Energy Star Test Report

For

L-TECH CORPORTION

(Brand Name: L-TECH CORP)

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

SSL downlight

Model name(s): LED8SQ WITH LTSQ801-2790

Representative (Tested) Model: LED8SQ WITH LTSQ801-2790

Model Different: N/A

Test & Report By:

Candice Liao

Engineer:Candice Liao

Date: Nov.24,2017

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.

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	Nov.22.2017
Test Report No.	GZE1711043-H-A
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	L-TECH CORPORTION	
Brand Name	L-TECH CORP	
Model Number	LED8SQ WITH LTSQ801-2790	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	SSL downlight	
Luminaire Aperture (for SSL downlight retrofitss)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Electrical Measurements:	**Integrating Sphere Output**	**Goniophotometer Output**	
Input Wattage	--	18.55	W
Input Current	--	0.1572	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9833	
Off-State Power	--	0	W
Photometric Characteristics			
Total Initial Lumen Output	--	1472.0	lm
Initial Lumen Efficacy	--	79.35	lm/w
Correlated color temperature / CCT	2685	--	K
Color rendering index / CRI	92.6	--	
R9 Value	59	--	
Duv	0.0010	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	-----	592	cd
Beam angle (if applicable)		100.3	°
Zonal lumens in the 0°-60° zone		81.4	%
Zonal lumens in the 60°-90° zone		18.6	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0	%

Test Specifications:	
Date of Receipt	Nov.21,2017
Date of Test	Nov.22,2017
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 4th 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.

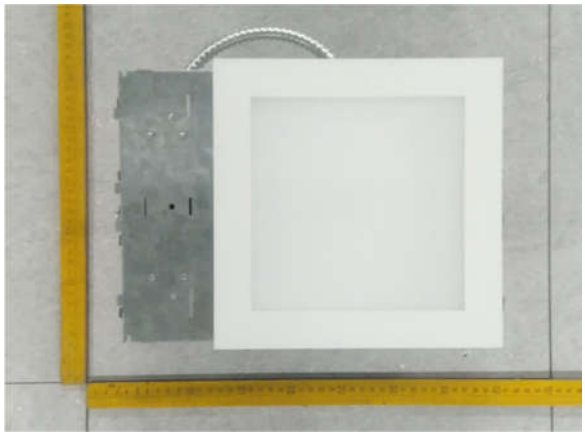
2. Photometric and Electrical Measurements – Integrating Sphere Method:

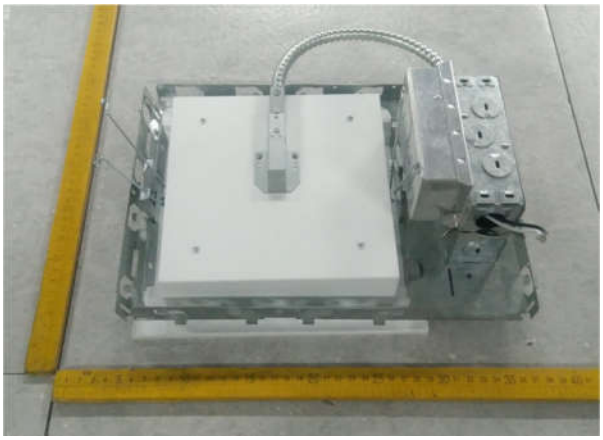
Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the 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	LED8SQ WITH LTSQ801-2790
Luminaire Type	SSL downlight
Rated Voltage / Frequency	120-277V, 50/60HZ
Nominal Power	20W
Rated Initial Lamp Lumen	--
Declared CCT	2700K
LED Manufacturer	Seoul Semiconductor Co., LTD
LED Model	SAWxA32E-xx
Sample Receipt Date	Nov.21,2017
Sample Number	GZE1711043-H-A 1,A2,A3

Photo





2.1 Electrical, Photometric and Chromaticity Measurements *(Refer to Work Instruction QD25)*	**IES LM-79 2008**

Test date	2017-11-22	**Test Ambient:**	25.0 ° C
Test Orientation	As intended	**Stabilization Time (min)**	90
Model Number	LED8SQ WITH LTSQ801-2790		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1711043-H-A1	120.0	60	0.1572	18.55	0.9833
GZE1711043-H-A2	120.0	60	0.1577	18.64	0.9847
GZE1711043-H-A3	120.0	60	0.1595	18.81	0.9826
Average			0.1581	18.67	0.9835

Sphere-Spectroradiometer Method:

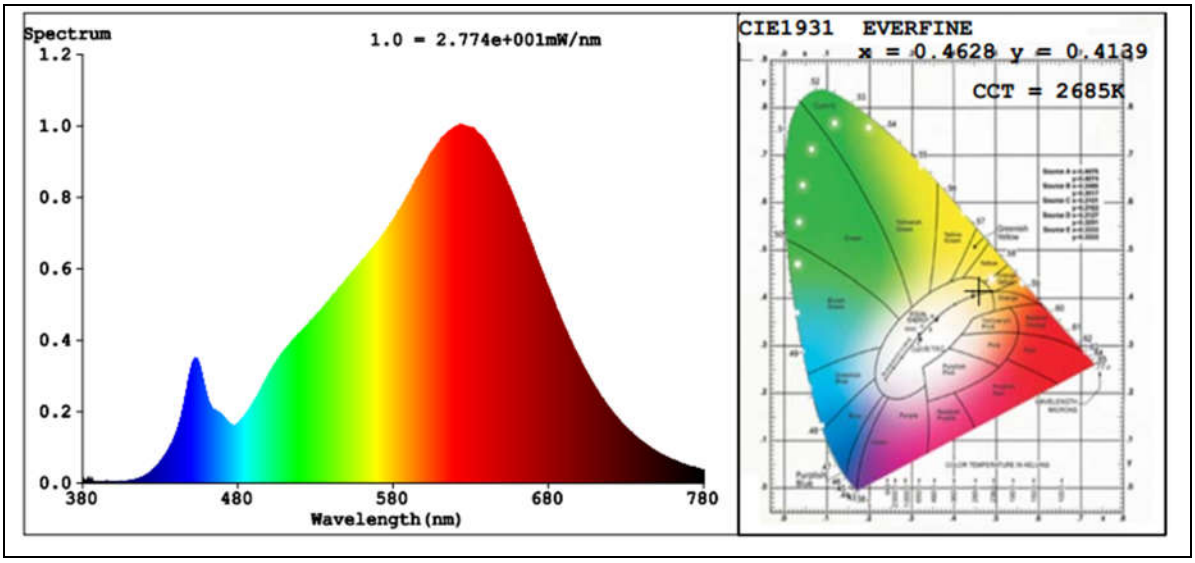
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	92.6
R9	59
CCT (K)	2685
Chromaticity (x, y)	x=0.4628 y=0.4139
Chromaticity (u', v')	u'=0.2629 v'=0.5290
Duv	0.0010

Special Color Rendering Indices			
R1	92	R9	59
R2	96	R10	89
R3	98	R11	94
R4	93	R12	84
R5	92	R13	93
R6	96	R14	98
R7	92	R15	88
R8	81	--	--

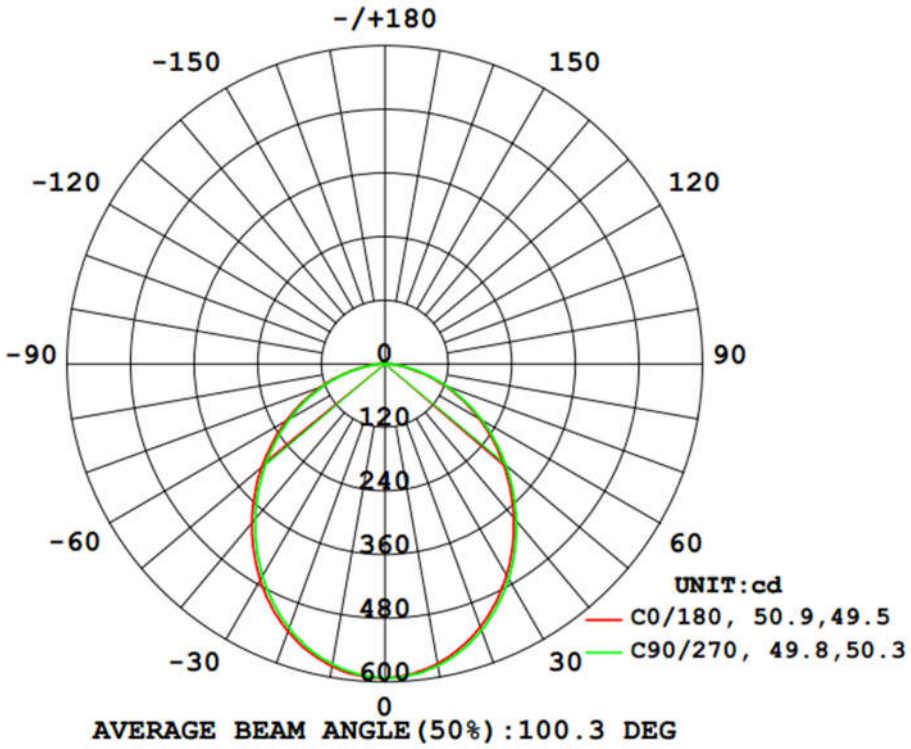
Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1472.0
Luminous Efficacy (lm/W)	79.35
Beam Angle°	100.3
Center Beam Candle Power (cd)	592

Spectral Power Distribution and Chromaticity Diagram



Zonal Lumen Tabulation



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	443.3	30.1%
0-40	709.4	48.2%
0-60	1,198.4	81.4%
60-90	273.4	18.6%
70-100	108.7	7.4%
90-120	0.0	0%
0-90	1,471.8	100%
90-180	0.1	0%
0-180	1,471.9	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	55.8	3.8%	90-100	0.0	0%
10-20	157.0	10.7%	100-110	0.0	0%
20-30	230.5	15.7%	110-120	0.0	0%
30-40	266.1	18.1%	120-130	0.0	0%
40-50	262.8	17.9%	130-140	0.0	0%
50-60	226.2	15.4%	140-150	0.0	0%
60-70	164.8	11.2%	150-160	0.0	0%
70-80	88.5	6.0%	160-170	0.0	0%
80-90	20.2	1.4%	170-180	0.0	0%

Table--1 UNIT: cd

γ (DEG) \ C (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338	
0	592	592	592	592	592	592	592	592	592	592	592	592	592	592	592	592	
5	587	587	588	589	589	589	589	589	589	589	588	588	587	587	587	587	
10	574	575	576	577	578	579	579	579	579	578	577	576	575	574	574	574	
15	554	555	556	559	559	560	561	561	561	560	559	557	556	554	554	554	
20	528	529	530	533	535	536	536	536	537	535	533	532	530	528	527	528	
25	496	498	499	502	503	505	506	506	506	504	502	500	498	496	495	496	
30	460	461	463	466	468	469	470	471	471	469	467	464	462	460	459	460	
35	420	422	423	426	429	430	431	432	432	430	427	425	423	421	419	420	
40	379	380	381	384	386	388	389	390	391	389	386	384	381	379	378	379	
45	336	336	338	341	343	344	346	347	348	346	343	341	338	336	335	336	
50	292	293	294	296	299	300	301	303	304	302	299	297	295	292	291	292	
55	248	249	250	252	254	256	257	258	260	258	255	253	251	249	248	249	
60	205	205	206	208	211	212	213	214	216	214	212	210	208	206	205	205	
65	162	162	163	165	167	168	170	171	173	171	169	167	166	164	163	163	
70	120	120	121	122	124	126	127	128	130	129	127	125	124	122	121	121	
75	79.5	79.6	81.0	80.9	82.9	84.2	85.3	86.3	88.4	87.5	86.1	84.8	83.4	81.9	80.8	80.6	
80	42.5	42.7	43.1	44.1	45.4	46.6	47.6	48.6	49.8	49.2	48.2	47.2	46.1	44.8	43.9	43.5	
85	13.6	13.7	14.0	14.5	15.0	16.0	16.8	17.3	18.8	18.8	18.9	17.5	16.6	16.0	15.5	15.1	
90	0.02	0.02	0.02	0.04	0.08	0.14	0.28	0.43	0.86	0.73	0.54	0.41	0.23	0.07	0.02	0.01	
95	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	0.00	0.00	0.00	
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.01	
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.01	
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	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
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	0.01	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	0.01	0.01	0.01	0.01	0.01	0.01	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	0.01	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	0.01	0.01	0.01	0.01	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	0.01	0.01	0.01	0.01	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	0.01	0.01	0.01	0.01	0.02	
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	

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

Test Data :

Test date	2017-11-22	Test Ambient	25.1°C
Sample No.		Maximum Δu'v'	
GZE1711043-H-A1		0.0014	

Gamma\C	CIE u'	CIE v'	du'v'	CIE u'	CIE v'	du'v'
-78	0.2625	0.5299	0.0009	0.2627	0.5299	0.0007
-77	0.2624	0.5299	0.001	0.2626	0.5299	0.0008
-76	0.2624	0.5299	0.001	0.2627	0.5299	0.0007
-75	0.2624	0.5299	0.001	0.2628	0.5299	0.0006
-74	0.2624	0.5299	0.001	0.2628	0.5299	0.0007
-73	0.2625	0.5299	0.001	0.2629	0.5299	0.0006
-72	0.2624	0.5298	0.001	0.2628	0.5299	0.0006
-71	0.2626	0.5299	0.0008	0.2628	0.5299	0.0007
-70	0.2626	0.5299	0.0009	0.2629	0.5299	0.0005
-69	0.2625	0.5299	0.0009	0.2629	0.5299	0.0006
-68	0.2625	0.5299	0.001	0.2629	0.5299	0.0006
-67	0.2627	0.5299	0.0007	0.263	0.5299	0.0005
-66	0.2627	0.5299	0.0008	0.263	0.5299	0.0005
-65	0.2627	0.5299	0.0008	0.263	0.5299	0.0005
-64	0.2626	0.5299	0.0008	0.2631	0.5299	0.0004
-63	0.2626	0.5298	0.0008	0.2631	0.5299	0.0004
-62	0.2627	0.5298	0.0007	0.2631	0.5299	0.0004
-61	0.2627	0.5298	0.0007	0.2631	0.5299	0.0004
-60	0.2627	0.5298	0.0008	0.2633	0.5299	0.0003
-59	0.263	0.5298	0.0005	0.2633	0.5299	0.0003
-58	0.263	0.5298	0.0005	0.2633	0.5299	0.0003
-57	0.2629	0.5298	0.0005	0.2632	0.5299	0.0003
-56	0.2629	0.5298	0.0005	0.2634	0.5299	0.0003
-55	0.2629	0.5298	0.0006	0.2634	0.5299	0.0003
-54	0.2629	0.5298	0.0005	0.2635	0.5299	0.0003
-53	0.2629	0.5298	0.0005	0.2634	0.5298	0.0003
-52	0.2629	0.5298	0.0005	0.2634	0.5299	0.0003
-51	0.263	0.5298	0.0004	0.2634	0.5298	0.0002
-50	0.263	0.5298	0.0004	0.2636	0.5299	0.0003

-49	0. 263	0. 5298	0. 0005	0. 2636	0. 5299	0. 0003
-48	0. 2631	0. 5298	0. 0003	0. 2636	0. 5298	0. 0003
-47	0. 2631	0. 5297	0. 0003	0. 2636	0. 5298	0. 0003
-46	0. 2631	0. 5298	0. 0003	0. 2636	0. 5298	0. 0003
-45	0. 2631	0. 5297	0. 0003	0. 2636	0. 5298	0. 0003
-44	0. 2632	0. 5297	0. 0002	0. 2638	0. 5298	0. 0005
-43	0. 2632	0. 5297	0. 0002	0. 2639	0. 5298	0. 0005
-42	0. 2632	0. 5297	0. 0002	0. 2638	0. 5298	0. 0005
-41	0. 2632	0. 5297	0. 0002	0. 2639	0. 5298	0. 0005
-40	0. 2633	0. 5297	0. 0001	0. 2639	0. 5298	0. 0005
-39	0. 2633	0. 5297	0. 0001	0. 2638	0. 5298	0. 0005
-38	0. 2633	0. 5297	0. 0001	0. 2639	0. 5297	0. 0005
-37	0. 2633	0. 5296	0. 0001	0. 2638	0. 5297	0. 0004
-36	0. 2633	0. 5296	0. 0001	0. 264	0. 5297	0. 0006
-35	0. 2634	0. 5296	0	0. 2641	0. 5297	0. 0007
-34	0. 2634	0. 5296	0	0. 264	0. 5297	0. 0007
-33	0. 2634	0. 5296	0	0. 2641	0. 5297	0. 0007
-32	0. 2634	0. 5296	0	0. 2641	0. 5297	0. 0007
-31	0. 2634	0. 5295	0. 0001	0. 264	0. 5297	0. 0006
-30	0. 2634	0. 5295	0. 0001	0. 264	0. 5296	0. 0006
-29	0. 2635	0. 5295	0. 0001	0. 264	0. 5296	0. 0006
-28	0. 2635	0. 5295	0. 0001	0. 2641	0. 5296	0. 0007
-27	0. 2635	0. 5295	0. 0001	0. 264	0. 5296	0. 0006
-26	0. 2635	0. 5295	0. 0001	0. 264	0. 5295	0. 0006
-25	0. 2635	0. 5294	0. 0002	0. 2642	0. 5296	0. 0008
-24	0. 2634	0. 5294	0. 0002	0. 2642	0. 5296	0. 0008
-23	0. 2634	0. 5294	0. 0002	0. 2642	0. 5295	0. 0008
-22	0. 2634	0. 5294	0. 0002	0. 2642	0. 5295	0. 0008
-21	0. 2635	0. 5294	0. 0002	0. 2642	0. 5295	0. 0008
-20	0. 2635	0. 5294	0. 0003	0. 2642	0. 5295	0. 0008
-19	0. 2635	0. 5293	0. 0003	0. 2642	0. 5295	0. 0008
-18	0. 2635	0. 5293	0. 0003	0. 2642	0. 5295	0. 0008
-17	0. 2635	0. 5293	0. 0003	0. 2642	0. 5294	0. 0008
-16	0. 2635	0. 5293	0. 0003	0. 2642	0. 5294	0. 0008
-15	0. 2635	0. 5293	0. 0003	0. 2642	0. 5294	0. 0008
-14	0. 2635	0. 5293	0. 0003	0. 2642	0. 5294	0. 0008
-13	0. 2635	0. 5292	0. 0004	0. 2642	0. 5294	0. 0008
-12	0. 2635	0. 5292	0. 0004	0. 2642	0. 5293	0. 0008
-11	0. 2635	0. 5292	0. 0004	0. 2642	0. 5293	0. 0008

-10	0. 2636	0. 5292	0. 0005	0. 2642	0. 5294	0. 0008
-9	0. 2636	0. 5292	0. 0004	0. 2642	0. 5293	0. 0008
-8	0. 2636	0. 5292	0. 0005	0. 2642	0. 5293	0. 0008
-7	0. 2636	0. 5292	0. 0005	0. 2642	0. 5293	0. 0008
-6	0. 2636	0. 5292	0. 0005	0. 2642	0. 5293	0. 0008
-5	0. 2636	0. 5291	0. 0005	0. 2642	0. 5293	0. 0008
-4	0. 2636	0. 5292	0. 0005	0. 2642	0. 5293	0. 0008
-3	0. 2636	0. 5291	0. 0005	0. 2642	0. 5293	0. 0008
-2	0. 2636	0. 5291	0. 0005	0. 2641	0. 5293	0. 0008
-1	0. 2636	0. 5291	0. 0005	0. 2642	0. 5293	0. 0008
0	0. 2636	0. 5291	0. 0005	0. 2636	0. 5291	0. 0005
1	0. 2635	0. 5291	0. 0005	0. 2641	0. 5293	0. 0008
2	0. 2636	0. 5291	0. 0005	0. 2641	0. 5293	0. 0008
3	0. 2636	0. 5291	0. 0005	0. 2641	0. 5293	0. 0008
4	0. 2636	0. 5291	0. 0005	0. 2642	0. 5293	0. 0008
5	0. 2635	0. 5291	0. 0005	0. 2642	0. 5293	0. 0008
6	0. 2636	0. 5291	0. 0005	0. 2642	0. 5293	0. 0008
7	0. 2635	0. 5291	0. 0005	0. 2642	0. 5293	0. 0008
8	0. 2635	0. 5291	0. 0005	0. 2642	0. 5293	0. 0008
9	0. 2636	0. 5291	0. 0005	0. 2642	0. 5293	0. 0008
10	0. 2635	0. 5291	0. 0005	0. 2641	0. 5293	0. 0007
11	0. 2635	0. 5291	0. 0005	0. 264	0. 5293	0. 0007
12	0. 2635	0. 5291	0. 0005	0. 264	0. 5293	0. 0007
13	0. 2635	0. 5292	0. 0005	0. 264	0. 5293	0. 0007
14	0. 2635	0. 5292	0. 0005	0. 264	0. 5293	0. 0007
15	0. 2635	0. 5292	0. 0004	0. 264	0. 5293	0. 0007
16	0. 2635	0. 5292	0. 0004	0. 264	0. 5294	0. 0007
17	0. 2635	0. 5292	0. 0004	0. 2641	0. 5294	0. 0007
18	0. 2635	0. 5292	0. 0004	0. 2641	0. 5294	0. 0007
19	0. 2635	0. 5292	0. 0004	0. 2641	0. 5294	0. 0007
20	0. 2635	0. 5292	0. 0004	0. 2641	0. 5294	0. 0007
21	0. 2635	0. 5293	0. 0004	0. 2641	0. 5294	0. 0007
22	0. 2635	0. 5293	0. 0004	0. 2641	0. 5294	0. 0007
23	0. 2635	0. 5293	0. 0004	0. 264	0. 5294	0. 0006
24	0. 2635	0. 5293	0. 0003	0. 264	0. 5295	0. 0006
25	0. 2635	0. 5293	0. 0003	0. 264	0. 5295	0. 0006
26	0. 2635	0. 5293	0. 0003	0. 264	0. 5295	0. 0006
27	0. 2635	0. 5293	0. 0003	0. 264	0. 5295	0. 0006
28	0. 2633	0. 5293	0. 0003	0. 264	0. 5295	0. 0006

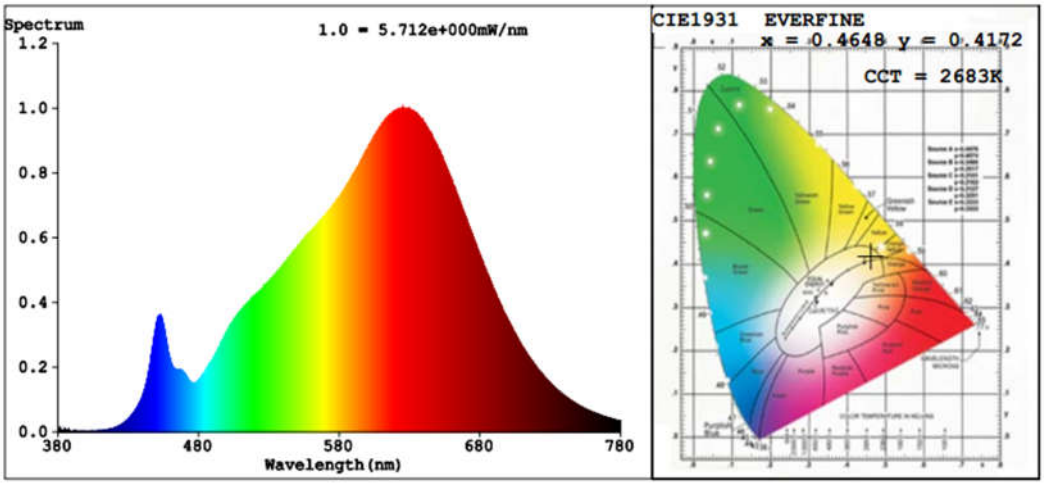
29	0. 2633	0. 5293	0. 0003	0. 264	0. 5295	0. 0006
30	0. 2634	0. 5293	0. 0003	0. 264	0. 5296	0. 0006
31	0. 2633	0. 5294	0. 0003	0. 2639	0. 5295	0. 0005
32	0. 2634	0. 5294	0. 0002	0. 2639	0. 5296	0. 0005
33	0. 2633	0. 5294	0. 0002	0. 2639	0. 5296	0. 0005
34	0. 2634	0. 5294	0. 0002	0. 2639	0. 5296	0. 0005
35	0. 2634	0. 5294	0. 0002	0. 2639	0. 5296	0. 0005
36	0. 2634	0. 5294	0. 0002	0. 2638	0. 5296	0. 0004
37	0. 2633	0. 5295	0. 0002	0. 2638	0. 5296	0. 0004
38	0. 2632	0. 5294	0. 0003	0. 2638	0. 5297	0. 0004
39	0. 2631	0. 5295	0. 0003	0. 2638	0. 5297	0. 0004
40	0. 2631	0. 5295	0. 0003	0. 2638	0. 5297	0. 0004
41	0. 2632	0. 5295	0. 0003	0. 2638	0. 5297	0. 0004
42	0. 2632	0. 5295	0. 0003	0. 2638	0. 5297	0. 0004
43	0. 2632	0. 5295	0. 0003	0. 2638	0. 5297	0. 0004
44	0. 2631	0. 5295	0. 0003	0. 2638	0. 5297	0. 0004
45	0. 2632	0. 5295	0. 0003	0. 2638	0. 5298	0. 0004
46	0. 2629	0. 5295	0. 0005	0. 2637	0. 5298	0. 0004
47	0. 2629	0. 5295	0. 0005	0. 2638	0. 5298	0. 0004
48	0. 263	0. 5295	0. 0005	0. 2634	0. 5297	0. 0001
49	0. 2629	0. 5295	0. 0005	0. 2634	0. 5297	0. 0001
50	0. 2629	0. 5295	0. 0005	0. 2634	0. 5298	0. 0002
51	0. 2629	0. 5295	0. 0005	0. 2634	0. 5298	0. 0002
52	0. 2629	0. 5295	0. 0005	0. 2634	0. 5298	0. 0002
53	0. 2627	0. 5295	0. 0007	0. 2634	0. 5298	0. 0002
54	0. 2627	0. 5295	0. 0007	0. 2635	0. 5298	0. 0002
55	0. 2627	0. 5296	0. 0007	0. 2634	0. 5298	0. 0002
56	0. 2627	0. 5296	0. 0007	0. 2635	0. 5298	0. 0002
57	0. 2627	0. 5296	0. 0007	0. 2631	0. 5298	0. 0003
58	0. 2625	0. 5296	0. 0009	0. 2631	0. 5298	0. 0003
59	0. 2626	0. 5296	0. 0008	0. 2632	0. 5298	0. 0003
60	0. 2626	0. 5296	0. 0008	0. 263	0. 5298	0. 0004
61	0. 2626	0. 5296	0. 0008	0. 2631	0. 5298	0. 0004
62	0. 2626	0. 5296	0. 0008	0. 2631	0. 5298	0. 0003
63	0. 2624	0. 5296	0. 001	0. 263	0. 5298	0. 0005
64	0. 2624	0. 5296	0. 001	0. 263	0. 5298	0. 0004
65	0. 2625	0. 5296	0. 0009	0. 263	0. 5298	0. 0005
66	0. 2623	0. 5296	0. 0011	0. 2629	0. 5298	0. 0005
67	0. 2623	0. 5296	0. 0011	0. 2629	0. 5298	0. 0006

68	0. 2624	0. 5296	0. 001	0. 2629	0. 5298	0. 0005
69	0. 2624	0. 5296	0. 001	0. 263	0. 5298	0. 0005
70	0. 2622	0. 5296	0. 0012	0. 263	0. 5298	0. 0004
71	0. 2623	0. 5296	0. 0011	0. 2627	0. 5298	0. 0007
72	0. 2621	0. 5295	0. 0013	0. 2628	0. 5298	0. 0006
73	0. 2622	0. 5296	0. 0012	0. 2629	0. 5298	0. 0006
74	0. 2622	0. 5296	0. 0012	0. 263	0. 5299	0. 0005
75	0. 2621	0. 5296	0. 0013	0. 2627	0. 5298	0. 0007
76	0. 2621	0. 5296	0. 0013	0. 2628	0. 5299	0. 0006
77	0. 2621	0. 5296	0. 0013	0. 2629	0. 5299	0. 0005
78	0. 262	0. 5295	0. 0014	0. 2628	0. 5299	0. 0007

3. Electrical and Photometric Measurements, with dimming	IES LM-79 2008 ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0

Test date	2017-11-22	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.
GZE1711043-H-A1	120.0 V / 60 Hz	292.3	2683	92.9	0.4549
GZE1711043-H-A2	120.0 V / 60 Hz	278.8	2684	93.0	0.4526
GZE1711043-H-A3	120.0 V / 60 Hz	235.7	2682	93.0	0.4365
Average		268.9	2683	93.0	0.4480



Colorimetric Parameters

Chromaticity Coordinate:x=0.4648 y=0.4172/u'=0.2627 v'=0.5306 Dx,Dy:0.0035,0.0063

CCT=2683K(Duv=0.0020) Dominant WL:Ld =583.7nm Purity=64.8%

Peak WL:Lp=625.3nm FWHM=147.0nm

Render Index:Ra=92.9 CRI=90.1

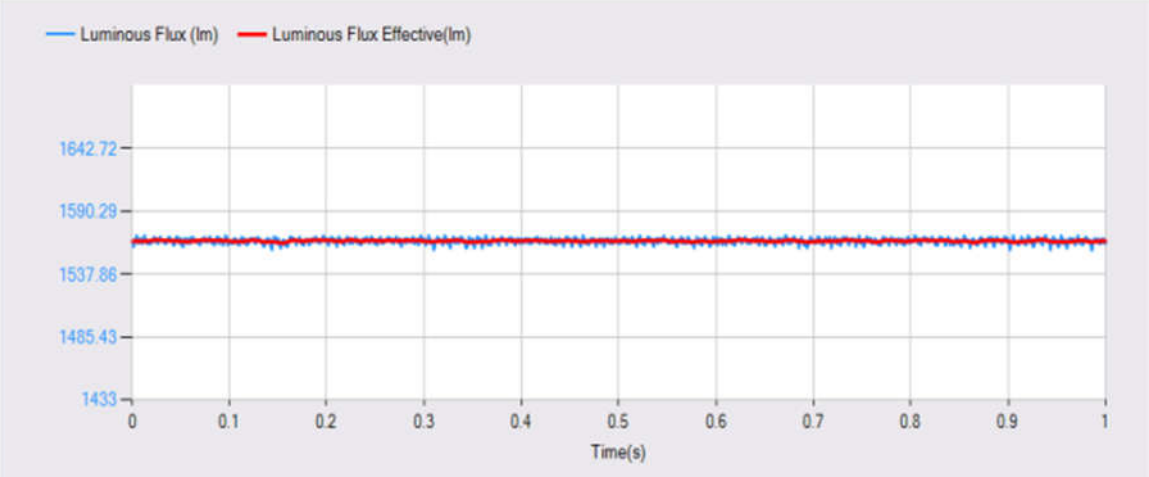
R1 =93	R2 =96	R3 =98	R4 =94	R5 =92	R6 =96	R7 =93	
R8 =83	R9 =61	R10=89	R11=95	R12=82	R13=93	R14=98	R15=89

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	15.4	Dimmer adjusted to lowest light output	< 1 m

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	

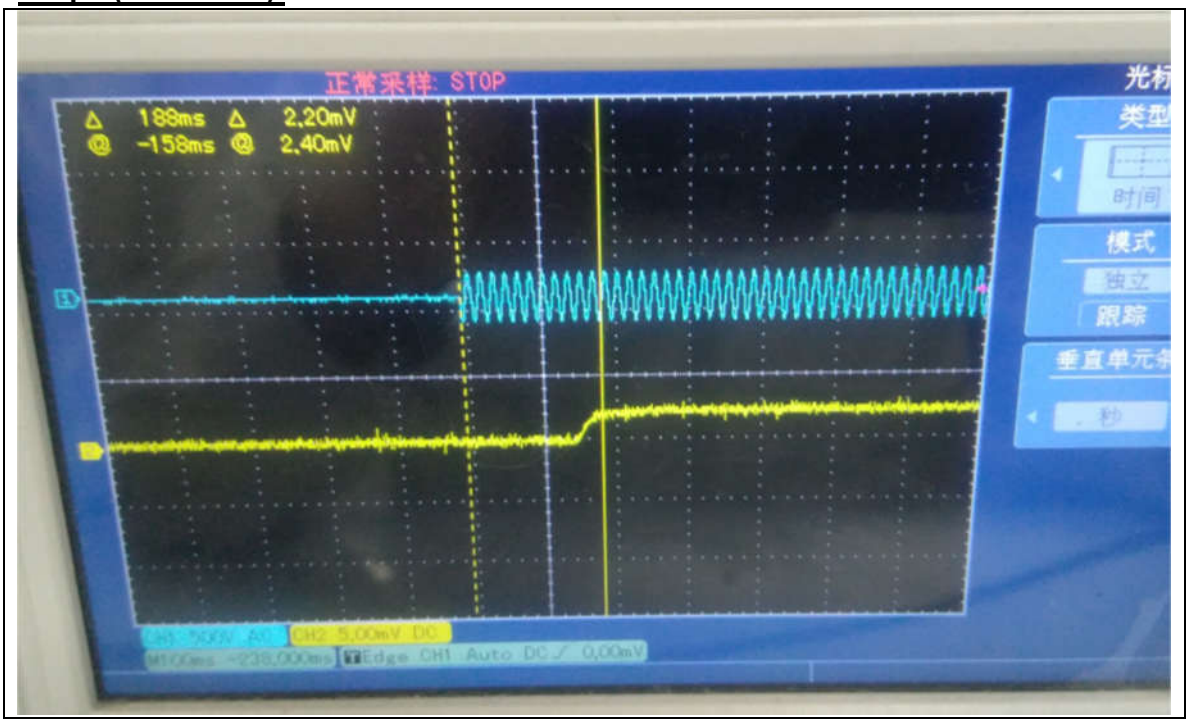
Test date	2017-11-22	Test Ambient:	25.1°C
Sample No.		Operating Frequency (Hz)	
GZE1711043-H-A1		248.95	
GZE1711043-H-A2		257.17	
GZE1711043-H-A3		273.05	
Average		259.72	



5 Starting Time *(Refer to Work Instruction QD28)*	**ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0**

Test date	2017-11-22	Test Ambient:	25.1°C
Sample No.	**Start Time (ms)**		
GZE1711043-H-A1	188		
GZE1711043-H-A2	206		
GZE1711043-H-A3	168		
Average	171		

Graph (Start Time):



6. Transient Protection Test *(Refer to Work Instruction QD34)*	ANSI/IEEE C62.41 ENERGY STAR® Program Requirements for Luminaires – Version 2.0

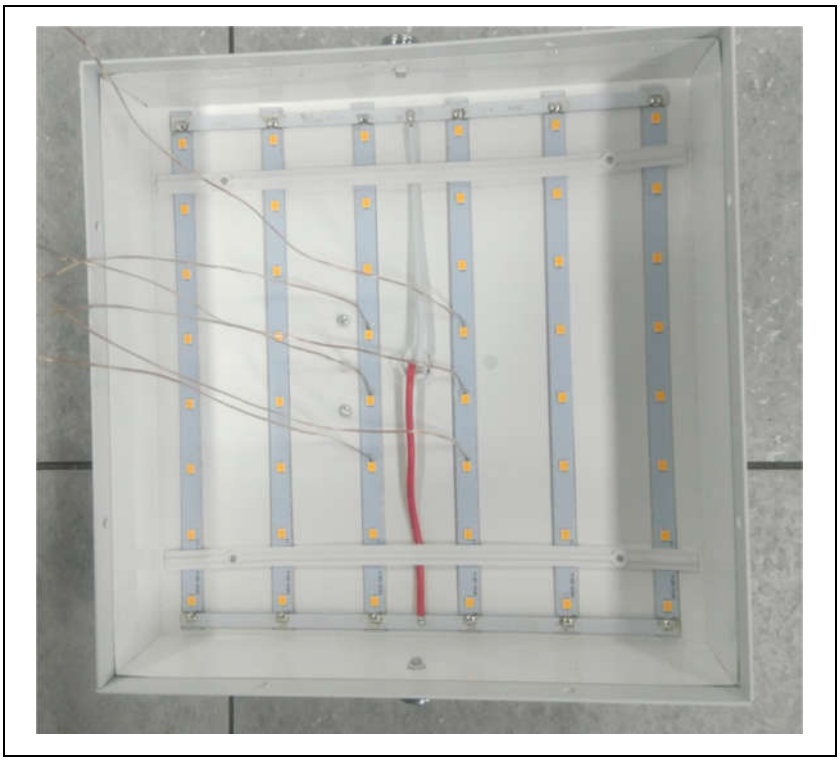
Test voltage: 120V,60Hz

Test date	2017-11-22	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
GZE1711043-H-A1		Pass	
GZE1711043-H-A2		Pass	
GZE1711043-H-A3		Pass	

7.1 In-Situ Temperature Measurement Test (ISTMT)	UL1598-2008, 3rd Edition

Test date	2017-11-22	Test Ambient	25.1℃
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	38.3
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1711043-H-A1	SAWxA32E-xx	84.9	105

In-Situ Picture - Ts:



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

Test date		Test Ambient	25.1°C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1711043-H-A1	66.5	90	

In-Situ Picture - Ts:

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

Test date	2017-11-22	Test Ambient:	25.0 ° C
Model Number	LED8SQ WITH LTSQ801-2790	Stabilization Time (min)	90

Electrical Measurement – when the luminaires turned off:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)
GZE1711043-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 ********

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