Ningbo TengLi Testing Co., Ltd

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Qingyi Road, Ningbo National Hi-Tech Zone, Ningbo, Zhejiang
Tel: 86574-8783 6802
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Energy Star Test Report

For

LEDVANCE LLC

(Brand Name: LEDVANCE, SYLVANIA)

200 BALLARDVALE STREET WILMINGTON, MA 01887

Model name(s):
LEDLD2A1200ST9SC3WH

Report Type:	Testing and Report According toENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2
Type of Luminaire:	Downlights
Test Date:	2022-01-19
Report Date:	2022-02-17
Prepared By:	Ningbo TengLi Testing Co., Ltd 2nd floor, Block B, Ningbo Testing and Certification Base, No. 66 Qingyi Road, Ningbo National Hi-Tech Zone, Ningbo, Zhejiang

Test & Report By:

Nick Song

Engineer: Nick Song

Review By:

Garman Mo

Manager: Garman Mo

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	LEDLD2A1200ST9SC3WH	
Remark	Dimmable down to 20% and can be matched to below dimmer brand: LUTRON MACL-153M, DVCL-153P, PD-6WCL, RHCL453P, DVELV-300P,MAELV-600P, 6674, LEVITON,MFG CO INC(E31373),Cat.No.6681	
Representative (Tested) Model	LEDLD2A1200ST9SC3WH	
Model Difference	N/A	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Downlights	
Directional/Non-directional	Directional	
Mounting Type	Recessed	
Indoor/Outdoor	Indoor	
LED Manufacturer	Bridgelux,Inc.	
LED Model	BXFN-27G-13H-98	
Dimming	Dimmable	
Sample Number	STD211233NB-C1(LEDLD2A1200ST9SC3WH)	
Date of Receipt	Jan.18,2022	
Luminaire Aperture (for Downlight)	8	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

1.2 Rated Values:	
Rated Voltage / Frequency	120Vac,60Hz
Nominal Power	16W
Rated Initial Lamp Lumen	--
Declared CCT	2700K/3000K/3500K/4000K/5000K (Color Tunable)

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
Reference Standard	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 andSpecifying Colour RenderingProperties 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	Below test and data are not covered by A2LA accreditation: - Operating Frequency - Flicker - Noise

1.5 Test Methods

1) Photometric and Light Distribution Measurement – Goniophotometer Method: Photometricparameters 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 120or 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: Chromaticityparameters 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 120or 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 goniophotometeror sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at 25º C ± 1º C. The sample was operated at 120or 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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2.1Summary of Test Result

Criteria Item	The Type of Luminaires	Requirement (ES for Luminaires V2.2)	MeasuredValue	Status
Input Wattage	All	≤ Rated Wattage	15.45W	Pass
Luminous Efficacy	Downlights	≥ 55 lm/W	78.49lm/W	Pass
Luminaire Minimum Light Output	Downlights	⩽ 4.5” aperture: 345 lumens > 4.5” aperture: 575 lumens	1212.6m	Pass
Luminaire Zonal Lumen Density Requirement	Downlights	≥75% of total initiallumens within the 0-60° zone	75.8%	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	2738K Duv=0.0016	Pass
Color Rendering Index (CRI)	Solid State	Ra ≥ 80R9 >0	Ra =92.6 R9 =63	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	0.0003	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 86.39% >72000	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	50,000 86.39% >72000	Pass

Color Maintenance	Solid State Indoor Luminaires	Δu'v' ≤ 0.007	Max.0.0036 in LM-80 report*	Pass
Source Start Time	Solid State	<750 ms	136ms	Pass
Power Factor	Solid State	Total luminaire input power ≤ 5 watts: PF ≥ 0.5 Total luminaire input power > 5 watts: PF ≥ 0.7	0.9022	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	120.000Hz	Pass
Maximum In-Situ Source Temperature	Solid State	Maximum permitted Ts temperature for L70≥50,000 hrs ≤105°C	72.3°C	Pass
Maximum Measured Driver Case Temperature	Solid State	shall not exceed the driver manufacturer's maximum recommended temperature during in situ operation. ≤ 105 °C	93.8°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

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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 "*".

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

Test date	2022-01-19	Test Ambient:	25±1 ° C
Test Orientation	As intended	Stabilization Time (min)	45
Model Number	LEDLD2A1200ST9SC3WH /2700K setting	Total Operating Time(min)	55

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
STD211233 NB-C1	120.0	60	0.1427	15.45	0.9022

Sphere-Spectroradiometer Method: (Self-absorption:1.0231)(4π geometry):

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Color Rendering Index (CRI)	92.6
R9	63
CCT (K)	2738
Duv	0.0016

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Total Luminous (lm)	1212.6
Luminous Efficacy (lm/W)	78.47
Beam Angle°	108.3
Center Beam Candle Power (cd)	424

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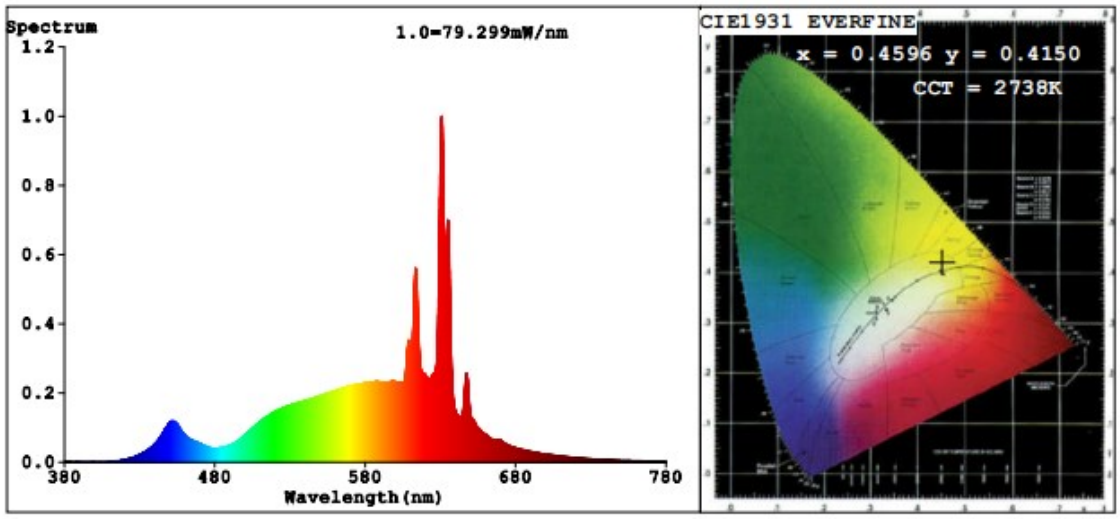
Certificate#4703.02

Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Color Parameters:

Chromaticity Coordinate:x=0.4596 y=0.4150/u'=0.2604 v'=0.5290
CCT=2738K(Duv=0.0016) Dominant WL:Ld =583.5nm WL:Lc = --nm Purity=62.5%
Ratio:R=26.7% G=71.4% B=1.9% Peak WL:Lp=631.0nm FWHM=7.5nm
Render Index:Ra=92.6 AvgR=89.1 TM30:Rf=90 Rg=101

R1 =95	R2 =94	R3 =91	R4 =95	R5 =93	R6 =94	R7 =94	
R8 =86	R9 =63	R10=83	R11=95	R12=77	R13=94	R14=93	R15=91

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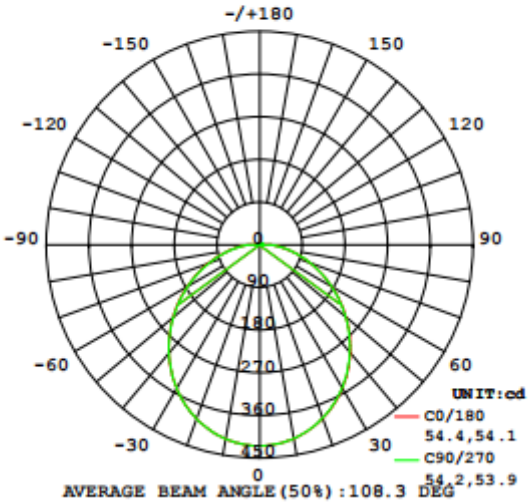
Zonal Lumen Tabulation

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Zonal Lumen Summary		
Zone	Lumens	%Luminaire
0-30	325.0	26.8%
0-40	527.9	43.5%
0-60	919.4	75.8%
60-90	278.0	22.9%
70-100	143.0	11.8%
90-120	9.9	0.8%
0-90	1,197.4	98.8%
90-180	15.1	1.2%
0-180	1,212.5	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	40.1	3.3%	90-100	8.0	0.7%
10-20	114.1	9.4%	100-110	1.0	0.1%
20-30	170.9	14.1%	110-120	1.0	0.1%
30-40	202.8	16.7%	120-130	1.2	0.1%
40-50	206.8	17.1%	130-140	1.6	0.1%
50-60	184.7	15.2%	140-150	1.1	0.1%
60-70	143.0	11.8%	150-160	0.6	0.1%
70-80	91.4	7.5%	160-170	0.5	0%
80-90	43.6	3.6%	170-180	0.1	0%

Table--1 UNIT: cd

γ (DEG) \ 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			
0	424	424	424	424	424	424	424	424	424	424	424	424	424	424	424	424			
5	422	422	422	421	422	422	422	422	422	422	422	422	422	422	422	422			
10	415	415	415	415	415	415	415	415	416	416	416	416	416	416	415	416			
15	404	404	404	404	404	404	404	404	405	405	405	405	405	405	405	405			
20	389	389	389	389	389	389	389	389	390	390	390	390	390	390	390	390			
25	371	371	370	370	370	370	370	371	372	372	372	372	372	372	372	372			
30	349	349	348	348	348	348	348	349	350	350	350	350	350	350	350	350			
35	324	324	323	323	323	323	324	324	325	325	325	325	325	325	325	326			
40	297	296	296	296	296	296	296	297	298	298	298	298	298	298	298	298			
45	268	267	267	267	267	267	267	268	269	269	269	269	269	269	269	269			
50	238	237	237	236	236	237	237	238	239	239	239	238	238	238	239	239			
55	206	206	206	205	205	206	206	207	208	208	207	207	207	207	207	208			
60	175	175	174	174	174	175	175	176	177	176	176	175	175	175	176	176			
65	144	144	143	143	144	144	144	145	146	146	145	144	144	144	144	145			
70	114	114	114	114	114	114	115	115	116	116	115	114	114	114	114	115			
75	85.5	85.6	85.6	85.8	86.1	86.3	86.7	86.9	87.5	87.1	86.4	85.8	85.4	85.4	85.7	86.1			
80	60.2	60.3	60.4	60.5	60.7	60.9	61.3	61.6	62.0	61.6	61.0	60.5	60.1	60.1	60.4	60.7			
85	38.8	39.0	39.0	38.9	39.1	39.3	39.7	39.8	40.1	39.8	39.4	39.0	38.8	38.7	39.0	39.2			
90	22.2	22.1	21.9	21.8	21.9	22.0	22.2	22.3	22.8	22.6	22.4	22.1	22.2	22.3	22.4	22.6			
95	1.22	3.46	0.07	10.3	7.84	9.50	0.02	1.77	0.46	0.00	0.00	4.58	0.08	12.1	0.00	0.00			
100	0.28	0.78	0.11	3.33	3.49	3.24	0.08	0.17	0.30	0.18	1.21	4.06	4.46	3.92	0.13	0.26			
105	2.35	1.79	0.15	0.05	0.05	0.05	0.11	1.34	1.91	1.05	0.15	0.01	0.02	0.02	0.16	1.94			
110	1.78	1.51	0.58	0.30	0.11	0.31	0.52	0.94	1.36	1.43	0.49	0.28	0.14	0.32	0.46	1.78			
115	1.66	1.51	1.05	0.70	0.41	0.68	0.91	1.13	1.46	1.53	1.32	0.61	0.32	0.66	1.07	1.73			
120	1.76	1.67	1.30	0.53	0.78	0.63	1.28	1.44	1.42	1.59	1.74	0.51	0.66	0.40	1.47	1.80			
125	1.95	2.03	1.66	0.16	0.51	0.80	1.66	1.97	1.74	1.64	1.65	0.13	0.01	0.76	1.55	1.74			
130	2.41	2.37	1.95	0.64	1.11	0.57	1.94	2.41	2.26	2.01	1.78	0.67	1.01	0.71	1.74	2.18			
135	2.83	3.74	1.62	1.52	1.27	0.75	1.62	5.67	3.06	4.18	1.35	1.99	1.03	1.05	1.31	2.75			
140	2.94	2.27	2.28	1.74	1.42	1.95	2.09	2.88	2.76	2.22	1.60	1.87	1.40	1.83	1.19	2.86			
145	2.86	1.95	0.57	1.91	1.58	1.97	0.64	2.24	2.38	1.87	0.64	0.54	0.81	0.51	0.36	1.75			
150	2.38	2.07	0.60	2.02	1.73	2.03	0.49	2.15	4.41	3.98	0.88	1.47	0.65	1.84	4.48	0.81			
155	0.80	0.33	0.89	1.65	1.83	1.47	0.58	0.42	0.73	0.71	2.62	1.99	1.14	0.86	2.13	0.95			
160	2.19	2.07	0.29	0.53	0.76	0.51	0.29	1.97	2.21	2.18	2.43	2.26	1.63	1.58	2.18	2.22			
165	4.10	4.56	0.89	0.62	0.54	0.69	0.81	4.24	3.99	4.30	3.02	1.64	1.51	1.59	1.77	2.73			
170	1.75	2.25	0.27	1.48	1.82	1.16	0.41	1.35	2.01	2.10	1.74	1.42	1.78	1.82	1.30	1.40			
175	1.20	0.83	0.43	0.53	0.66	0.61	0.23	0.85	1.24	1.25	1.36	1.23	1.26	1.32	1.16	0.92			
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			

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

Test date	2022-01-19	Test Ambient:	25±1 ° C
Test Orientation	As intended	Stabilization Time (min)	45
Model Number	LEDLD2A1200ST9SC3WH /3000K setting	Total Operating Time(min)	46

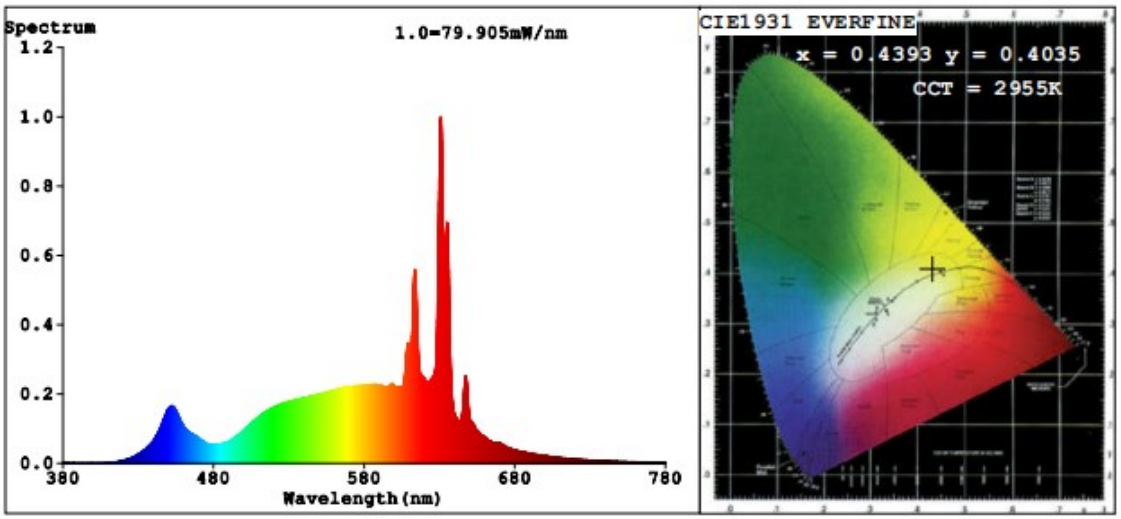
Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
STD211233 NB-C1	120.0	60	0.1401	15.30	0.9103

Sphere-Spectroradiometer Method: (Self-absorption:1.0232)(4π geometry):

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Color Rendering Index (CRI)	95.2
R9	76
CCT (K)	2955
Duv	-0.0006
Total Luminous (lm)	1247
Luminous Efficacy (lm/W)	81.50

Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Color Parameters:

Chromaticity Coordinate:x=0.4393 y=0.4035/u'=0.2524 v'=0.5215
CCT=2955K(Duv=-0.0006) Dominant WL:Ld =583.2nm WL:Lc = --nm Purity=53.0%
Ratio:R=25.7% G=71.9% B=2.4% Peak WL:Lp=631.0nm FWHM=7.5nm
Render Index:Ra=95.2 AvgR=92.5 TM30:Rf=91 Rg=103

R1 =99	R2 =97	R3 =92	R4 =96	R5 =97	R6 =96	R7 =95	
R8 =91	R9 =76	R10=88	R11=95	R12=80	R13=98	R14=93	R15=95

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

Test date	2022-01-19	Test Ambient:	25±1 ° C
Test Orientation	As intended	Stabilization Time (min)	45
Model Number	LEDLD2A1200ST9SC3WH /3500K setting	Total Operating Time(min)	46

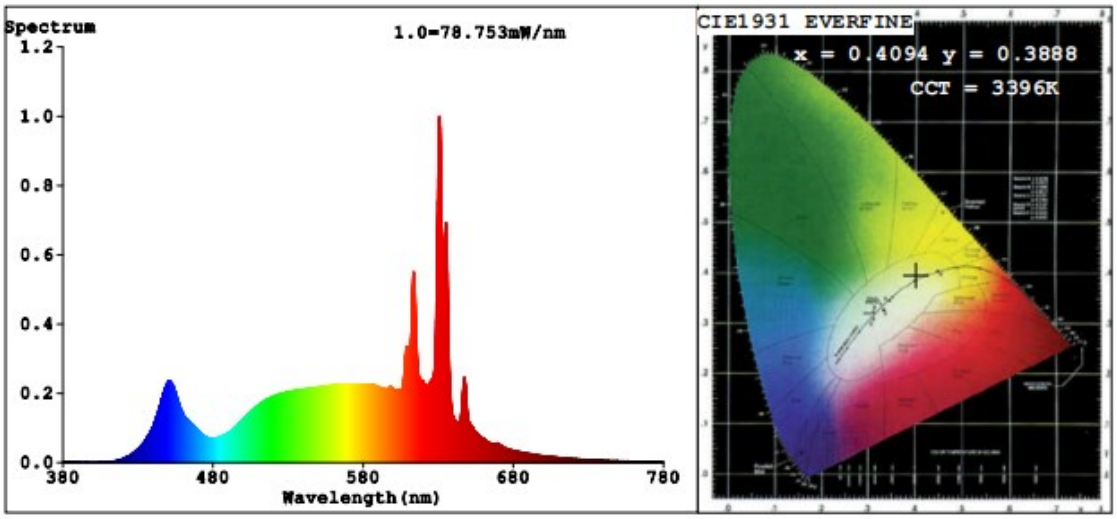
Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
STD211233 NB-C1	120.0	60	0.1382	15.17	0.9146

Sphere-Spectroradiometer Method: (Self-absorption:1.0233)(4π geometry):

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Color Rendering Index (CRI)	96.3
R9	91
CCT (K)	3396
Duv	-0.0017
Total Luminous (lm)	1295
Luminous Efficacy (lm/W)	85.37

Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Color Parameters:

Chromaticity Coordinate:x=0.4094 y=0.3888/u'=0.2392 v'=0.5111
CCT=3396K(Duv=-0.0017) Dominant WL:Ld =582.0nm WL:Lc = --nm Purity=39.6%
Ratio:R=23.6% G=73.3% B=3.1% Peak WL:Lp=631.0nm FWHM=7.4nm
Render Index:Ra=96.3 AvgR=94.4 TM30:Rf=92 Rg=104

R1 =98	R2 =97	R3 =91	R4 =94	R5 =99	R6 =96	R7 =97	
R8 =98	R9 =91	R10=91	R11=92	R12=81	R13=100	R14=93	R15=100

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

Test date	2022-01-19	**Test Ambient:**	25±1 ° C
Test Orientation	As intended	**Stabilization Time (min)**	45
Model Number	LEDLD2A1200ST9SC3WH /4000K setting	**Total Operating Time(min)**	46

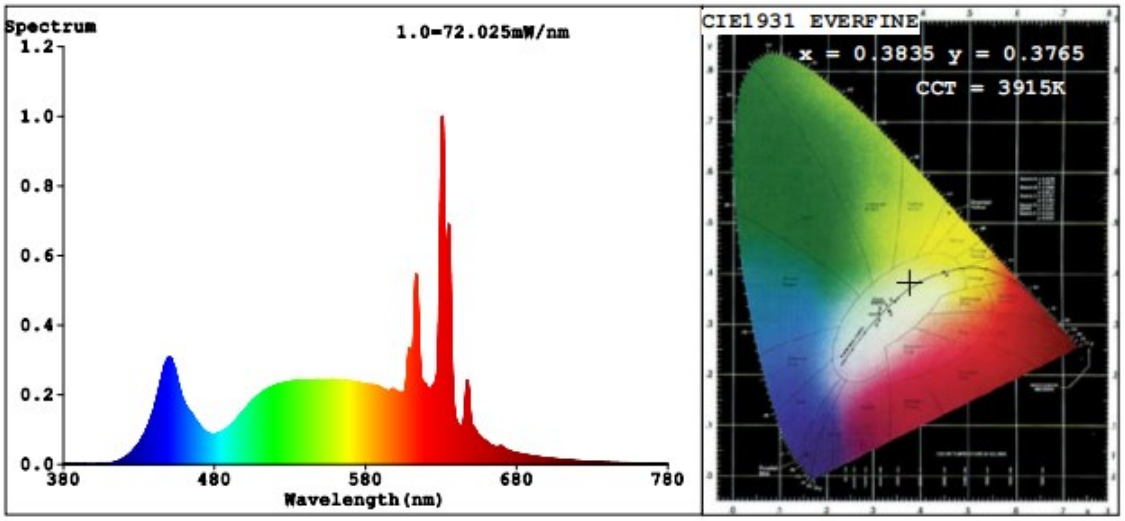
Electrical Measurement:

Sample No.	**Voltage (Vac)**	**Frequency (Hz)**	**Current (A)**	**Power (W)**	**Power Factor**
STD211233 NB-C1	120.0	60	0.1392	15.23	0.9120

Sphere-Spectroradiometer Method: (Self-absorption:1.0234)(4π geometry):

Parameter	**Result**
Test Voltage (V)	120
Frequency (Hz)	60
Color Rendering Index (CRI)	95.3
R9	98
CCT (K)	3915
Duv	-0.0010
Total Luminous (lm)	1276
Luminous Efficacy (lm/W)	83.78

Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Color Parameters:

Chromaticity Coordinate:x=0.3835 y=0.3765/u'=0.2273 v'=0.5019
CCT=3915K(Duv=-0.0010) Dominant WL:Ld =579.9nm WL:Lc = --nm Purity=28.1%
Ratio:R=21.6% G=74.7% B=3.7% Peak WL:Lp=631.0nm FWHM=7.4nm
Render Index:Ra=95.3 AvgR=93.9 TM30:Rf=93 Rg=104

R1 =98	R2 =97	R3 =89	R4 =93	R5 =99	R6 =95	R7 =96	
R8 =97	R9 =98	R10=89	R11=91	R12=78	R13=99	R14=92	R15=98

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

Test date	2022-01-19	Test Ambient:	25±1 ° C
Test Orientation	As intended	Stabilization Time (min)	45
Model Number	LEDLD2A1200ST9SC3WH /5000K setting	Total Operating Time(min)	46

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
STD211233 NB-C1	120.0	60	0.1423	15.37	0.9001

Sphere-Spectroradiometer Method: (Self-absorption:1.0235)(4π geometry):

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
Color Rendering Index (CRI)	93.6
R9	98
CCT (K)	4905
Duv	0.0027
Total Luminous (lm)	1236
Luminous Efficacy (lm/W)	80.42

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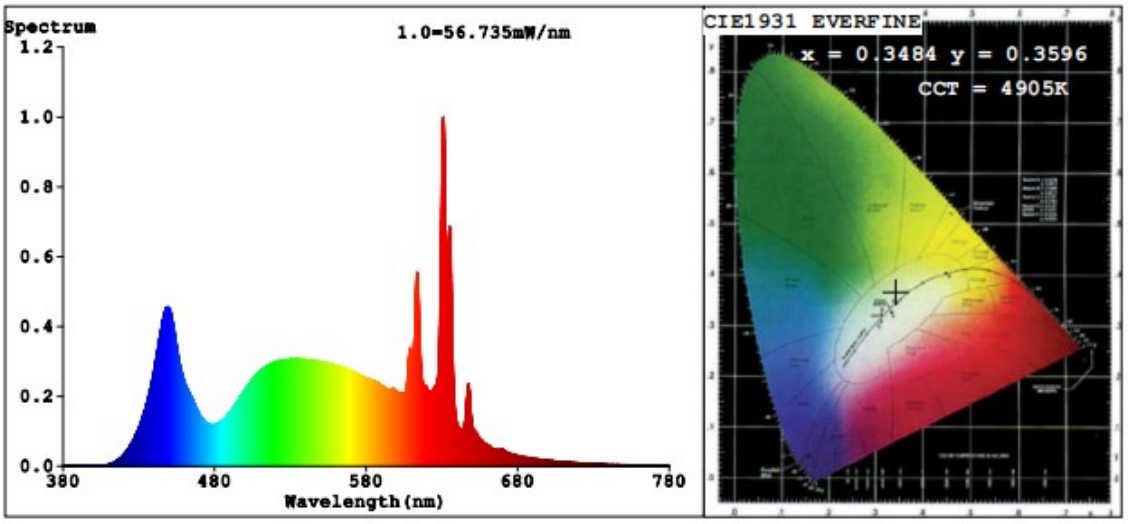
ACCREDITED
Certificate#4703.02

Spectral Power Distribution and Chromaticity Diagram



Colorimetric Parameters

Color Parameters:

Chromaticity Coordinate:x=0.3484 y=0.3596/u'=0.2106 v'=0.4890
CCT=4905K(Duv=0.0027) Dominant WL:Ld =571.5nm WL:Lc = --nm Purity=12.5%
Ratio:R=18.5% G=77.1% B=4.4% Peak WL:Lp=631.0nm FWHM=7.3nm
Render Index:Ra=93.6 AvgR=92.0 TM30:Rf=92 Rg=104

R1 =99	R2 =94	R3 =86	R4 =93	R5 =96	R6 =91	R7 =94	
R8 =96	R9 =98	R10=83	R11=91	R12=72	R13=97	R14=92	R15=99

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	2022-01-19	Test Ambient	25±1 ° C
Sample No.		Maximum Δu'v'	
STD211233NB-C1		0.0003	

Gamma\C	CIE u'	CIE v'	du'v'	CIE u'	CIE v'	du'v'
-55	0.2599	0.5299	0.0001	0.2599	0.5299	0.0001
-54	0.2599	0.5299	0.0001	0.2599	0.5299	0.0001
-53	0.2599	0.5299	0.0001	0.2599	0.5299	0.0001
-52	0.2598	0.5299	0.0002	0.26	0.5299	0
-51	0.2598	0.5299	0.0002	0.2599	0.5299	0.0001
-50	0.2598	0.5299	0.0002	0.2599	0.5299	0.0001
-49	0.2598	0.5298	0.0002	0.2599	0.5299	0.0001
-48	0.2598	0.5298	0.0002	0.2598	0.5298	0.0002
-47	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001
-46	0.2597	0.5298	0.0003	0.2599	0.5298	0.0001
-45	0.2597	0.5298	0.0003	0.2599	0.5298	0.0001
-44	0.2598	0.5298	0.0002	0.2599	0.5299	0.0001
-43	0.2597	0.5298	0.0003	0.2598	0.5298	0.0002
-42	0.2598	0.5298	0.0002	0.2598	0.5298	0.0002
-41	0.2597	0.5298	0.0003	0.2599	0.5298	0.0001
-40	0.2597	0.5298	0.0003	0.2599	0.5299	0.0001
-39	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001
-38	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001
-37	0.2597	0.5298	0.0003	0.2599	0.5298	0.0001
-36	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001
-35	0.2598	0.5298	0.0002	0.2598	0.5298	0.0002
-34	0.2598	0.5298	0.0002	0.26	0.5298	0.0001
-33	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001
-32	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001
-31	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001
-30	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001
-29	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001
-28	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001
-27	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001

-26	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001
-25	0.2598	0.5298	0.0002	0.2599	0.5298	0.0001
-24	0.2599	0.5298	0.0001	0.2599	0.5298	0.0001
-23	0.2598	0.5298	0.0002	0.26	0.5298	0.0001
-22	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-21	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-20	0.2598	0.5298	0.0002	0.26	0.5298	0.0001
-19	0.2598	0.5298	0.0002	0.26	0.5298	0.0001
-18	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-17	0.2598	0.5298	0.0002	0.26	0.5298	0.0001
-16	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-15	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-14	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-13	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-12	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-11	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-10	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-9	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-8	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-7	0.2599	0.5298	0.0001	0.2599	0.5298	0.0001
-6	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-5	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-4	0.2599	0.5298	0.0001	0.26	0.5298	0.0001
-3	0.26	0.5298	0.0001	0.26	0.5298	0.0001
-2	0.26	0.5299	0	0.2599	0.5298	0.0001
-1	0.26	0.5298	0.0001	0.26	0.5298	0.0001
0	0.26	0.5299	0	0.26	0.5299	0
1	0.26	0.5299	0	0.26	0.5298	0.0001
2	0.26	0.5298	0.0001	0.26	0.5298	0.0001
3	0.26	0.5298	0.0001	0.26	0.5298	0.0001
4	0.26	0.5299	0	0.26	0.5298	0.0001
5	0.26	0.5299	0	0.26	0.5298	0.0001
6	0.26	0.5298	0.0001	0.26	0.5298	0.0001
7	0.26	0.5299	0	0.26	0.5298	0.0001
8	0.26	0.5299	0	0.26	0.5298	0.0001
9	0.26	0.5298	0.0001	0.26	0.5298	0.0001
10	0.26	0.5299	0	0.26	0.5299	0
11	0.26	0.5299	0	0.26	0.5298	0.0001
12	0.2599	0.5299	0.0001	0.26	0.5298	0.0001
13	0.26	0.5299	0	0.26	0.5298	0.0001
14	0.26	0.5299	0	0.26	0.5298	0.0001

15	0.26	0.5299	0	0.26	0.5298	0.0001
16	0.26	0.5299	0	0.26	0.5298	0.0001
17	0.26	0.5299	0	0.26	0.5298	0.0001
18	0.26	0.5299	0	0.26	0.5298	0.0001
19	0.26	0.5299	0	0.26	0.5298	0.0001
20	0.26	0.5299	0	0.26	0.5298	0.0001
21	0.26	0.5299	0	0.26	0.5298	0.0001
22	0.26	0.5299	0	0.26	0.5298	0.0001
23	0.26	0.5298	0.0001	0.26	0.5298	0.0001
24	0.26	0.5298	0.0001	0.26	0.5298	0.0001
25	0.26	0.5299	0	0.26	0.5298	0.0001
26	0.26	0.5299	0	0.26	0.5298	0.0001
27	0.26	0.5299	0	0.26	0.5298	0.0001
28	0.26	0.5298	0.0001	0.26	0.5298	0.0001
29	0.26	0.5299	0	0.26	0.5298	0.0001
30	0.26	0.5299	0	0.26	0.5298	0.0001
31	0.26	0.5298	0.0001	0.2599	0.5298	0.0001
32	0.26	0.5298	0.0001	0.26	0.5298	0.0001
33	0.26	0.5299	0	0.2599	0.5298	0.0001
34	0.26	0.5299	0	0.2599	0.5298	0.0001
35	0.26	0.5299	0	0.26	0.5298	0.0001
36	0.26	0.5299	0	0.2599	0.5298	0.0001
37	0.26	0.5299	0	0.2599	0.5298	0.0001
38	0.26	0.5298	0.0001	0.2599	0.5299	0.0001
39	0.26	0.5299	0	0.2599	0.5298	0.0001
40	0.26	0.5299	0	0.2599	0.5298	0.0001
41	0.26	0.5298	0.0001	0.2599	0.5298	0.0001
42	0.26	0.5299	0	0.2599	0.5298	0.0001
43	0.26	0.5299	0	0.2599	0.5299	0.0001
44	0.26	0.5299	0	0.2599	0.5298	0.0001
45	0.26	0.5299	0	0.2599	0.5298	0.0001
46	0.26	0.5299	0	0.2598	0.5298	0.0002
47	0.2599	0.5298	0.0001	0.2598	0.5298	0.0002
48	0.2599	0.5298	0.0001	0.2598	0.5298	0.0002
49	0.2599	0.5298	0.0001	0.2598	0.5298	0.0002
50	0.2599	0.5298	0.0001	0.2598	0.5298	0.0002
51	0.2599	0.5299	0.0001	0.2598	0.5298	0.0002
52	0.2599	0.5299	0.0001	0.2598	0.5298	0.0002
53	0.2599	0.5299	0.0001	0.2598	0.5298	0.0002
54	0.2599	0.5298	0.0001	0.2598	0.5298	0.0002
55	0.2599	0.5298	0.0001	0.2598	0.5298	0.0002

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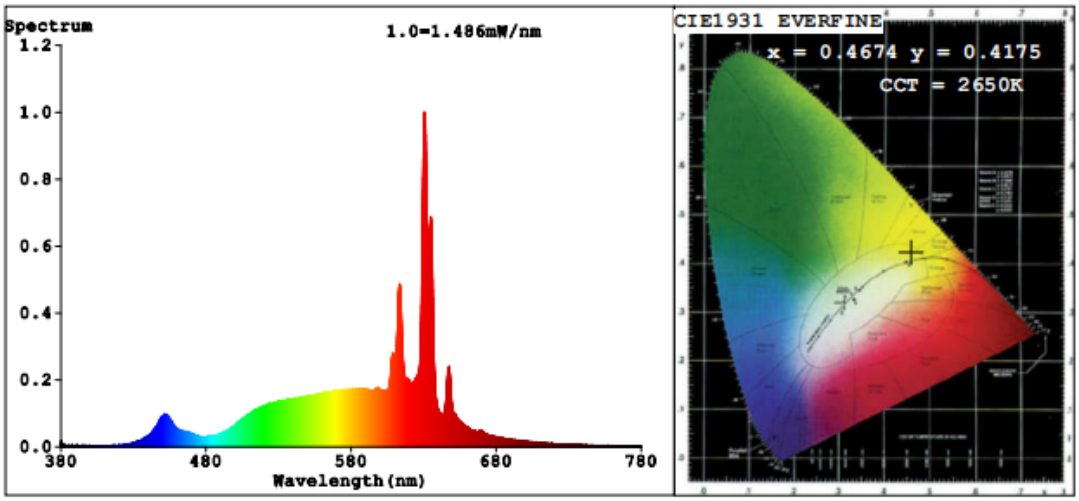
2.4 Electrical and Photometric Measurements, with dimming	IES LM-79 2008 ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2

Test date	2022-01-19		Test Ambient:	25±1 ° C
Dimmer Technology			Forward phase-cut	
Sample No.			Maximum Level	Minimum Level
STD211233NB-C1	Input: 120.0 V / 60 Hz	Light outout (Lumen)	1191	17.33
		Percentage	98.22%	1.46%



Color Parameters:

Chromaticity Coordinate:x=0.4674 y=0.4175/u'=0.2643 v'=0.5311
CCT=2650K(Duv=0.0019) Dominant WL:Ld =583.9nm WL:Lc = --nm Purity=65.6%
Ratio:R=28.3% G=69.9% B=1.8% Peak WL:Lp=630.7nm FWHM=7.4nm
Render Index:Ra=96.2 AvgR=93.9 TM30:Rf=92 Rg=102

R1 =98	R2 =97	R3 =89	R4 =94	R5 =99	R6 =98	R7 =98	
R8 =97	R9 =86	R10=89	R11=91	R12=83	R13=100	R14=92	R15=98

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

Dimming Way	Peak Noise Reading (dBA)	Test Condition	Distance between the microphone and the UUT
LUTRON MACL-153M	20.8	Dimmer adjusted to lowest light output	< 1 m

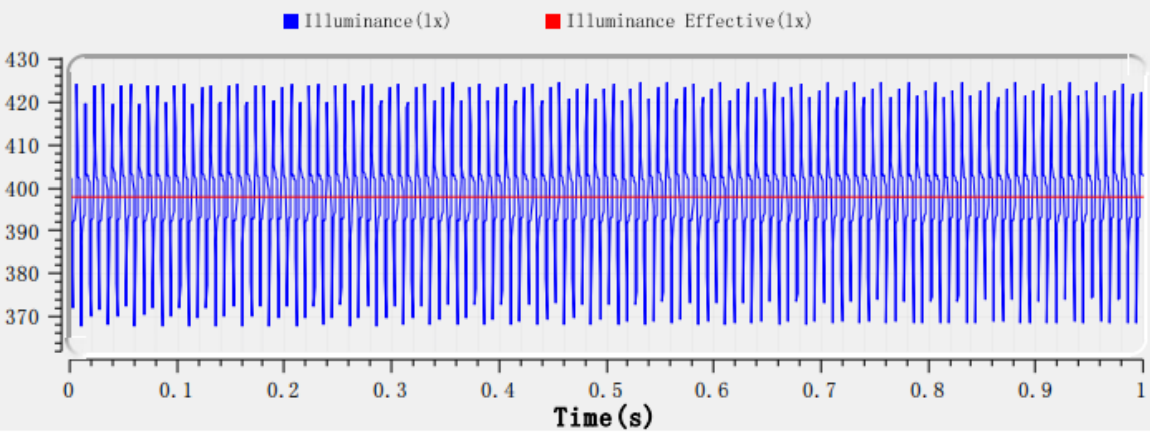
2.5Flicker	NEMA 77-2017 ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2
Noted: This test and data are not covered by A2LA accreditation	

Dimming Technology	Forward phase-cut
Sample No.	STD211233NB-C1
Dimmer	--

Item	Short Term Flicker Indicator (Pst)	Stroboscopic Visibility Measure (SVM)
Maximum Conduction	0.307	0.149
Intermediate Conduction	1.383	0.010
Minimum Conduction	0.000	0.235

2.6Operating 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	

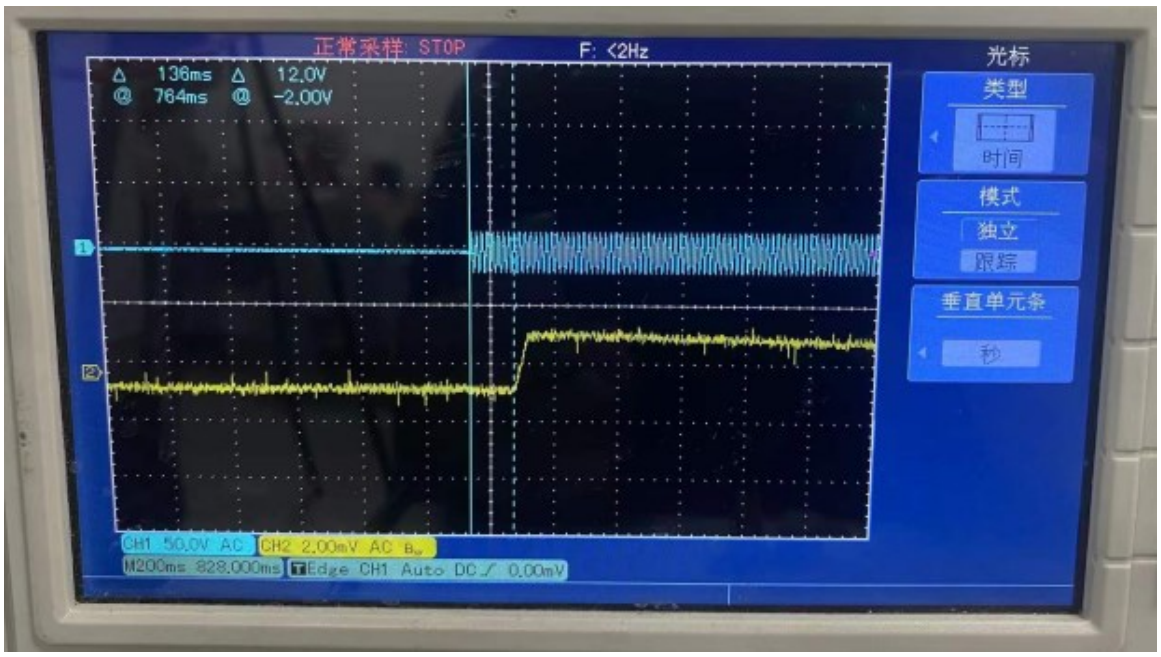
Test date	2022-01-19	Test Ambient:	25±1 ° C
Sample No.	Operating Frequency (Hz)		
STD211233NB-C1	120.000		



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

Test date	2022-01-19	Test Ambient:	25±1 º C
Sample No.	**Start Time (ms)**		
STD211233NB-C1	136		

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

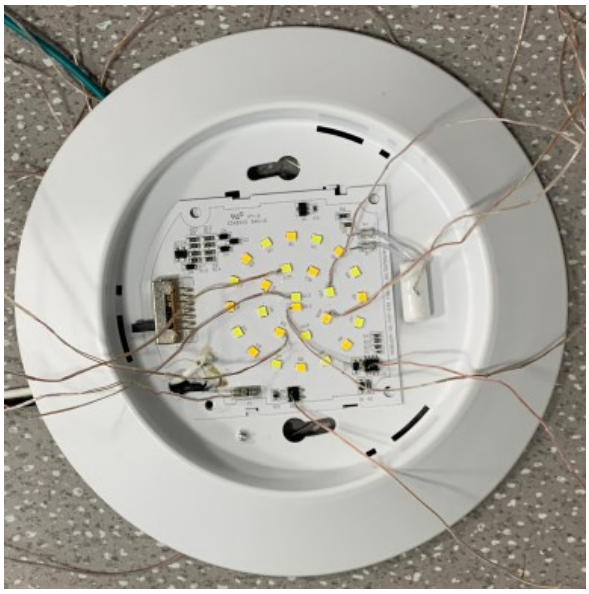
Test date	2022-01-19	Test Ambient	25±1 º C
Sample No.		Transient Protection Test - Seven Strikes	
STD211233NB-C1		Survival	

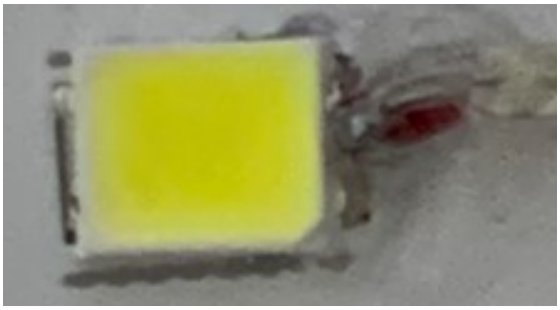
2.9In-Situ Temperature Measurement Test (ISTMT)	ANSI/UL 1598:2008

Test date	2022-01-19	Test Ambient	25.1 º C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED (mA)	93.00

Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum permitted Ts temperature for L70≥ 50,000 hrs (°C)
STD211233NB-C1	BXFN-27G-13H-98	72.3	105

In-Situ Picture - Ts:





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

Test date	2022-01-19	Test Ambient	25.1 º C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
STD211233NB-A1	93.8	105	

In-Situ Picture - Ts:

2.10Off-State Power Consumption:	ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.2

Test date	2022-01-19	Test Ambient:	25±1 ° C
Model Number	LEDLD2A1200ST9SC3WH	Stabilization Time (min)	90

Electrical Measurement – when the luminaires turned off:

Sample No.	Power (W)
STD211233NB-C1	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-1200	Verified by D204 standard lamp	
ST-R-703	Standard Lamp D204	2021-01-15	2022-01-14
ST-R-704	Power Meter for Integrating Sphere	2022-01-03	2023-01-02
ST-R-714	Goniophotometer system	Verified by D908S standard lamp	
ST-R-710	Standard Lamp D908S	2021-01-15	2022-01-14
ST-R-711	Power Meter for Goniophotometer	2022-01-03	2023-01-02
ST-R-720	Digital Luxmeter	2022-01-03	2023-01-02
ST-R-622	Oscillograph	2022-01-03	2023-01-02
ST-R-721	EMS61000-12C	2022-01-03	2023-01-02
ST-R-725	LFA-3000	2022-01-03	2023-01-02
ST-R-607	Temperature Tester	2022-01-03	2023-01-02

Uncertainty(K=2):
Photometric Measurement (Sphere):3.94%
Chromaticity Measurement(Sphere):48.2K
Photometric Measurement(Goniophotometer):3.96%

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