F1	79.3	105	

In-Situ Picture - Ts:



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	LSKT424W-2790	Stabilization Time (min)	90

Electrical Measurement – when the luminaires turned off:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)
GZE1709109-H -B1	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 *******