

Energy Star Test Report

For

Best Lighting Products, Inc.

(Brand Name: Best Lighting Products, Inc.)

1213, Etna Pkwy PATASKALA, Ohio, U.S.A.

Model name(s):ULD16-XX

Report Type:	Testing and Report According to ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.1
Type of Luminaire:	Cove or Under Cabinet Mount
Report Date:	2018-07-17

Test & Report By:

Vicky Sun

Engineer: Vicky Sun

Review By:

John Li

Manager: John Li

Note: 1. The results contained in this report pertain only to the rested samples.

2. This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Laboratory: Standard-Tech Co., Ltd Testing Center
NVLAP CODE: 201011-0

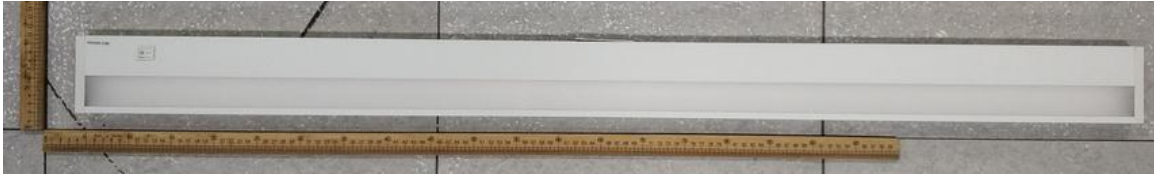
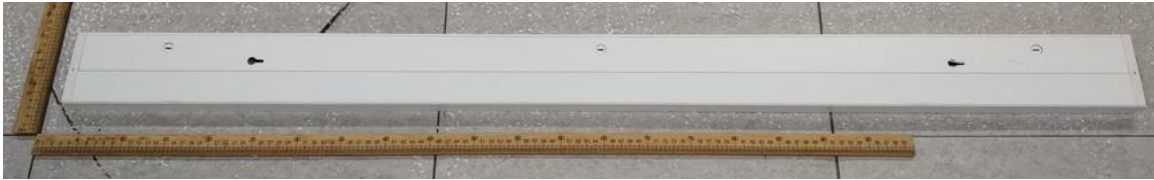
Report Format Number STD/QR4910-A/1

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<http://www.standard-tech.com>

1.1 Product Information:		
Model Number	ULD16-XX	
Remark	“XX” could be 27/30/35/40/50 refers to CCT.	
Representative (Tested) Model	ULD16-27	
Model Difference	N/A	
Type of Luminaire	Cove or Under Cabinet Mount	
LED Manufacturer	EVERLIGHT ELECTRONICS CO., LTD	
LED Model	67-21S Series (3000K)	
Dimming	Dimmable	
Sample Number	JCE180610-I1	
Date of Receipt	Jun.30,2018	
Luminaire Aperture (for downlights)	--	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	20W	
Rated Initial Lamp Lumen	--	
Declared CC	2700K, 3000K, 3500K, 4000K, 5000K	
Sample Number	JCE180610-I1	
Photo		
		
		

1.3 Test Specifications:	
Date of Receipt	Jun.30,2018
Date of Test	Jul.01,2018
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. ANSI C78.377-2008 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 TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems 7. UL1993 4th Edition, Self-Ballasted Lamps and Lamp Adapters 8. ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) – Version 2.1
Reference Work Instruction	QD25
Remark	Below test and data are not covered by NVLAP accreditation: - Operating Frequency

1.4 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.

2.1 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction QD25)

IES LM-79 2008

Test date	2018-07-01	Test Ambient:	25.0 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	ULD16-27		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
JCE180610-I1	120.0	60	0.1520	18.10	0.9921

Sphere-Spectroradiometer Method:

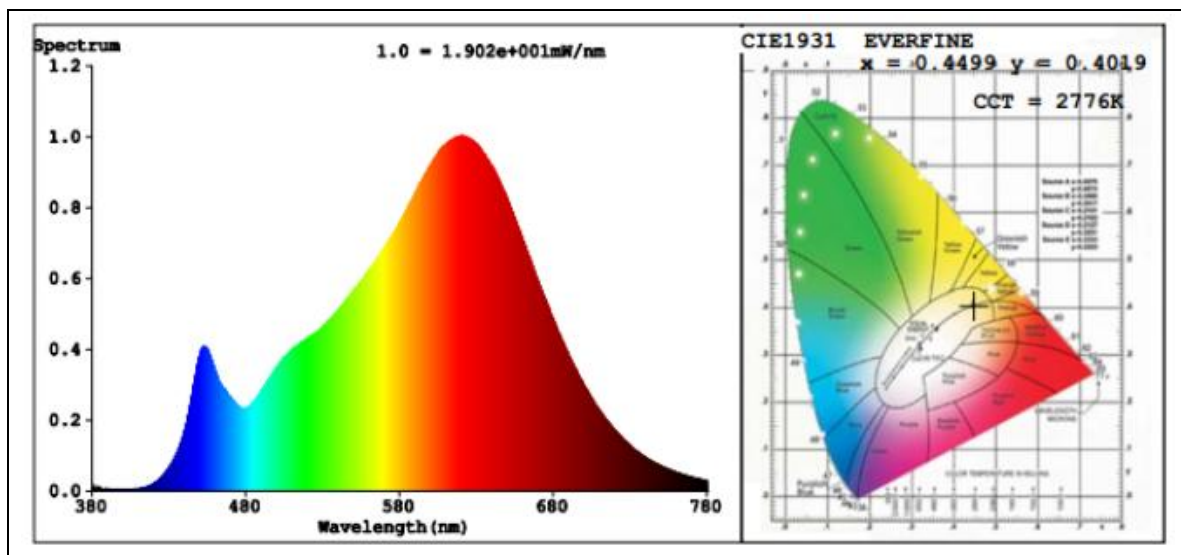
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	92.3
R9	56
CCT (K)	2776
Chromaticity (x, y)	x=0.4499 y=0.4019
Chromaticity (u', v')	u'=0.2599 v'=0.5225
Duv	-0.0024

Special Color Rendering Indices			
R1	94	R9	56
R2	99	R10	97
R3	96	R11	94
R4	92	R12	88
R5	94	R13	95
R6	97	R14	99
R7	89	R15	89
R8	79	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1185.5
Luminous Efficacy (lm/W)	65.50
Beam Angle °	104.3
Zonal Lumen Density(0-60 °)	80.8
Center Beam Candle Power (cd)	448

Spectral Power Distribution and Chromaticity Diagram



Laboratory: Standard-Tech Co., Ltd Testing Center
NVLAP CODE: 201011-0

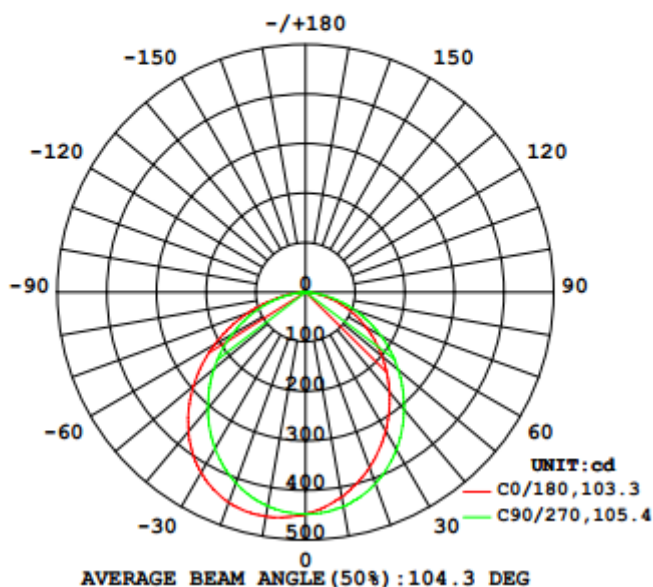
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Zonal Lumen Tabulation
LUMINOUS INTENSITY DISTRIBUTION DIAGRAM


Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	343.5	29%
0-40	556.6	47%
0-60	958.2	80.8%
60-90	225.4	19%
70-100	89.1	7.5%
90-120	0.4	0%
0-90	1,183.6	99.9%
90-180	1.7	0.1%
0-180	1,185.3	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	42.3	3.6%	90-100	0.1	0%
10-20	120.6	10.2%	100-110	0.1	0%
20-30	180.6	15.2%	110-120	0.1	0%
30-40	213.1	18.0%	120-130	0.3	0%
40-50	214.6	18.1%	130-140	0.3	0%
50-60	187.1	15.8%	140-150	0.3	0%
60-70	136.4	11.5%	150-160	0.2	0%
70-80	72.5	6.1%	160-170	0.2	0%
80-90	16.5	1.4%	170-180	0.1	0%

Table--1

UNIT: cd

C (DEG) y (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	448	448	448	447	448	447	448	448	448	448	448	447	448	447	448	448	
5	436	437	439	442	446	450	453	455	455	455	452	448	445	441	438	436	
10	420	422	427	431	439	446	453	458	460	457	450	445	438	430	424	421	
15	399	403	410	417	427	438	448	455	459	454	447	436	427	415	406	401	
20	377	380	389	398	411	426	438	447	452	445	437	423	410	395	385	378	
25	351	355	365	375	391	408	423	434	439	431	423	406	389	373	360	352	
30	323	327	338	350	366	385	402	415	421	411	402	383	365	347	333	325	
35	294	297	309	321	339	359	378	389	397	386	377	356	337	318	305	295	
40	263	267	277	290	309	329	348	360	367	357	346	326	306	288	274	265	
45	232	236	246	258	277	296	315	326	333	322	313	293	274	256	243	234	
50	201	204	214	226	244	261	278	288	295	285	276	258	241	224	211	204	
55	171	173	182	193	210	225	239	248	254	246	237	222	207	191	180	173	
60	141	142	150	160	175	187	200	207	212	205	197	184	172	158	148	142	
65	111	112	119	128	140	149	159	164	168	162	156	146	137	126	117	111	
70	82.3	83.2	88.2	95.7	105	112	118	122	125	119	114	109	102	93.1	87.1	83.5	
75	54.9	55.9	58.5	64.4	71.4	75.3	79.2	79.9	82.2	78.3	75.3	72.4	68.8	62.3	58.1	55.0	
80	30.3	31.3	32.4	35.7	39.4	41.6	43.0	42.9	44.4	42.5	40.3	39.2	37.1	33.9	32.0	30.5	
85	12.1	12.5	13.0	13.2	13.6	14.9	14.9	15.0	15.4	14.8	13.9	13.3	12.0	11.9	11.9	12.3	
90	0.30	0.20	0.11	0.23	0.47	0.37	0.37	0.27	0.05	0.05	0.00	0.05	0.36	0.16	0.05	0.10	
95	0.05	0.00	0.00	0.05	0.31	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.42	0.16	0.05	0.05	
100	0.00	0.00	0.00	0.05	0.31	0.10	0.05	0.00	0.00	0.00	0.00	0.05	0.47	0.26	0.05	0.16	
105	0.00	0.00	0.00	0.05	0.31	0.10	0.05	0.00	0.00	0.00	0.05	0.05	0.52	0.31	0.16	0.16	
110	0.00	0.00	0.05	0.05	0.37	0.10	0.05	0.00	0.05	0.11	0.10	0.05	0.52	0.31	0.26	0.16	
115	0.00	0.00	0.00	0.10	0.37	0.10	0.05	0.00	0.05	0.06	0.05	0.05	0.52	0.31	0.26	0.26	
120	0.00	0.11	0.00	0.15	0.37	0.10	0.05	0.05	0.11	0.11	0.11	0.21	0.58	0.47	0.37	0.26	
125	0.00	0.05	0.05	0.62	0.47	0.31	0.05	0.11	0.16	0.16	0.16	0.41	0.78	0.73	0.42	0.32	
130	0.00	0.05	0.05	0.73	0.52	0.42	0.05	0.11	0.22	0.27	0.16	0.41	0.89	0.73	0.47	0.42	
135	0.05	0.05	0.16	0.73	0.57	0.52	0.16	0.11	0.33	0.21	0.21	0.47	0.94	0.84	0.47	0.48	
140	0.11	0.05	0.16	0.78	0.68	0.63	0.16	0.11	0.32	0.38	0.26	0.47	0.78	0.89	0.53	0.48	
145	0.11	0.05	0.21	0.83	0.73	0.63	0.16	0.11	0.38	0.38	0.37	0.47	0.78	0.89	0.79	0.63	
150	0.16	0.11	0.26	0.83	0.78	0.73	0.26	0.11	0.38	0.43	0.42	0.47	0.78	0.84	0.84	0.58	
155	0.16	0.26	0.42	0.83	0.78	0.73	0.42	0.21	0.38	0.48	0.42	0.47	0.78	0.78	0.84	0.69	
160	0.16	0.21	0.53	0.83	0.89	0.78	0.58	0.21	0.38	0.54	0.42	0.47	0.73	0.99	0.84	0.74	
165	0.22	0.32	0.69	0.83	0.89	0.89	0.58	0.21	0.49	0.54	0.42	0.57	0.78	1.15	0.84	0.85	
170	0.27	0.32	0.79	0.83	0.89	0.78	0.89	0.26	0.65	0.54	0.42	0.78	0.89	1.36	0.84	0.90	
175	0.27	0.38	0.90	0.88	0.99	0.78	0.84	0.42	0.65	0.54	0.42	0.78	0.89	1.25	0.84	0.85	
180	0.38	0.54	0.85	0.88	1.15	0.94	0.84	0.63	0.59	0.43	0.42	0.83	0.89	1.15	0.84	0.85	

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2.2 Color Spatial Uniformity

IES LM-79 2008
ENERGY STAR® Program Requirements
Product Specification for Luminaires (Light
Fixtures) - Version 2.1

Test Data :

Test date	2018-07-01	Test Ambient	25.1°C
Sample No.		Maximum $\Delta u'v'$	
JCE180610-I1		0.0012	

Gamma\C	CIE u'	CIE v'	$du'v'$	CIE u'	CIE v'	$du'v'$
-79	0.2615	0.5251	0.0004	0.2621	0.5253	0.0003
-78	0.2616	0.5251	0.0004	0.2619	0.5253	0.0002
-77	0.2616	0.5251	0.0004	0.262	0.5253	0.0002
-76	0.2616	0.5251	0.0004	0.262	0.5253	0.0002
-75	0.2616	0.525	0.0003	0.2619	0.5253	0.0002
-74	0.2616	0.5251	0.0004	0.262	0.5253	0.0002
-73	0.2616	0.525	0.0004	0.2619	0.5253	0.0002
-72	0.2616	0.525	0.0004	0.2619	0.5253	0.0002
-71	0.2615	0.525	0.0004	0.262	0.5253	0.0002
-70	0.2615	0.525	0.0004	0.2619	0.5252	0.0002
-69	0.2615	0.525	0.0005	0.262	0.5253	0.0002
-68	0.2614	0.525	0.0006	0.2619	0.5252	0.0002
-67	0.2614	0.525	0.0006	0.262	0.5252	0.0002
-66	0.2613	0.525	0.0007	0.2619	0.5252	0.0002
-65	0.2613	0.525	0.0007	0.2619	0.5252	0.0001
-64	0.2614	0.525	0.0006	0.2619	0.5252	0.0001
-63	0.2613	0.525	0.0007	0.2619	0.5252	0.0001
-62	0.2614	0.525	0.0006	0.2619	0.5252	0.0001
-61	0.2614	0.525	0.0006	0.2619	0.5252	0.0001
-60	0.2613	0.525	0.0007	0.2619	0.5251	0.0001
-59	0.2616	0.525	0.0004	0.2621	0.5251	0.0001
-58	0.2616	0.525	0.0004	0.2621	0.5251	0.0001
-57	0.2616	0.525	0.0004	0.2621	0.5251	0.0001
-56	0.2616	0.525	0.0004	0.262	0.5251	0.0001
-55	0.2615	0.525	0.0004	0.2621	0.5251	0.0001
-54	0.2615	0.525	0.0005	0.262	0.5251	0.0001
-53	0.2615	0.525	0.0005	0.262	0.525	0.0001
-52	0.2616	0.525	0.0004	0.262	0.5251	0.0001
-51	0.2615	0.525	0.0004	0.262	0.525	0.0001
-50	0.2615	0.525	0.0004	0.262	0.5251	0.0001

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-49	0.2615	0.525	0.0005	0.262	0.525	0.0001
-48	0.2616	0.525	0.0003	0.262	0.525	0.0001
-47	0.2616	0.525	0.0004	0.262	0.525	0.0001
-46	0.2616	0.525	0.0004	0.262	0.525	0.0001
-45	0.2617	0.525	0.0003	0.262	0.525	0.0001
-44	0.2617	0.525	0.0003	0.262	0.525	0.0001
-43	0.2616	0.525	0.0003	0.262	0.525	0.0001
-42	0.2617	0.525	0.0003	0.262	0.525	0.0001
-41	0.2618	0.5251	0.0002	0.262	0.525	0.0001
-40	0.2618	0.5251	0.0002	0.262	0.525	0.0001
-39	0.2617	0.5251	0.0002	0.262	0.525	0.0001
-38	0.2617	0.5251	0.0003	0.262	0.525	0.0001
-37	0.2617	0.525	0.0003	0.262	0.525	0.0001
-36	0.2618	0.525	0.0002	0.262	0.525	0.0001
-35	0.2618	0.525	0.0002	0.2619	0.5249	0.0001
-34	0.2618	0.5251	0.0002	0.2619	0.525	0.0001
-33	0.2618	0.5251	0.0002	0.2619	0.525	0.0001
-32	0.2617	0.525	0.0003	0.2619	0.525	0.0001
-31	0.2618	0.525	0.0001	0.2619	0.5249	0.0001
-30	0.2619	0.5251	0.0001	0.2619	0.5249	0.0002
-29	0.2618	0.5251	0.0001	0.2619	0.5249	0.0002
-28	0.2618	0.5251	0.0002	0.2619	0.525	0.0002
-27	0.2618	0.525	0.0002	0.2618	0.525	0.0002
-26	0.2618	0.525	0.0002	0.2618	0.5249	0.0002
-25	0.2619	0.5251	0.0001	0.2619	0.5249	0.0002
-24	0.2619	0.5251	0.0001	0.2618	0.5249	0.0002
-23	0.2618	0.525	0.0001	0.2618	0.5249	0.0002
-22	0.2618	0.525	0.0001	0.2618	0.5249	0.0002
-21	0.2618	0.525	0.0001	0.2618	0.5249	0.0002
-20	0.2618	0.525	0.0002	0.2618	0.5249	0.0002
-19	0.2618	0.525	0.0002	0.2618	0.5249	0.0003
-18	0.2617	0.525	0.0002	0.2618	0.5249	0.0003
-17	0.2619	0.525	0.0001	0.2617	0.5249	0.0003
-16	0.2618	0.525	0.0001	0.2617	0.5249	0.0003
-15	0.2618	0.525	0.0002	0.2617	0.5249	0.0003
-14	0.2618	0.525	0.0002	0.2617	0.5249	0.0003
-13	0.2618	0.525	0.0002	0.2617	0.5249	0.0003
-12	0.2618	0.525	0.0002	0.2617	0.5249	0.0003
-11	0.2618	0.525	0.0002	0.2617	0.5249	0.0003
-10	0.2618	0.525	0.0002	0.2617	0.5249	0.0004

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-9	0.2617	0.525	0.0003	0.2617	0.5249	0.0004
-8	0.2617	0.525	0.0003	0.2617	0.5249	0.0004
-7	0.2618	0.525	0.0002	0.2617	0.5249	0.0003
-6	0.2618	0.525	0.0002	0.2617	0.5249	0.0004
-5	0.2618	0.525	0.0002	0.2617	0.5249	0.0004
-4	0.2618	0.525	0.0002	0.2616	0.5249	0.0004
-3	0.2618	0.525	0.0002	0.2616	0.5249	0.0004
-2	0.2618	0.525	0.0002	0.2616	0.5249	0.0004
-1	0.2618	0.525	0.0002	0.2616	0.5249	0.0004
0	0.2619	0.525	0	0.2619	0.525	0
1	0.2618	0.525	0.0002	0.2616	0.5249	0.0004
2	0.2618	0.525	0.0002	0.2616	0.5249	0.0004
3	0.2618	0.5249	0.0002	0.2616	0.5249	0.0004
4	0.2618	0.525	0.0002	0.2616	0.5249	0.0004
5	0.2618	0.5249	0.0002	0.2616	0.5249	0.0004
6	0.2618	0.525	0.0002	0.2616	0.5249	0.0004
7	0.2619	0.525	0.0002	0.2617	0.5249	0.0004
8	0.2619	0.525	0.0002	0.2616	0.5249	0.0004
9	0.2619	0.5249	0.0002	0.2616	0.5249	0.0004
10	0.2619	0.525	0.0001	0.2617	0.5249	0.0004
11	0.2619	0.525	0.0001	0.2617	0.5249	0.0004
12	0.2619	0.525	0.0001	0.2617	0.5249	0.0003
13	0.262	0.525	0.0001	0.2617	0.5249	0.0003
14	0.262	0.525	0.0001	0.2617	0.5249	0.0003
15	0.262	0.525	0.0001	0.2617	0.5249	0.0003
16	0.262	0.525	0.0001	0.2617	0.5249	0.0003
17	0.262	0.525	0.0001	0.2617	0.5249	0.0003
18	0.2621	0.525	0.0002	0.2617	0.5249	0.0003
19	0.2621	0.525	0.0002	0.2617	0.5249	0.0003
20	0.2621	0.5251	0.0002	0.2618	0.5249	0.0003
21	0.2622	0.5251	0.0002	0.2618	0.5249	0.0002
22	0.2622	0.5251	0.0003	0.2618	0.5249	0.0002
23	0.2623	0.5251	0.0003	0.2618	0.5249	0.0002
24	0.2623	0.5251	0.0003	0.2618	0.5249	0.0002
25	0.2623	0.5251	0.0004	0.2618	0.525	0.0002
26	0.2624	0.5251	0.0004	0.2618	0.525	0.0002
27	0.2624	0.5251	0.0004	0.2619	0.525	0.0002
28	0.2624	0.5251	0.0005	0.2619	0.525	0.0002
29	0.2625	0.5252	0.0006	0.2619	0.525	0.0001
30	0.2625	0.5252	0.0006	0.2619	0.525	0.0001

Laboratory: Standard-Tech Co., Ltd Testing Center
NVLAP CODE: 201011-0

Report Format Number STD/QR4910-A/1

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31	0.2626	0.5252	0.0006	0.2619	0.525	0.0001
32	0.2626	0.5252	0.0007	0.2619	0.525	0.0001
33	0.2626	0.5252	0.0007	0.2618	0.525	0.0002
34	0.2627	0.5252	0.0007	0.2618	0.525	0.0002
35	0.2627	0.5252	0.0008	0.2618	0.525	0.0002
36	0.2628	0.5252	0.0008	0.2618	0.525	0.0001
37	0.2628	0.5252	0.0009	0.2618	0.525	0.0001
38	0.2629	0.5252	0.0009	0.2618	0.525	0.0002
39	0.2629	0.5253	0.001	0.2619	0.525	0.0001
40	0.2628	0.5252	0.0008	0.2619	0.525	0.0001
41	0.2628	0.5252	0.0008	0.2619	0.525	0.0001
42	0.2628	0.5253	0.0009	0.2619	0.525	0.0001
43	0.2629	0.5253	0.0009	0.2619	0.525	0.0001
44	0.2629	0.5253	0.001	0.2619	0.5251	0.0001
45	0.2629	0.5253	0.001	0.2619	0.5251	0
46	0.263	0.5253	0.0011	0.2619	0.525	0
47	0.263	0.5253	0.0011	0.2619	0.5251	0
48	0.2631	0.5253	0.0011	0.2619	0.5251	0.0001
49	0.2629	0.5253	0.0009	0.2619	0.5251	0
50	0.2629	0.5253	0.001	0.2619	0.5251	0.0001
51	0.263	0.5253	0.001	0.2619	0.5251	0
52	0.263	0.5253	0.0011	0.2619	0.5251	0
53	0.2631	0.5253	0.0011	0.2618	0.5251	0.0002
54	0.2631	0.5253	0.0012	0.2618	0.5251	0.0002
55	0.2629	0.5253	0.001	0.2618	0.5251	0.0001
56	0.263	0.5253	0.001	0.2618	0.5252	0.0002
57	0.263	0.5253	0.0011	0.2619	0.5252	0.0001
58	0.2631	0.5253	0.0011	0.2619	0.5252	0.0001
59	0.2631	0.5253	0.0011	0.2619	0.5252	0.0001
60	0.2629	0.5253	0.001	0.262	0.5252	0.0001
61	0.2629	0.5253	0.001	0.2618	0.5252	0.0002
62	0.263	0.5253	0.001	0.2619	0.5252	0.0002
63	0.263	0.5253	0.0011	0.2619	0.5252	0.0002
64	0.2629	0.5253	0.0009	0.2619	0.5253	0.0002
65	0.2629	0.5253	0.001	0.2619	0.5252	0.0002
66	0.263	0.5253	0.0011	0.2619	0.5253	0.0002
67	0.2628	0.5253	0.0009	0.262	0.5253	0.0002
68	0.2629	0.5253	0.0009	0.262	0.5253	0.0002
69	0.2629	0.5253	0.001	0.262	0.5253	0.0002
70	0.2628	0.5253	0.0008	0.2621	0.5252	0.0002

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71	0.2629	0.5253	0.0009	0.2618	0.5252	0.0002
72	0.2629	0.5253	0.001	0.2619	0.5252	0.0001
73	0.2628	0.5253	0.0008	0.262	0.5252	0.0002
74	0.2629	0.5253	0.0009	0.2621	0.5252	0.0002
75	0.2629	0.5253	0.0009	0.2619	0.5252	0.0002
76	0.2629	0.5253	0.001	0.262	0.5252	0.0001
77	0.2629	0.5253	0.001	0.2621	0.5252	0.0002
78	0.263	0.5253	0.001	0.2619	0.5252	0.0002
79	0.2629	0.5253	0.001	0.262	0.5252	0.0002

Laboratory: Standard-Tech Co., Ltd Testing Center
NVLAP CODE: 201011-0

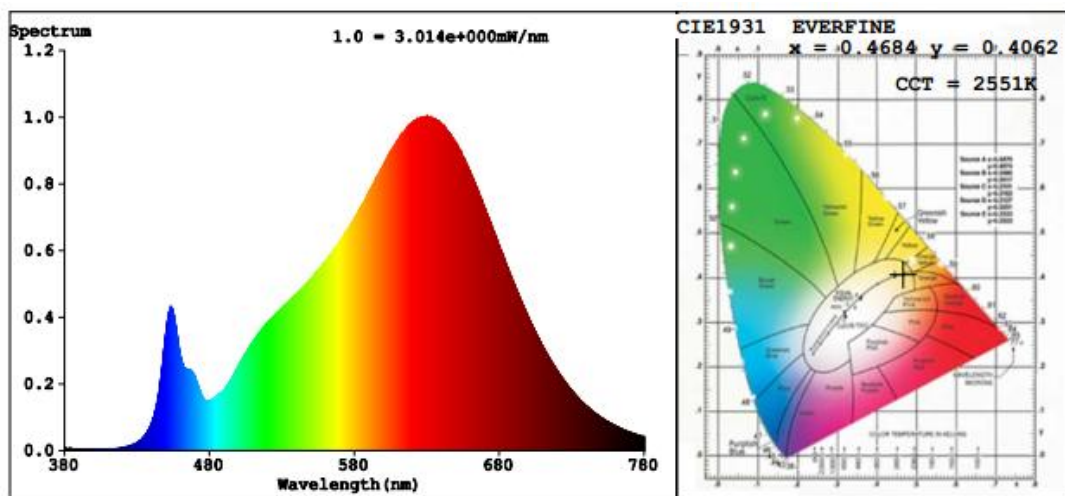
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3. Electrical and Photometric Measurements, with dimming
**IES LM-79 2008
 ENERGY STAR® Program Requirements Product
 Specification for Luminaires (Light Fixtures) -
 Version 2.1**

Test date	2018-07-01	Test Ambient:	25.1°C
Dimmer Model	LEVITON MFG CO INC (E31373), Cat. No. 6681		
Sample No.		Maximum Level	Minimum Level
JCE180610-I1	Input: 120.0 V / 60 Hz	Light output (Lumen)	880.7
		Percentage(%)	74.3
			6.7


Colorimetric Parameters

Chromaticity Coordinate: x=0.4684 y=0.4062/u'=0.2701 v'=0.5269

CCT=2551K(Duv=-0.0022) Dominant WL:Ld =585.7nm Purity=62.5%

Peak WL:Lp=630.4nm FWHM=142.8nm

Render Index: Ra=93.9 CRI=91.9

R1 =95 R2 =98 R3 =98 R4 =94 R5 =95 R6 =97 R7 =92

R8 =84 R9 =67 R10=94 R11=95 R12=84 R13=96 R14=99 R15=91

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	18.5	Dimmer adjusted to lowest light output	< 1 m

4. Flicker**NEMA 77-2017
ENERGY STAR® Program Requirements Product
Specification for Luminaires (Light Fixtures) -
Version 2.1**

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

Item	Short Term Flicker Indicator (Pst)	Stroboscopic Visibility Measure (SVM)
Full light output	0.063	0.835
Maximum Level (100%)	0.108	0.940
Minimum Level (20%)	0.159	0.926

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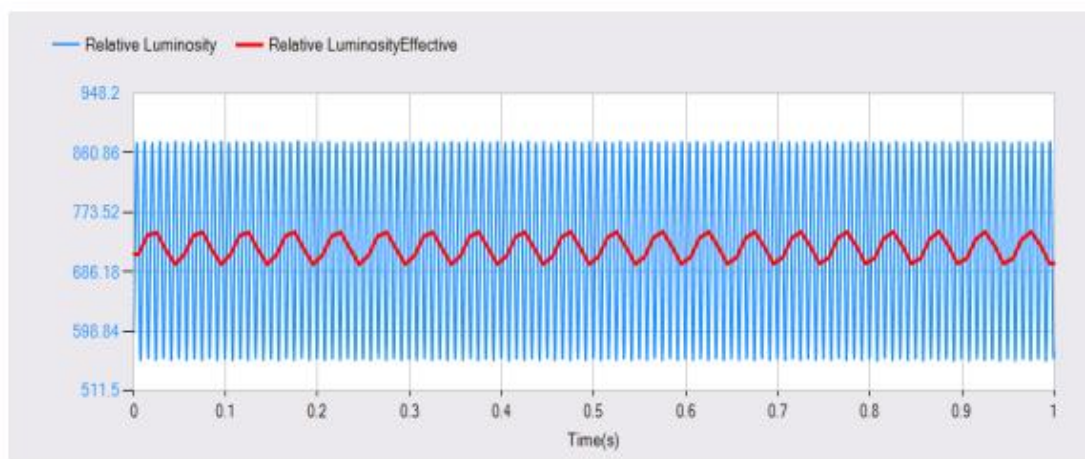
Report Format Number STD/QR4910-A/1

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5. Operating Frequency**ENERGY STAR[®] Program Requirements
Product Specification for Luminaires
(Light Fixtures) - Version 2.1****Noted: This test and data are not covered by NVLAP accreditation**

Test date	2018-07-01	Test Ambient:	25.1°C
Sample No.	Operating Frequency (Hz)		
JCE180610-I1	120.02		

**Laboratory: Standard-Tech Co., Ltd Testing Center
NVLAP CODE: 201011-0**

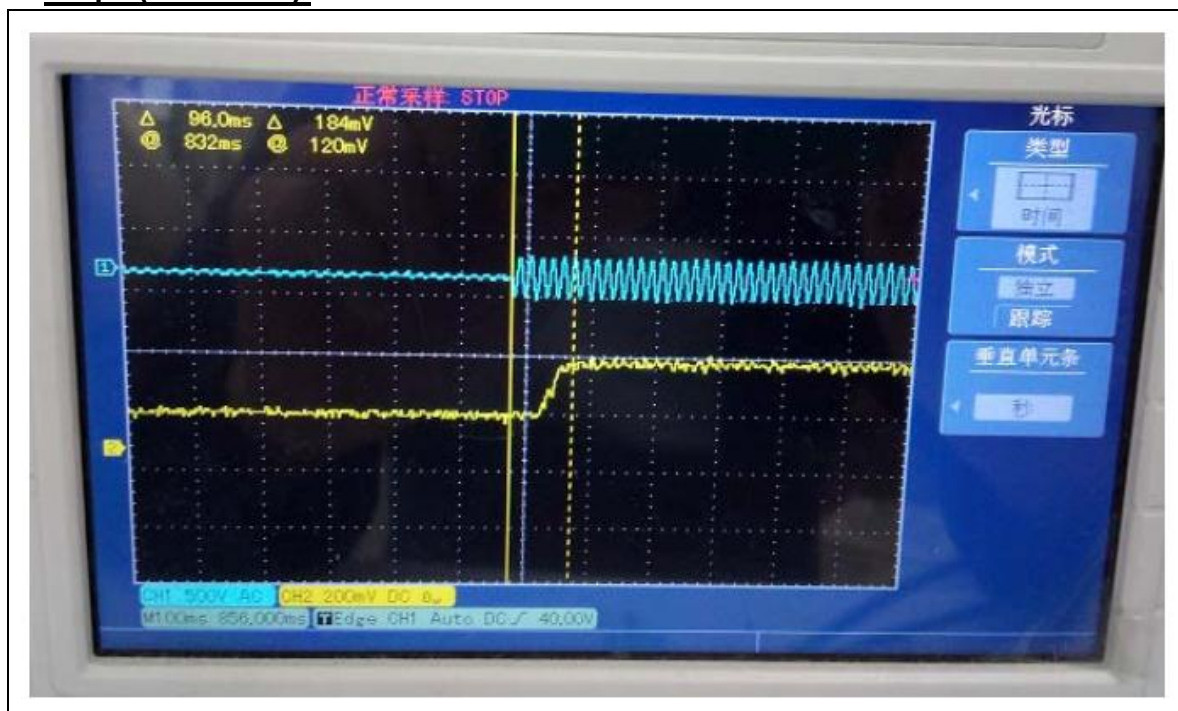
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6. Starting Time*(Refer to Work Instruction QD28)***ENERGY STAR[®] Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.1**

Test date	2018-07-01	Test Ambient:	25.1°C
Sample No.	Start Time (ms)		
JCE180610-I1	98.0		

Graph (Start Time):**Laboratory: Standard-Tech Co., Ltd Testing Center**
NVLAP CODE: 201011-0

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7. Transient Protection Test <i>(Refer to Work Instruction QD34)</i>	ANSI/IEEE C62.41 ENERGY STAR® Program Requirements for Luminaires – Version 2.1
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Test date	2018-07-01	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
JCE180610-I1		Pass	

8.1 In-Situ Temperature Measurement Test (ISTMT)

UL1598-2008, 3rd Edition

Test date	2018-07-01	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	39.28
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
JCE180610-I1	67-21S Series (3000K)	58.4	105

In-Situ Picture - Ts:



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

Test date	2018-07-01	Test Ambient	25.1°C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
JCE180610-I1	53.8	105	

In-Situ Picture - Ts:

9. Off-State Power Consumption:**ENERGY STAR® Program Requirements
Product Specification for Luminaires
(Light Fixtures) - Version 2.1**

Test date	2018-07-01	Test Ambient:	25.0 °C
Model Number	ULD16-27	Stabilization Time (min)	90

Electrical Measurement – when the luminaires turned off:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)
JCE180610-I1	120.0	60	0	0.007

10. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2018-07-01	2019-06-30
ST-R-331	Spectral analysis system HAAS-2000	2018-07-01	2019-06-30
EE-09	Goniophotometer system	2018-07-01	2019-06-30
D908S	Standard Lamp	2018-07-01	2019-06-30
D204	Standard Lamp	2018-07-01	2019-06-30
PF2010	Power Meter for Integrating Sphere	2018-07-01	2019-06-30
PF210	Power Meter for Goniophotometer	2018-07-01	2019-06-30
EE-015	Flux Meter	2018-07-01	2019-06-30
ST-R-277	Oscillograph	2018-07-01	2019-06-30
ST-R-EM01	Surge Generator	2018-07-01	2019-06-30
ST-R-EM02	EMC Coupler/Decoupler Module	2018-07-01	2019-06-30
Uncertainty Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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