

Energy Star Test Report

For

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-E
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:

	Output	Output	
Input Wattage	--	19.83	W
Input Current	--	0.1696	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9741	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	1850.5	lm
Initial Lumen Efficacy	--	93.32	lm/w
Correlated color temperature / CCT	3017	--	K
Color rendering index / CRI	82.3	--	
R9 Value	9	--	
Duv	0.0003	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)		1448	cd
Beam angle (if applicable)		74.2	°
Zonal lumens in the 0°-60° zone		99.0	%
Zonal lumens in the 60°-90° zone	----	1.0	%
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-E
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:

	Output	Output	
Input Wattage	19.86	--	W
Input Current	0.1698	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9747	--	
Off-State Power	0	--	W

Photometric Characteristics

Total Initial Lumen Output	1869	--	lm
Initial Lumen Efficacy	94.11	--	lm/w
Correlated color temperature / CCT	3465	--	K
Color rendering index / CRI	84.1	--	
R9 Value	15	--	
Duv	0.0003	--	
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™ 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-E
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:

	Output	Output	
Input Wattage	19.93	--	W
Input Current	0.1703	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9754	--	
Off-State Power	0	--	W

Photometric Characteristics

Total Initial Lumen Output	1890	--	lm
Initial Lumen Efficacy	94.83	--	lm/w
Correlated color temperature / CCT	3988	--	K
Color rendering index / CRI	84.2	--	
R9 Value	15	--	
Duv	-0.0004	--	

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™ 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-E
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:

	Output	Output	
Input Wattage	19.96	--	W
Input Current	0.1704	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9763	--	
Off-State Power	0	--	W

Photometric Characteristics

Total Initial Lumen Output	1918	--	lm
Initial Lumen Efficacy	96.09	--	lm/w
Correlated color temperature / CCT	5223	--	K
Color rendering index / CRI	85.5	--	
R9 Value	20	--	
Duv	0.0008	--	
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 th 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	Beyond LED Technology
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-E1,E2,E3(3000K),E4(3500K),E5(4000K),E6(5000K)

Photo



2.1 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
--	-----------------------

Test date	2017-07-22	Test Ambient:	25.0 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLT-CP6-D20W-30E		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1707079-E1	120.0	60	0.1696	19.83	0.9741
GZE1707079-E2	120.0	60	0.1705	19.95	0.9750
GZE1707079-E3	120.0	60	0.1701	19.90	0.9748
Average			0.1701	19.89	0.9746

Electrical Measurement(277V):

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1707079-E1	277.0	60	0.0758	19.76	0.9406

Sphere-Spectroradiometer Method:

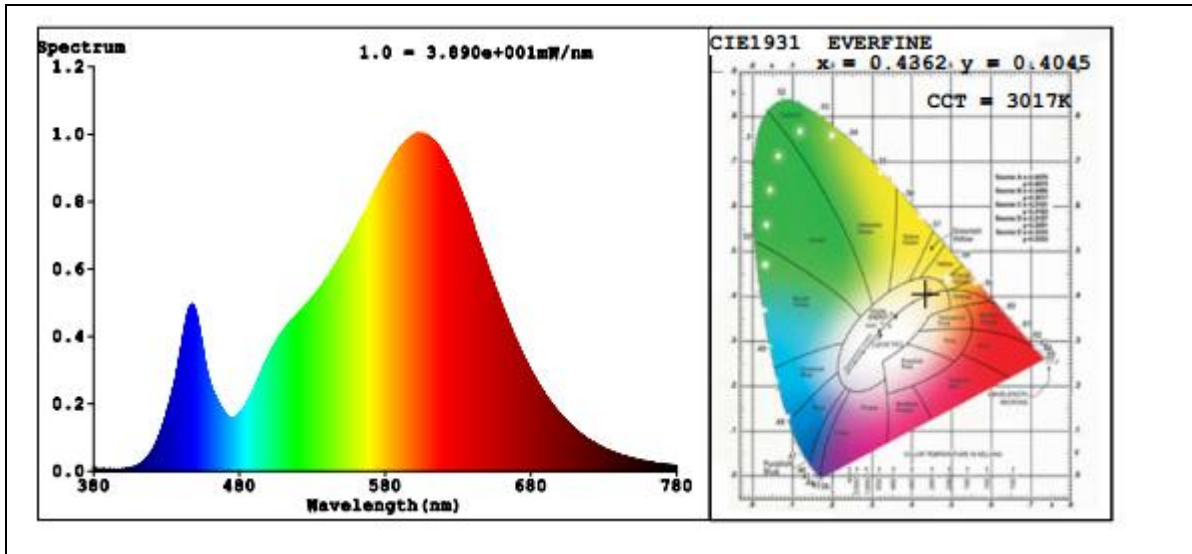
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	82.3
R9	9
CCT (K)	3017
Chromaticity (x, y)	x=0.4362 y=0.4045
Chromaticity (u', v')	u'=0.2499 v'=0.5214
Duv	0.0003

Special Color Rendering Indices			
R1	80	R9	9
R2	89	R10	76
R3	97	R11	80
R4	81	R12	72
R5	80	R13	82
R6	87	R14	98
R7	84	R15	73
R8	60	--	--

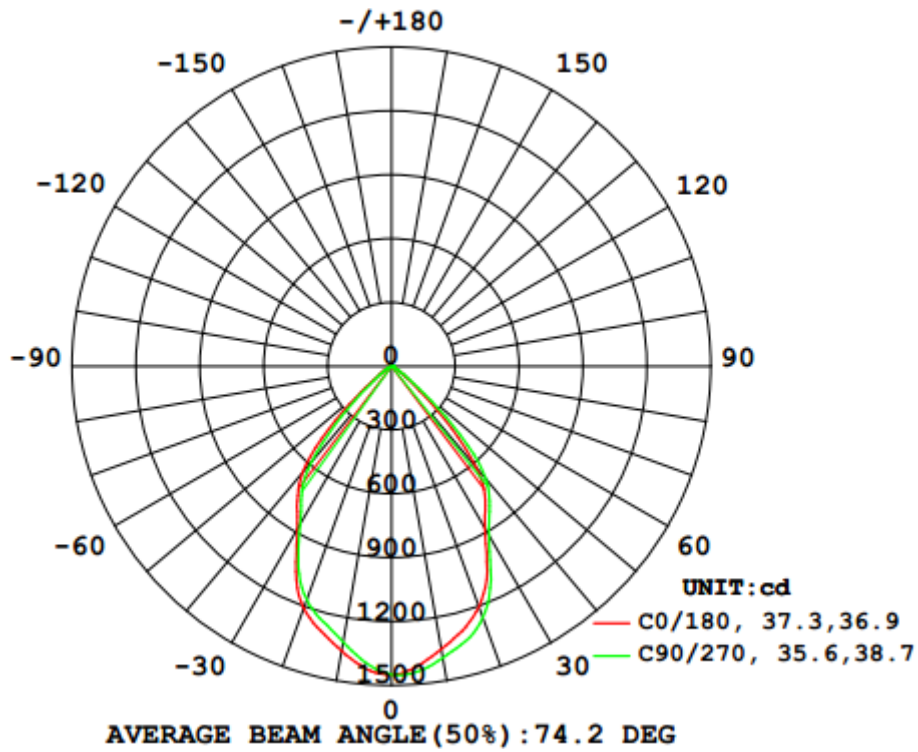
Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1850.5
Luminous Efficacy (lm/W)	93.32
Beam Angle°	74.2
Center Beam Candle Power (cd)	1448

Spectral Power Distribution and Chromaticity Diagram



Zonal Lumen Tabulation



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	980.7	53%
0-40	1,459.6	78.9%
0-60	1,831.8	99%
60-90	18.2	1%
70-100	2.2	0.1%
90-120	0.0	0%
0-90	1,850.0	100%
90-180	0.1	0%
0-180	1,850.1	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	133.3	7.2%	90-100	0.0	0%
10-20	362.3	19.6%	100-110	0	0%
20-30	485.2	26.2%	110-120	0.0	0%
30-40	478.9	25.9%	120-130	0.0	0%
40-50	300.4	16.2%	130-140	0.0	0%
50-60	71.9	3.9%	140-150	0.0	0%
60-70	16.0	0.9%	150-160	0.0	0%
70-80	1.8	0.1%	160-170	0.0	0%
80-90	0.4	0.0%	170-180	0.0	0%

Table--1 UNIT: cd

y (DEG)	C (DEG)															
	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338
0	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448	1448
5	1414	1420	1430	1439	1440	1439	1440	1434	1426	1414	1407	1401	1399	1399	1401	1407
10	1349	1357	1373	1390	1391	1387	1385	1373	1357	1341	1331	1327	1315	1312	1324	1342
15	1287	1294	1312	1332	1338	1329	1327	1309	1289	1267	1260	1253	1243	1240	1253	1274
20	1200	1222	1240	1246	1255	1255	1243	1221	1208	1190	1172	1163	1167	1172	1178	1185
25	1062	1075	1090	1104	1105	1098	1088	1077	1064	1054	1050	1044	1039	1037	1043	1057
30	879	891	904	913	916	914	905	893	886	877	866	861	860	857	862	870
35	768	782	794	802	803	802	793	782	774	758	747	741	739	740	745	758
40	616	639	665	681	690	691	680	661	649	632	614	598	586	577	585	599
45	355	383	418	447	459	461	456	440	421	393	367	348	332	325	326	335
50	141	157	176	191	205	213	206	192	191	172	159	140	131	125	127	134
55	66.5	69.1	74.8	80.6	82.6	83.5	83.5	80.4	77.1	72.6	70.3	67.5	63.6	60.5	61.3	64.0
60	31.6	33.7	36.6	38.7	40.1	41.5	41.9	40.5	39.6	38.1	36.6	34.7	32.6	30.7	30.1	30.9
65	11.7	12.8	14.4	15.0	15.7	16.6	17.0	16.5	16.8	16.4	15.7	14.7	13.1	11.9	11.2	11.5
70	2.78	2.95	3.21	4.66	4.66	4.84	4.95	4.78	3.52	3.26	3.04	2.97	2.91	2.70	2.58	2.61
75	1.43	1.54	1.65	1.64	1.56	1.55	1.58	1.58	1.65	1.62	1.56	1.54	1.51	1.43	1.38	1.39
80	0.72	0.77	0.84	0.84	0.82	0.81	0.81	0.82	0.86	0.85	0.82	0.79	0.77	0.74	0.71	0.70
85	0.27	0.30	0.34	0.37	0.38	0.38	0.37	0.36	0.37	0.36	0.35	0.34	0.33	0.31	0.29	0.28
90	0.00	0.00	0.00	0.00	0.00	0.01	0.01	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	0.01	0.00	0.01	0.00	0.00	0.00
120	0.00	0.01	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
125	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01
130	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
135	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.02	0.02	0.03	0.03	0.03
140	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03
145	0.04	0.04	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.06	0.04	0.04
150	0.04	0.04	0.04	0.04	0.05	0.08	0.05	0.05	0.05	0.05	0.05	0.04	0.05	0.08	0.05	0.06
155	0.05	0.04	0.04	0.05	0.06	0.11	0.05	0.05	0.06	0.06	0.05	0.06	0.04	0.04	0.08	0.05
160	0.04	0.04	0.04	0.06	0.09	0.15	0.06	0.04	0.05	0.05	0.05	0.07	0.06	0.08	0.12	0.09
165	0.06	0.05	0.04	0.04	0.09	0.05	0.04	0.08	0.07	0.07	0.06	0.06	0.05	0.14	0.12	0.10
170	0.04	0.08	0.04	0.11	0.04	0.12	0.05	0.13	0.07	0.07	0.06	0.06	0.06	0.20	0.10	0.11
175	0.14	0.15	0.04	0.07	0.21	0.04	0.09	0.26	0.19	0.19	0.13	0.14	0.29	0.33	0.13	0.23
180	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

2.2 Electrical, Photometric and Chromaticity Measurements <i>(Refer to Work Instruction QD25)</i>	IES LM-79 2008
---	-----------------------

Test date	2017-07-22	Test Ambient:	25.0 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLT-CP6-D20W-30E		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1707079-E4	120.0	60	0.1698	19.86	0.9747
	277.0	60	0.0758	19.78	0.9418

Sphere-Spectroradiometer Method:

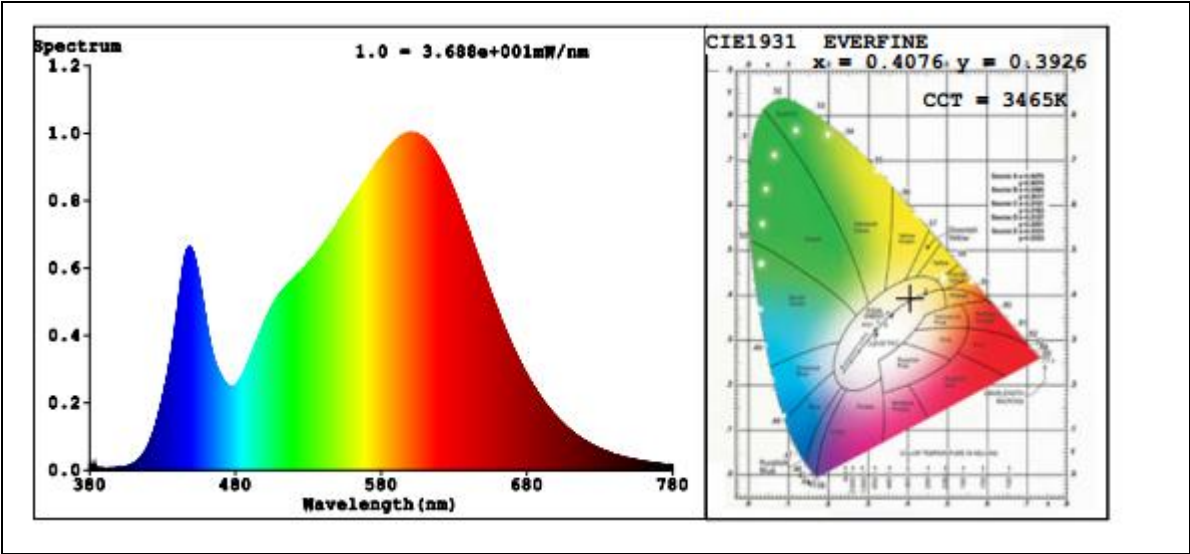
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	84.1
R9	15
CCT (K)	3465
Chromaticity (x, y)	x=0.4076 y=0.3926
Chromaticity (u', v')	u'=0.2365 v'=0.5124
Duv	0.0003

Special Color Rendering Indices			
R1	82	R9	15
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)	1869
Luminous Efficacy (lm/W)	94.11

Spectral Power Distribution and Chromaticity Diagram



2.3 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
--	-----------------------

Test date	2017-07-22	Test Ambient:	25.0 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLT-CP6-D20W-30E		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1707079-E5	120.0	60	0.1703	19.93	0.9754
	277.0	60	0.0738	19.82	0.9692

Sphere-Spectroradiometer Method:

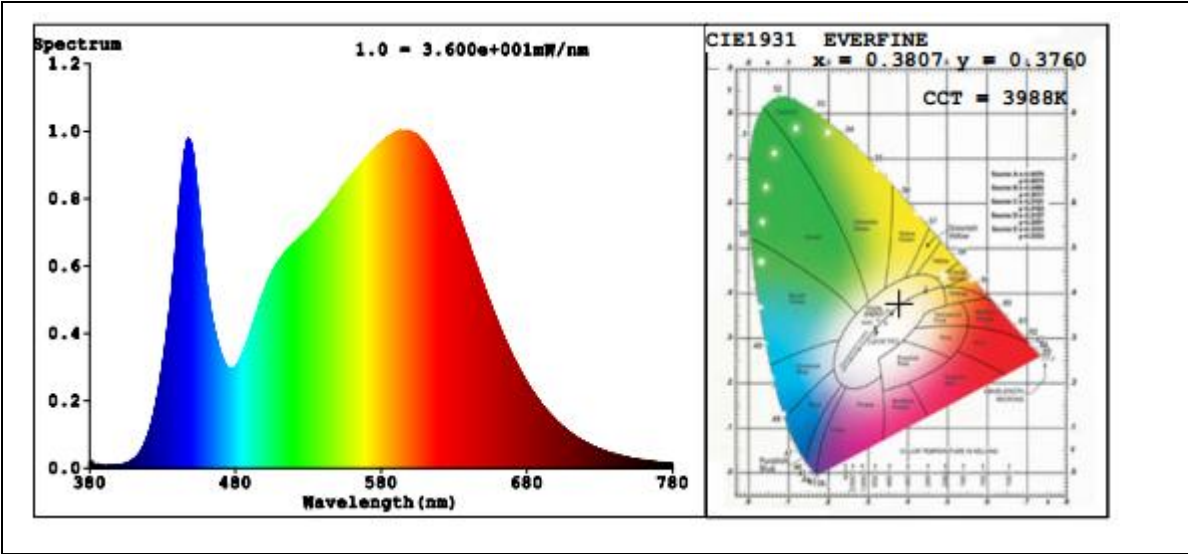
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	84.2
R9	15
CCT (K)	3988
Chromaticity (x, y)	x=0.3807 y=0.3760
Chromaticity (u', v')	u'=0.2256 v'=0.5013
Duv	-0.0004

Special Color Rendering Indices			
R1	83	R9	15
R2	89	R10	75
R3	95	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)	1890
Luminous Efficacy (lm/W)	94.83

Spectral Power Distribution and Chromaticity Diagram



2.4 Electrical, Photometric and Chromaticity Measurements <i>(Refer to Work Instruction QD25)</i>	IES LM-79 2008
---	-----------------------

Test date	2017-07-22	Test Ambient:	25.0 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLT-CP6-D20W-30E		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1707079-E6	120.0	60	0.1704	19.96	0.9763
	277.0	60	0.0757	19.72	0.9401

Sphere-Spectroradiometer Method:

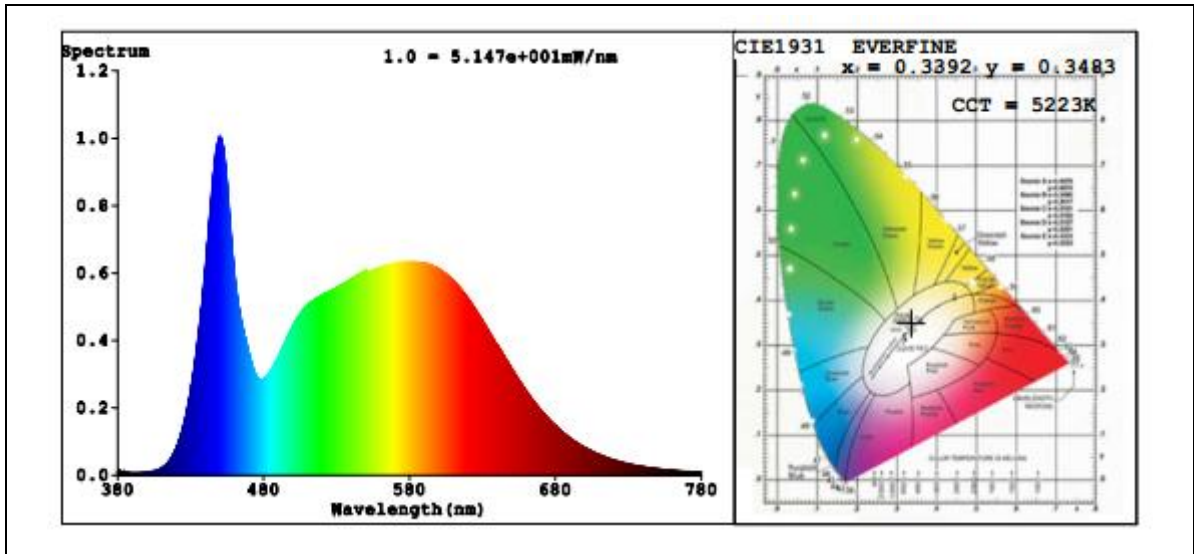
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	85.5
R9	20
CCT (K)	5223
Chromaticity (x, y)	x=0.3392 y=0.3483
Chromaticity (u', v')	u'=0.2087 v'=0.4822
Duv	0.0008

Special Color Rendering Indices			
R1	84	R9	20
R2	89	R10	75
R3	93	R11	86
R4	86	R12	70
R5	86	R13	85
R6	86	R14	96
R7	88	R15	80
R8	72	--	--

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1918
Luminous Efficacy (lm/W)	96.09

Spectral Power Distribution and Chromaticity Diagram



2.2 Color Spatial Uniformity	IES LM-79 2008 ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
-------------------------------------	---

Test Data :

Test date 2017-07-22	Test Ambient 25.1°C
Sample No.	Maximum Δu'v'
GZE1707079-E1	0.0018

Gamma\C	CIE u'	CIE v'	du' v'	CIE u'	CIE v'	du' v'
-51	0.2484	0.5214	0.0017	0.2486	0.5216	0.0018
-50	0.2485	0.5213	0.0016	0.2487	0.5215	0.0016
-49	0.2488	0.5213	0.0014	0.2489	0.5214	0.0015
-48	0.2488	0.5212	0.0013	0.2491	0.5213	0.0013
-47	0.2491	0.5212	0.0012	0.2493	0.5212	0.0012
-46	0.2494	0.5212	0.0011	0.2494	0.5211	0.0011
-45	0.2493	0.5211	0.001	0.2496	0.5211	0.001
-44	0.2496	0.5211	0.0011	0.2497	0.521	0.001
-43	0.2495	0.5209	0.0009	0.2498	0.5209	0.001
-42	0.2497	0.521	0.001	0.2499	0.5208	0.0009
-41	0.2496	0.5208	0.0008	0.2497	0.5206	0.0006
-40	0.2496	0.5208	0.0007	0.2499	0.5206	0.0007
-39	0.2495	0.5207	0.0006	0.2498	0.5205	0.0006
-38	0.2497	0.5206	0.0006	0.2497	0.5204	0.0004
-37	0.2496	0.5205	0.0005	0.2498	0.5204	0.0005
-36	0.2497	0.5205	0.0005	0.2497	0.5203	0.0003
-35	0.2494	0.5203	0.0002	0.2495	0.5201	0.0001
-34	0.2495	0.5203	0.0002	0.2495	0.52	0.0001
-33	0.2494	0.5202	0.0001	0.2493	0.5199	0.0002
-32	0.2494	0.5201	0.0001	0.2493	0.5198	0.0003
-31	0.2493	0.52	0.0002	0.2494	0.5198	0.0003
-30	0.2494	0.52	0.0001	0.2493	0.5197	0.0004
-29	0.2494	0.5199	0.0001	0.2494	0.5198	0.0003
-28	0.2492	0.5198	0.0003	0.2492	0.5196	0.0005
-27	0.2494	0.5199	0.0001	0.2494	0.5198	0.0003
-26	0.2496	0.52	0.0001	0.2495	0.5197	0.0003
-25	0.2495	0.5199	0.0001	0.2495	0.5197	0.0003
-24	0.2497	0.52	0.0002	0.2497	0.5199	0.0003
-23	0.2496	0.52	0.0002	0.2496	0.5198	0.0003
-22	0.2497	0.52	0.0002	0.2498	0.5199	0.0004

-21	0.2496	0.52	0.0002	0.2497	0.5198	0.0003
-20	0.25	0.5201	0.0006	0.2497	0.5198	0.0003
-19	0.25	0.5201	0.0006	0.2499	0.52	0.0005
-18	0.2497	0.5199	0.0003	0.2497	0.5198	0.0004
-17	0.2499	0.52	0.0004	0.2499	0.5199	0.0005
-16	0.2499	0.5201	0.0005	0.2497	0.5198	0.0004
-15	0.2497	0.5199	0.0003	0.2497	0.5198	0.0004
-14	0.2497	0.5199	0.0003	0.2494	0.5196	0.0005
-13	0.2494	0.5197	0.0003	0.2492	0.5195	0.0006
-12	0.2496	0.5199	0.0002	0.2494	0.5197	0.0004
-11	0.2496	0.5198	0.0003	0.2491	0.5194	0.0007
-10	0.2493	0.5197	0.0004	0.2493	0.5196	0.0005
-9	0.2493	0.5197	0.0004	0.2492	0.5195	0.0006
-8	0.2494	0.5198	0.0003	0.2491	0.5195	0.0007
-7	0.2493	0.5197	0.0004	0.2491	0.5196	0.0006
-6	0.2494	0.5198	0.0003	0.2491	0.5195	0.0006
-5	0.2494	0.5198	0.0003	0.249	0.5195	0.0008
-4	0.2494	0.5198	0.0003	0.2489	0.5195	0.0008
-3	0.2493	0.5198	0.0003	0.2492	0.5196	0.0005
-2	0.2491	0.5196	0.0006	0.249	0.5195	0.0007
-1	0.2492	0.5197	0.0004	0.2492	0.5197	0.0004
0	0.2492	0.5197	0.0004	0.2492	0.5197	0.0004
1	0.2495	0.5199	0.0002	0.249	0.5196	0.0007
2	0.2496	0.5199	0.0002	0.249	0.5196	0.0007
3	0.2496	0.5198	0.0002	0.249	0.5195	0.0007
4	0.2493	0.5197	0.0004	0.249	0.5196	0.0007
5	0.2492	0.5196	0.0005	0.249	0.5195	0.0007
6	0.2495	0.5198	0.0003	0.2493	0.5197	0.0004
7	0.2493	0.5196	0.0005	0.2491	0.5195	0.0006
8	0.2495	0.5198	0.0003	0.2492	0.5196	0.0005
9	0.2496	0.5197	0.0003	0.2492	0.5196	0.0005
10	0.2497	0.5198	0.0003	0.2491	0.5196	0.0006
11	0.2497	0.5198	0.0004	0.2492	0.5196	0.0005
12	0.2496	0.5196	0.0004	0.2496	0.5198	0.0003
13	0.2499	0.5199	0.0005	0.2496	0.5199	0.0002
14	0.2497	0.5197	0.0004	0.2495	0.5197	0.0003
15	0.2498	0.5198	0.0004	0.25	0.5201	0.0005
16	0.2501	0.52	0.0006	0.2494	0.5197	0.0003
17	0.2499	0.5198	0.0005	0.2495	0.5198	0.0003
18	0.2498	0.5198	0.0004	0.2498	0.52	0.0003

19	0.2498	0.5198	0.0004	0.2497	0.5199	0.0003
20	0.25	0.5199	0.0005	0.2495	0.5198	0.0002
21	0.2499	0.5198	0.0005	0.2493	0.5197	0.0003
22	0.25	0.5199	0.0005	0.2494	0.5198	0.0003
23	0.2499	0.5199	0.0005	0.2493	0.5197	0.0004
24	0.2498	0.5199	0.0004	0.2491	0.5196	0.0005
25	0.2498	0.5198	0.0004	0.249	0.5196	0.0006
26	0.2495	0.5197	0.0003	0.249	0.5195	0.0007
27	0.2492	0.5196	0.0005	0.249	0.5196	0.0006
28	0.2492	0.5196	0.0006	0.2488	0.5194	0.0009
29	0.2493	0.5196	0.0004	0.2488	0.5194	0.0009
30	0.2492	0.5195	0.0006	0.2489	0.5196	0.0007
31	0.2491	0.5196	0.0006	0.2488	0.5195	0.0009
32	0.2493	0.5197	0.0003	0.2487	0.5195	0.0009
33	0.2492	0.5197	0.0004	0.2488	0.5197	0.0007
34	0.2494	0.5199	0.0002	0.2488	0.5197	0.0007
35	0.2494	0.5199	0.0001	0.249	0.5198	0.0005
36	0.2495	0.5201	0.0001	0.2489	0.5199	0.0006
37	0.2494	0.5201	0	0.2489	0.5199	0.0005
38	0.2495	0.5202	0.0002	0.2491	0.52	0.0004
39	0.2496	0.5203	0.0003	0.2491	0.5202	0.0003
40	0.2498	0.5205	0.0005	0.2493	0.5204	0.0003
41	0.2497	0.5205	0.0005	0.2492	0.5204	0.0004
42	0.2497	0.5206	0.0006	0.2493	0.5205	0.0005
43	0.2498	0.5208	0.0008	0.2494	0.5206	0.0006
44	0.2498	0.5208	0.0009	0.2494	0.5207	0.0007
45	0.2499	0.521	0.001	0.2493	0.5208	0.0008
46	0.2498	0.5211	0.0011	0.2493	0.5209	0.0009
47	0.2497	0.5212	0.0011	0.2491	0.521	0.001
48	0.2497	0.5213	0.0013	0.2492	0.5211	0.0011
49	0.2495	0.5213	0.0013	0.249	0.5212	0.0012
50	0.2494	0.5214	0.0014	0.2488	0.5212	0.0013
51	0.2493	0.5215	0.0015	0.2488	0.5214	0.0015

3. Electrical and Photometric Measurements, with dimming	IES LM-79 2008 ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
---	--

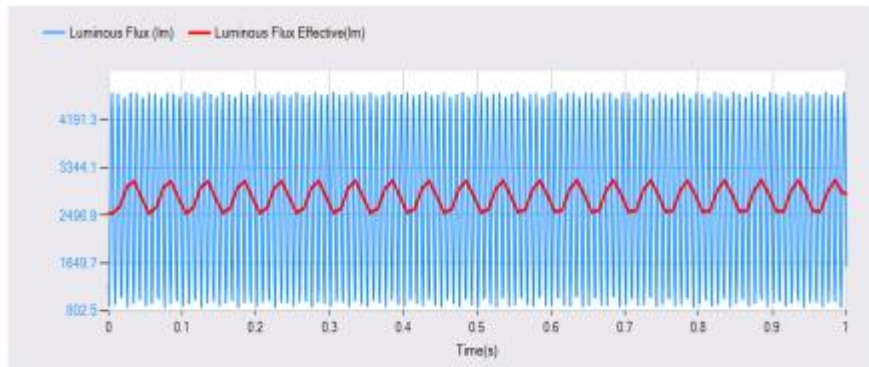
Test date	2017-07-22	Test Ambient:	25.1°C		
Dimmer Model		LEVITON MFG CO INC (E31373), Cat. No. 6681			
Sample No.	Input	Luminous flux (lm)	CCT (K)	CRI	P.F.
GZE1707079-E1	120.0 V / 60 Hz	--	--	--	--
GZE1707079-E2	120.0 V / 60 Hz	--	--	--	--
GZE1707079-E3	120.0 V / 60 Hz	--	--	--	--
Average		--	--	--	--

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

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

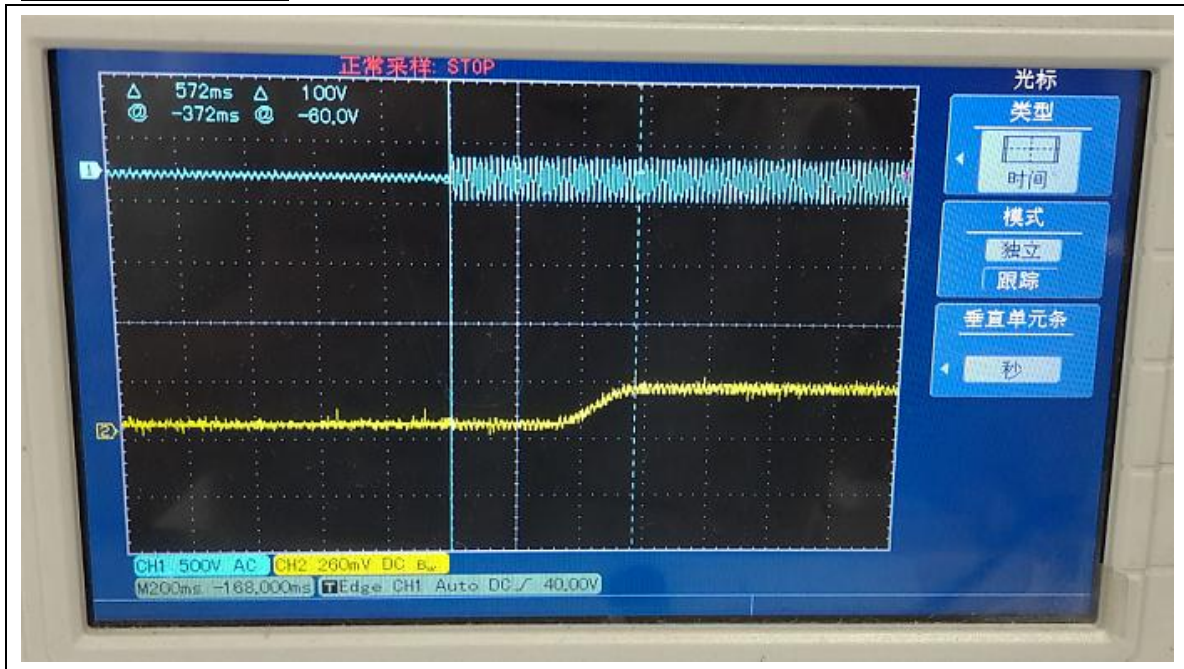
Test date	2017-07-22	Test Ambient:	25.1°C
Sample No.		Operating Frequency (Hz)	
GZE1707079-E1		120.37	
GZE1707079-E2		120.53	
GZE1707079-E3		120.40	
Average		120.43	



5 Starting Time <i>(Refer to Work Instruction QD28)</i>	ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
---	--

Test date	2017-07-22	Test Ambient:	25.1°C
Sample No.	Start Time (ms)		
GZE1707079-E1	572		
GZE1707079-E2	526		
GZE1707079-E3	507		
Average	535		

Graph (Start Time):



<p>6. Transient Protection Test <i>(Refer to Work Instruction QD34)</i></p>	<p>ANSI/IEEE C62.41 ENERGY STAR® Program Requirements for Luminaires – Version 2.0</p>
---	---

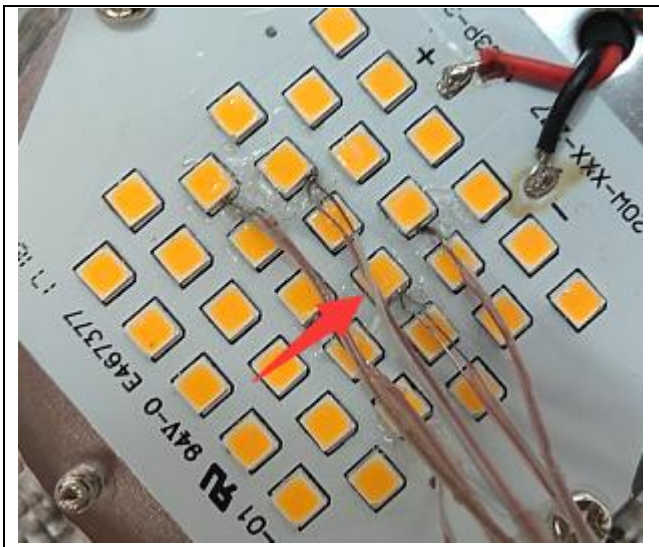
Test voltage: 120V,60Hz

Test date	2017-07-22	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
GZE1707079-E1		Pass	
GZE1707079-E2		Pass	
GZE1707079-E3		Pass	

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

Test date	2017-07-22	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	95.1
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1707079-E1	LEMWS36X Series	87.3	105

In-Situ Picture - Ts:



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

Test date	2017-07-22	Test Ambient	25.1°C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1707079-E1	82.9	105	

In-Situ Picture - Ts:



8 Off-State Power Consumption:	ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
---------------------------------------	--

Test date	2017-07-22	Test Ambient:	25.0 °C
Model Number	CP6-20W-30E	Stabilization Time (min)	90

Electrical Measurement – when the luminaires turned off:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)
GZE1707079-E 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 *******