



## Energy Star Test Report

For

# L-TECH CORPORATION

(Brand Name: N/A)

Shaogangtou District, Qiaotou Town, Dongguan City

### Model name(s):

**LRKT3570W/3573W-EN-3CT-27-35**

**LRKT3570W/3573W-EN-3CT-30-50**

**Report Type:** Testing and Report According to ENERGY STAR® Program  
Requirements Product Specification for Luminaires (Light  
Fixtures) - Version 2.2

**Type of  
Luminaire:** Downlight retrofits

**Report Date:** 2020-05-14  
Ningbo TengLi Testing Co., Ltd

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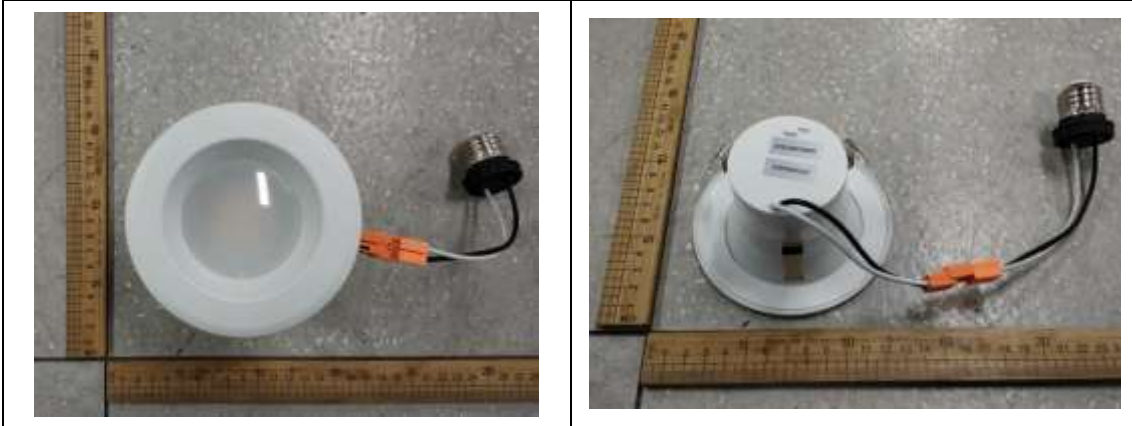
Note: 1. The results contained in this report pertain only to the tested samples.  
2. This report does not imply product certification, approval, or endorsement by A2LA or any  
agency of the Federal Government.



<b>1.1 Product Information:</b>		
Model Number	LRKT3570W/3573W-EN-3CT-27-35 LRKT3570W/3573W-EN-3CT-30-50	
Remark	According to the test data, 2700K is the most inefficient mode.	
Representative (Tested) Model	LRKT3570W/3573W-EN-3CT-27-35(0%,2700K) LRKT3570W/3573W-EN-3CT-27-35(50%,3000 K) LRKT3570W/3573W-EN-3CT-27-35(100%,3500 K)	
Model Difference	All construction and rating are the same, except CCT	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Downlight retrofits	
LED Manufacturer	Seoul Semiconductor Co.,LTD	
LED Model	SAWxA32E-xx	
Dimming	Dimmable	
Sample Number	JCE200410-C1	
Date of Receipt	Apr.20,2020	
Luminaire Aperture (for Inseparable SSL Luminaire)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

<b>1.2 Rated Values:</b>	
Rated Voltage / Frequency	120Vac, 50/60Hz
Nominal Power	10.5W
Rated Initial Lamp Lumen	--
Declared CCT for LRKT3570W/3573W-EN-3CT-27-35	2700K,3000K,3500K
Declared CCT for LRKT3570W/3573W-EN-3CT-30-50	3000K,4000K,5000K

### 1.3 Product Photos





**1.4 Test Specifications:**

Test item	<ol style="list-style-type: none"> <li>1. Total Luminous Flux</li> <li>2. Luminous Distribution Intensity</li> <li>3. Luminous Efficacy</li> <li>4. Correlated Color Temperature</li> <li>5. Color Rendering Index</li> <li>6. Chromaticity Coordinate</li> <li>7. Electrical Parameters</li> </ol>
Reference Standard	<ol style="list-style-type: none"> <li>1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</li> <li>2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products</li> <li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li> <li>4. CIE 15-2004 Technical Report Colorimetry</li> <li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li> <li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li> <li>7. UL1993 4<sup>th</sup> Edition, Self-Ballasted Lamps and Lamp Adapters</li> <li>8. ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) – Version 2.2</li> </ol>
Reference Work Instruction	QD25
Remark	Below test and data are not covered by A2LA accreditation: - Operating Frequency



## 1.5 Test Methods

### 1) Photometric and Light Distribution Measurement – Goniophotometer Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , 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 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at  $1^{\circ}$  vertical intervals and  $22.5^{\circ}$  horizontal intervals.

### 2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . 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 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.

### 3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.



**2.1 Summary of Test Result**

Criteria Item	The Type of Luminaires	Requirement (ES for Luminaires V2.2)	Measured Value	Status
Input Wattage	All	≤ Rated Wattage	10.23W	Pass
Luminous Efficacy	Downlight retrofits	≥60 lm/W	67.15lm/W	Pass
Luminaire Minimum Light Output	Downlight retrofits	≤4.5" aperture: 345 lumens >4.5" aperture: 575 lumens	686.52lm	Pass
Luminaire Zonal Lumen Density Requirement	Downlight retrofits	≥75% of total initial lumens within the 0-60° zone	89..1	Pass
Correlated Color Temperature (CCT)	Solid State	Shall be capable of providing at least one of the following nominal correlated color temperatures (CCTs): <ul style="list-style-type: none"> <li>• 2700 Kelvin</li> <li>• 3000 Kelvin</li> <li>• 3500 Kelvin</li> <li>• 4000 Kelvin</li> <li>• 5000 Kelvin</li> </ul>	2743K Duv=0.0009	Pass
Color Rendering Index (CRI)	Solid State	Ra ≥ 80 R9 >0	Ra =92.1 R9=57	Pass
Color Angular Uniform	Directional Solid State Indoor Luminaires	The variation of chromaticity shall be within 0.006 from the weighted average point on the CIE 1976(u',v') diagram	0.0011	Pass
Lumen Maintenance	Solid State Option 1:	L70 lumen maintenance: ≥ 25,000 hours for indoor ≥ 35,000 hours for outdoor ≥ 50,000 hours for inseparable luminaires		Pass
Light Source Life	Solid State	L70 lumen maintenance: ≥ 25,000 hours for indoor ≥ 35,000 hours for outdoor ≥ 50,000 hours for inseparable luminaires		Pass



Color Maintenance	Solid State Indoor Luminaires	$\Delta u'v' \leq 0.007$	Max.0.0035in LM-80 report	Pass
Source Start Time	Solid State	<750 ms	178ms	Pass
Power Factor	Solid State	Total luminaire input power $\leq 5$ watts: PF $\geq 0.5$ Total luminaire input power > 5 watts: PF $\geq 0.7$	0.9317	Pass
Transient Protection	Solid State	The line transient shall consist of seven strikes of a 100 kHz ring wave, 2.5 kV level, for both common mode and differential mode.	Survival	Pass
Standby Power Consumption	All Luminaires	Luminaires shall not draw power in the off state.	0W	Pass
Operating Frequency	Solid State	Frequency $\geq 120$ Hz	120.17Hz	Pass
Light Source Replaceability	Solid State	LED light engines or retrofit kits shall make use of electrical interconnects that allow for consumer replacement of the engine or kit without the cutting of wires or the use of solder.	N/A	N/A
Driver Replaceability	Solid State: Directional	Drivers shall be accessible and removable by an electrician without the cutting of wires and without damage to the luminaire housing, trim, decorative elements or the carpentry (e.g., ceilingdrywall) to which theluminaire is attached.	N/A	N/A
Maximum Measured Driver Case	Solid State	shall not exceed the driver manufacturer's maximum recommended temperature	45.3°C	Pass



Temperature		during in situ operation. ≤ 105 °C		
Maximum In-Situ Source Temperature	Solid State	Maximum permitted Ts temperature for L70≥50,000 hrs ≤ 105°C	63.2°C	Pass
Electronic Driver Safety	Solid State: Directional	Demonstrate compliance with ANSI/UL 1310-2010, ANSI/UL 2108-2004, ANSI/UL 8750-2009, as applicable.	Driver safety report has been verified	Pass
Dimming	Solid State	The luminaire and its components shall provide continuous dimming from 100% to 20% of total light output. Luminaire shall not emit noise above 24dBA at 1 meter or less at the minimum output.	Pass	Pass
Warranty Requirements	Solid State	incorporating replaceable drivers: ≥ 3 years incorporating non-replaceable drivers: ≥ 5 years	5 years	Pass
Lighting Toxics Reduction Requirements	Solid State	Luminaires and lamps shall not exceed: 1000 ppm: Mercury, Lead, Hexavalent Chromium, PBB and PBDE 100 ppm: Cadmium	RoHS report has been verified	Pass
CCT	Solid State	Packaging shall clearly describe the nominal color designation in units of Kelvin (e.g. 2700K, 3000K).	2700K,3000K, 3500K	Pass





<b>2.2.1 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>	2020-04-22	<b>Test Ambient:</b>	25.0 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LRKT3570W/3573W-EN-3CT-27-35(0%,2700K)		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
JCE200410-C1	120.0	60	0.0914	10.23	0.9317

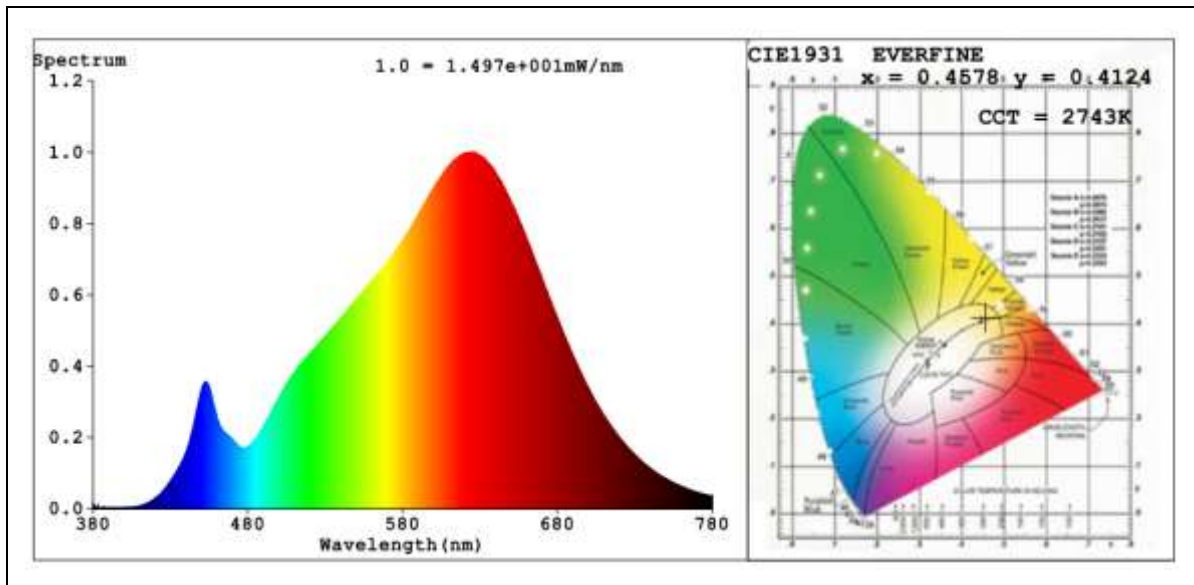
**Sphere-Spectroradiometer Method:**

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Color Rendering Index (CRI)	92.1
R9	57
CCT (K)	2743
Duv	0.0009

**Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	686.62
Luminous Efficacy (lm/W)	67.15
Beam Angle°	94.6
Center Beam Candle Power (cd)	315

### Spectral Power Distribution and Chromaticity Diagram



### Colorimetric Parameters

#### Colorimetric Parameters

Chromaticity Coordinate:  $x=0.4578$   $y=0.4124$  /  $u'=0.2604$   $v'=0.5277$

CCT=2743K (Duv=0.0009) Dominant WL:Ld =583.7nm Purity=61.2%

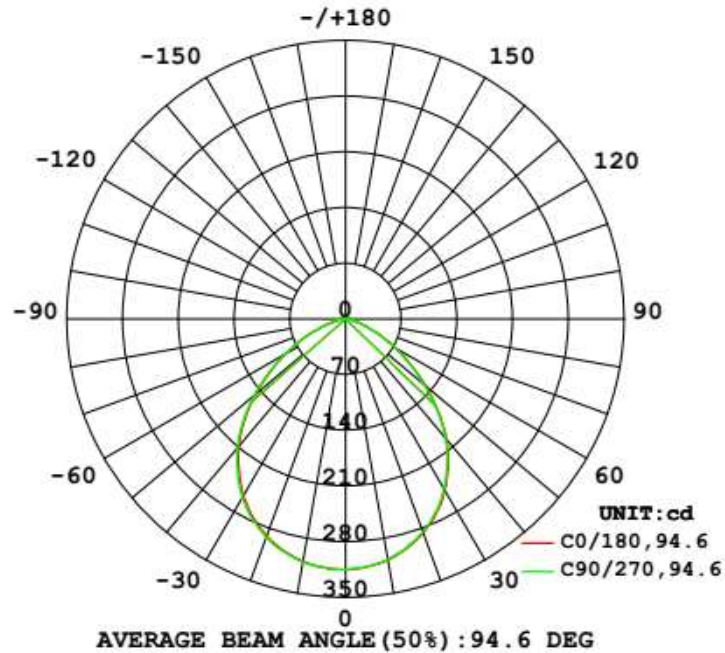
Peak WL:Lp=626.1nm FWHM=150.0nm

Render Index:Ra=92.1 Render Index:AvgR =89.1

R1 =92	R2 =95	R3 =98	R4 =92	R5 =92	R6 =95	R7 =92
R8 =81	R9 =57	R10=88	R11=93	R12=83	R13=93	R14=98
						R15=88

**Zonal Lumen Tabulation**

**LUMINOUS INTENSITY DISTRIBUTION DIAGRAM**



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	239.7	34.9%
0-40	382.9	55.8%
0-60	612.0	89.1%
60-90	74.5	10.9%
70-100	21.9	3.2%
90-120	0.0	0%
0-90	686.5	100%
90-180	0.0	0%
0-180	686.5	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	29.7	4.3%	90-100	0.0	0%
10-20	84.6	12.3%	100-110	0	0%
20-30	125.4	18.3%	110-120	0	0%
30-40	143.2	20.9%	120-130	0.0	0%
40-50	132.6	19.3%	130-140	0.0	0%
50-60	96.4	14.0%	140-150	0.0	0%
60-70	52.6	7.7%	150-160	0.0	0%
70-80	18.0	2.6%	160-170	0.0	0%
80-90	3.9	0.6%	170-180	0.0	0%



Table--1

UNIT: cd

C (DEG) □ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
0	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315	315		
5	313	313	312	312	312	313	313	313	314	314	314	314	314	314	313	313		
10	307	307	307	306	307	307	308	308	309	310	310	310	310	310	309	308		
15	298	298	297	297	297	298	299	300	302	302	303	303	303	302	301	300		
20	286	285	284	284	284	285	287	288	290	292	292	292	292	291	289	288		
25	270	268	267	267	268	269	271	273	275	277	278	278	277	276	274	272		
30	249	247	246	246	247	249	251	253	257	259	260	260	259	257	255	253		
35	225	223	222	222	223	225	227	230	234	236	238	238	237	234	232	228		
40	197	195	194	194	195	198	200	204	209	212	213	213	211	209	205	202		
45	165	162	161	161	163	166	170	174	180	183	185	184	182	179	175	171		
50	132	129	127	128	130	133	137	142	148	151	153	152	150	146	142	138		
55	99.5	96.7	95.4	96.0	97.9	101	105	110	116	119	120	120	117	114	110	105		
60	71.4	68.8	67.7	68.2	69.9	72.8	76.4	80.3	85.4	88.4	89.7	89.1	87.0	83.6	79.8	75.8		
65	46.6	44.5	43.5	43.7	45.2	47.6	50.7	54.3	58.5	61.1	62.4	61.8	60.1	57.2	53.9	50.3		
70	26.5	24.9	24.1	24.2	25.2	27.1	29.5	32.4	35.8	38.0	39.0	38.7	37.3	35.0	32.3	29.5		
75	12.7	11.8	11.4	11.5	11.9	12.9	14.3	16.2	18.6	20.2	21.0	20.9	20.0	18.4	16.2	14.4		
80	6.76	6.27	6.03	6.06	6.34	6.88	7.55	8.35	9.14	9.67	9.99	9.95	9.60	9.00	8.29	7.54		
85	2.37	1.96	1.75	1.76	1.98	2.42	2.99	3.65	4.38	4.86	5.12	5.10	4.81	4.30	3.68	3.03		
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.35	0.80	0.98	0.50	0.61	0.31	0.05	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		



<b>2.2.2 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>	2020-04-22	<b>Test Ambient:</b>	25.0 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LRKT3570W/3573W-EN-3CT-27-35(50%,3000K)		

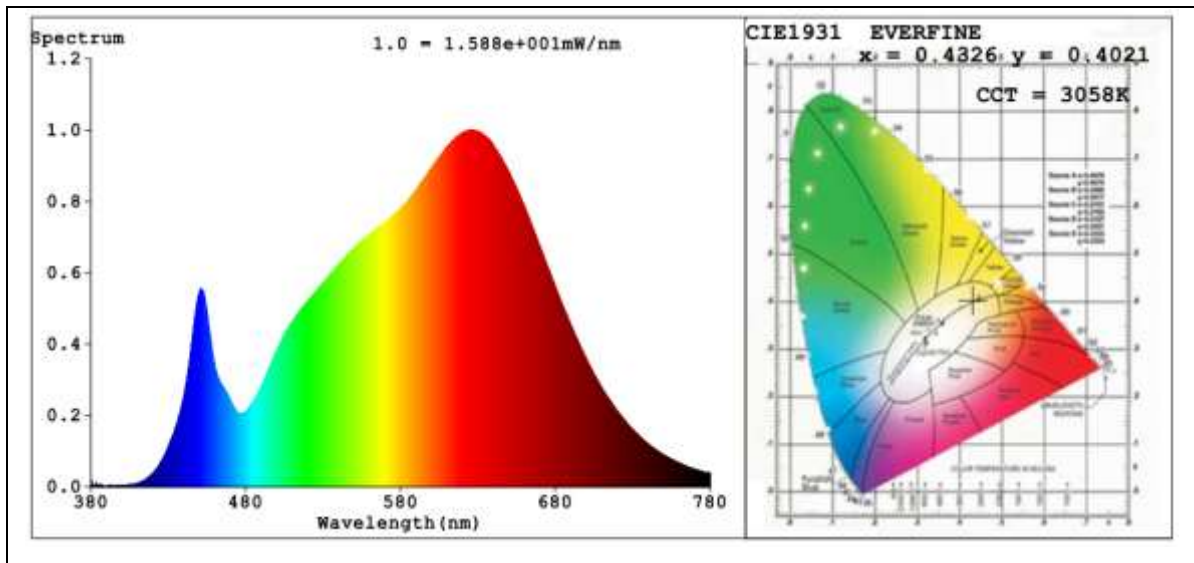
**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
JCE200410-C1	120.0	60	0.0901	10.09	0.9333

**Sphere-Spectroradiometer Method:**

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Color Rendering Index (CRI)	93.6
R9	70
CCT (K)	3058
Duv	-0.0002
Total Luminous (lm)	785.9
Luminous Efficacy (lm/W)	77.89

**Spectral Power Distribution and Chromaticity Diagram**



**Colorimetric Parameters**

**Colorimetric Parameters**

Chromaticity Coordinate:  $x=0.4326$   $y=0.4021$  /  $u'=0.2486$   $v'=0.5199$

CCT=3058K (Duv=-0.0002) Dominant WL:Ld =582.6nm Purity=50.5%

Peak WL:Lp=626.1nm FWHM=169.3nm

Render Index:Ra=93.6 Render Index:AvgR =91.1

R1 =94	R2 =96	R3 =95	R4 =94	R5 =93	R6 =94	R7 =95	
R8 =87	R9 =70	R10=88	R11=95	R12=81	R13=95	R14=97	R15=92



<b>2.2.3 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>	2020-04-22	<b>Test Ambient:</b>	25.0 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LRKT3570W/3573W-EN-3CT-27-35(100%,3500K)		

**Electrical Measurement:**

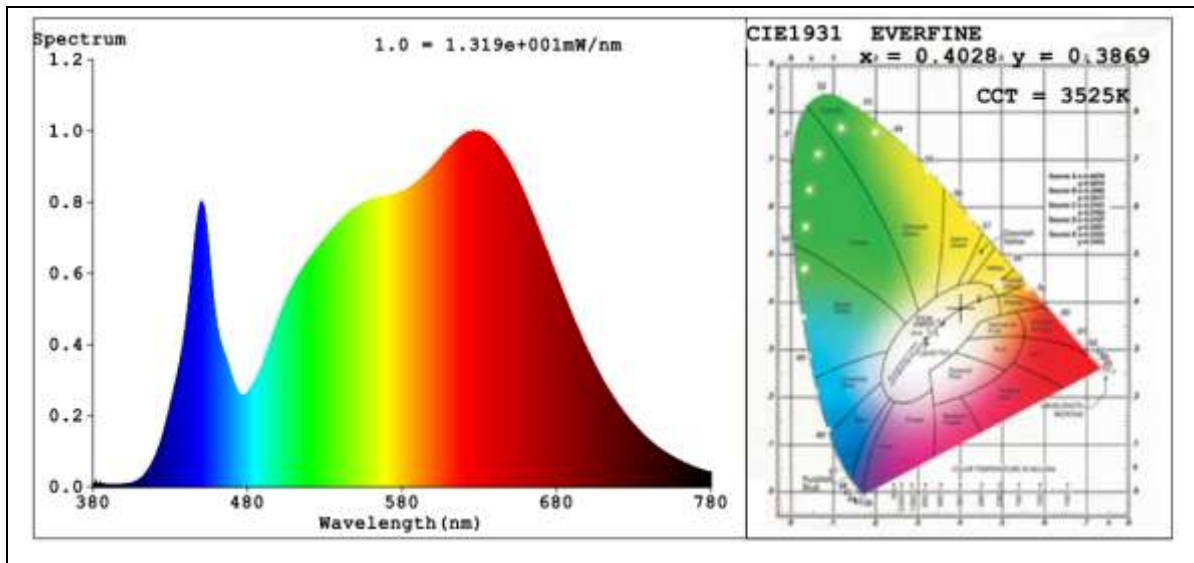
Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
JCE200410-C1	120.0	60	0.0927	10.42	0.9367

**Sphere-Spectroradiometer Method:**

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Color Rendering Index (CRI)	93.6
R9	80
CCT (K)	3525
Duv	-0.0011
Total Luminous (lm)	724.0
Luminous Efficacy (lm/W)	69.48



### Spectral Power Distribution and Chromaticity Diagram



### Colorimetric Parameters

#### Colorimetric Parameters

Chromaticity Coordinate:  $x=0.4028$   $y=0.3869$   $u'=0.2356$   $v'=0.5093$

CCT=3525K (Duv=-0.0011) Dominant WL:Ld =581.3nm Purity=37.0%

Peak WL:Lp=626.8nm FWHM=186.1nm

Render Index:Ra=93.6 Render Index:AvgR =91.5

R1 =95 R2 =95 R3 =92 R4 =94 R5 =94 R6 =92 R7 =95

R8 =92 R9 =80 R10=86 R11=94 R12=79 R13=95 R14=95 R15=95





<b>2.3 Color Spatial Uniformity</b>	<b>IES LM-79 2008</b> <b>ENERGY STAR® Program Requirements</b> <b>Product Specification for Luminaires (Light Fixtures) - Version 2.2</b>
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**Test Data:**

Test date	2020-04-22	Test Ambient	25.1°C
Sample No.	Maximum $\Delta u'v'$		
JCE200410-C1	0.0011		

Gamma\C	CIE u'	CIE v'	$\Delta u'v'$	CIE u'	CIE v'	$\Delta u'v'$
-49	0.2606	0.5282	0.0011	0.261	0.5282	0.0008
-48	0.261	0.5282	0.0008	0.261	0.5282	0.0008
-47	0.2608	0.5282	0.0009	0.2611	0.5282	0.0008
-46	0.261	0.5282	0.0008	0.2612	0.5282	0.0007
-45	0.2612	0.5282	0.0007	0.2612	0.5282	0.0007
-44	0.261	0.5282	0.0008	0.2613	0.5282	0.0007
-43	0.2613	0.5283	0.0008	0.2613	0.5282	0.0007
-42	0.2613	0.5283	0.0008	0.2613	0.5282	0.0007
-41	0.2611	0.5282	0.0008	0.2614	0.5282	0.0007
-40	0.2613	0.5282	0.0007	0.2614	0.5281	0.0006
-39	0.2615	0.5282	0.0007	0.2614	0.5281	0.0006
-38	0.2612	0.5282	0.0007	0.2613	0.5281	0.0006
-37	0.2614	0.5282	0.0007	0.2615	0.5281	0.0006
-36	0.2614	0.5281	0.0006	0.2615	0.5281	0.0006
-35	0.2615	0.5281	0.0006	0.2615	0.5281	0.0006
-34	0.2613	0.5281	0.0006	0.2614	0.528	0.0005
-33	0.2613	0.5281	0.0006	0.2614	0.528	0.0005
-32	0.2614	0.5281	0.0006	0.2616	0.528	0.0005
-31	0.2614	0.528	0.0005	0.2616	0.528	0.0005
-30	0.2614	0.528	0.0005	0.2613	0.5279	0.0004
-29	0.2614	0.528	0.0005	0.2613	0.5279	0.0004
-28	0.2613	0.5279	0.0004	0.2613	0.5279	0.0004
-27	0.2613	0.5279	0.0004	0.2614	0.5278	0.0003
-26	0.2613	0.5279	0.0004	0.2614	0.5278	0.0003
-25	0.2614	0.5279	0.0004	0.2616	0.5278	0.0004
-24	0.2614	0.5279	0.0004	0.2613	0.5278	0.0003
-23	0.2614	0.5278	0.0003	0.2613	0.5277	0.0002
-22	0.2613	0.5278	0.0003	0.2613	0.5277	0.0002
-21	0.2613	0.5278	0.0003	0.2613	0.5277	0.0002



-20	0.2613	0.5277	0.0002	0.2613	0.5276	0.0001
-19	0.2613	0.5277	0.0002	0.2612	0.5276	0.0002
-18	0.2613	0.5277	0.0002	0.2612	0.5276	0.0002
-17	0.2613	0.5277	0.0002	0.2612	0.5276	0.0002
-16	0.2612	0.5276	0.0002	0.2613	0.5276	0.0001
-15	0.2614	0.5276	0.0001	0.2613	0.5275	0.0001
-14	0.2613	0.5276	0.0001	0.2613	0.5275	0.0001
-13	0.2614	0.5276	0.0001	0.2613	0.5275	0.0001
-12	0.2613	0.5276	0.0001	0.2613	0.5275	0.0001
-11	0.2613	0.5275	0.0001	0.2613	0.5275	0.0001
-10	0.2613	0.5275	0.0001	0.2613	0.5275	0.0001
-9	0.2613	0.5275	0.0001	0.2613	0.5274	0.0001
-8	0.2613	0.5275	0.0001	0.2612	0.5274	0.0002
-7	0.2612	0.5275	0.0002	0.2612	0.5274	0.0002
-6	0.2613	0.5274	0.0001	0.2612	0.5274	0.0002
-5	0.2613	0.5274	0.0001	0.2612	0.5274	0.0002
-4	0.2612	0.5274	0.0002	0.2612	0.5274	0.0002
-3	0.2612	0.5274	0.0002	0.2612	0.5274	0.0002
-2	0.2612	0.5274	0.0002	0.2612	0.5274	0.0002
-1	0.2612	0.5274	0.0002	0.2612	0.5274	0.0002
0	0.2614	0.5275	0	0.2614	0.5275	0
1	0.2612	0.5274	0.0002	0.2612	0.5274	0.0002
2	0.2612	0.5274	0.0002	0.2612	0.5274	0.0002
3	0.2612	0.5274	0.0002	0.2612	0.5274	0.0002
4	0.2612	0.5274	0.0002	0.2612	0.5274	0.0002
5	0.2612	0.5274	0.0002	0.2612	0.5274	0.0002
6	0.2613	0.5274	0.0001	0.2612	0.5274	0.0002
7	0.2612	0.5274	0.0002	0.2613	0.5274	0.0001
8	0.2612	0.5275	0.0002	0.2612	0.5275	0.0002
9	0.2613	0.5275	0.0001	0.2613	0.5275	0.0001
10	0.2613	0.5275	0.0001	0.2613	0.5275	0.0001
11	0.2613	0.5275	0.0001	0.2613	0.5275	0.0001
12	0.2613	0.5275	0.0001	0.2613	0.5276	0.0001
13	0.2613	0.5275	0.0001	0.2613	0.5276	0.0001
14	0.2613	0.5276	0.0001	0.2613	0.5276	0.0001
15	0.2613	0.5276	0.0001	0.2614	0.5276	0.0001
16	0.2613	0.5276	0.0001	0.2613	0.5276	0.0001
17	0.2614	0.5276	0.0001	0.2614	0.5277	0.0002
18	0.2614	0.5277	0.0002	0.2614	0.5277	0.0002
19	0.2614	0.5277	0.0002	0.2614	0.5277	0.0002
20	0.2614	0.5277	0.0002	0.2614	0.5277	0.0002

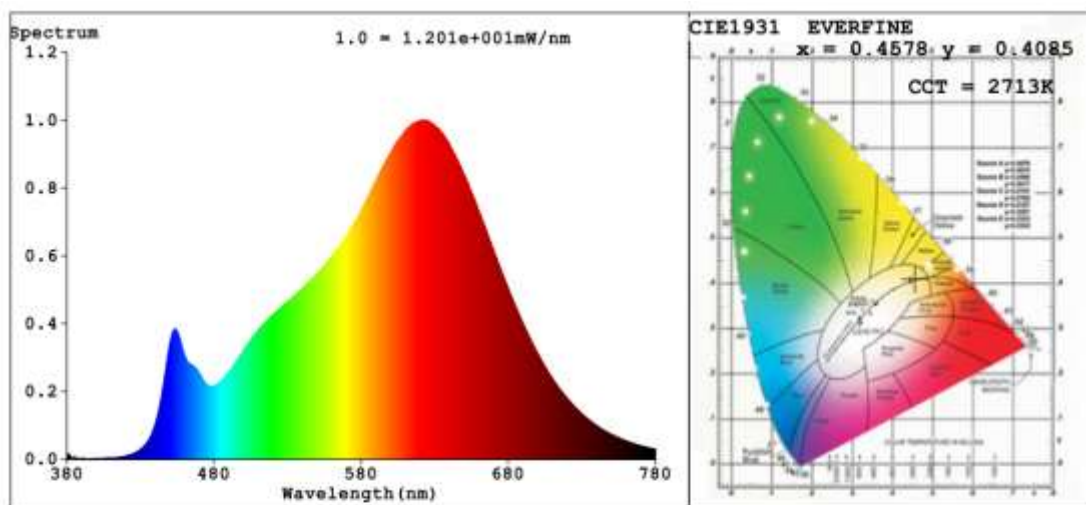


21	0.2614	0.5277	0.0002	0.2614	0.5278	0.0003
22	0.2614	0.5277	0.0002	0.2615	0.5278	0.0003
23	0.2614	0.5278	0.0003	0.2615	0.5278	0.0003
24	0.2615	0.5278	0.0003	0.2615	0.5278	0.0003
25	0.2615	0.5278	0.0003	0.2615	0.5279	0.0004
26	0.2615	0.5278	0.0003	0.2616	0.5279	0.0004
27	0.2615	0.5279	0.0004	0.2615	0.5279	0.0004
28	0.2615	0.5279	0.0004	0.2614	0.5279	0.0004
29	0.2615	0.5279	0.0004	0.2614	0.528	0.0005
30	0.2614	0.5279	0.0004	0.2614	0.528	0.0005
31	0.2614	0.528	0.0005	0.2614	0.528	0.0005
32	0.2614	0.528	0.0005	0.2614	0.528	0.0005
33	0.2614	0.528	0.0005	0.2615	0.528	0.0005
34	0.2614	0.528	0.0005	0.2615	0.5281	0.0006
35	0.2614	0.528	0.0005	0.2615	0.5281	0.0006
36	0.2614	0.5281	0.0006	0.2615	0.5281	0.0006
37	0.2614	0.5281	0.0006	0.2613	0.5281	0.0006
38	0.2614	0.5281	0.0006	0.2613	0.5281	0.0006
39	0.2613	0.5281	0.0006	0.2613	0.5281	0.0006
40	0.2613	0.5281	0.0006	0.2613	0.5282	0.0007
41	0.2613	0.5281	0.0006	0.2613	0.5282	0.0007
42	0.2613	0.5282	0.0007	0.2613	0.5282	0.0007
43	0.2613	0.5281	0.0006	0.2611	0.5281	0.0007
44	0.2613	0.5282	0.0007	0.2611	0.5281	0.0007
45	0.261	0.5281	0.0007	0.2611	0.5281	0.0007
46	0.261	0.5281	0.0007	0.261	0.5281	0.0007
47	0.261	0.5281	0.0007	0.2608	0.5281	0.0008
48	0.261	0.5281	0.0007	0.2608	0.5281	0.0008
49	0.2608	0.5281	0.0008	0.2607	0.5281	0.0009



<b>2.4 Electrical and Photometric Measurements, with dimming</b>	<b>IES LM-79 2008 ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2</b>
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<b>Test date</b>	2020-04-22	<b>Test Ambient:</b>	25.1°C
<b>Dimmer Technology</b>		Forward phase-cut	
<b>Sample No.</b>		<b>Maximum Level</b>	<b>Minimum Level</b>
JCE200410-C1	Input: 120.0 V / 60 Hz	Light outout(Lumen)	646.8
		Percentage	94.20%
			52.00
			8.03%



**Colorimetric Parameters**

Chromaticity Coordinate:  $x=0.4578$   $y=0.4085$  /  $u'=0.2621$   $v'=0.5263$   
 CCT=2713K (Duv=-0.0006) Dominant WL:  $\lambda_d = 584.3\text{nm}$  Purity=60.0%  
 Peak WL:  $\lambda_p = 623.7\text{nm}$  FWHM=141.4nm  
 Render Index:  $R_a = 93.1$  Render Index: AvgR = 90.9  
 R1 =94 R2 =99 R3 =97 R4 =93 R5 =94 R6 =97 R7 =90  
 R8 =80 R9 =58 R10=96 R11=95 R12=86 R13=96 R14=100 R15=89

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
LUTRON MACL-153M	21.5	Dimmer adjusted to lowest light output	< 1 m



<b>2.5 Flicker</b>	<b>NEMA 77-2017 ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2</b>
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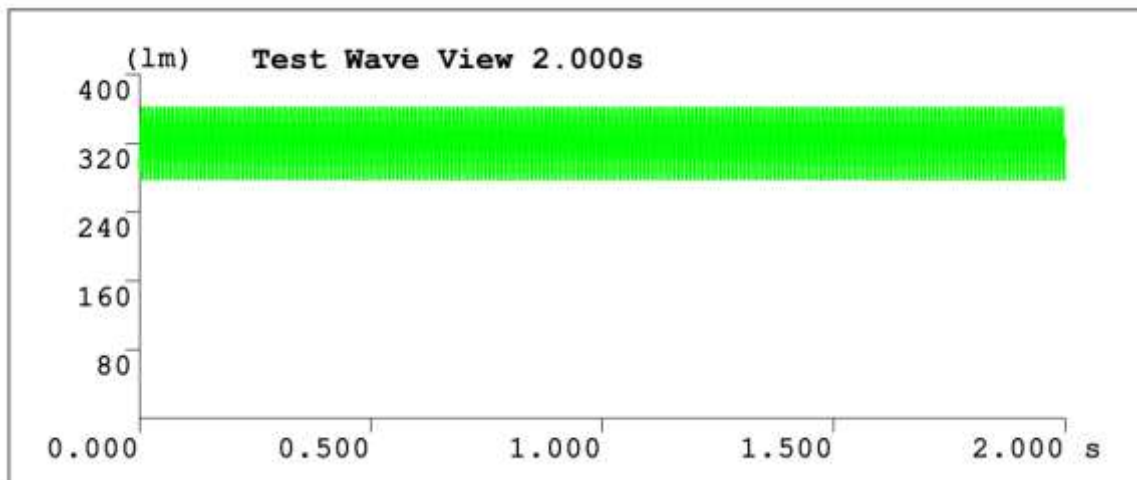
<b>Dimming Technology</b>	phase-cut
<b>Dimmer</b>	LUTRON MACL-153M

Item	Short Term Flicker Indicator (Pst)	Stroboscopic Visibility Measure (SVM)
<b>Maximum conduction</b>	0.048	0.543
<b>Intermediate conduction</b>	0.103	0.691
<b>Minimum conduction</b>	0.670	0.870



<b>2.6 Operating Frequency</b>	<b>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2</b>
<b>Noted: This test and data are not covered by A2LA accreditation</b>	

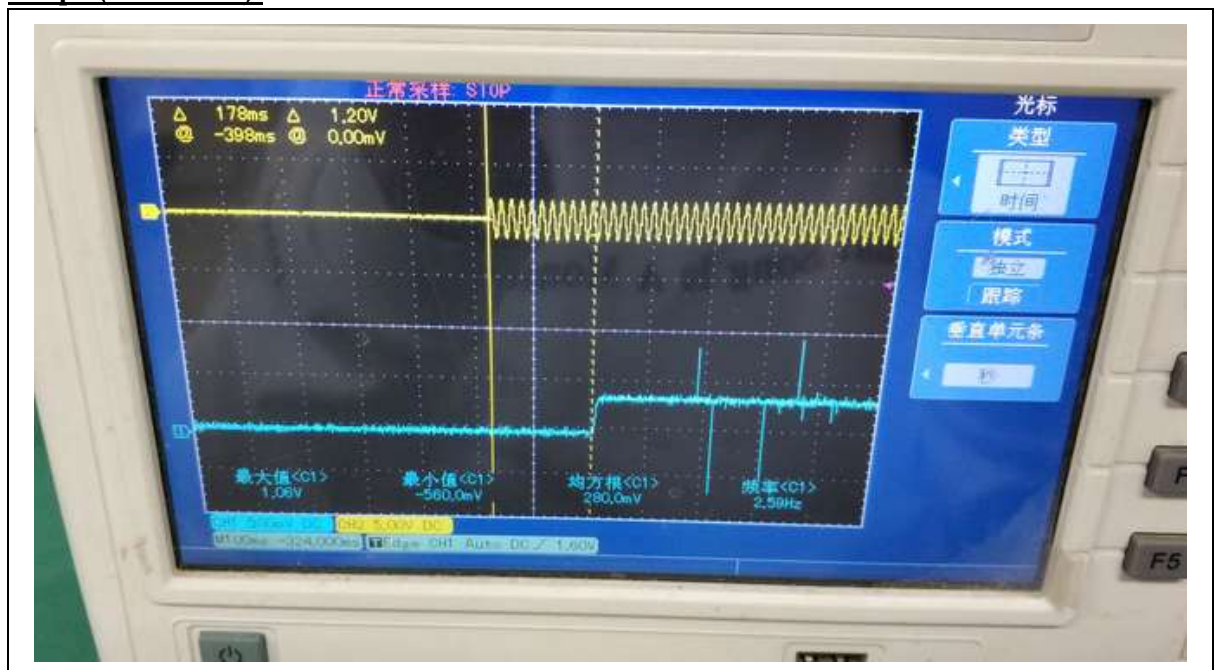
Test date	2020-04-22	Test Ambient:	25.1°C
<b>Sample No.</b>	<b>Operating Frequency (Hz)</b>		
JCE200410-C1	120.17		



<b>2.7 Starting Time</b> <i>(Refer to Work Instruction QD28)</i>	<b>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2</b>
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Test date	2020-04-22	Test Ambient:	25.1°C
Sample No.	Start Time (ms)		
JCE200410-C1	178		

**Graph (Start Time):**





<b>2.8 Transient Protection Test</b> <i>(Refer to Work Instruction QD34)</i>	<b>ANSI/IEEE C62.41</b> <b>ENERGY STAR® Program Requirements</b> <b>for Luminaires – Version 2.2</b>
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**Test voltage: 120V,60Hz**

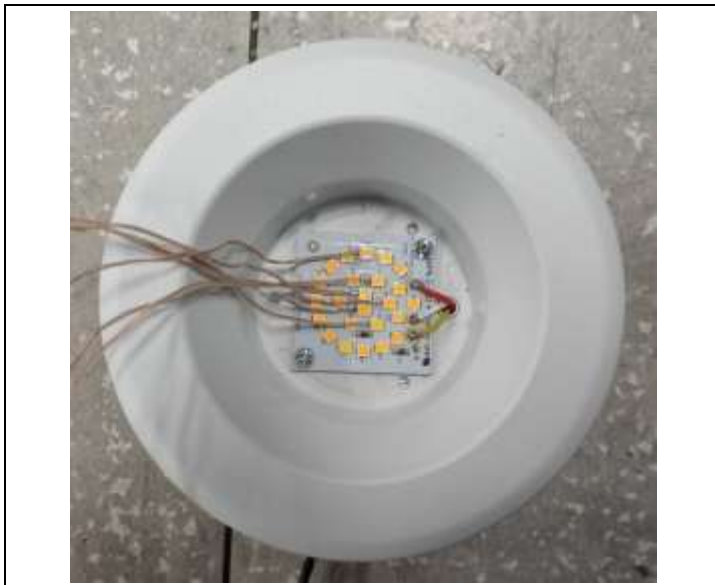
Test date	2020-04-22	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
JCE200410-C1		Survival	



<b>2.9 In-Situ Temperature Measurement Test (ISTMT)</b>	<b>UL1598-2008, 3<sup>rd</sup> Edition</b>
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Test date	2020-04-22	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	43.75
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum permitted Ts temperature for L70 ≥ 50,000 hrs (°C)
JCE200410-C1	SAWxA32E-xx	63.2	105

**In-Situ Picture - Ts:**





<b>2.10 Maximum Measured Ballast or Driver Case Temperature</b>	<b>UL1598-2008, 3<sup>rd</sup> Edition</b>
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Test date	2020-04-22	Test Ambient	25.1°C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
JCE200410-C1	45.3	105	

**In-Situ Picture - Ts:**





<b>2.11 Off-State Power Consumption:</b>	<b>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2</b>
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<b>Test date</b>	2020-04-22	<b>Test Ambient:</b>	25.0 °C
<b>Model Number</b>	LRKT3570W/3573W-EN-3C T-27-35(0%,2700K)	<b>Stabilization Time (min)</b>	90

**Electrical Measurement – when the luminaires turned off:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)
JCE200410-C1	120.0	60	0	0



**3. Test Equipment**

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-702	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-701	Spectral analysis system HAAS-2000	Verified by D204 standard lamp	
ST-R-705	D204 Standard Lamp	2020-02-06	2021-02-05
ST-R-704	Power Meter for Integrating Sphere	2020-01-05	2021-01-04
ST-R-714	Goniophotometer system	Verified by D908S standard lamp	
ST-R-710	D908S Standard Lamp	2020-02-11	2021-02-10
ST-R-711	Power Meter for Goniophotometer	2020-01-05	2021-01-04
ST-R-720	Digital Luxmeter	2020-01-05	2021-01-04
ST-R-622	Oscillograph	2020-01-05	2021-01-04
ST-R-721	EMS61000-12C	2020-01-05	2021-01-04
ST-R-725	LFA-3000	2020-01-05	2021-01-04
Uncertainty Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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