



Energy Star Test Report

For

LEDVANCE LLC

(Brand Name: SYLVANIA)

200 BALLARDVALE STREET WILMINGTON, MA 01887

Model name(s):

LEDRT3G550SC3

Report Type:

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

**Type of
Luminaire:**

Directional downlights

Report Date:

2021-11-12

Ningbo TengLi Testing Co., Ltd

Prepared By:

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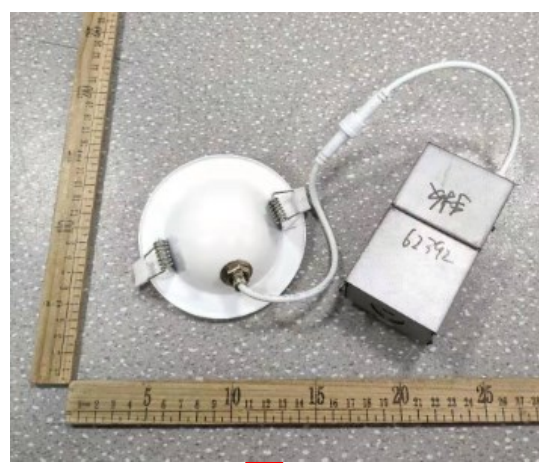
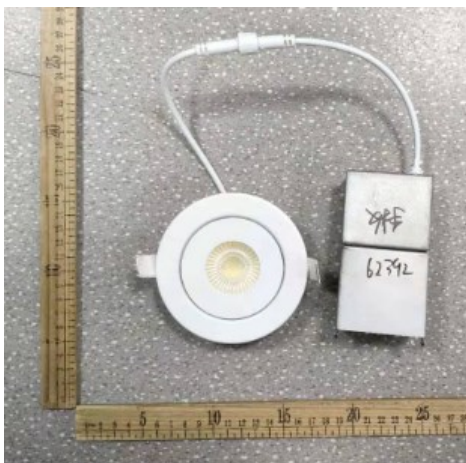
- Note: 1. The results contained in this report pertain only to the tested samples.
2. This report does not imply product certification, approval, or endorsement by A2LA, or any agency of the Federal Government.
3. This report contains data that are not covered by the A2LA accreditation.



1.1 Product Information:	
Model Number	LEDRT3G550SC3
Remark	The default CCT setting is 2700K The most consumptive CCT setting is 2700K. The most ineffective CCT setting is 2700K.
Representative (Tested) Model	LEDRT3G550SC3
Model Difference	N/A
SKU (if available)	N/A
Type of Luminaire (for integral lamps, list base type and lamp type)	Directional downlights
Mounting Type	Recessed
Indoor/Outdoor	Indoor
LED Manufacturer	Bridgelux Inc.
LED Model	BXFN-XXG-13H-98
Dimming	Dimmable
Dimming range	10%-100%
Sample Number	STD210933NB-A1
Date of Receipt	Oct.10,2021
Luminaire Aperture (for Downlight retrofits)	-- in.
Luminaire Length	-- mm
Luminaires Width	-- mm
Number of Units (modular products)	N/A s

1.2 Rated Values:	
Rated Voltage / Frequency	120Vac,60 Hz
Nominal Power	7W
Rated Initial Lamp Lumen	--
Declared CCT	2700K/3000K/3500K/4000K/5000K (Color tunable)

1.3 Product Photos



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1.4 Test Specifications:

Test item	<ol style="list-style-type: none"> 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
Reference Standard	<ol style="list-style-type: none"> 1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSIC78.377-2015 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA Technical Memorandum on Light Emitting Diode (LED) Sources and Systems 7. ANSI/UL 1598:2008, Luminaire 8. IEC 62301:2011 Household Electrical Appliances – Measurement of Standby Power 9. NEMA 77-2017 Standard for Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria
Remark	<p>Below test and data are not covered by A2LA accreditation:</p> <ul style="list-style-type: none"> - Operating Frequency - Flicker - 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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, 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° vertical intervals and 22.5° horizontal intervals.

2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

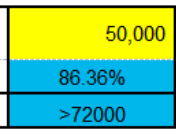
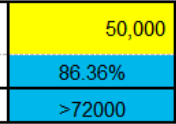
Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample measurements were made using a spectroradiometer connected by a fiber optic 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.

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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	\leq Rated Wattage	6.916W	Pass
Luminous Efficacy	Downlights	≥ 55 lm/W	91.15lm/W	Pass
Luminaire Minimum Light Output	Downlights	$\leq 4.5''$ aperture: 345 lumens > 4.5'' aperture: 575 lumens	630.45lm	Pass
Luminaire Zonal Lumen Density Requirement	Downlights	$\geq 75\%$ of total initial lumens within the 0-60° zone	92.9%	Pass
Correlated Color Temperature (CCT)	Solid State	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	2781K Duv=0.0024	Pass
Color Rendering Index (CRI)	Solid State	$Ra \geq 80$ $R9 > 0$	$Ra = 91.6$ $R9 = 65$	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	0.0017	Pass
Lumen Maintenance	Solid State Option 1:	L70 lumen maintenance: $\geq 25,000$ hours for indoor $\geq 35,000$ hours for outdoor $\geq 50,000$ hours for inseparable luminaires	 50,000 86.36% >72000	Pass
Light Source Life	Solid State	L70 lumen maintenance: $\geq 25,000$ hours for indoor $\geq 35,000$ hours for outdoor $\geq 50,000$ hours for inseparable luminaires	 50,000 86.36% >72000	Pass

Color Maintenance	Solid State Indoor Luminaires	$\Delta u'v' \leq 0.007$	Max.0.0036 in LM-80 report*	Pass
Source Start Time	Solid State	<750 ms	292ms	Pass
Power Factor	Solid State	Total luminaire input power ≤ 5 watts: PF ≥ 0.5 Total luminaire input power > 5 watts: PF ≥ 0.7	0.9642	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	120.0Hz	Pass
Maximum Measured Driver Case Temperature	Solid State	shall not exceed the driver manufacturer's maximum recommended temperature during in situ operation. ≤ 105 °C	47.1°C	Pass
Maximum In-Situ Source Temperature	Solid State	Maximum permitted Ts temperature for L70 \geq 50,000 hrs ≤ 105 °C	65.4°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 noise above 24dBA at 1 meter or less at the minimum output.	Validated	Pass



Warranty Requirements	Solid State	incorporating replaceable drivers: ≥ 3 years incorporating non-replaceable drivers: ≥ 5 years	5 years	Pass
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
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Test date	2021-10-15	Test Ambient:	25±1 ° C
Test Orientation	As intended	Stabilization Time (min)	45
Model Number	LEDRT3G550SC3 /2700K setting	Total Operating Time(min)	55

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
STD210933 NB-A1	119.9	60.01	0.0598	6.916	0.9642

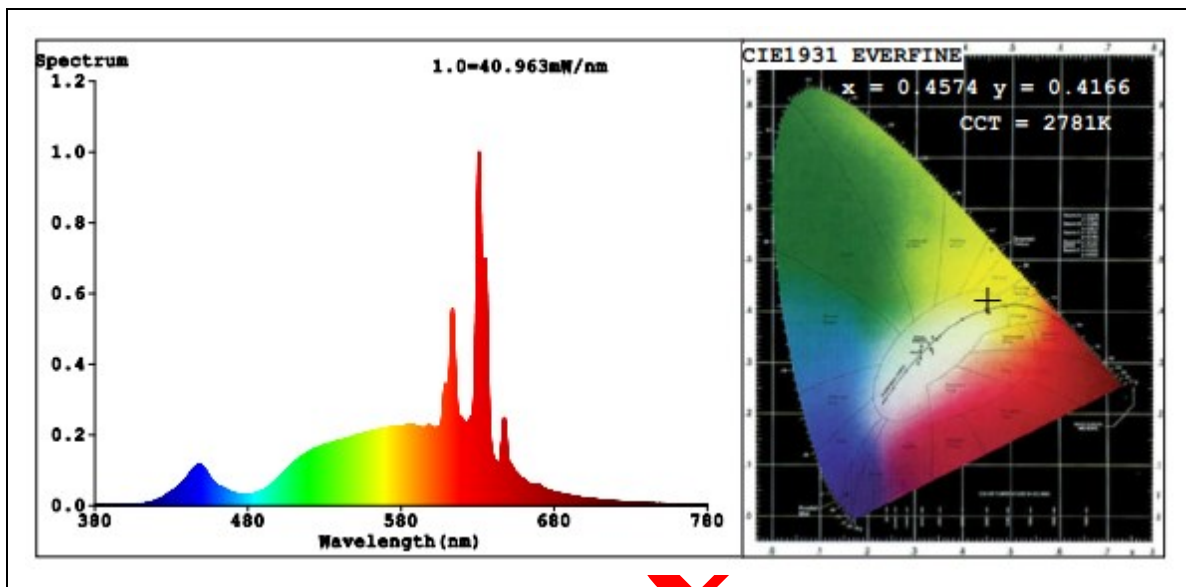
Sphere-Spectroradiometer Method: (Self-absorption: 1.0226) (4 π geometry):

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	91.6
R9	65
CCT (K)	2781
Duv	0.0024

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	630.45
Luminous Efficacy (lm/W)	91.15
Beam Angle°	42.3
Center Beam Candle Power (cd)	739

Spectral Power Distribution and Chromaticity Diagram

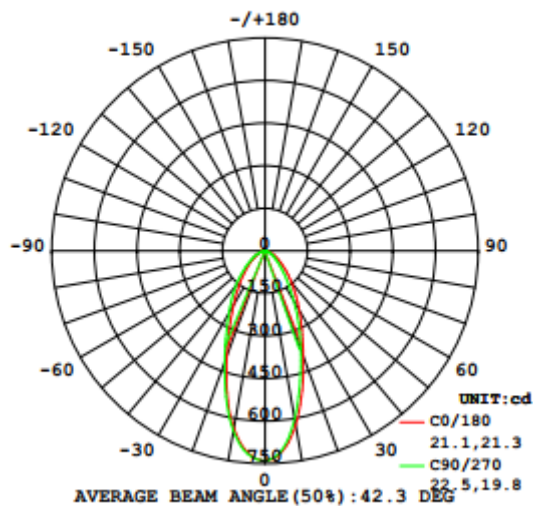


Colorimetric Parameters

Chromaticity Coordinate: $x=0.4574$ $y=0.4166$ $u'=0.2583$ $v'=0.5292$
 CCT=2781K (Duv=0.0024) Dominant WL:Ld =583.0nm WL:Lc = --nm Purity=62.4%
 Ratio:R=26.4% G=72.0% B=1.7% Peak WL:Lp=631.0nm FWHM=7.5nm
 Render Index:Ra=91.6 AvgR=88.0 TM30:Rf=88 Rg=102

R1 =95	R2 =92	R3 =88	R4 =94	R5 =92	R6 =91	R7 =94
R8 =87	R9 =65	R10=79	R11=94	R12=75	R13=93	R14=91
						R15=91

Zonal Lumen Tabulation



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	344.0	54.6%
0-40	455.3	72.2%
0-60	585.6	92.9%
60-90	44.7	7.1%
70-100	15.4	2.4%
90-120	0	0%
0-90	630.3	100%
90-180	0	0%
0-180	630.3	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	65.1	10.3%	90-100	0	0%
10-20	140.7	22.3%	100-110	0	0%
20-30	158.3	21.9%	110-120	0	0%
30-40	111.3	17.7%	120-130	0	0%
40-50	79.4	12.6%	130-140	0	0%
50-60	50.8	8.1%	140-150	0	0%
60-70	29.3	4.6%	150-160	0	0%
70-80	12.8	2.0%	160-170	0	0%
80-90	2.6	0.4%	170-180	0	0%



Table--1

UNIT: °C

C (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	
Y (DEG)	0	739	739	739	739	739	739	739	739	739	739	739	739	739	739	739	
5	708	706	705	704	702	702	705	709	713	714	715	717	717	717	715	713	
10	622	623	623	613	601	600	615	629	635	631	633	641	645	644	638	632	
15	507	511	509	493	476	476	495	512	517	511	511	521	532	535	526	514	
20	394	394	390	378	366	366	374	384	393	393	394	407	418	421	413	402	
25	307	298	287	280	278	275	273	278	295	305	310	318	325	327	325	317	
30	240	225	208	202	202	200	197	204	224	240	252	254	255	258	260	256	
35	187	169	151	145	144	143	143	152	171	190	209	209	203	205	210	208	
40	145	126	112	104	103	103	104	113	129	149	166	168	160	161	165	162	
45	111	94.5	82.7	75.6	74.2	74.9	76.8	84.8	97.8	114	125	129	122	123	126	123	
50	83.0	71.0	61.3	55.7	53.9	54.8	57.2	63.8	74.2	86.5	92.8	96.1	91.1	91.6	93.8	91.6	
55	61.5	53.0	45.6	40.9	38.9	39.3	42.4	47.8	55.9	64.5	68.9	70.5	67.0	67.3	69.0	67.8	
60	45.2	39.1	33.3	29.8	27.7	28.0	30.7	35.1	41.5	47.3	50.5	50.9	48.5	48.8	50.1	49.3	
65	32.1	28.1	24.0	21.2	19.5	19.7	21.9	25.2	29.9	33.8	36.3	35.8	34.4	34.7	35.6	35.4	
70	21.8	19.4	16.4	14.3	13.0	13.1	14.8	17.3	20.4	23.0	25.2	24.4	23.5	23.8	24.6	24.5	
75	12.5	11.2	9.57	8.25	7.53	7.61	8.43	9.96	12.0	13.3	15.1	14.5	14.0	14.2	14.9	14.7	
80	5.92	5.67	5.05	4.52	4.32	4.37	4.66	5.13	5.89	6.04	7.03	6.66	6.34	6.48	6.96	6.90	
85	2.35	2.02	1.68	1.39	1.28	1.34	1.55	1.79	2.20	2.49	2.68	2.75	2.82	2.91	2.93	2.74	
90	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	
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	

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2.2.2 Electrical, Photometric and Chromaticity Measurements	IES LM-79 2008
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Test date	2021-10-15	Test Ambient:	25±1 ° C
Test Orientation	As intended	Stabilization Time (min)	45
Model Number	LEDRT3G550SC3 /3000K setting	Total Operating Time(min)	55

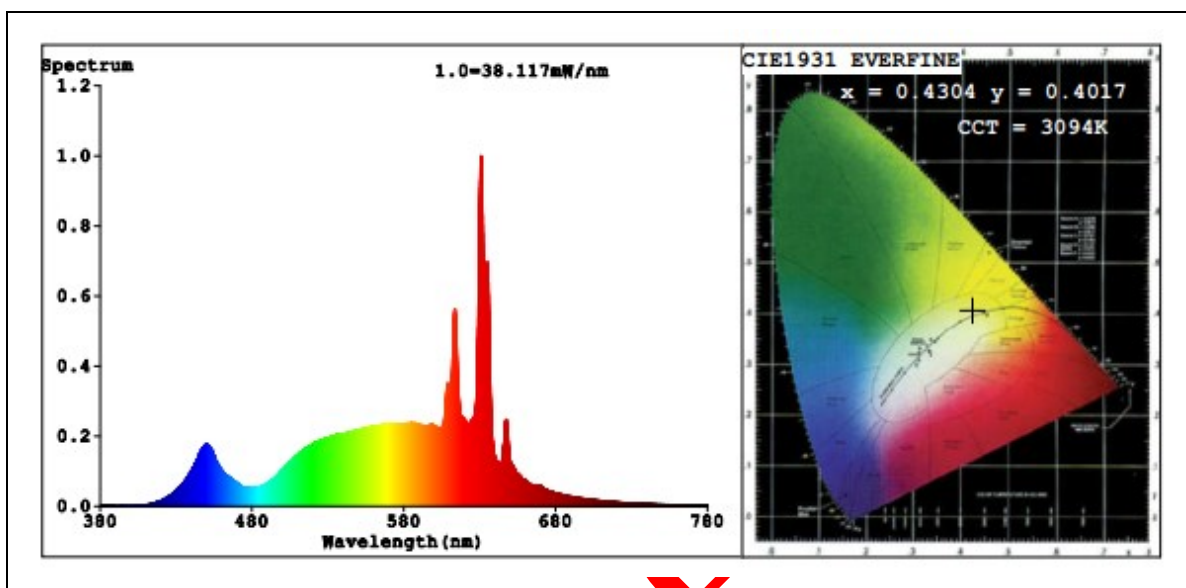
Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
STD210933 NB-A1	120.01	60	0.0599	6.904	0.9597

Sphere-Spectroradiometer Method: (Self-absorption: 1.0226) (4 π geometry):

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	93.6
R9	75
CCT (K)	3094
Duv	-0.0000
Total Luminous (lm)	635.1
Luminous Efficacy (lm/W)	91.99

Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Chromaticity Coordinate: $x=0.4304$ $y=0.4017$ $u'=0.2474$ $v'=0.5194$
 CCT=3094K (Duv=-0.0000) Dominant WL:Ld =582.4nm WL:Lc = --nm Purity=49.7%
 Ratio:R=24.6% G=73.0% B=2.4% Peak WL:Lp=631.0nm FWHM=7.5nm
 Render Index:Ra=93.6 AvgR=90.8 TM30:Rf=90 Rg=103

R1 =97	R2 =94	R3 =89	R4 =94	R5 =95	R6 =93	R7 =94
R8 =91	R9 =75	R10=84	R11=94	R12=78	R13=96	R14=92
						R15=94



2.2.3 Electrical, Photometric and Chromaticity Measurements	IES LM-79 2008
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Test date	2021-10-15	Test Ambient:	25±1 ° C
Test Orientation	As intended	Stabilization Time (min)	45
Model Number	LEDRT3G550SC3 /3500K setting	Total Operating Time(min)	55

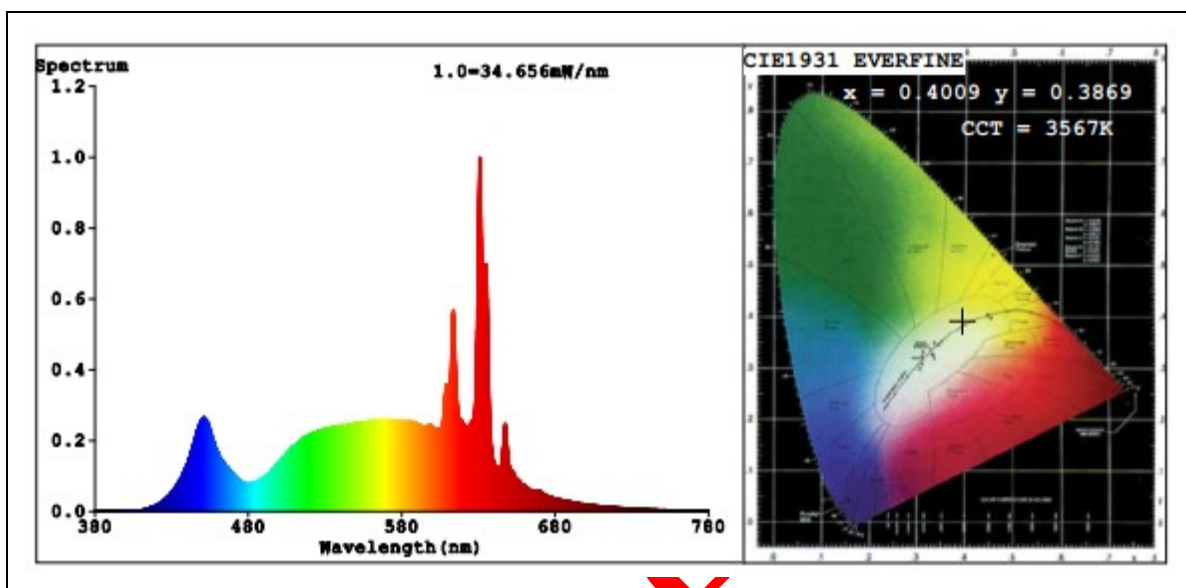
Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
STD210933 NB-A1	120.07	60	0.0597	6.892	0.9609

Sphere-Spectroradiometer Method: (Self-absorption: 1.0226) (4 π geometry):

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	94.8
R9	82
CCT (K)	3567
Duv	-0.0007
Total Luminous (lm)	644.7
Luminous Efficacy (lm/W)	93.54

Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Chromaticity Coordinate: $x=0.4009$ $y=0.3869$ $u'=0.2344$ $v'=0.5090$
 CCT=3567K (Duv=-0.0007) Dominant WL:Ld =581.0nm WL:Lc = --nm Purity=36.4%
 Ratio:R=22.4% G=74.4% B=3.2% Peak WL:Lp=631.0nm FWHM=7.5nm
 Render Index:Ra=94.8 AvgR=92.2 TM30:Rf=92 Rg=103

R1 =98	R2 =95	R3 =90	R4 =95	R5 =96	R6 =94	R7 =96
R8 =94	R9 =82	R10=86	R11=94	R12=77	R13=97	R14=93
						R15=97



2.2.4 Electrical, Photometric and Chromaticity Measurements	IES LM-79 2008
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Test date	2021-10-15	Test Ambient:	25±1 ° C
Test Orientation	As intended	Stabilization Time (min)	45
Model Number	LEDRT3G550SC3 /4000K setting	Total Operating Time(min)	55

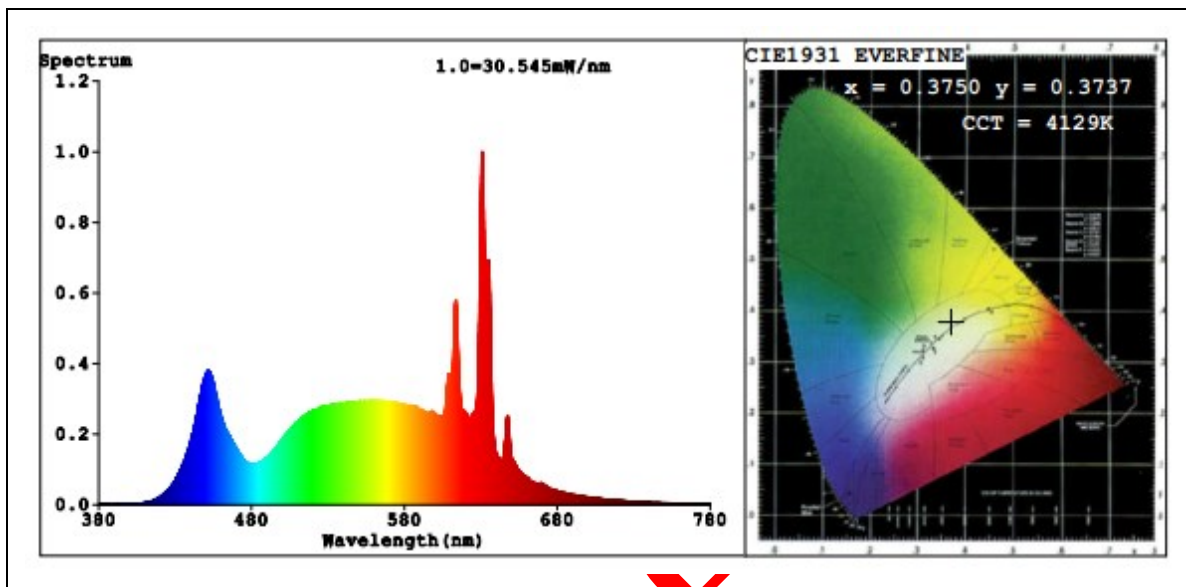
Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
STD210933 NB-A1	120.02	60	0.0596	6.874	0.9609

Sphere-Spectroradiometer Method: (Self-absorption: 1.0226) (4 π geometry):

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	94.9
R9	83
CCT (K)	4129
Duv	0.0002
Total Luminous (lm)	648.0
Luminous Efficacy (lm/W)	94.27

Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Chromaticity Coordinate: $x=0.3750$ $y=0.3737$ / $u'=0.2227$ $v'=0.4994$
 CCT=4129K (Duv=0.0002) Dominant WL:Ld =578.4nm WL:Lc = --nm Purity=24.7%
 Ratio:R=20.2% G=75.8% B=3.9% Peak WL:Lp=631.0nm FWHM=7.6nm
 Render Index:Ra=94.9 AvgR=92.1 TM30:Rf=92 Rg=102

R1 =98	R2 =95	R3 =90	R4 =96	R5 =96	R6 =93	R7 =97
R8 =95	R9 =83	R10=86	R11=94	R12=72	R13=97	R14=93
						R15=97



2.2.5 Electrical, Photometric and Chromaticity Measurements	IES LM-79 2008
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Test date	2021-10-15	Test Ambient:	25±1 ° C
Test Orientation	As intended	Stabilization Time (min)	45
Model Number	LEDRT3G550SC3 /5000K setting	Total Operating Time(min)	55

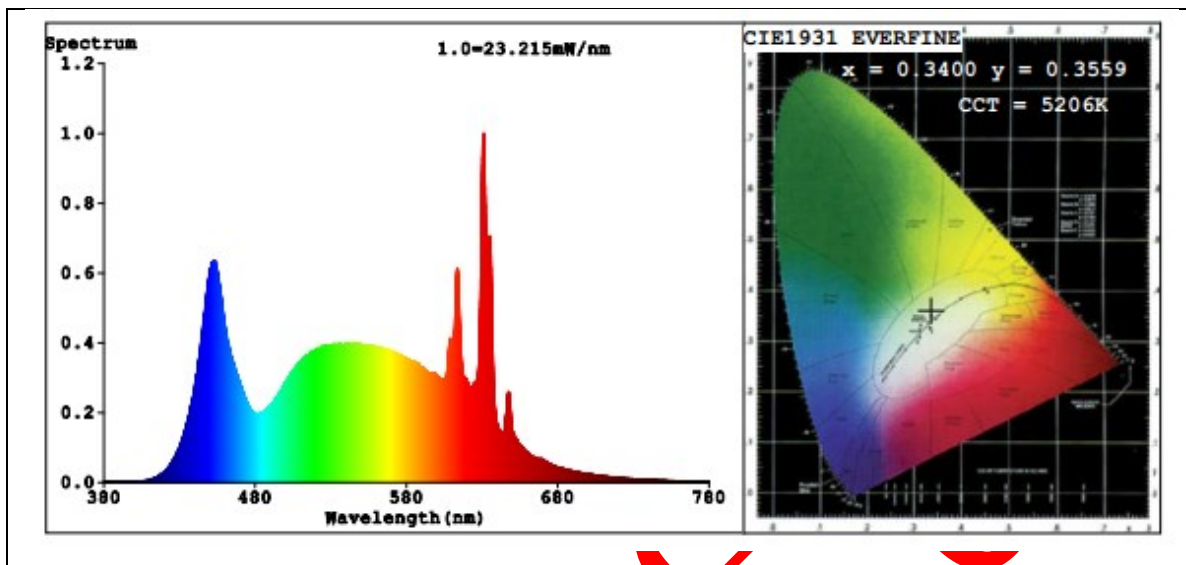
Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
STD210933 NB-A1	120.07	60	0.0592	6.841	0.9624

Sphere-Spectroradiometer Method: (Self-absorption: 1.0226) (4 π geometry):

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	92.9
R9	71
CCT (K)	5206
Duv	0.0042
Total Luminous (lm)	640.2
Luminous Efficacy (lm/W)	93.58

Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Chromaticity Coordinate: $x=0.3400$ $y=0.3559$ $u'=0.2064$ $v'=0.4860$
 CCT=5206K (Duv=0.0042) Dominant WL:Ld =565.0nm WL:Lc = --nm Purity=8.8%
 Ratio:R=17.0% G=78.0% B=5.0% Peak WL:Lp=631.0nm FWHM=7.7nm
 Render Index:Ra=92.9 AvgR=89.4 TM30:Rf=91 Rg=100

R1 =94	R2 =93	R3 =91	R4 =94	R5 =93	R6 =91	R7 =96
R8 =91	R9 =71	R10=83	R11=93	R12=70	R13=93	R14=95 R15=92



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

Test date	2021-10-15	Test Ambient	25±1 °C
Sample No.	Maximum $\Delta u'v'$		
STD210933NB-A1	0.0017		

Gamma/C	CIE u'	CIE v'	du'v'	CIE u'	CIE v'	du'v'
-22	0.2579	0.5297	0.0013	0.2581	0.5291	0.0017
-21	0.2578	0.5297	0.0013	0.2581	0.5291	0.0017
-20	0.258	0.5296	0.0013	0.2581	0.5291	0.0017
-19	0.2579	0.5296	0.0014	0.2582	0.5292	0.0016
-18	0.2579	0.5296	0.0014	0.2582	0.5292	0.0016
-17	0.2579	0.5296	0.0014	0.2581	0.5292	0.0016
-16	0.2579	0.5296	0.0014	0.2581	0.5292	0.0016
-15	0.2579	0.5296	0.0014	0.2582	0.5293	0.0015
-14	0.2579	0.5296	0.0014	0.2582	0.5293	0.0015
-13	0.2579	0.5296	0.0014	0.2582	0.5293	0.0015
-12	0.258	0.5297	0.0012	0.2582	0.5294	0.0014
-11	0.2581	0.5298	0.0011	0.2583	0.5295	0.0013
-10	0.2581	0.5298	0.0011	0.2583	0.5296	0.0012
-9	0.2581	0.5299	0.001	0.2583	0.5297	0.0011
-8	0.2582	0.5301	0.0008	0.2585	0.5298	0.0009
-7	0.2583	0.5301	0.0007	0.2585	0.5299	0.0008
-6	0.2583	0.5302	0.0006	0.2585	0.5301	0.0006
-5	0.2584	0.5303	0.0005	0.2585	0.5302	0.0005
-4	0.2584	0.5304	0.0004	0.2586	0.5302	0.0005
-3	0.2585	0.5305	0.0003	0.2587	0.5303	0.0004
-2	0.2585	0.5306	0.0002	0.2586	0.5304	0.0003
-1	0.2586	0.5307	0.0001	0.2587	0.5305	0.0002
0	0.2587	0.5307	0	0.2587	0.5307	0
1	0.2588	0.5308	0.0001	0.2588	0.5306	0.0001
2	0.2588	0.5309	0.0002	0.2588	0.5307	0.0001
3	0.2587	0.5309	0.0002	0.2588	0.5308	0.0001
4	0.2587	0.531	0.0003	0.2589	0.5308	0.0002
5	0.2588	0.531	0.0003	0.2588	0.5309	0.0002
6	0.2588	0.5311	0.0004	0.2588	0.5309	0.0002



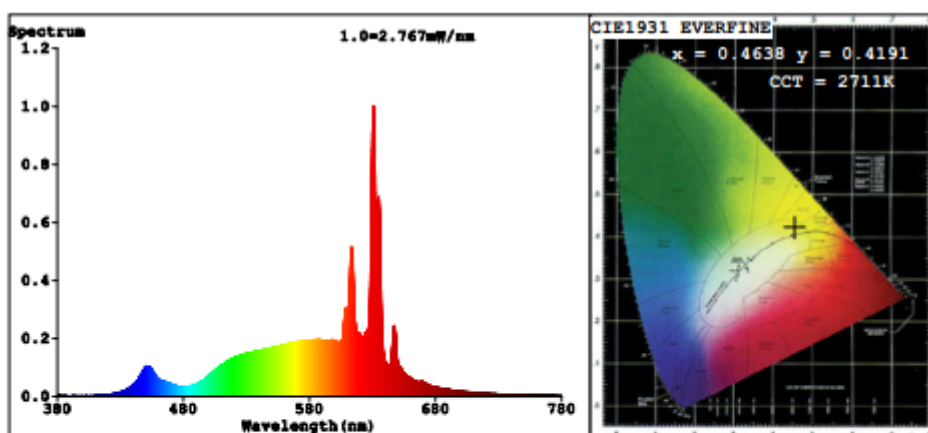
7	0.2587	0.5311	0.0004	0.2588	0.5309	0.0002
8	0.2587	0.5311	0.0004	0.2588	0.531	0.0003
9	0.2588	0.5311	0.0004	0.2588	0.531	0.0003
10	0.2588	0.5311	0.0004	0.2588	0.531	0.0003
11	0.2589	0.5311	0.0004	0.2588	0.531	0.0003
12	0.2589	0.5311	0.0004	0.2588	0.531	0.0003
13	0.2589	0.5311	0.0004	0.2588	0.5311	0.0004
14	0.2589	0.531	0.0004	0.2589	0.5311	0.0004
15	0.2589	0.531	0.0004	0.2588	0.531	0.0003
16	0.2589	0.531	0.0004	0.2588	0.531	0.0003
17	0.2589	0.5309	0.0003	0.2588	0.531	0.0003
18	0.2589	0.5309	0.0003	0.2588	0.531	0.0003
19	0.2589	0.5309	0.0003	0.2588	0.5309	0.0002
20	0.2588	0.5308	0.0001	0.2587	0.5309	0.0002
21	0.2589	0.5308	0.0002	0.2587	0.5308	0.0001
22	0.2588	0.5308	0.0001	0.2586	0.5308	0.0001

Original

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**

Test date	2021-10-15		Test Ambient:	25±1 °C
Dimmer Technology			Forward phase-cut	
Sample No.			Maximum Level	Minimum Level
STD210933NB-A1	Input:	Light outout (Lumen)	610.4	35.36
	120.0 V / 60 Hz	Percentage	96.82%	5.79%



Color Parameters:

Chromaticity Coordinate: $x=0.4638$ $y=0.4191$ $u'=0.2612$ $v'=0.5312$
CCT=2711K (Duv=0.0028) Dominant WL: $\lambda_d=583.3\text{nm}$ WL: $\lambda_c=--\text{nm}$ Purity=65.0%
Ratio: R=27.3% G=70.9% B=1.8% Peak WL: $\lambda_p=630.7\text{nm}$ FWHM=7.4nm
Render Index: Ra=95.0 AvgR=91.8 TM30: Rf=92 Rg=101

R1 =98 R2 =95 R3 =89 R4 =97 R5 =96 R6 =96 R7 =97
R8 =92 R9 =75 R10=85 R11=95 R12=78 R13=97 R14=92 R15=94

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	14.9	Dimmer adjusted to lowest light output	< 1 m



2.5Flicker	NEMA 77-2017 ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2
Noted: This test and data are not covered by A2LA accreditation	

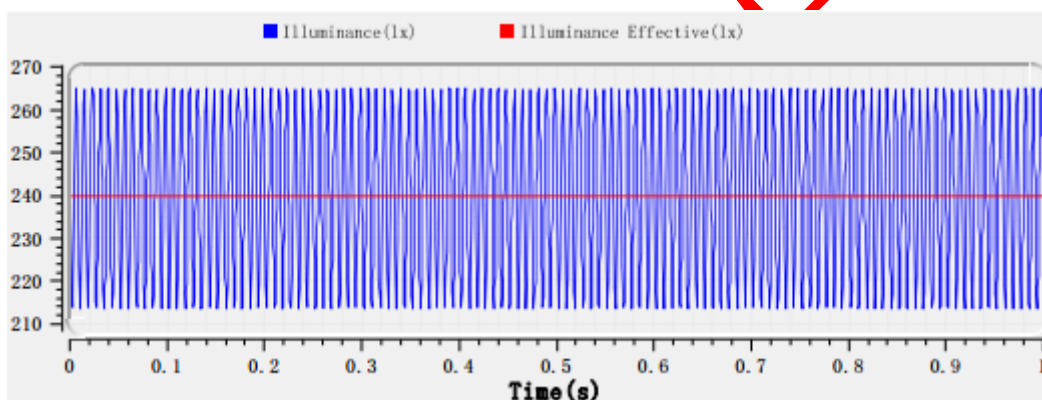
Dimming Technology	phase-cut
Dimmer	LEVITON MFG CO INC (E31373), Cat. No. 6681

Item	Short Term Flicker Indicator (Pst)	Stroboscopic Visibility Measure (SVM)
Maximum Conduction	0.542	0.510
Intermediate Conduction	1.981	0.623
Minimun Conduction	3.804	0.501

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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	

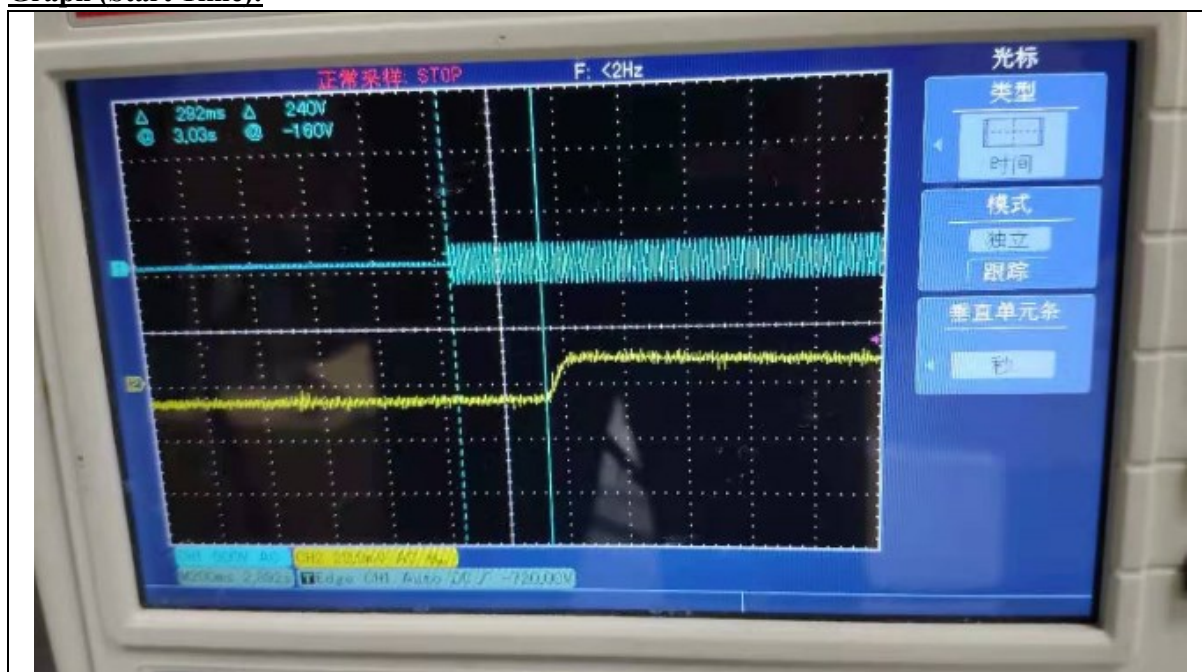
Test date	2021-10-15	Test Ambient:	25±1 ° C
Sample No.	Operating Frequency (Hz)		
STD210933NB-A1	120.0		



2.7 Starting Time	ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2
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Test date	2021-10-15	Test Ambient:	25±1 °C
Sample No.	Start Time (ms)		
STD210933NB-A1	292		

Graph (Start Time):





2.8 Transient Protection Test	ANSI/IEEE C62.41 ENERGY STAR® Program Requirements for Luminaires – Version 2.2
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Test voltage: 120V,60Hz

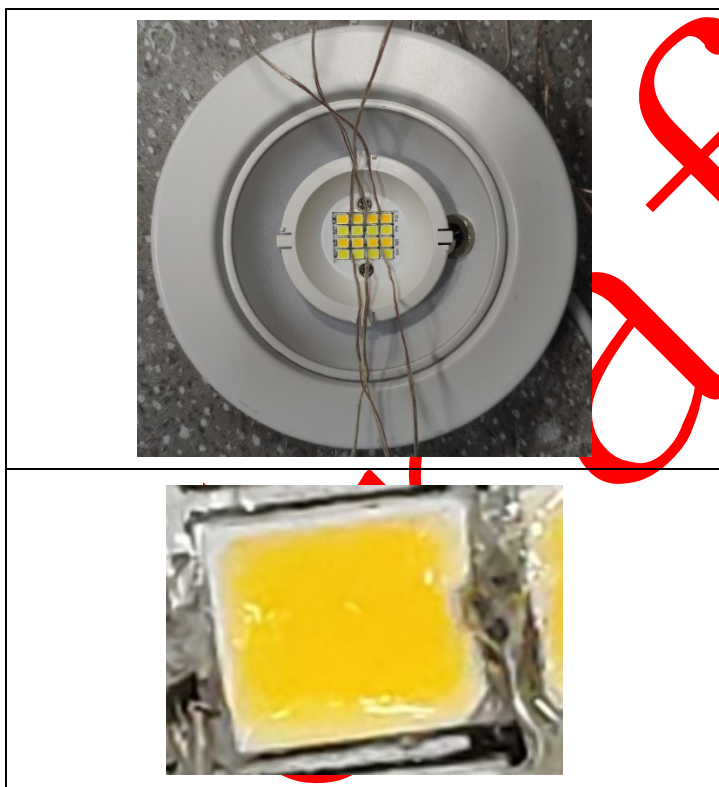
Test date	2021-10-15	Test Ambient	25±1 °C
Sample No.		Transient Protection Test - Seven Strikes	
STD210933NB-A1		Survival	

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2.9In-Situ Temperature Measurement Test (ISTMT)	UL1598-2008, 3rd Edition
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Test date	2021-10-15	Test Ambient	25.1 °C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED (mA)	80.5
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum permitted Ts temperature for L70 \geq 50,000 hrs (°C)
STD210933NB-A1	BXFN-XXG-13H-98	65.4	105

In-Situ Picture - Ts:



2.10 Maximum Measured Ballast or Driver Case Temperature	UL1598-2008, 3 rd Edition
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Test date	2021-10-15	Test Ambient	25.1 °C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
STD210933NB-A1	47.1	105	

In-Situ Picture - Ts:





2.11Off-State Power Consumption:	ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2
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Test date	2021-10-15	Test Ambient:	25±1 °C
Model Number	LEDRT3G550SC3	Stabilization Time (min)	90

Electrical Measurement – when the luminaires turned off:

Sample No.	Power (W)
STD210933NB-A1	0

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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-1200	Verified by D204 standard lamp	
ST-R-703	Standard Lamp D204	2021-02-21	2022-02-20
ST-R-704	Power Meter for Integrating Sphere	2021-01-04	2022-01-03
ST-R-714	Goniophotometer system	Verified by D908S standard lamp	
ST-R-710	Standard Lamp D908S	2021-02-21	2022-02-20
ST-R-711	Power Meter for Goniophotometer	2021-01-04	2022-01-03
ST-R-720	Digital Luxmeter	2021-01-04	2022-01-03
ST-R-622	Oscillograph	2021-01-04	2022-01-03
ST-R-721	EMS61000-12C	2021-01-04	2022-01-03
ST-R-725	LFA-3000	2021-01-04	2022-01-03
ST-R-607	Temperature Tester	2021-01-04	2022-01-03
Uncertainty(K=2): Photometric Measurement (Sphere):3.94% Chromaticity Measurement(Sphere):48.2K Photometric Measurement(Goniophotometer):3.96%			

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