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ShenZhen Xin An Biao Technology Service Co. Ltd Testing Center

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Energy Star Test Report

For

L-TECH CORPORATION

(Brand Name:N/A)

Shaogangtou District, Qiaotou Town，Dongguan City

Model name(s): LRKT567EN-5CCT

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:	2021-06-07

Test & Report By:

Garman Mo

Engineer: Garman Mo

Review By:

Johnson Sun

Manager: Johnson Sun

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.
3.This report contains data that are not covered by the A2LA accreditation.

1.1 Product Information:		
Model Number	LRKT567EN-5CCT	
Remark	N/A	
Representative (Tested) Model	LRKT567EN-5CCT(2700K) LRKT567EN-5CCT(3000K) LRKT567EN-5CCT(3500K) LRKT567EN-5CCT(4000K) LRKT567EN-5CCT(5000K)	
Model Difference	N/A	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Downlight retrofits	
LED Manufacturer	EVERLIGHT ELECTRONICS CO., LTD	
LED Model	67-21S Series	
Dimming	10%-100%	
Sample Number	JCE210313-DL-I1	
Date of Receipt	Apr.05,2021	
Luminaire Aperture (for Downlight retrofits)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s
Recessed Can Model	H400/H400R	
Recessed Can UL File/Cert. No.	E252582	
Recessed Can Diameter, mm	4”	
Recessed Can Height, mm	5”	

1.2 Rated Values:	
Rated Voltage / Frequency	120Vac, 50/60Hz
Nominal Power	13W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,3500K,4000K,5000K

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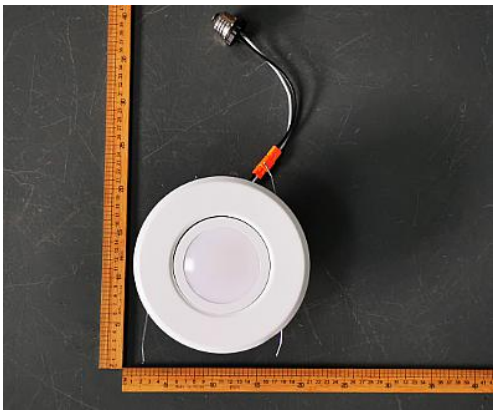
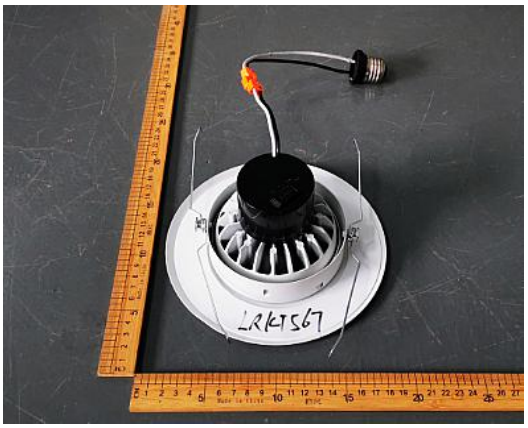
1.3 Product Photos





1.4 Test Specifications:

Test item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters 8. Color Angular Uniformity 9. Dimming 10. Flicker 11. Operating Frequency 12. Starting Time 13. Transient Protection Test 14. In-Situ Temperature Measurement Test 15. Standby Power Consumption
Reference Standard	1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2015 Specifications for the Chromaticity of Solid State Lighting Products 3. C82.77-10:2014 American National Standard for Lighting Equipment-Harmonic Emission Limits-Related Power Quality Requirements 4. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 5. CIE 15-2004 Technical Report Colorimetry 6. UL1993 4th Edition, Self-Ballasted Lamps and Lamp Adapters 7. ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) – Version 2.2 8. ANSI/IEEEE C62.41.2:2002 IEEE Recommended Practice on Characterization of Surges in Low-Voltage(1000V and Less) AC Power Circuits 9. IEC 62301:2011Household electrical appliances - Measurement of standby power 10. NEMA 77-2017 Standard for Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria
Remark	Below test and data are not covered by A2LA accreditation: - Operating Frequency - Noise

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° 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 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° vertical intervals and 22.5° 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 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 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 25º C ± 1º 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.

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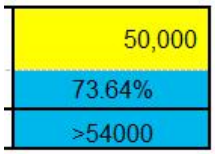
2.1 Summary of Test Result

Criteria Item	The Type of Luminaires	Requirement (ES for Luminaires V2.2)	Measured Value	Status
Input Wattage	All	≤ Rated Wattage	11.71W	Pass
Luminous Efficacy	Downlight retrofits	≥60 lm/W	86.06lm/W	Pass
Luminaire Minimum Light Output	Downlight retrofits	⩽ 4.5" aperture: 345 lumens > 4.5" aperture: 575 lumens	1007.8lm	Pass
Correlated Color Temperature (CCT)	Downlight retrofits	Shall be capable of providing at least one of the following nominal correlated color temperatures (CCTs): • 2700 Kelvin • 3000 Kelvin • 3500 Kelvin • 4000 Kelvin • 5000 Kelvin	2716K Duv=0.0001	Pass
Color Rendering Index (CRI)	Downlight retrofits	Ra ≥ 80 R9 >0	Ra =91.8 R9 =60	Pass
Luminaire Zonal Lumen Density	Downlight retrofits	Luminaire shall deliver a minimum of 75% of total lumens within the 0-60° zone (axially symmetric about the nadir)	78.7	Pass
Color Angular Uniformity	Downlight retrofits	Throughout the beam angle, the variation of chromaticity shall be within a total linear distance of 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	50,000 73.64% >54000	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	Downlight retrofits	Δu'v' ≤ 0.007	Max.0.00665 in LM-80 report*	Pass
Source Start Time	Downlight retrofits	<750 ms	92.0ms	Pass
Power Factor	Solid State	Total luminaire input power ≤ 5 watts: PF ≥ 0.5 Total luminaire input power > 5 watts: PF ≥ 0.7	0.967	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 ≥ 120 Hz	120.001Hz	Pass
Maximum Measured Driver Case Temperature	Solid State	shall not exceed the driver manufacturer's maximum recommended temperature during in situ operation. ≤ 105 °C	84.8°C	Pass
Maximum In-Situ Source Temperature	Solid State	Maximum permitted Ts temperature for L70≥50,000 hrs ≤ 105°C	80.5°C	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	Validated	Pass

		noise above 24dBA at 1 meter or less at the minimum output.		
CCT	Solid State	Packaging shall clearly describe the nominal color designation in units of Kelvin (e.g. 2700K, 3000K).	2700K,3000K,3500K,4000K,5000K	Pass

Note: The information or data with an "*" are provided by the manufacturer.

Our laboratory has no responsibility for the decision of compliance with specification that based on the data or information with the "*".

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2.2.1 Electrical, Photometric and Chromaticity Measurements	IES LM-79 2008

Test date	2021-04-08	Test Ambient:	25±1° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LRKT567EN-5CCT(2700 K)	Total Operating Time (min)	75

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
JCE210313-DL-I1	120.0	60	0.101	11.71	0.967

Sphere-Spectroradiometer Method(Self-absorption:1.0504):

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	91.8
R9	60
CCT (K)	2716
Duv	0.0001

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1007.8
Luminous Efficacy (lm/W)	86.06
Beam Angle°	104.8
Center Beam Candle Power (cd)	376

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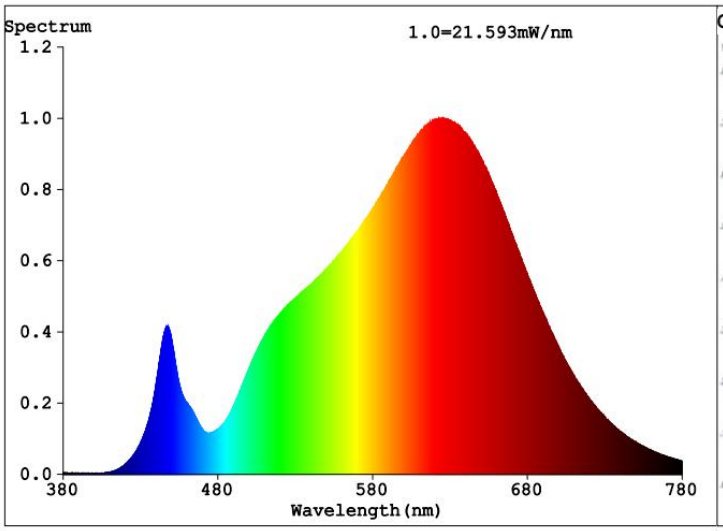
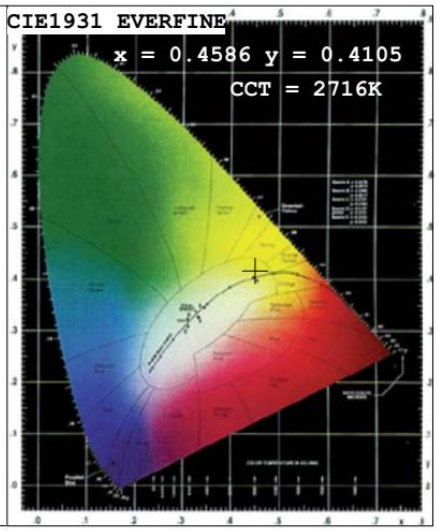
Spectral Power Distribution and Chromaticity Diagram





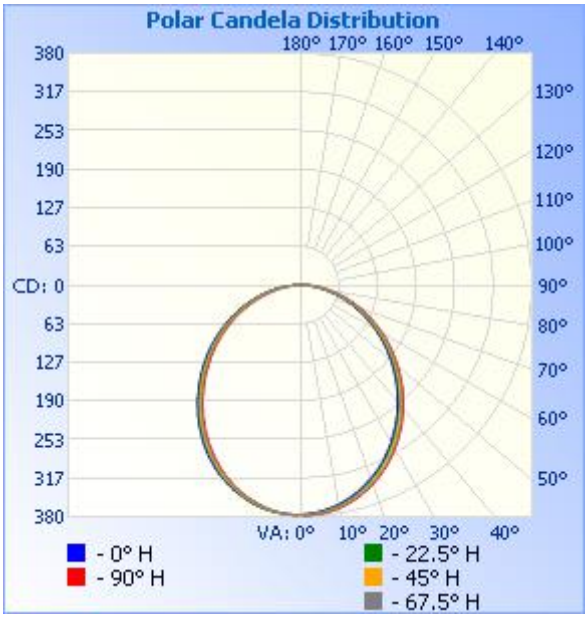
Colorimetric Parameters

Color Parameters:

Chromaticity Coordinate:x=0.4586 y=0.4105/u'=0.2618 v'=0.5271
CCT=2716K(Duv=0.0001) Dominant WL:Ld =584.1nm WL:Lc = --nm Purity=60.9%
Ratio:R=26.2% G=71.8% B=2.0% Peak WL:Lp=625.0nm FWHM=153.9nm
Render Index:Ra=91.8 AvgR=89.0 TM30:Rf=90 Rg=102

R1 =92	R2 =94	R3 =95	R4 =93	R5 =92	R6 =93	R7 =92	
R8 =82	R9 =60	R10=86	R11=94	R12=82	R13=93	R14=97	R15=88

Zonal Lumen Tabulation



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	285.6	28.3%
0-40	460.9	45.7%
0-60	792.6	78.7%
60-90	212.2	21.1%
70-100	95.4	9.5%
90-120	1.5	0.1%
0-90	1,004.8	99.7%
90-180	2.9	0.3%
0-180	1,007.7	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	35.5	3.5%	90-100	0.7	0.1%
10-20	100.6	10.0%	100-110	0.4	0%
20-30	149.5	14.8%	110-120	0.4	0%
30-40	175.3	17.4%	120-130	0.4	0%
40-50	176.3	17.5%	130-140	0.3	0%
50-60	155.3	15.4%	140-150	0.3	0%
60-70	117.5	11.7%	150-160	0.2	0%
70-80	70.0	7.0%	160-170	0.2	0%
80-90	24.7	2.5%	170-180	0.1	0%

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
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98	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1
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100	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1
101	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1
102	1	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	1
103	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	1
104	1	0	1	0	1	0	0	0	0	0	0	0	0	1	1	1	1
105	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
106	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
107	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0
108	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1
109	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
110	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1
111	1	0	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1
112	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1
113	0	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0
114	0	1	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0
115	1	0	1	1	1	0	0	0	0	0	0	0	0	1	0	1	1
116	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0
117	0	0	1	0	1	0	0	0	0	0	0	0	0	1	1	1	0
118	0	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0	0
119	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	1
120	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	1
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123	1	1	0	1	1	0	0	0	0	0	0	0	0	0	1	1	1
124	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1
125	1	1	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1
126	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1

127	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
128	1	1	0	1	1	0	0	0	0	0	0	0	0	1	1	1	1
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139	1	1	1	1	1	0	1	0	0	0	0	0	0	0	1	1	1
140	1	1	1	1	1	0	0	0	0	0	0	1	0	1	1	1	1
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153	1	1	1	1	1	1	0	1	1	0	0	1	1	1	1	1	1
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155	1	1	1	1	1	0	0	0	0	1	0	1	0	1	1	1	1
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157	1	1	1	1	1	1	1	0	1	1	1	0	0	1	1	1	1
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159	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1
160	1	1	1	1	1	1	0	0	1	1	0	1	1	1	1	1	1
161	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1
162	1	1	1	1	1	0	1	1	0	1	0	1	1	1	1	1	1
163	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1
164	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1
165	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1
166	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1
167	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
168	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1
169	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1
170	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
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174	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
175	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
176	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
177	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
178	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
179	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
180	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

2.2.2 Electrical, Photometric and Chromaticity Measurements	IES LM-79 2008

Test date	2021-04-08	Test Ambient:	25±1° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LRKT567EN-5CCT(3000 K)	Total Operating Time (min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
JCE210313-DL-I1	120.0	60	0.103	11.70	0.945

Sphere-Spectroradiometer Method(Self-absorption:1.0504):

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	93.0
R9	66
CCT (K)	2968
Duv	-0.0018

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1020
Luminous Efficacy (lm/W)	87.16

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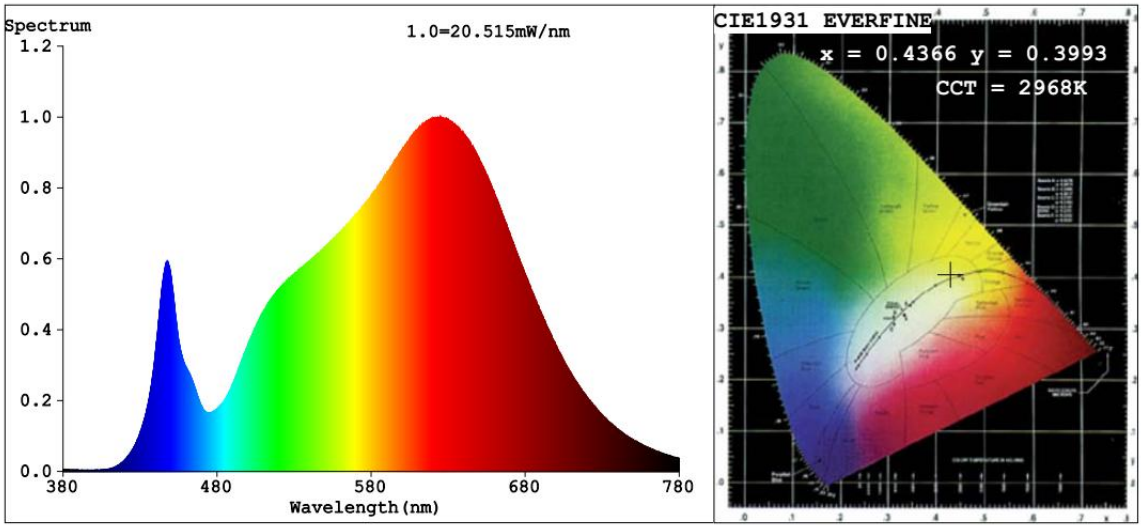
Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Color Parameters:

Chromaticity Coordinate:x=0.4366 y=0.3993/u'=0.2524 v'=0.5195
CCT=2968K(Duv=-0.0018) Dominant WL:Ld =583.6nm WL:Lc = --nm Purity=50.9%
Ratio:R=24.6% G=72.8% B=2.5% Peak WL:Lp=625.0nm FWHM=167.6nm
Render Index:Ra=93.0 AvgR=90.5 TM30:Rf=90 Rg=103

R1 =94	R2 =95	R3 =95	R4 =94	R5 =94	R6 =94	R7 =93	
R8 =85	R9 =66	R10=88	R11=94	R12=83	R13=94	R14=97	R15=91

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2.2.3 Electrical, Photometric and Chromaticity Measurements	IES LM-79 2008

Test date	2021-04-08	Test Ambient:	25±1° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LRKT567EN-5CCT(3500 K)	Total Operating Time (min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
JCE210313-DL-I1	120.0	60	0.103	11.72	0.945

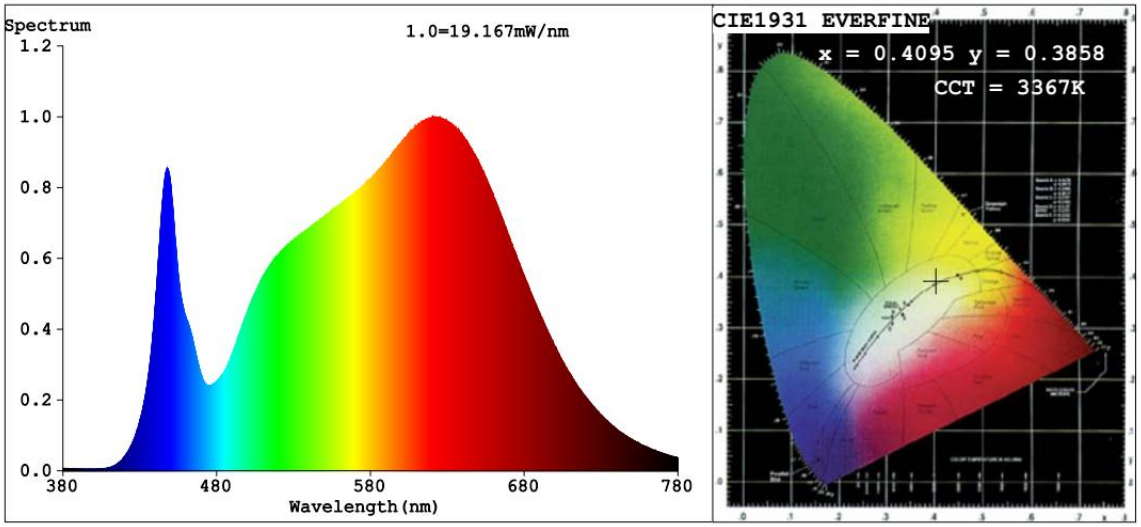
Sphere-Spectroradiometer Method(Self-absorption:1.0504):

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	94.0
R9	73
CCT (K)	3367
Duv	-0.0031

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1042
Luminous Efficacy (lm/W)	88.91

Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Color Parameters:

Chromaticity Coordinate:x=0.4095 y=0.3858/u'=0.2405 v'=0.5098

CCT=3367K(Duv=-0.0031) Dominant WL:Ld =582.7nm WL:Lc = --nm Purity=38.7%

Ratio:R=22.6% G=74.2% B=3.2% Peak WL:Lp=620.7nm FWHM=179.8nm

Render Index:Ra=94.0 AvgR=91.8 TM30:Rf=91 Rg=103

R1 =96	R2 =96	R3 =94	R4 =94	R5 =95	R6 =94	R7 =94	
R8 =89	R9 =73	R10=89	R11=94	R12=82	R13=96	R14=96	R15=94

2.2.4 Electrical, Photometric and Chromaticity Measurements	IES LM-79 2008

Test date	2021-04-08	Test Ambient:	25±1° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LRKT567EN-5CCT(4000 K)	Total Operating Time (min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
JCE210313-DL-I1	120.0	60	0.103	11.72	0.945

Sphere-Spectroradiometer Method(Self-absorption:1.0504):

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	94.4
R9	78
CCT (K)	3926
Duv	-0.0029

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1062
Luminous Efficacy (lm/W)	90.61

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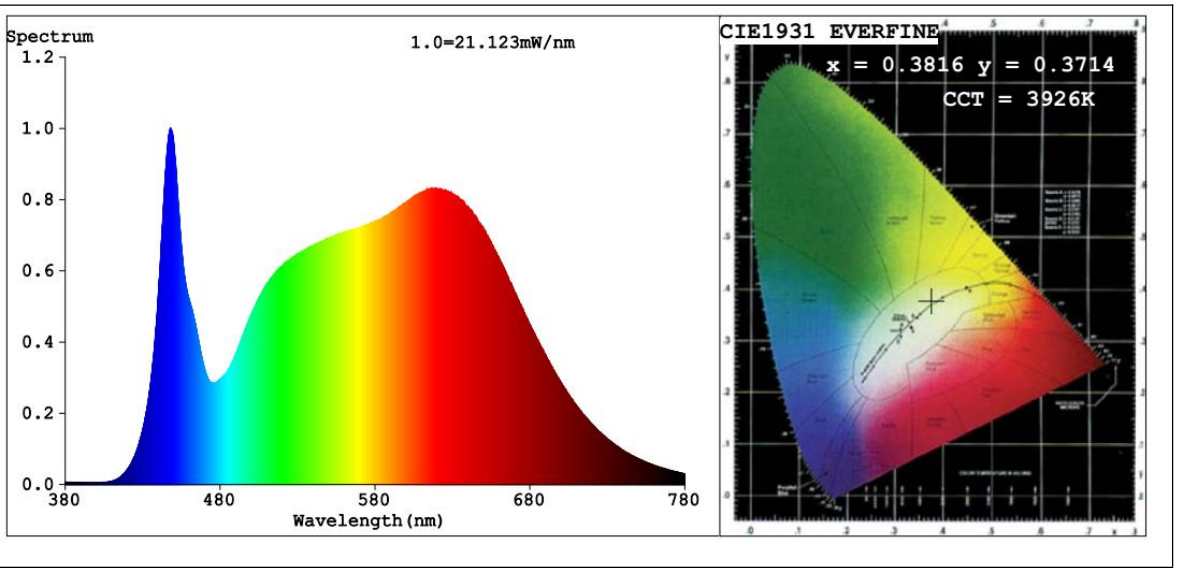
Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Color Parameters:

Chromaticity Coordinate:x=0.3816 y=0.3714/u'=0.2281 v'=0.4994
CCT=3926K(Duv=-0.0029) Dominant WL:Ld =581.0nm WL:Lc = --nm Purity=26.0%
Ratio:R=20.4% G=75.6% B=3.9% Peak WL:Lp=447.9nm FWHM=21.6nm
Render Index:Ra=94.4 AvgR=92.1 TM30:Rf=92 Rg=102

R1 =96	R2 =96	R3 =94	R4 =95	R5 =95	R6 =93	R7 =95	
R8 =92	R9 =78	R10=89	R11=94	R12=78	R13=96	R14=96	R15=95

2.2.5 Electrical, Photometric and Chromaticity Measurements	IES LM-79 2008

Test date	2021-04-08	Test Ambient:	25±1° C
Test Orientation	As intended	Stabilization Time (min)	60
Model Number	LRKT567EN-5CCT(5000 K)	Total Operating Time (min)	61

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
JCE210313-DL-I1	120.0	60	0.103	11.70	0.945

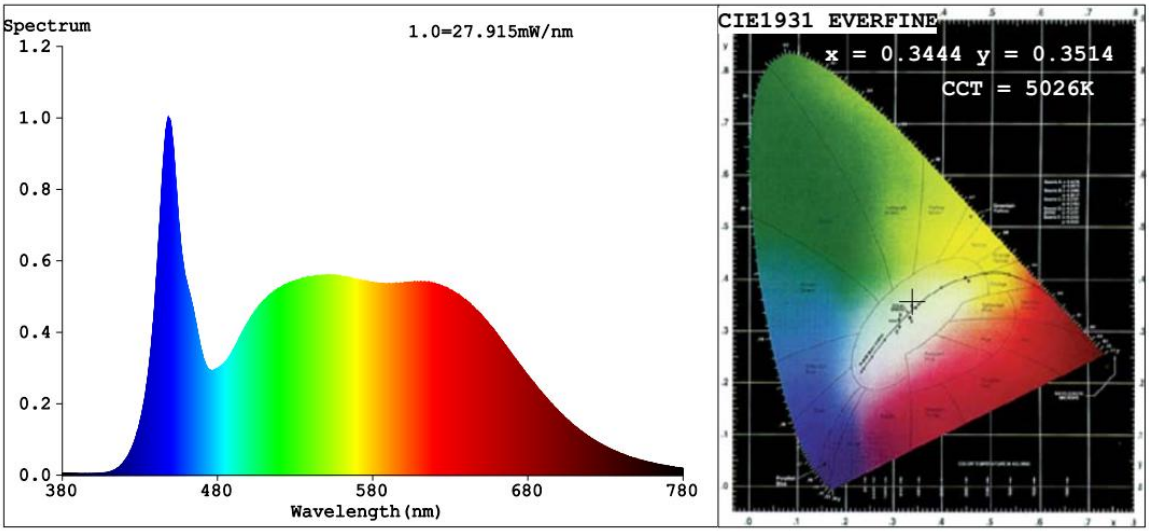
Sphere-Spectroradiometer Method(Self-absorption:1.0504):

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	93.0
R9	73
CCT (K)	5026
Duv	0.0002

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1076
Luminous Efficacy (lm/W)	91.97

Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Color Parameters:

Chromaticity Coordinate:x=0.3444 y=0.3514/u'=0.2110 v'=0.4844
CCT=5026K(Duv=0.0002) Dominant WL:Ld =572.2nm WL:Lc = --nm Purity=8.8%
Ratio:R=17.3% G=77.7% B=5.0% Peak WL:Lp=448.5nm FWHM=22.6nm
Render Index:Ra=93.0 AvgR=90.3 TM30:Rf=91 Rg=101

R1 =94	R2 =94	R3 =92	R4 =94	R5 =94	R6 =91	R7 =94	
R8 =91	R9 =73	R10=85	R11=94	R12=76	R13=94	R14=96	R15=94

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

Test Data:

Test date	2021-04-08	Test Ambient	25.1°C
Sample No.		Maximum Δu'v'	
JCE210313-DL-I1		0.0011	

C0				C90			
gamma	Δu'	Δv'	Δu'v'	gamma	Δu'	Δv'	Δu'v'
0	0.00036	0.00030	0.00047	0	0.00039	0.00006	0.00039
1	0.00036	0.00030	0.00047	1	0.00039	0.00006	0.00039
2	0.00036	0.00030	0.00047	2	0.00039	0.00006	0.00039
3	0.00036	0.00030	0.00047	3	0.00039	0.00006	0.00039
4	0.00040	0.00026	0.00048	4	0.00043	0.00003	0.00043
5	0.00040	0.00026	0.00048	5	0.00039	0.00006	0.00039
6	0.00034	0.00025	0.00042	6	0.00045	0.00008	0.00046
7	0.00040	0.00026	0.00048	7	0.00039	0.00006	0.00039
8	0.00040	0.00026	0.00048	8	0.00050	0.00004	0.00050
9	0.00040	0.00026	0.00048	9	0.00043	0.00003	0.00043
10	0.00040	0.00026	0.00048	10	0.00039	0.00006	0.00039
11	0.00034	0.00025	0.00042	11	0.00045	0.00008	0.00046
12	0.00045	0.00022	0.00050	12	0.00043	0.00003	0.00043
13	0.00038	0.00021	0.00043	13	0.00043	0.00003	0.00043
14	0.00045	0.00022	0.00050	14	0.00043	0.00003	0.00043
15	0.00038	0.00021	0.00043	15	0.00043	0.00003	0.00043
16	0.00038	0.00021	0.00043	16	0.00043	0.00003	0.00043
17	0.00043	0.00017	0.00046	17	0.00043	0.00003	0.00043
18	0.00043	0.00017	0.00046	18	0.00037	0.00001	0.00037
19	0.00032	0.00019	0.00037	19	0.00043	0.00003	0.00043
20	0.00036	0.00016	0.00039	20	0.00048	-0.00001	0.00048
21	0.00036	0.00016	0.00039	21	0.00037	0.00001	0.00037
22	0.00036	0.00016	0.00039	22	0.00041	-0.00003	0.00041
23	0.00036	0.00016	0.00039	23	0.00037	0.00001	0.00037
24	0.00036	0.00016	0.00039	24	0.00041	-0.00003	0.00041
25	0.00036	0.00016	0.00039	25	0.00041	-0.00003	0.00041
26	0.00036	0.00016	0.00039	26	0.00030	0.00000	0.00030
27	0.00034	0.00010	0.00036	27	0.00041	-0.00003	0.00041
28	0.00034	0.00010	0.00036	28	0.00035	-0.00004	0.00035
29	0.00028	0.00009	0.00029	29	0.00035	-0.00004	0.00035
30	0.00032	0.00005	0.00033	30	0.00028	-0.00006	0.00029
31	0.00032	0.00005	0.00033	31	0.00035	-0.00004	0.00035
32	0.00026	0.00003	0.00026	32	0.00028	-0.00006	0.00029
33	0.00026	0.00003	0.00026	33	0.00026	-0.00011	0.00029
34	0.00026	0.00003	0.00026	34	0.00022	-0.00007	0.00023
35	0.00017	-0.00004	0.00018	35	0.00020	-0.00013	0.00024
36	0.00017	-0.00004	0.00018	36	0.00013	-0.00014	0.00020
37	0.00022	-0.00007	0.00023	37	0.00018	-0.00018	0.00025
38	0.00015	-0.00009	0.00018	38	0.00018	-0.00018	0.00025
39	0.00009	-0.00010	0.00014	39	0.00011	-0.00020	0.00023
40	0.00009	-0.00010	0.00014	40	0.00005	-0.00021	0.00022
41	0.00007	-0.00016	0.00017	41	0.00009	-0.00025	0.00027
42	0.00011	-0.00020	0.00023	42	0.00003	-0.00026	0.00027
43	0.00000	-0.00017	0.00017	43	-0.00004	-0.00028	0.00028
44	0.00003	-0.00026	0.00027	44	-0.00006	-0.00033	0.00034
45	-0.00004	-0.00028	0.00028	45	-0.00012	-0.00035	0.00037
46	-0.00010	-0.00029	0.00031	46	-0.00012	-0.00035	0.00037
47	-0.00006	-0.00033	0.00034	47	-0.00014	-0.00040	0.00043
48	-0.00012	-0.00035	0.00037	48	-0.00021	-0.00042	0.00047
49	-0.00021	-0.00042	0.00047	49	-0.00023	-0.00047	0.00052
50	-0.00027	-0.00043	0.00051	50	-0.00020	-0.00056	0.00060
51	-0.00029	-0.00049	0.00057	51	-0.00037	-0.00055	0.00067

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C0				C90			
gamma	Δu'	Δv'	Δu'v'	gamma	Δu'	Δv'	Δu'v'
52	-0.00031	-0.00054	0.00062	52	-0.00033	-0.00059	0.00068
53	-0.00037	-0.00055	0.00067	53	-0.00041	-0.00066	0.00078

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C180				C270			
gamma	Δu'	Δv'	Δu'v'	gamma	Δu'	Δv'	Δu'v'
0	0.00036	0.00030	0.00047	0	0.00039	0.00006	0.00039
1	0.00036	0.00030	0.00047	1	0.00039	0.00006	0.00039
2	0.00031	0.00034	0.00046	2	0.00045	0.00008	0.00046
3	0.00031	0.00034	0.00046	3	0.00039	0.00006	0.00039
4	0.00036	0.00030	0.00047	4	0.00039	0.00006	0.00039
5	0.00031	0.00034	0.00046	5	0.00039	0.00006	0.00039
6	0.00031	0.00034	0.00046	6	0.00039	0.00006	0.00039
7	0.00031	0.00034	0.00046	7	0.00039	0.00006	0.00039
8	0.00027	0.00038	0.00046	8	0.00039	0.00006	0.00039
9	0.00020	0.00036	0.00041	9	0.00034	0.00010	0.00036
10	0.00027	0.00038	0.00046	10	0.00039	0.00006	0.00039
11	0.00020	0.00036	0.00041	11	0.00034	0.00010	0.00036
12	0.00020	0.00036	0.00041	12	0.00032	0.00005	0.00033
13	0.00016	0.00040	0.00043	13	0.00032	0.00005	0.00033
14	0.00016	0.00040	0.00043	14	0.00028	0.00009	0.00029
15	0.00016	0.00040	0.00043	15	0.00028	0.00009	0.00029
16	0.00016	0.00040	0.00043	16	0.00028	0.00009	0.00029
17	0.00009	0.00039	0.00040	17	0.00028	0.00009	0.00029
18	0.00016	0.00040	0.00043	18	0.00032	0.00005	0.00033
19	0.00009	0.00039	0.00040	19	0.00026	0.00003	0.00026
20	0.00009	0.00039	0.00040	20	0.00021	0.00007	0.00022
21	0.00009	0.00039	0.00040	21	0.00021	0.00007	0.00022
22	0.00009	0.00039	0.00040	22	0.00021	0.00007	0.00022
23	0.00009	0.00039	0.00040	23	0.00021	0.00007	0.00022
24	-0.00002	0.00041	0.00041	24	0.00015	0.00006	0.00016
25	-0.00002	0.00041	0.00041	25	0.00015	0.00006	0.00016
26	-0.00002	0.00041	0.00041	26	0.00015	0.00006	0.00016
27	-0.00008	0.00039	0.00040	27	0.00008	0.00004	0.00009
28	-0.00008	0.00039	0.00040	28	0.00013	0.00000	0.00013
29	-0.00013	0.00043	0.00045	29	0.00013	0.00000	0.00013
30	-0.00015	0.00038	0.00041	30	0.00006	-0.00001	0.00006
31	-0.00015	0.00038	0.00041	31	-0.00005	0.00001	0.00005
32	-0.00021	0.00036	0.00042	32	0.00000	-0.00003	0.00003
33	-0.00021	0.00036	0.00042	33	0.00000	-0.00003	0.00003
34	-0.00032	0.00039	0.00050	34	-0.00007	-0.00004	0.00008
35	-0.00028	0.00035	0.00045	35	-0.00007	-0.00004	0.00008
36	-0.00034	0.00033	0.00048	36	-0.00013	-0.00006	0.00014
37	-0.00034	0.00033	0.00048	37	-0.00009	-0.00010	0.00013
38	-0.00041	0.00032	0.00052	38	-0.00015	-0.00011	0.00019
39	-0.00047	0.00030	0.00056	39	-0.00017	-0.00016	0.00024
40	-0.00049	0.00025	0.00055	40	-0.00024	-0.00018	0.00030
41	-0.00049	0.00025	0.00055	41	-0.00024	-0.00018	0.00030
42	-0.00056	0.00024	0.00060	42	-0.00030	-0.00019	0.00036
43	-0.00056	0.00024	0.00060	43	-0.00037	-0.00021	0.00042
44	-0.00062	0.00022	0.00066	44	-0.00039	-0.00026	0.00047
45	-0.00062	0.00022	0.00066	45	-0.00041	-0.00032	0.00051
46	-0.00073	0.00010	0.00073	46	-0.00047	-0.00033	0.00058
47	-0.00083	0.00012	0.00084	47	-0.00049	-0.00039	0.00062
48	-0.00083	0.00012	0.00084	48	-0.00055	-0.00040	0.00068
49	-0.00090	0.00011	0.00091	49	-0.00057	-0.00045	0.00073
50	-0.00087	0.00002	0.00087	50	-0.00064	-0.00047	0.00079
51	-0.00100	-0.00001	0.00100	51	-0.00066	-0.00052	0.00084

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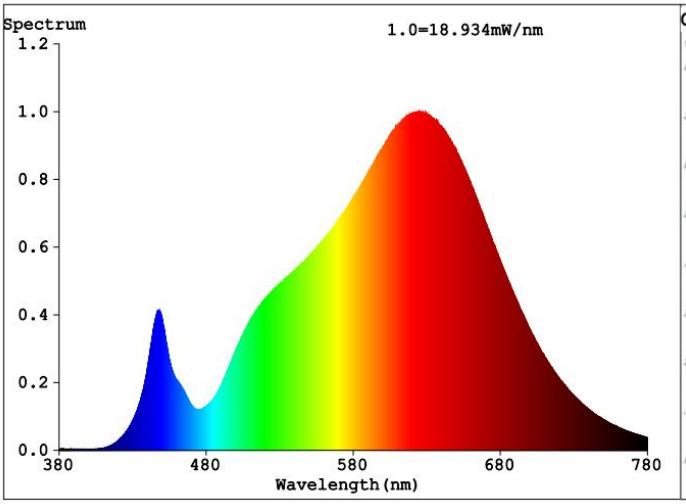
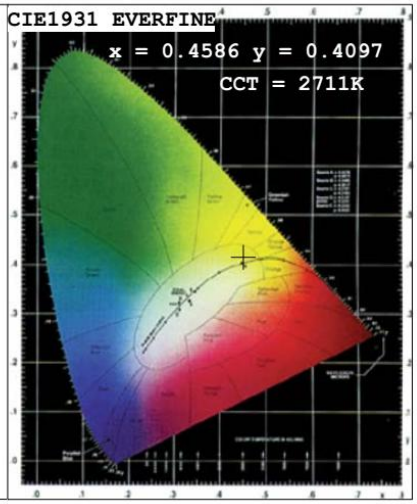
C180				C270			
gamma	Δu'	Δv'	Δu'v'	gamma	Δu'	Δv'	Δu'v'
52	-0.00102	-0.00007	0.00103	52	-0.00068	-0.00058	0.00089
53	-0.00109	-0.00008	0.00109	53	-0.00081	-0.00061	0.00101

2.4 Electrical and Photometric Measurements, with dimming	IES LM-79 2008 ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2
Noted: The noise test and data are not covered by A2LA accreditation	

Test date	2021-04-08		Test Ambient:	25±1° C
Dimmer Technology			Forward phase-cut	
Sample No.			Maximum Level	Minimum Level
JCE210313-DL-I1	Input: 120.0V / 60Hz	Light outout(Lumen)	925.5	61.24
		Percentage	91.83%	6.62%





Color Parameters:

Chromaticity Coordinate:x=0.4586 y=0.4097/u'=0.2621 v'=0.5268
CCT=2711K(Duv=-0.0002) Dominant WL:Ld =584.2nm WL:Lc = --nm Purity=60.6%
Ratio:R=26.2% G=71.7% B=2.1% Peak WL:Lp=625.0nm FWHM=152.9nm
Render Index:Ra=91.8 AvgR=89.0 TM30:Rf=90 Rg=102

R1 =92	R2 =94	R3 =96	R4 =93	R5 =92	R6 =94	R7 =92	
R8 =82	R9 =59	R10=86	R11=94	R12=83	R13=93	R14=97	R15=88

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

Dimmer Technology	Peak Noise Reading (dBA)	Test Condition	Distance between the microphone and the UUT
LUTRON MACL-153M	**14.0**	**Dimmer adjusted to lowest light output**	**< 1 m**

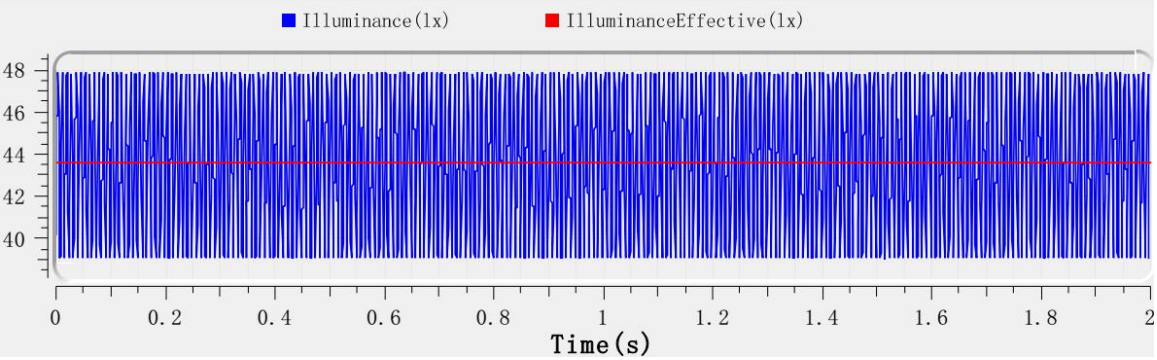
2.5 Flicker	**NEMA 77-2017** **ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2**

Dimming Technology	Forward phase-cut
Dimmer	LUTRON MACL-153M

Item	Short Term Flicker Indicator (Pst)	Stroboscopic Visibility Measure (SVM)
Maximum conduction	0.047	0.412
Intermediate conduction	0.122	0.637
Minimum conduction	0.474	0.375

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

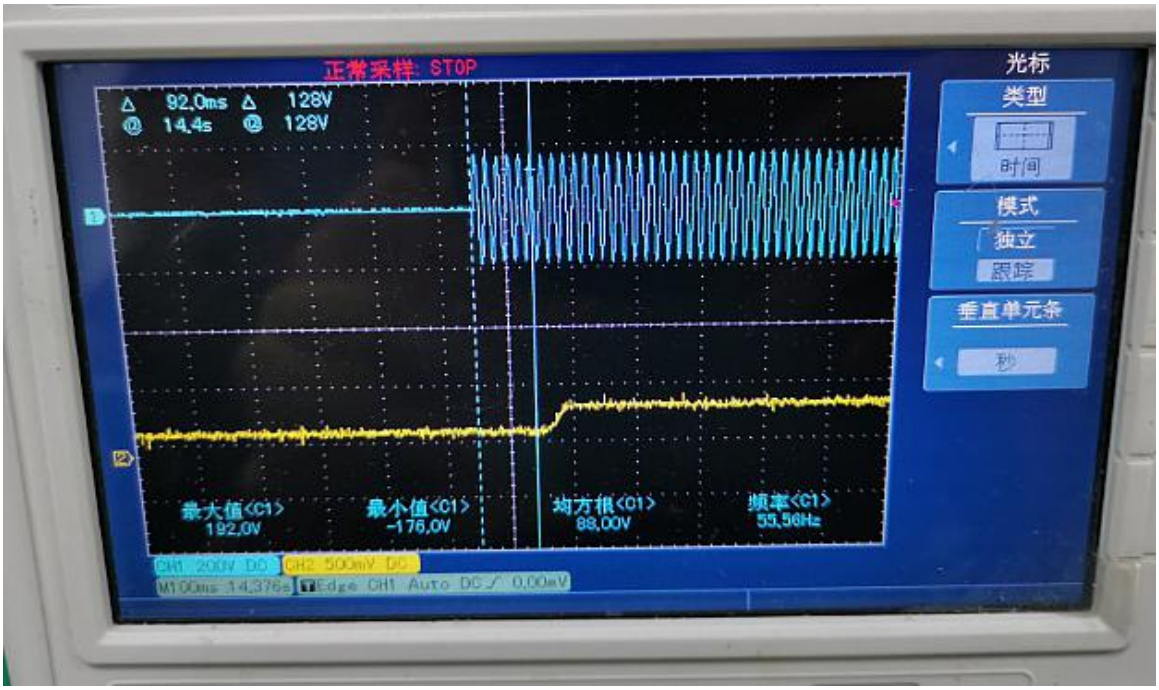
Test date	2021-04-08	Test Ambient:	25±1° C
Sample No.	Operating Frequency (Hz)		
JCE210313-DL-I1	120.001		



2.7 Starting Time	ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2

Test date	2021-04-08	Test Ambient:	25±1° C
Sample No.	**Start Time (ms)**		
JCE210313-DL-I1	92.0		

Graph (Start Time):



2.8 Transient Protection Test	ANSI/IEEE C62.41 ENERGY STAR® Program Requirements for Luminaires – Version 2.2

Test voltage: 120V,60Hz

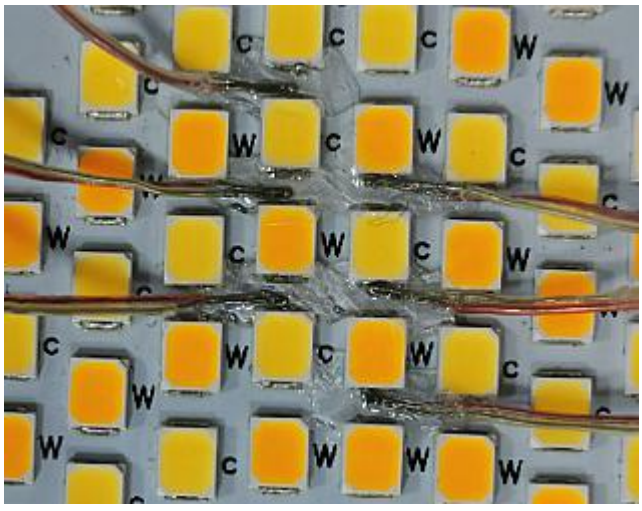
Test date	2021-04-08	Test Ambient	25±1° C
Sample No.		Transient Protection Test - Seven Strikes	
JCE210313-DL-I1		Survival	

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

Test date	2021-04-08	Test Ambient	25±5° C
Input Vol./Frequency	120.0V / 60Hz	Output Current of Single LED(mA)	127.5

Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum permitted Ts temperature for L70≥ 50,000 hrs (°C)
JCE210313-DL-I1	67-21S Series	80.5	105

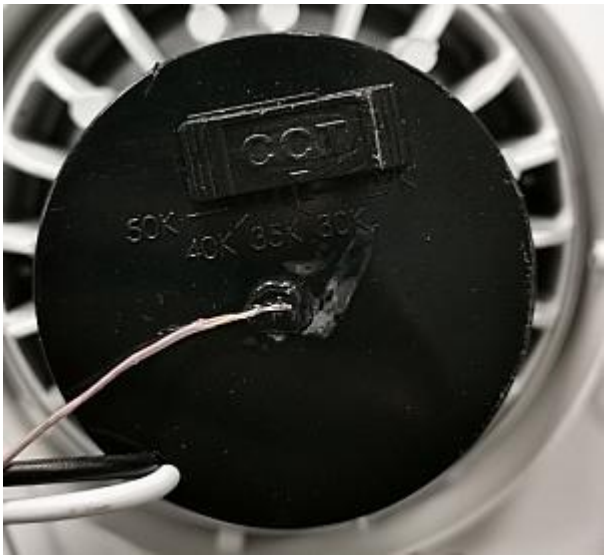
In-Situ Picture - Ts:



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

Test date	2021-04-08	Test Ambient	25±5° C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
JCE210313-DL-I1	84.8	105	

In-Situ Picture - Ts:



2.11 Standby Power Consumption:	ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2

Test date	2021-04-08	Test Ambient:	25±1° C
Model Number	LRKT567EN-5CCT(2700K)	Stabilization Time (min)	60

Electrical Measurement – when the luminaires turned off:

Sample No.	Standby Power Consumption(W):
JCE210313-DL-I1	0

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3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-S-451	2 meter Integrating Sphere	Verified by D204 standard lamp	
ST-R-S-455	Spectral analysis system HAAS-1200	Verified by D204 standard lamp	
ST-R-S-452	Standard Lamp D204	2021-04-15	2022-04-14
ST-R-S-453	Power Meter for Integrating Sphere	2021-04-08	2022-04-06
ST-R-S-407	Goniophotometer system	Verified by S1530039 standard lamp	
ST-R-S-410	Standard Lamp S1530039	2021-04-15	2022-04-14
ST-R-S-408	Power Meter for Goniophotometer	2021-04-08	2022-04-06
ST-R-S-027	Digital Luxmeter	2021-04-08	2022-04-07
ST-R-S-016	Oscillograph	2021-04-08	2022-04-06
ST-R-S-017	Probe	2021-04-08	2022-04-07
ST-R-361	ZLB61012X	2020-08-19	2021-08-20
ST-R-414	LFA-3000	2020-12-18	2021-12-17

Uncertainty:
Photometric Measurement (Sphere):2.72%, k=2
Chromaticity Measurement(Sphere):43.60K, k=2
Photometric Measurement(Goniophotometer): 3.44%, k=2

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