

# Energy Star Test Report

For

## Beyond LED Technology

**(Brand Name: Beyond LED Technology)**

### Downlights

Model name(s): BLT-CP6-D20W-30E

Remark: Where the first "XX" represents different LED color temperature which could be numbers "00" to "99". The last X represents commercial use code which could be letters "A" to "Z".

Representative (Tested) Model: BLT-CP6-D20W-30E

Model Different: All construction and rating are the same, except CCT

Test & Report By:

*Garman Mo*

Engineer: Garman Mo

Date: Jul.27,2017

Review By:

*Tommy Liang*

Manager: Tommy Liang

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

U.S. Department of Energy

**Lighting Facts™ Uniform LM-79 Reporting Template**

**Laboratory Information:**

Name of Test Laboratory	Standard-Tech Co., Ltd.
Date of Test Report	Jul.22,2017
Test Report No.	GZE1707079-F
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	Beyond LED Technology		
Brand Name	Beyond LED Technology		
Model Number	BLT-CP6-D20W-30E		
SKU (if available)	N/A		
Type of Luminaire (for integral lamps, list base type and lamp type)	Downlights		
Luminaire Aperture (for Downlightss)	--	in.	
Luminaire Length	--	mm	
Luminaires Width	--	mm	
Number of Units (modular products)	N/A	s	

**Integrating Sphere      Goniophotometer**

**Electrical Measurements:**

	<b>Output</b>	<b>Output</b>	
Input Wattage	--	19.95	W
Input Current	--	0.1707	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9740	
Off-State Power	--	0	W

**Photometric Characteristics**

Total Initial Lumen Output	--	1798.7	lm
Initial Lumen Efficacy	--	90.16	lm/w
Correlated color temperature / CCT	2991	--	K
Color rendering index / CRI	82.2	--	
R9 Value	8	--	
Duv	0.0004	--	
<b>Luminous Intensity Distribution</b>			
Center beam candlepower (if applicable)		1308	cd
Beam angle (if applicable)		79.6	°
Zonal lumens in the 0°-60° zone		99.5	%
Zonal lumens in the 60°-90° zone	-----	0.5	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0	%

**Lighting Facts™ Uniform LM-79 Reporting Template**

**Laboratory Information:**

Name of Test Laboratory	Standard-Tech Co., Ltd.
Date of Test Report	Jul.22,2017
Test Report No.	GZE1707079-F
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	Beyond LED Technology	
Brand Name	Beyond LED Technology	
Model Number	BLT-CP6-D20W-30E	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Downlights	
Luminaire Aperture (for Downlightss)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

**Integrating Sphere      Goniophotometer**

**Electrical Measurements:**

	<b>Output</b>	<b>Output</b>	
Input Wattage	19.81	--	W
Input Current	0.1694	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9746	--	
Off-State Power	0	--	W

**Photometric Characteristics**

Total Initial Lumen Output	1800	--	lm
Initial Lumen Efficacy	90.86	--	lm/w
Correlated color temperature / CCT	3446	--	K
Color rendering index / CRI	84.0	--	
R9 Value	14	--	
Duv	-0.0003	--	
<b>Luminous Intensity Distribution</b>			
Center beam candlepower (if applicable)		--	cd
Beam angle (if applicable)		--	°
Zonal lumens in the 0°-60° zone		--	%
Zonal lumens in the 60°-90° zone	-----	--	%
Zonal lumens in the 90°-120° zone		--	%
Zonal lumens in the 120°-180° zone		--	%

**Lighting Facts<sup>™</sup> Uniform LM-79 Reporting Template**

**Laboratory Information:**

Name of Test Laboratory	Standard-Tech Co., Ltd.
Date of Test Report	Jul.22,2017
Test Report No.	GZE1707079-F
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	Beyond LED Technology	
Brand Name	Beyond LED Technology	
Model Number	BLT-CP6-D20W-30E	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Downlights	
Luminaire Aperture (for Downlightss)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

**Integrating Sphere**

**Goniophotometer**

**Electrical Measurements:**

	<b>Output</b>	<b>Output</b>	
Input Wattage	19.85	--	W
Input Current	0.1696	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9754	--	
Off-State Power	0	--	W

**Photometric Characteristics**

Total Initial Lumen Output	1819	--	lm
Initial Lumen Efficacy	91.64	--	lm/w
Correlated color temperature / CCT	4014	--	K
Color rendering index / CRI	84.2	--	
R9 Value	15	--	
Duv	-0.0007	--	

**Luminous Intensity Distribution**

Center beam candlepower (if applicable)	-----	--	cd
Beam angle (if applicable)		--	°
Zonal lumens in the 0°-60° zone		--	%
Zonal lumens in the 60°-90° zone		--	%
Zonal lumens in the 90°-120° zone		--	%
Zonal lumens in the 120°-180° zone		--	%

**Lighting Facts<sup>™</sup> Uniform LM-79 Reporting Template**

**Laboratory Information:**

Name of Test Laboratory	Standard-Tech Co., Ltd.
Date of Test Report	Jul.22,2017
Test Report No.	GZE1707079-F
Laboratory Contact Name	Tommy Liang

**Product Information:**

Organization Name	Beyond LED Technology	
Brand Name	Beyond LED Technology	
Model Number	BLT-CP6-D20W-30E	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Downlights	
Luminaire Aperture (for Downlightss)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

**Integrating Sphere**

**Goniophotometer**

**Electrical Measurements:**

	<b>Output</b>	<b>Output</b>	
Input Wattage	19.89	--	W
Input Current	0.1698	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9762	--	
Off-State Power	0	--	W

**Photometric Characteristics**

Total Initial Lumen Output	1853	--	lm
Initial Lumen Efficacy	93.16	--	lm/w
Correlated color temperature / CCT	5089	--	K
Color rendering index / CRI	85.0	--	
R9 Value	18	--	
Duv	0.0001	--	

**Luminous Intensity Distribution**

Center beam candlepower (if applicable)	-----	--	cd
Beam angle (if applicable)		--	°
Zonal lumens in the 0°-60° zone		--	%
Zonal lumens in the 60°-90° zone		--	%
Zonal lumens in the 90°-120° zone		--	%
Zonal lumens in the 120°-180° zone		--	%

Test Specifications:	
Date of Receipt	Jul.21,2017
Date of Test	Jul.22,2017
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry IESNA LM-16-93 Practical Guide to Colorimetry of Light Source IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems UL1993 4 <sup>th</sup> Edition, Self-Ballasted Lamps and Lamp Adapters ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) – Version 2.0
Reference Work Instruction	QD25
Remark	Below test and data are not covered by NVLAP accreditation: - Operating Frequency

**Test Methods**

**1. Photometric and Electrical measurements – Light Distribution 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 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. Photometric and Electrical Measurements – Integrating Sphere Method:**

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25° C ± 1° 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 Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at least 5 nm intervals over the range of 380 to 780 nm.

**1. Product Information:**

Brand Name	OKT Lighting
Model Number	BLT-CP6-D20W-30E
Luminaire Type	Downlights
Rated Voltage / Frequency	100-277Vac, 50/60 Hz
Nominal Power	20W
Rated Initial Lamp Lumen	--
Declared CCT	3000K,3500K,4000K,5000K
LED Manufacturer	LG Innotek Co., Ltd.
LED Model	LEMWS36X Series
Sample Receipt Date	Jul.21,2017
Sample Number	GZE1707079-F1,F2,F3(3000K),F4(3500K),F5(4000K),F6(5000K)

**Photo**



<b>2.1 Electrical, Photometric and Chromaticity Measurements</b> (Refer to Work Instruction QD25)	<b>IES LM-79 2008</b>
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<b>Test date</b>	2017-07-22	<b>Test Ambient:</b>	25.0 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	BLT-CP6-D20W-30E		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1707079-F1	120.0	60	0.1707	19.95	0.9740
GZE1707079-F2	120.0	60	0.1700	19.82	0.9715
GZE1707079-F3	120.0	60	0.1703	19.89	0.9731
Average			0.1703	19.89	0.9729

**Electrical Measurement(277V):**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1707079-F1	277.0	60	0.0757	19.71	0.9403

**Sphere-Spectroradiometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	82.2
R9	8
CCT (K)	2991
Chromaticity (x, y)	x=0.4382 y=0.4056
Chromaticity (u', v')	u'=0.2507 v'=0.5222
Duv	0.0004

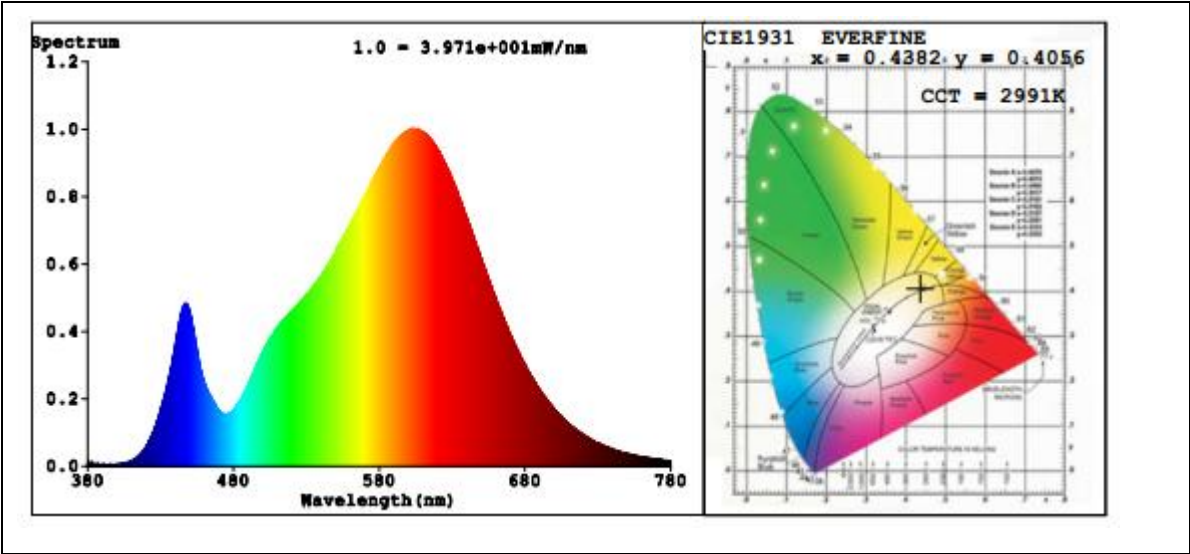
Special Color Rendering Indices			
R1	80	R9	8
R2	89	R10	75
R3	97	R11	80
R4	81	R12	72
R5	80	R13	82
R6	86	R14	98
R7	84	R15	73
R8	60	--	--

**Goniophotometer Method:**

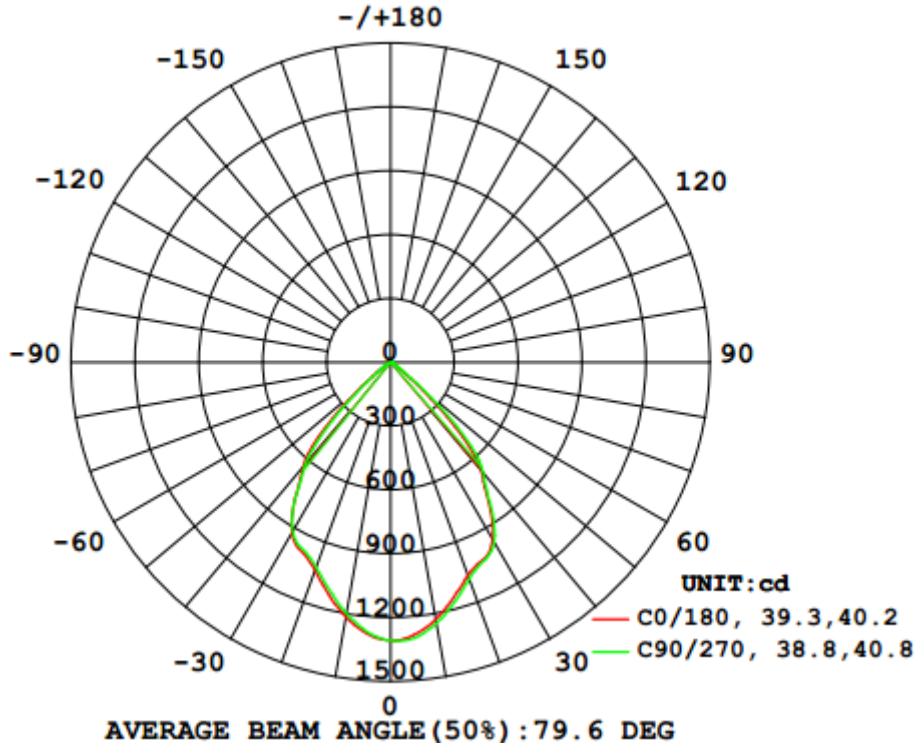
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1798.7
Luminous Efficacy (lm/W)	90.16
Beam Angle°	76.9
Center Beam Candle Power (cd)	1308



**Spectral Power Distribution and Chromaticity Diagram**



**Zonal Lumen Tabulation**



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	904.0	50.3%
0-40	1,400.8	77.9%
0-60	1,788.7	99.5%
60-90	9.3	0.5%
70-100	1.0	0.1%
90-120	0.0	0%
0-90	1,798.1	100%
90-180	0.3	0%
0-180	1,798.4	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	120.6	6.7%	90-100	0	0%
10-20	320.6	17.8%	100-110	0.0	0%
20-30	462.8	25.7%	110-120	0.0	0%
30-40	496.8	27.6%	120-130	0.0	0%
40-50	324.8	18.1%	130-140	0.0	0%
50-60	63.1	3.5%	140-150	0.1	0%
60-70	8.3	0.5%	150-160	0.1	0%
70-80	0.9	0.0%	160-170	0.0	0%
80-90	0.2	0.0%	170-180	0.0	0%

Table--1

UNIT: cd

C (DEG) \ y (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338
0	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308
5	1286	1292	1298	1300	1301	1299	1294	1287	1281	1275	1272	1272	1272	1272	1277	1282
10	1227	1236	1244	1246	1245	1243	1236	1226	1215	1207	1205	1199	1200	1207	1214	1220
15	1146	1157	1165	1171	1167	1166	1154	1144	1130	1120	1117	1110	1109	1121	1132	1141
20	1066	1079	1084	1089	1084	1083	1072	1056	1041	1032	1024	1022	1026	1037	1049	1059
25	1025	1030	1034	1036	1033	1023	1015	1000	985	972	966	966	972	983	996	1010
30	960	972	978	978	974	967	955	940	927	917	914	916	920	931	943	955
35	804	811	815	821	820	810	798	790	783	776	775	775	779	784	794	801
40	661	669	675	678	674	665	653	644	638	629	622	621	624	628	637	652
45	430	456	479	486	486	482	470	450	437	423	411	395	387	391	403	417
50	160	171	184	198	205	199	189	181	182	167	156	149	145	146	150	160
55	59.0	63.4	67.3	67.0	67.5	68.2	67.6	65.2	62.2	60.6	58.3	55.3	53.8	55.1	56.8	58.4
60	21.8	22.8	23.8	25.2	26.3	27.0	27.0	26.4	26.1	25.0	23.8	22.6	21.9	21.6	21.7	22.1
65	6.03	6.19	6.54	7.08	7.35	7.62	7.69	7.63	7.65	7.26	6.78	6.39	6.24	6.14	6.17	6.35
70	1.49	1.49	1.46	1.43	1.43	1.46	1.54	1.60	1.63	1.55	1.43	1.35	1.31	1.33	1.38	1.47
75	0.79	0.78	0.76	0.75	0.75	0.76	0.81	0.85	0.86	0.82	0.76	0.71	0.69	0.70	0.73	0.78
80	0.38	0.38	0.37	0.36	0.36	0.37	0.39	0.41	0.42	0.40	0.37	0.34	0.33	0.33	0.35	0.37
85	0.13	0.13	0.13	0.13	0.13	0.14	0.15	0.16	0.16	0.14	0.13	0.12	0.12	0.12	0.12	0.13
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	0.01
110	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01
115	0.02	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02
120	0.03	0.03	0.02	0.01	0.01	0.01	0.02	0.02	0.03	0.04	0.02	0.01	0.01	0.01	0.01	0.02
125	0.05	0.05	0.03	0.02	0.01	0.02	0.02	0.03	0.05	0.06	0.03	0.02	0.02	0.02	0.02	0.03
130	0.07	0.07	0.05	0.02	0.01	0.03	0.04	0.05	0.07	0.08	0.05	0.02	0.03	0.03	0.03	0.05
135	0.09	0.09	0.07	0.02	0.02	0.02	0.05	0.07	0.10	0.10	0.07	0.02	0.02	0.02	0.05	0.06
140	0.12	0.11	0.09	0.07	0.04	0.05	0.06	0.09	0.13	0.13	0.09	0.06	0.04	0.06	0.06	0.08
145	0.15	0.14	0.10	0.09	0.06	0.08	0.07	0.11	0.17	0.16	0.11	0.09	0.04	0.08	0.08	0.10
150	0.15	0.18	0.05	0.11	0.08	0.11	0.05	0.13	0.20	0.18	0.08	0.10	0.10	0.11	0.05	0.11
155	0.12	0.07	0.17	0.15	0.11	0.16	0.09	0.06	0.17	0.12	0.12	0.08	0.09	0.12	0.05	0.05
160	0.08	0.05	0.21	0.25	0.11	0.19	0.18	0.05	0.10	0.12	0.20	0.20	0.13	0.07	0.13	0.16
165	0.16	0.12	0.16	0.25	0.09	0.22	0.16	0.08	0.21	0.21	0.20	0.21	0.29	0.19	0.20	0.19
170	0.14	0.16	0.04	0.10	0.08	0.17	0.04	0.19	0.11	0.11	0.20	0.26	0.28	0.23	0.20	0.15
175	0.16	0.25	0.11	0.05	0.09	0.15	0.17	0.32	0.25	0.25	0.30	0.43	0.35	0.18	0.24	0.13
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

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

Report Format Number STD/QR4910-A/1

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Tel: 8620-3229 0320 Fax: 8620-32290422 <http://www.standard-tech.com>

<b>2.2 Electrical, Photometric and Chromaticity Measurements</b> <i>(Refer to Work Instruction QD25)</i>	<b>IES LM-79 2008</b>
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<b>Test date</b>	2017-07-22	<b>Test Ambient:</b>	25.0 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	BLT-CP6-D20W-30E		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1707079-F4	120.0	60	0.1694	19.81	0.9746
	277.0	60	0.0755	19.68	0.9410

**Sphere-Spectroradiometer Method:**

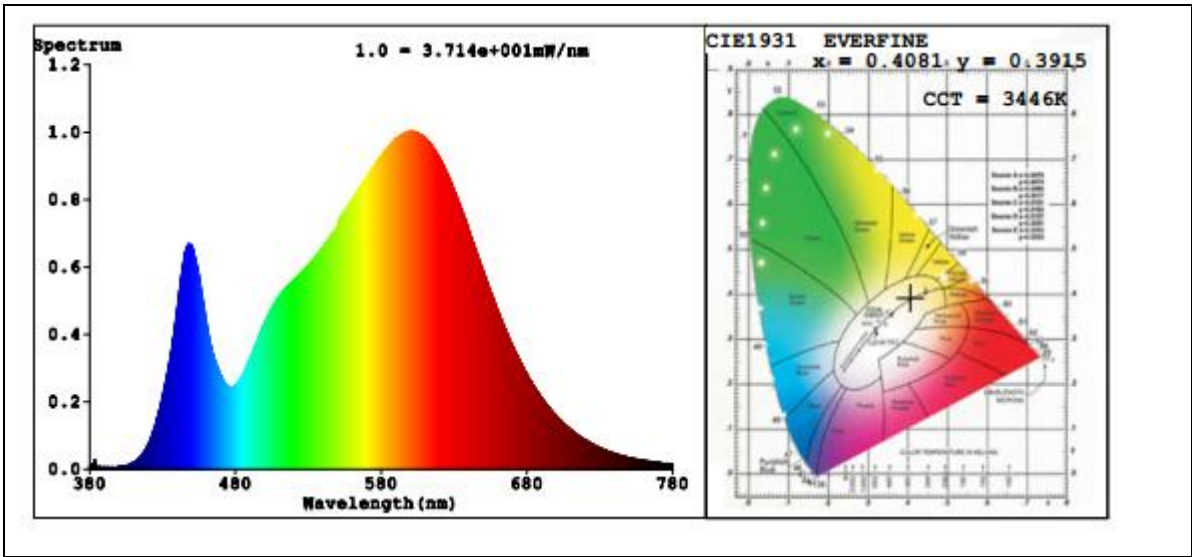
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	84.0
R9	14
CCT (K)	3446
Chromaticity (x, y)	x=0.4081 y=0.3915
Chromaticity (u', v')	u'=0.2372 v'=0.5120
Duv	-0.0003

Special Color Rendering Indices			
R1	82	R9	14
R2	90	R10	77
R3	96	R11	82
R4	83	R12	72
R5	83	R13	84
R6	87	R14	98
R7	86	R15	76
R8	65	--	--

**Sphere-Spectroradiometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1800
Luminous Efficacy (lm/W)	90.86

**Spectral Power Distribution and Chromaticity Diagram**



<b>2.3 Electrical, Photometric and Chromaticity Measurements</b> <i>(Refer to Work Instruction QD25)</i>	<b>IES LM-79 2008</b>
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<b>Test date</b>	2017-07-22	<b>Test Ambient:</b>	25.0 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	BLT-CP6-D20W-30E		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1707079-F5	120.0	60	0.1696	19.85	0.9754
	277.0	60	0.0758	19.71	0.9393

**Sphere-Spectroradiometer Method:**

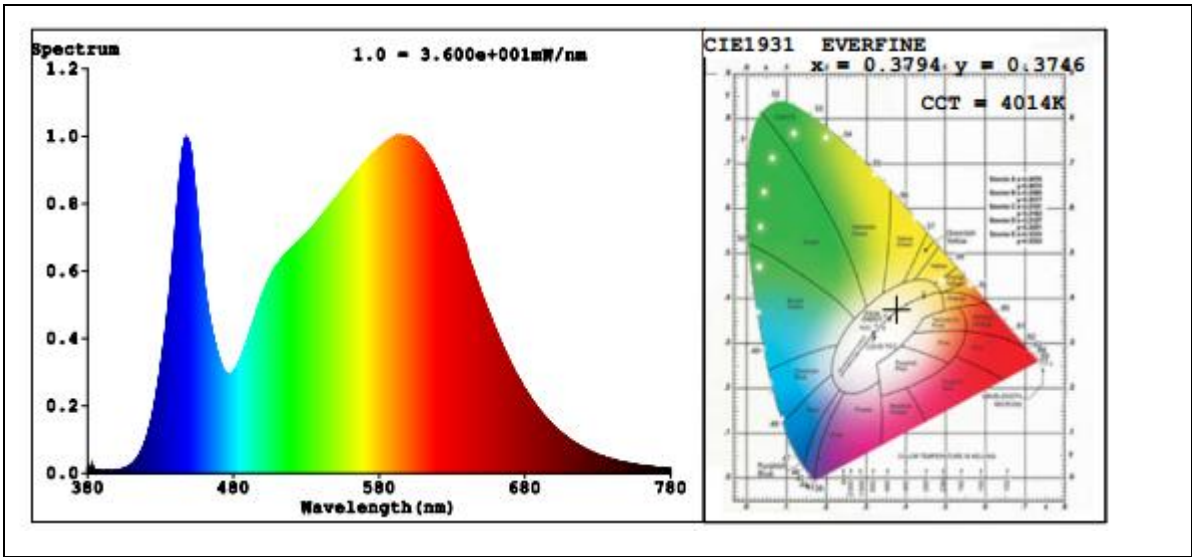
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	84.2
R9	15
CCT (K)	4014
Chromaticity (x, y)	x=0.3794 y=0.3746
Chromaticity (u', v')	u'=0.2253 v'=0.5005
Duv	-0.0007

Special Color Rendering Indices			
R1	83	R9	15
R2	89	R10	75
R3	94	R11	84
R4	84	R12	70
R5	83	R13	84
R6	86	R14	97
R7	87	R15	77
R8	67	--	--

**Sphere-Spectroradiometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1819
Luminous Efficacy (lm/W)	91.64

**Spectral Power Distribution and Chromaticity Diagram**



<b>2.4 Electrical, Photometric and Chromaticity Measurements</b> <i>(Refer to Work Instruction QD25)</i>	<b>IES LM-79 2008</b>
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<b>Test date</b>	2017-07-22	<b>Test Ambient:</b>	25.0 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	BLT-CP6-D20W-30E		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1707079-F6	120.0	60	0.1698	19.89	0.9762
	277.0	60	0.0753	19.65	0.9417

**Sphere-Spectroradiometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	85.0
R9	18
CCT (K)	5089
Chromaticity (x, y)	x=0.3427 y=0.3499
Chromaticity (u', v')	u'=0.2104 v'=0.4835
Duv	0.0001

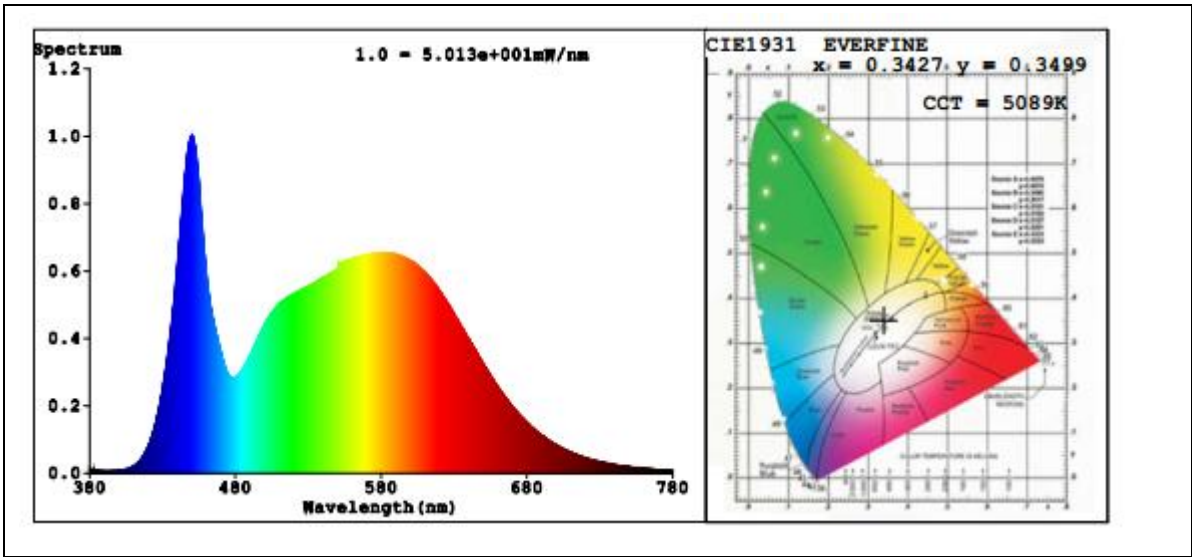
Special Color Rendering Indices			
R1	84	R9	18
R2	89	R10	74
R3	93	R11	85
R4	86	R12	70
R5	85	R13	85
R6	85	R14	96
R7	88	R15	79
R8	71	--	--

**Sphere-Spectroradiometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1853
Luminous Efficacy (lm/W)	93.16



Spectral Power Distribution and Chromaticity Diagram



<b>2.2 Color Spatial Uniformity</b>	<b>IES LM-79 2008 ENERGY STAR<sup>®</sup> Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b>
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**Test Data :**

<b>Test date</b> 2017-07-22	<b>Test Ambient</b> 25.1°C
<b>Sample No.</b>	<b>Maximum Δu'v'</b>
GZE1707079-F1	0.0017

Gamma\C	CIE u'	CIE v'	du' v'	CIE u'	CIE v'	du' v'
-51	0.2491	0.5217	0.0017	0.2485	0.5215	0.0017
-50	0.2492	0.5216	0.0015	0.2488	0.5214	0.0015
-49	0.2495	0.5216	0.0015	0.249	0.5213	0.0013
-48	0.2497	0.5216	0.0015	0.2494	0.5213	0.0012
-47	0.2497	0.5215	0.0014	0.2494	0.5212	0.0011
-46	0.25	0.5215	0.0015	0.2497	0.5212	0.0011
-45	0.2499	0.5214	0.0014	0.2496	0.521	0.0009
-44	0.2501	0.5214	0.0014	0.2497	0.521	0.0009
-43	0.25	0.5212	0.0012	0.2498	0.5209	0.0009
-42	0.25	0.5211	0.0011	0.2498	0.5209	0.0008
-41	0.2502	0.5212	0.0013	0.2499	0.5208	0.0008
-40	0.2501	0.521	0.0011	0.2498	0.5207	0.0007
-39	0.25	0.5209	0.001	0.2496	0.5205	0.0004
-38	0.2499	0.5207	0.0008	0.2496	0.5205	0.0004
-37	0.2498	0.5207	0.0007	0.2497	0.5205	0.0004
-36	0.2498	0.5206	0.0006	0.2496	0.5203	0.0002
-35	0.25	0.5207	0.0008	0.2498	0.5204	0.0004
-34	0.25	0.5206	0.0007	0.2498	0.5203	0.0004
-33	0.25	0.5206	0.0007	0.2497	0.5203	0.0003
-32	0.25	0.5205	0.0007	0.2498	0.5203	0.0003
-31	0.2502	0.5206	0.0008	0.2499	0.5203	0.0005
-30	0.2502	0.5206	0.0008	0.2498	0.5202	0.0003
-29	0.2503	0.5206	0.0009	0.2501	0.5204	0.0007
-28	0.2502	0.5206	0.0009	0.2499	0.5202	0.0004
-27	0.2501	0.5205	0.0007	0.2498	0.5201	0.0003
-26	0.2501	0.5204	0.0007	0.2497	0.5199	0.0002
-25	0.2499	0.5202	0.0005	0.2496	0.5199	0.0002
-24	0.2497	0.52	0.0002	0.2497	0.5199	0.0003
-23	0.2497	0.52	0.0002	0.2495	0.5198	0.0003
-22	0.2495	0.5199	0.0002	0.2494	0.5197	0.0004

-21	0.2496	0.5199	0.0002	0.2493	0.5196	0.0005
-20	0.2494	0.5198	0.0003	0.2491	0.5195	0.0007
-19	0.2494	0.5198	0.0003	0.2492	0.5195	0.0007
-18	0.2495	0.5198	0.0003	0.249	0.5194	0.0008
-17	0.2492	0.5196	0.0005	0.2491	0.5195	0.0007
-16	0.2492	0.5196	0.0006	0.249	0.5194	0.0009
-15	0.2493	0.5197	0.0004	0.2489	0.5193	0.001
-14	0.2491	0.5195	0.0007	0.249	0.5194	0.0009
-13	0.2492	0.5196	0.0006	0.249	0.5194	0.0009
-12	0.2492	0.5196	0.0005	0.2492	0.5195	0.0007
-11	0.2491	0.5195	0.0007	0.249	0.5194	0.0009
-10	0.2496	0.5198	0.0003	0.2491	0.5195	0.0007
-9	0.2491	0.5195	0.0007	0.2488	0.5193	0.0011
-8	0.2493	0.5197	0.0004	0.2489	0.5193	0.001
-7	0.2491	0.5195	0.0007	0.2488	0.5193	0.0011
-6	0.2491	0.5195	0.0007	0.2488	0.5193	0.0011
-5	0.2492	0.5196	0.0006	0.2491	0.5195	0.0007
-4	0.2492	0.5196	0.0006	0.2489	0.5194	0.0009
-3	0.2493	0.5197	0.0005	0.2489	0.5194	0.0009
-2	0.249	0.5195	0.0008	0.249	0.5195	0.0008
-1	0.2493	0.5197	0.0005	0.2488	0.5193	0.0011
0	0.2493	0.5198	0.0004	0.2493	0.5198	0.0004
1	0.2494	0.5197	0.0004	0.2487	0.5193	0.0011
2	0.2493	0.5197	0.0005	0.2488	0.5194	0.001
3	0.2491	0.5195	0.0007	0.2488	0.5193	0.0011
4	0.2494	0.5197	0.0004	0.249	0.5195	0.0008
5	0.2493	0.5196	0.0006	0.249	0.5195	0.0008
6	0.2492	0.5195	0.0006	0.2486	0.5192	0.0013
7	0.2492	0.5195	0.0007	0.2486	0.5192	0.0013
8	0.2494	0.5197	0.0004	0.2488	0.5193	0.001
9	0.2494	0.5196	0.0005	0.2486	0.5192	0.0012
10	0.2494	0.5196	0.0005	0.2487	0.5192	0.0012
11	0.2494	0.5196	0.0005	0.2486	0.5192	0.0012
12	0.2493	0.5195	0.0006	0.2487	0.5192	0.0012
13	0.2494	0.5195	0.0006	0.2488	0.5193	0.0011
14	0.2495	0.5196	0.0005	0.2487	0.5192	0.0012
15	0.2493	0.5195	0.0007	0.2489	0.5193	0.001
16	0.2491	0.5194	0.0008	0.2488	0.5192	0.0011
17	0.2492	0.5194	0.0007	0.2488	0.5193	0.0011
18	0.2494	0.5195	0.0006	0.2489	0.5194	0.001

19	0.2492	0.5194	0.0008	0.249	0.5194	0.0009
20	0.2493	0.5195	0.0007	0.2489	0.5193	0.001
21	0.2493	0.5195	0.0007	0.2488	0.5193	0.001
22	0.2494	0.5195	0.0006	0.2491	0.5195	0.0007
23	0.2495	0.5196	0.0005	0.2491	0.5195	0.0007
24	0.2496	0.5197	0.0004	0.2492	0.5196	0.0006
25	0.2499	0.5199	0.0005	0.2491	0.5195	0.0007
26	0.2498	0.5198	0.0004	0.2494	0.5197	0.0004
27	0.2498	0.5199	0.0004	0.2494	0.5197	0.0004
28	0.2499	0.5199	0.0004	0.2494	0.5198	0.0003
29	0.2497	0.5199	0.0003	0.2494	0.5198	0.0003
30	0.2499	0.52	0.0004	0.2494	0.5198	0.0003
31	0.2498	0.5201	0.0003	0.2495	0.5199	0.0002
32	0.2499	0.5201	0.0004	0.2494	0.5199	0.0003
33	0.2497	0.5199	0.0002	0.2494	0.5199	0.0002
34	0.2496	0.52	0.0002	0.2493	0.5199	0.0003
35	0.2494	0.5199	0.0002	0.2493	0.5199	0.0003
36	0.2495	0.52	0.0001	0.2492	0.5199	0.0004
37	0.2495	0.52	0.0001	0.2492	0.5199	0.0004
38	0.2496	0.5201	0.0001	0.249	0.5199	0.0006
39	0.2495	0.5201	0.0001	0.2492	0.5201	0.0003
40	0.2496	0.5202	0.0001	0.2491	0.5201	0.0004
41	0.2498	0.5204	0.0004	0.2494	0.5203	0.0002
42	0.2499	0.5206	0.0007	0.2493	0.5203	0.0003
43	0.2498	0.5206	0.0006	0.2495	0.5205	0.0005
44	0.25	0.5208	0.0009	0.2494	0.5206	0.0005
45	0.25	0.5209	0.001	0.2496	0.5207	0.0007
46	0.2499	0.521	0.001	0.2495	0.5208	0.0007
47	0.2501	0.5212	0.0012	0.2496	0.521	0.0009
48	0.2497	0.5212	0.0011	0.2495	0.5211	0.001
49	0.2498	0.5213	0.0013	0.2495	0.5212	0.0011
50	0.2494	0.5213	0.0013	0.2493	0.5213	0.0013
51	0.2491	0.5214	0.0014	0.2491	0.5214	0.0014

<b>3. Electrical and Photometric Measurements, with dimming</b>	<b>IES LM-79 2008                  ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b>
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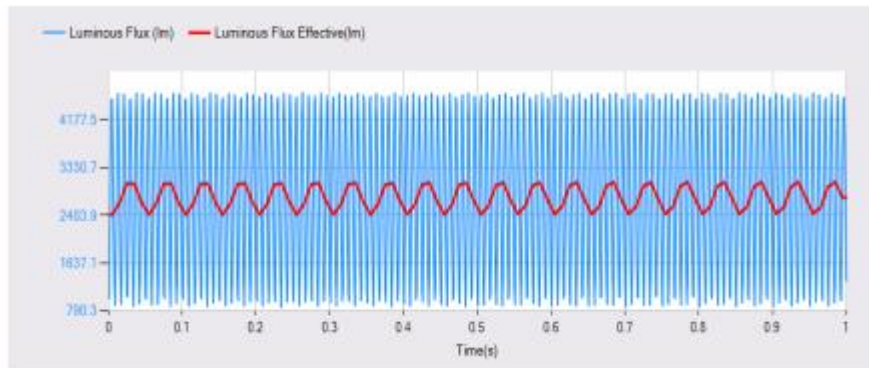
<b>Test date</b>	2017-07-22	<b>Test Ambient:</b>	25.1°C		
<b>Dimmer Model</b>		LEVITON MFG CO INC (E31373), Cat. No. 6681			
Sample No.	Input	Luminous flux (lm)	CCT (K)	CRI	P.F.
GZE1707079-F1	120.0 V / 60 Hz	--	--	--	--
GZE1707079-F2	120.0 V / 60 Hz	--	--	--	--
GZE1707079-F3	120.0 V / 60 Hz	--	--	--	--
Average		--	--	--	--

The luminaires ~~can~~ [can 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	--	Dimmer adjusted to lowest light output	< 1 m

<b>4 Operating Frequency</b>	<b>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b>
<b>Noted: This test and data are not covered by NVLAP accreditation</b>	

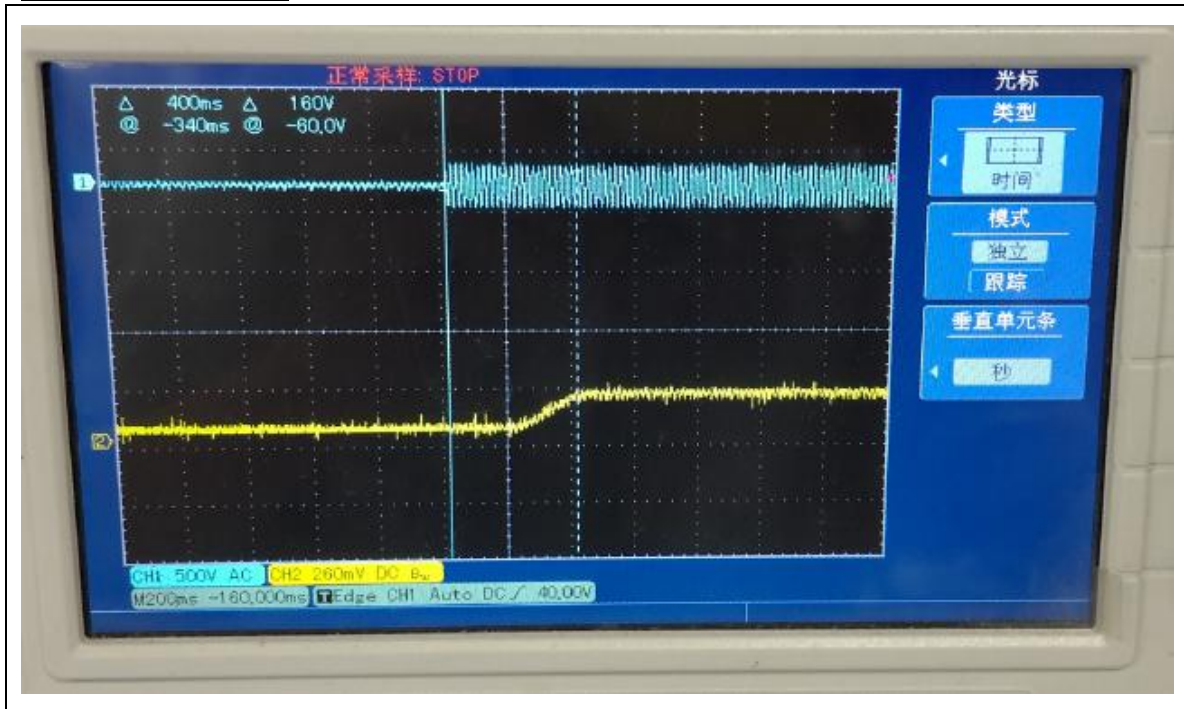
<b>Test date</b>	2017-07-22	<b>Test Ambient:</b>	25.1°C
<b>Sample No.</b>		<b>Operating Frequency (Hz)</b>	
GZE1707079-F1		120.37	
GZE1707079-F2		120.26	
GZE1707079-F3		120.49	
Average		120.37	



<p><b>5 Starting Time</b>  <i>(Refer to Work Instruction QD28)</i></p>	<p><b>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b></p>
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Test date	2017-07-22	Test Ambient:	25.1°C
Sample No.	Start Time (ms)		
GZE1707079-F1	400		
GZE1707079-F2	516		
GZE1707079-F3	472		
Average	463		

**Graph (Start Time):**



<p><b>6. Transient Protection Test</b>  <i>(Refer to Work Instruction QD34)</i></p>	<p><b>ANSI/IEEE C62.41</b>  <b>ENERGY STAR® Program Requirements for Luminaires – Version 2.0</b></p>
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**Test voltage: 120V,60Hz**

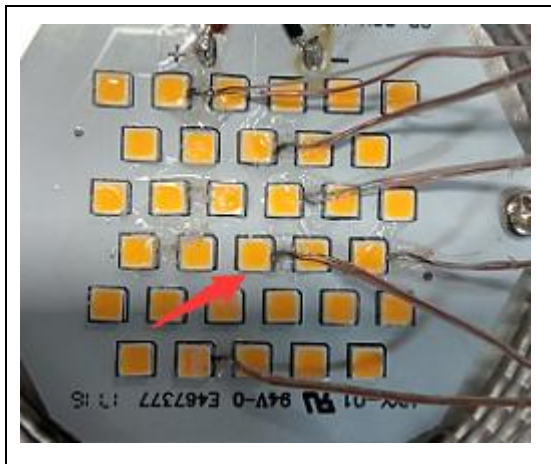
<b>Test date</b>	2017-07-22	<b>Test Ambient</b>	25.1°C
<b>Sample No.</b>		<b>Transient Protection Test - Seven Strikes</b>	
GZE1707079-F1		Pass	
GZE1707079-F2		Pass	
GZE1707079-F3		Pass	



<b>7.1 In-Situ Temperature Measurement Test (ISTMT)</b>	<b>UL1598-2008, 3<sup>rd</sup> Edition</b>
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Test date	2017-07-22	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	95.7
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1707079-F1	LEMWS36X Series	86.9	105

**In-Situ Picture - Ts:**



<b>7.2 Maximum Measured Ballast or Driver Case Temperature</b>	<b>UL1598-2008, 3<sup>rd</sup> Edition</b>
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Test date	2017-07-22	Test Ambient	25.1°C
<b>Sample No.</b>	<b>Maximum Measured Driver Case Temperature (°C)</b>	<b>Maximum Driver Case Temperature Limited (°C)</b>	
GZE1707079-F1	82.4	105	

**In-Situ Picture - Ts:**



<b>8 Off-State Power Consumption:</b>	<b>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</b>
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<b>Test date</b>	2017-07-22	<b>Test Ambient:</b>	25.0 °C
<b>Model Number</b>	BLT-CP6-D20W-30E	<b>Stabilization Time (min)</b>	90

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

<b>Sample No.</b>	<b>Voltage (Vac)</b>	<b>Frequency (Hz)</b>	<b>Current (A)</b>	<b>Power (W)</b>
GZE1707079-F 1	120.0	60	0	0

**8. Test Equipment**

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2017-07-01	2018-06-30
ST-R-331	Spectral analysis system HAAS-2000	2017-07-01	2018-06-30
EE-09	Goniophotometer system	2017-07-01	2018-06-30
D908S	Standard Lamp	2017-07-01	2018-06-30
D204	Standard Lamp	2017-07-01	2018-06-30
PF2010	Power Meter for Integrating Sphere	2017-07-01	2018-06-30
PF210	Power Meter for Goniophotometer	2017-07-01	2018-06-30
EE-015	Flux Meter	2017-07-01	2018-06-30
ST-R-277	Oscillograph	2017-07-01	2018-06-30
ST-R-EM01	Surge Generator	2017-07-01	2018-06-30
ST-R-EM02	EMC Coupler/Decoupler Module	2017-07-01	2018-06-30
Uncertainty Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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