NVLAP LAB CODE 201011-0

LM-79-08 Test Report

For

L-TECH CORPORTION

(Brand Name: L-TECH CORP)

SHAOGANGTOU DISTRICT.QIAOTOU TOWN.DONGGUAN
CITY.GUANGDONG PROVINCE,CHINA

LED DOWNLIGHT

Model name(s): CLED4A/P/R-15 WITH TCLD415HZ(CLKT415)

Representative (Tested) Model: CLED4A/P/R-15 WITH TCLD415HZ(CLKT415)(3000K)
CLED4A/P/R-15 WITH TCLD415HZ(CLKT415)(4000K)

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

Test & Report By:

Johnson Sun

Engineer: Johnson Sun
Date: Jan.13,2016

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.

NVLAP LAB CODE 201011-0

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	Jan.13, 2016
Test Report No.	GZE160118-A
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	L-TECH CORPORTION	
Brand Name	L-TECH CORP	
Model Number	CLED4A/P/R-15 WITH TCLD415HZ(CLKT415)(3000K)	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED DOWNLIGHT	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Electrical Measurements:	**Integrating Sphere Output**	**Goniophotometer Output**	
Input Wattage	--	16.32	W
Input Current	--	0.1372	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9913	
Off-State Power	--	0	W
Photometric Characteristics			
Total Initial Lumen Output	--	1079.9	lm
Initial Lumen Efficacy	--	66.17	lm/w
Correlated color temperature / CCT	2998	--	K
Color rendering index / CRI	81.6	--	
R9 Value	5	--	
Duv	0.0004	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	-----	711	cd
Beam angle (if applicable)		69.9	°
Zonal lumens in the 0 °-60 °zone		90.1	%
Zonal lumens in the 60 °-90 °zone		9.9	%
Zonal lumens in the 90 °-120 °zone		0	%
Zonal lumens in the 120 °-180 °zone		0	%

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	Jan.13, 2016
Test Report No.	GZE160118-A
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	L-TECH CORPORTION	
Brand Name	L-TECH CORP	
Model Number	CLED4A/P/R-15 WITH TCLD415HZ(CLKT415)(4000K)	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED DOWNLIGHT	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Electrical Measurements:	**Integrating Sphere Output**	**Goniophotometer Output**	
Input Wattage	16.65	--	W
Input Current	0.1401	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9907	--	
Off-State Power	0	--	W

Photometric Characteristics

Total Initial Lumen Output	1119	--	lm
Initial Lumen Efficacy	67.21	--	lm/w
Correlated color temperature / CCT	4024	--	K
Color rendering index / CRI	84.9	--	
R9 Value	28	--	
Duv	0.0005	--	
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	Jan.11,2016
Date of Test	Jan.12,2016
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 4th 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:

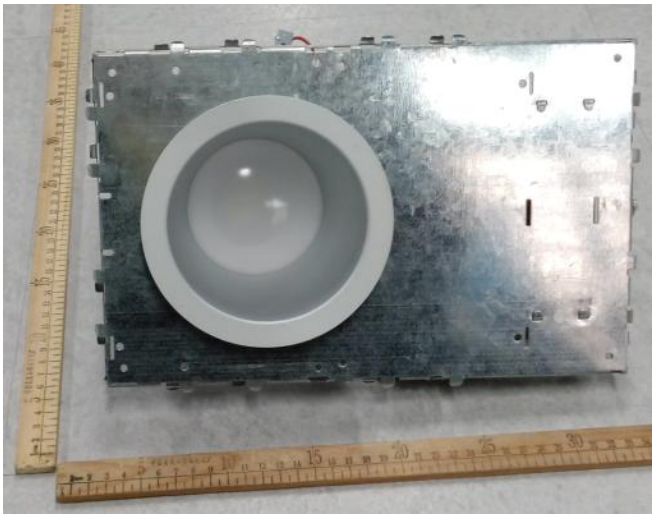
Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25 °C ±1 °C, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1 °vertical intervals and 22.5 °horizontal intervals.

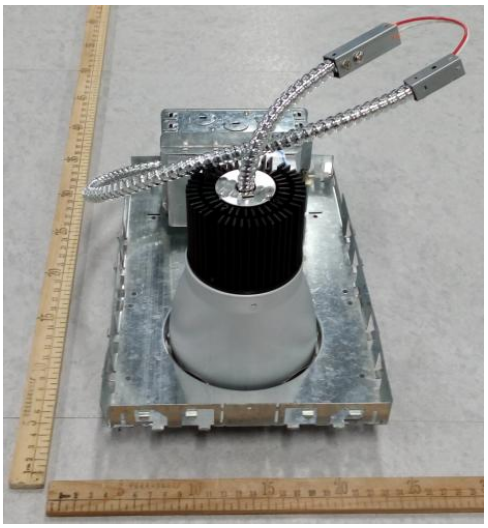
2. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 ºC ±1 ºC. 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	L-TECH CORP
Model Number	GZE160118-A
Luminaire Type	LED DOWNLIGHT
Rated Voltage / Frequency	120Vac, 60 Hz
Nominal Power	17W
Rated Initial Lamp Lumen	--
Declared CCT	3000K,4000K
LED Manufacturer	EVERLIGHT ELECTRONICS CO.,LTD.
LED Model	62-217D(3000 K)
Sample Receipt Date	Jan.11,2015
Sample Number	GZE160118-A1,A2,A3(3000K),A4(4000K)
Photo	





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

Test date	2016-01-12	Test Ambient:	25.0 ℃
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CLED4A/P/R-15 WITH TCLD415HZ(CLKT415)(3000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE160118-A1	120.0	60	0.1372	16.32	0.9913
GZE160118-A2	120.0	60	0.1361	16.18	0.9908
GZE160118-A3	120.0	60	0.1366	16.25	0.9911
Average			0.1366	16.25	0.9911

Sphere-Spectroradiometer Method:

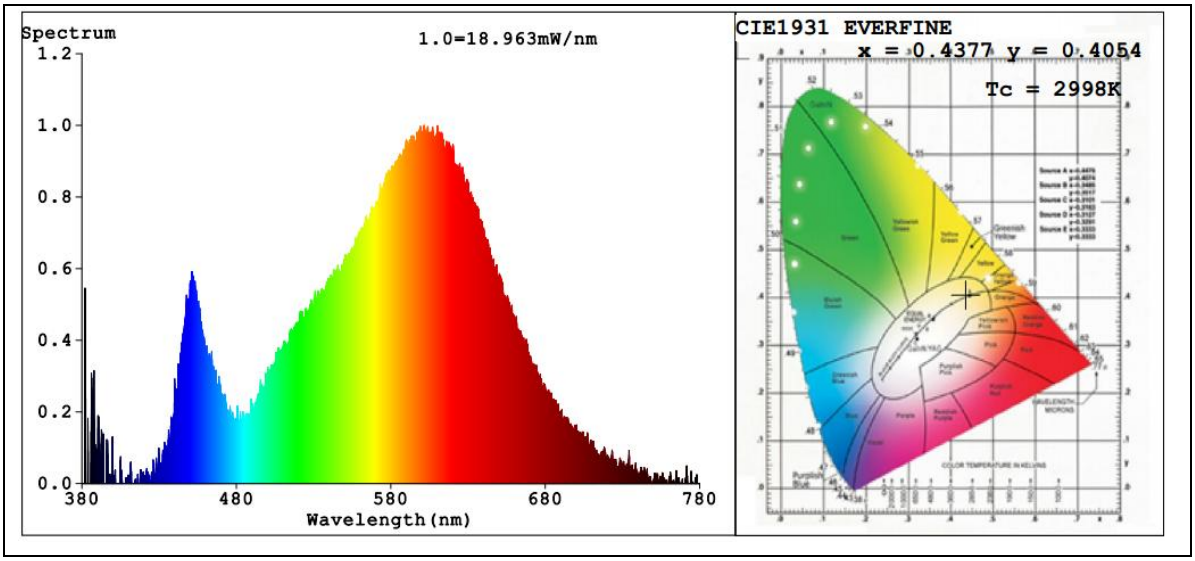
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	81.6
R9	5
CCT (K)	2998
Chromaticity (x, y)	x=0.4377 y=0.4054
Chromaticity (u', v')	u'=0.2505 v'=0.5220
Duv	0.0004

Special Color Rendering Indices			
R1	80	R9	5
R2	90	R10	76
R3	97	R11	77
R4	79	R12	65
R5	79	R13	82
R6	87	R14	99
R7	83	R15	73
R8	59	--	--

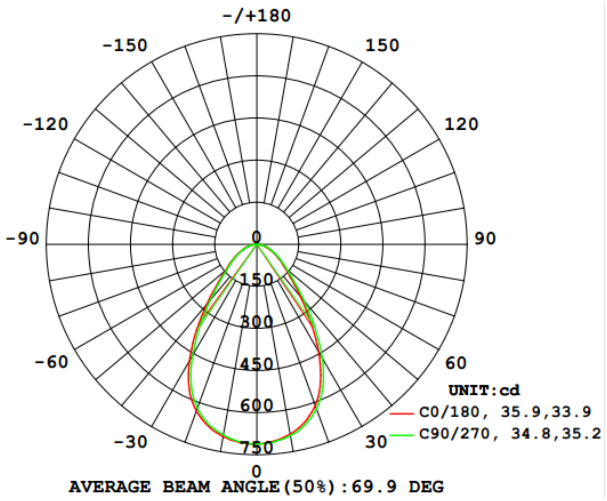
Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1079.9
Luminous Efficacy (lm/W)	66.17
Beam Angle °	69.9
Center Beam Candle Power (cd)	711

Spectral Power Distribution and Chromaticity Diagram



Zonal Lumen Tabulation



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	506.0	46.9%
0-40	727.9	67.4%
0-60	973.0	90.1%
60-90	106.7	9.9%
70-100	42.3	3.9%
90-120	0.0	0%
0-90	1,079.7	100%
90-180	0.0	0%
0-180	1,079.7	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	66.9	6.2%	90-100	0.0	0%
10-20	186.5	17.3%	100-110	0	0%
20-30	252.6	23.4%	110-120	0.0	0%
30-40	221.9	20.5%	120-130	0.0	0%
40-50	146.6	13.6%	130-140	0.0	0%
50-60	98.5	9.1%	140-150	0.0	0%
60-70	64.4	6.0%	150-160	0.0	0%
70-80	34.1	3.2%	160-170	0.0	0%
80-90	8.2	0.8%	170-180	0.0	0%

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

Test date	2016-01-12	Test Ambient:	25.0 ℃
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CLED4A/P/R-15 WITH TCLD415HZ(CLKT415)(4000K)		

Electrical Measurement:

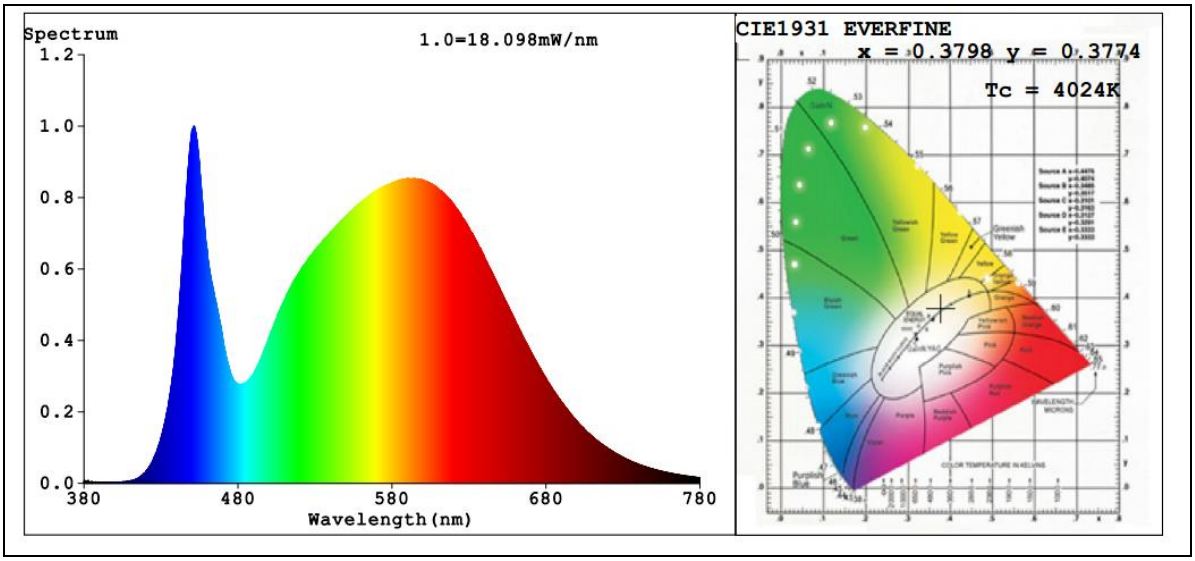
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE160118-A4	120.0	60	0.1401	16.65	0.9907

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	84.9
R9	28
CCT (K)	4024
Chromaticity (x, y)	x=0.3798 y=0.3774
Chromaticity (u', v')	u'=0.2244 v'=0.5018
Duv	0.0005
Total Luminous (lm)	1119
Luminous Efficacy (lm/W)	67.21

Special Color Rendering Indices			
R1	84	R9	28
R2	90	R10	74
R3	93	R11	81
R4	84	R12	61
R5	83	R13	85
R6	85	R14	96
R7	89	R15	80
R8	72	--	--

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 (Model CLED4A/P/R-15 WITH TCLD415HZ(CLKT415)(3000K)):

Test date	2016-01-12	Test Ambient	25.1°C
Sample No.		Maximum Δu'v'	
GZE160118-A1		0.0017	

Gamma\C	CIE u'	CIE v'	du'v'	CIE u'	CIE v'	du'v'
-65	0.2457	0.5186	0.0013	0.2456	0.5185	0.0013
-64	0.2456	0.5186	0.0013	0.2456	0.5185	0.0013
-63	0.2456	0.5185	0.0013	0.2458	0.5186	0.0011
-62	0.2458	0.5186	0.0011	0.2458	0.5186	0.0011
-61	0.2459	0.5186	0.0011	0.2458	0.5186	0.0011
-60	0.2459	0.5186	0.001	0.246	0.5186	0.0009
-59	0.2459	0.5186	0.0011	0.246	0.5187	0.0009
-58	0.2459	0.5187	0.0011	0.246	0.5187	0.0009
-57	0.2461	0.5188	0.0008	0.2462	0.5187	0.0008
-56	0.2462	0.5188	0.0008	0.2462	0.5188	0.0008
-55	0.2462	0.5188	0.0008	0.2463	0.5188	0.0007
-54	0.2463	0.5188	0.0008	0.2463	0.5187	0.0007

-53	0.2462	0.5188	0.0008	0.2464	0.5188	0.0006
-52	0.2463	0.5188	0.0007	0.2464	0.5187	0.0006
-51	0.2463	0.5188	0.0007	0.2463	0.5186	0.0006
-50	0.2464	0.5187	0.0006	0.2462	0.5185	0.0007
-49	0.2463	0.5186	0.0007	0.2463	0.5184	0.0006
-48	0.2463	0.5185	0.0007	0.2461	0.5183	0.0008
-47	0.2461	0.5184	0.0008	0.2461	0.5182	0.0009
-46	0.2461	0.5183	0.0008	0.246	0.5181	0.0009
-45	0.246	0.5182	0.001	0.2459	0.5181	0.0011
-44	0.2459	0.5181	0.001	0.2458	0.518	0.0012
-43	0.2459	0.5181	0.0011	0.2459	0.518	0.0011
-42	0.246	0.5181	0.001	0.2459	0.518	0.0011
-41	0.246	0.5181	0.001	0.2459	0.518	0.0011
-40	0.246	0.5181	0.001	0.2461	0.5181	0.0009
-39	0.246	0.5181	0.001	0.2462	0.5182	0.0008
-38	0.2463	0.5183	0.0007	0.2462	0.5183	0.0007
-37	0.2464	0.5183	0.0006	0.2464	0.5184	0.0005
-36	0.2464	0.5184	0.0005	0.2465	0.5185	0.0004
-35	0.2465	0.5185	0.0004	0.2466	0.5186	0.0003
-34	0.2467	0.5186	0.0003	0.2469	0.5187	0.0003

-33	0.2468	0.5187	0.0003	0.247	0.5188	0.0004
-32	0.2471	0.5188	0.0004	0.2471	0.5189	0.0005
-31	0.2472	0.5189	0.0005	0.2474	0.5191	0.0008
-30	0.2475	0.5191	0.0008	0.2475	0.5192	0.0009
-29	0.2476	0.5192	0.001	0.2476	0.5192	0.001
-28	0.2477	0.5193	0.0011	0.2477	0.5193	0.0012
-27	0.2478	0.5193	0.0012	0.2478	0.5194	0.0012
-26	0.2478	0.5193	0.0013	0.2478	0.5194	0.0013
-25	0.2478	0.5194	0.0013	0.248	0.5195	0.0015
-24	0.2481	0.5195	0.0015	0.248	0.5195	0.0016
-23	0.2481	0.5195	0.0016	0.2481	0.5195	0.0016
-22	0.2481	0.5195	0.0016	0.248	0.5195	0.0015
-21	0.2481	0.5195	0.0016	0.2481	0.5195	0.0016
-20	0.248	0.5195	0.0016	0.2481	0.5195	0.0016
-19	0.248	0.5195	0.0015	0.248	0.5195	0.0015
-18	0.2481	0.5195	0.0015	0.2481	0.5195	0.0016
-17	0.248	0.5195	0.0015	0.2481	0.5194	0.0016
-16	0.248	0.5194	0.0015	0.2481	0.5195	0.0015
-15	0.248	0.5194	0.0014	0.2481	0.5194	0.0015
-14	0.248	0.5194	0.0014	0.248	0.5194	0.0015

-13	0.2479	0.5194	0.0014	0.248	0.5194	0.0015
-12	0.248	0.5195	0.0015	0.248	0.5194	0.0015
-11	0.2481	0.5194	0.0015	0.248	0.5194	0.0015
-10	0.2481	0.5194	0.0015	0.248	0.5194	0.0015
-9	0.2481	0.5194	0.0015	0.248	0.5194	0.0015
-8	0.2481	0.5194	0.0015	0.2481	0.5194	0.0015
-7	0.2481	0.5194	0.0016	0.248	0.5195	0.0015
-6	0.2481	0.5195	0.0015	0.2481	0.5194	0.0015
-5	0.2481	0.5194	0.0016	0.2481	0.5194	0.0015
-4	0.2481	0.5195	0.0015	0.248	0.5195	0.0015
-3	0.2481	0.5195	0.0016	0.248	0.5194	0.0015
-2	0.2481	0.5195	0.0016	0.2481	0.5194	0.0015
-1	0.2481	0.5195	0.0015	0.248	0.5194	0.0015
0	0.2482	0.5196	0.0017	0.2482	0.5196	0.0017
1	0.2481	0.5195	0.0016	0.2481	0.5194	0.0015
2	0.2481	0.5194	0.0016	0.2481	0.5194	0.0015
3	0.2481	0.5194	0.0016	0.2481	0.5194	0.0015
4	0.2481	0.5195	0.0016	0.248	0.5194	0.0015
5	0.2481	0.5195	0.0016	0.2481	0.5194	0.0015
6	0.2481	0.5195	0.0015	0.2481	0.5194	0.0015

7	0.2481	0.5195	0.0015	0.248	0.5194	0.0015
8	0.2481	0.5195	0.0016	0.248	0.5194	0.0015
9	0.2481	0.5194	0.0015	0.2481	0.5194	0.0015
10	0.2481	0.5194	0.0015	0.248	0.5194	0.0014
11	0.2481	0.5194	0.0015	0.248	0.5194	0.0015
12	0.248	0.5194	0.0015	0.2481	0.5194	0.0015
13	0.2481	0.5194	0.0015	0.248	0.5194	0.0014
14	0.2481	0.5194	0.0015	0.2478	0.5193	0.0012
15	0.2481	0.5195	0.0015	0.2479	0.5193	0.0013
16	0.2481	0.5195	0.0016	0.2478	0.5193	0.0013
17	0.2481	0.5195	0.0016	0.2479	0.5193	0.0013
18	0.2481	0.5195	0.0016	0.248	0.5193	0.0014
19	0.2482	0.5195	0.0016	0.248	0.5194	0.0014
20	0.248	0.5195	0.0015	0.248	0.5194	0.0014
21	0.248	0.5195	0.0015	0.248	0.5194	0.0014
22	0.2481	0.5195	0.0016	0.248	0.5194	0.0015
23	0.248	0.5196	0.0016	0.248	0.5195	0.0015
24	0.2481	0.5195	0.0016	0.2481	0.5195	0.0015
25	0.248	0.5196	0.0016	0.248	0.5194	0.0015
26	0.2481	0.5195	0.0016	0.2478	0.5193	0.0012

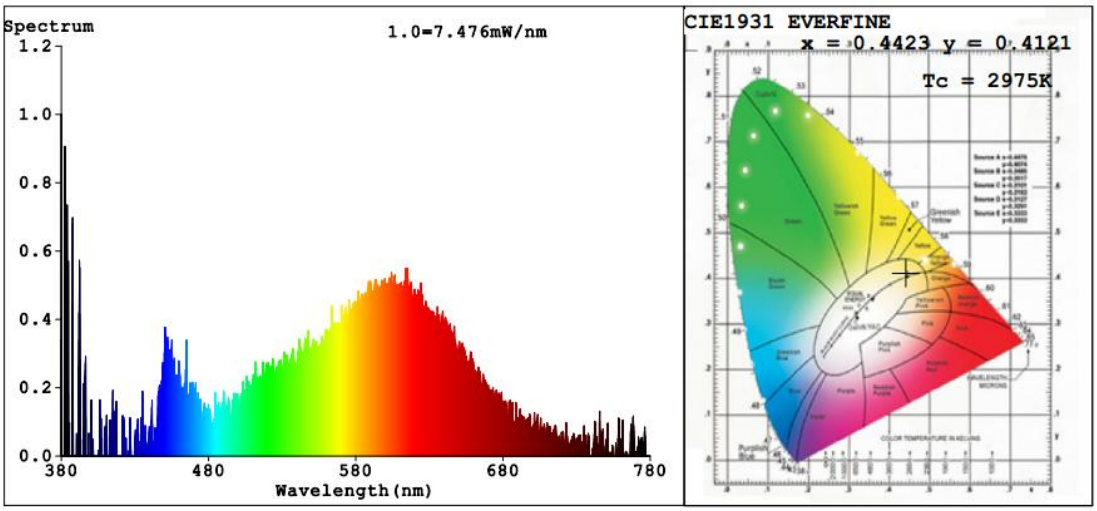
27	0.248	0.5195	0.0015	0.2478	0.5193	0.0012
28	0.2478	0.5194	0.0013	0.2477	0.5192	0.0011
29	0.2477	0.5193	0.0012	0.2476	0.5192	0.001
30	0.2477	0.5193	0.0011	0.2475	0.5191	0.0009
31	0.2475	0.5192	0.001	0.2474	0.519	0.0008
32	0.2475	0.5191	0.0009	0.2471	0.5189	0.0005
33	0.2472	0.519	0.0006	0.247	0.5188	0.0003
34	0.2471	0.5189	0.0005	0.2469	0.5187	0.0002
35	0.247	0.5188	0.0004	0.2468	0.5185	0.0002
36	0.2469	0.5187	0.0003	0.2467	0.5185	0.0002
37	0.2466	0.5186	0.0003	0.2463	0.5183	0.0006
38	0.2465	0.5185	0.0005	0.2462	0.5182	0.0007
39	0.2464	0.5184	0.0005	0.2462	0.5181	0.0008
40	0.2462	0.5183	0.0007	0.2461	0.518	0.0009
41	0.2461	0.5182	0.0008	0.2457	0.5185	0.0012
42	0.2459	0.5181	0.001	0.2458	0.5179	0.0012
43	0.2459	0.5181	0.001	0.2458	0.5179	0.0013
44	0.246	0.5181	0.001	0.2458	0.5178	0.0013
45	0.2459	0.5181	0.0011	0.2459	0.5179	0.0012
46	0.246	0.5182	0.001	0.246	0.518	0.001

47	0.2461	0.5183	0.0008	0.2458	0.518	0.0012
48	0.2461	0.5183	0.0008	0.246	0.5181	0.001
49	0.2463	0.5184	0.0007	0.2461	0.5182	0.0008
50	0.2464	0.5186	0.0006	0.2462	0.5184	0.0007
51	0.2465	0.5187	0.0005	0.2463	0.5185	0.0006
52	0.2464	0.5188	0.0006	0.2461	0.5185	0.0008
53	0.2465	0.5189	0.0006	0.2462	0.5186	0.0007
54	0.2466	0.519	0.0006	0.2462	0.5186	0.0007
55	0.2465	0.5189	0.0007	0.2461	0.5186	0.0008
56	0.2465	0.519	0.0007	0.2461	0.5186	0.0009
57	0.2464	0.5189	0.0007	0.2459	0.5186	0.001
58	0.2464	0.5189	0.0007	0.2459	0.5186	0.001
59	0.2463	0.5189	0.0008	0.2459	0.5185	0.001
60	0.2462	0.5189	0.0008	0.2459	0.5185	0.001
61	0.2462	0.5188	0.0008	0.2459	0.5185	0.001
62	0.2462	0.5188	0.0008	0.2457	0.5184	0.0013
63	0.246	0.5188	0.001	0.2456	0.5185	0.0013
64	0.246	0.5188	0.0009	0.2457	0.5185	0.0012
65	0.246	0.5188	0.0009	0.2457	0.5184	0.0012

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	2015-11-11	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.
GZE160118-A1	120.0 V / 60 Hz	200.3	2975	83.2	0.3009
GZE160118-A2	120.0 V / 60 Hz	189.7	3031	84.3	0.2946
GZE160118-A3	120.0 V / 60 Hz	179.3	3081	84.4	0.2866
Average		189.8	3029	84.0	0.2940



Color Parameters:

Chromaticity Coordinate:x=0.4423 y=0.4121/u'=0.2506 v'=0.5253

Tc=2975K(Duv=0.0024) Dominant WL:Ld =582.1nm Purity=56.5%

Peak WL:Lp=380.0nm HWL:Lhd=0.2nm

Render Index:Ra=83.2 CRI=77.4

R1 =82	R2 =92	R3 =97	R4 =80	R5 =81	R6 =89	R7 =84	
R8 =61	R9 =12	R10=80	R11=79	R12=64	R13=84	R14=99	R15=74

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

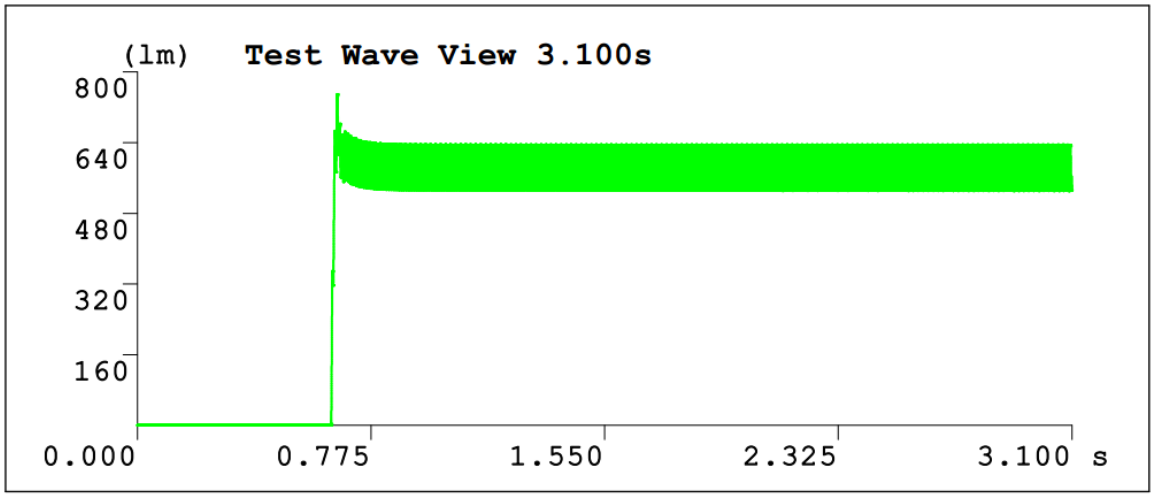
Dimmer	Peak Noise Reading (dBA)	Test Condition	Distance between the microphone and the UUT
LEVITON MFG CO INC (E31373), Cat. No. 6681	20.5	Dimmer adjusted to lowest light output	< 1 m

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	2016-01-12	Test Ambient:	25.1°C

Sample No.	Operating Frequency (Hz)
GZE160118-A1	120.40
GZE160118-A2	120.06
GZE160118-A3	120.09
Average	120.18

Graph:

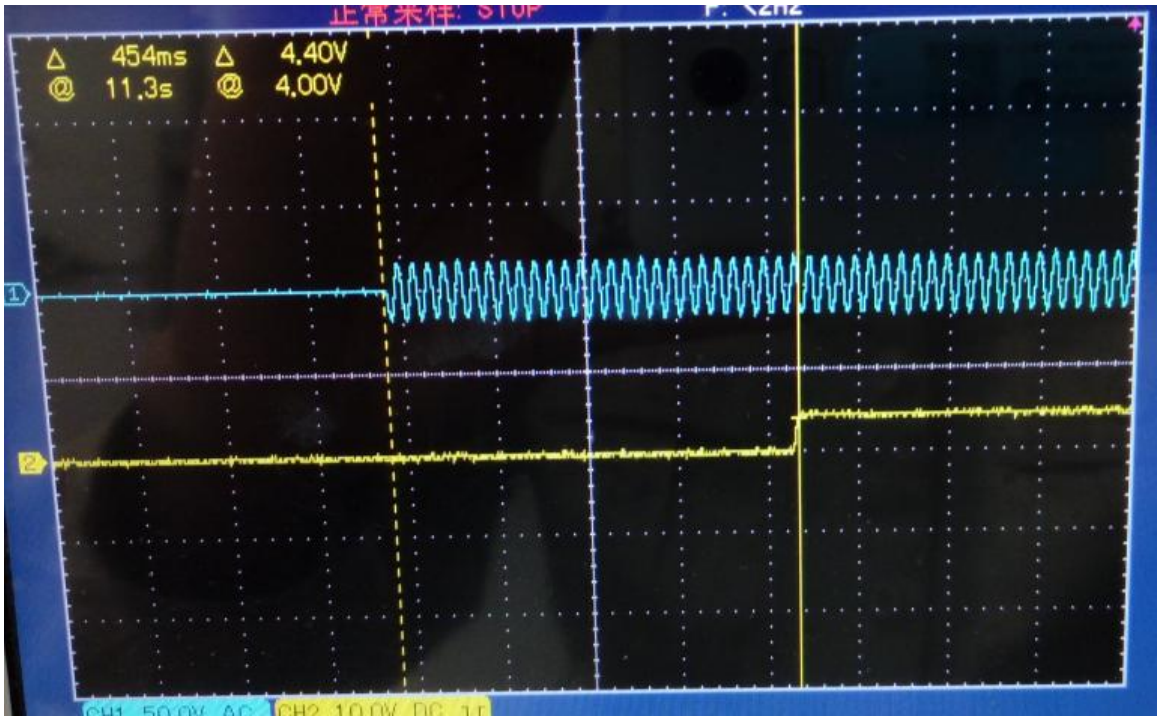


Time:2.000s 537.5lm
Luminous Flux: 462.5 lm Integral: 1434 lm.s Peak : 748.9 lm
Frequency: 120.40 Hz

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

Test date	2016-01-12	Test Ambient:	25.1°C
Sample No.	**Start Time (ms)**		
GZE160118-A1	454		
GZE160118-A2	384		
GZE160118-A3	308		
Average	382		

Graph (Start Time):



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

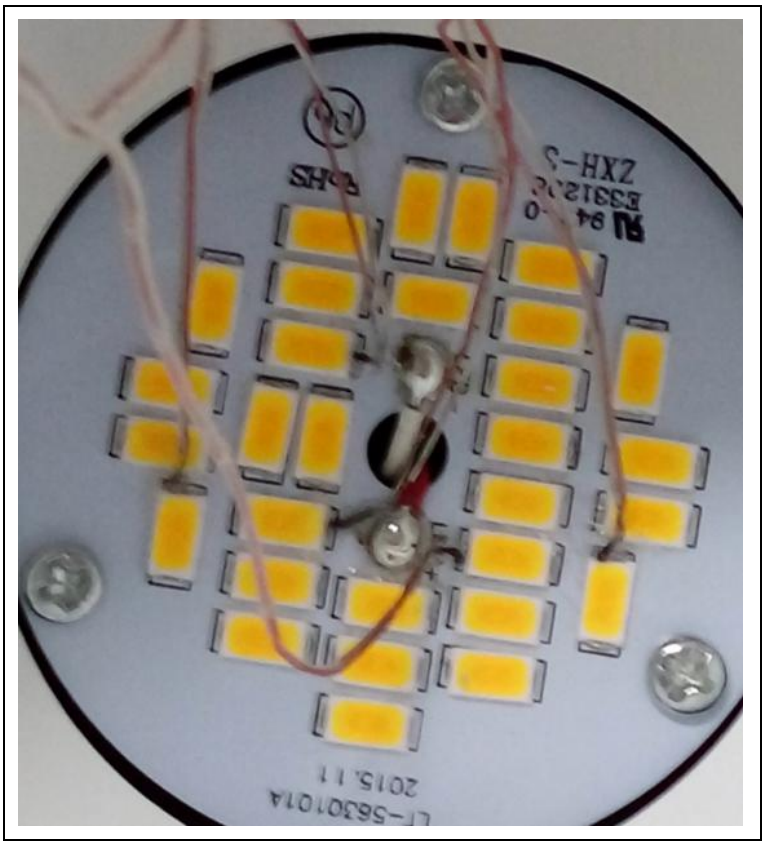
Test voltage: 120V,60Hz

Test date	2016-01-16	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
GZE160118-A1		Pass	
GZE160118-A2		Pass	
GZE160118-A3		Pass	

7.1 In-Situ Temperature Measurement Test (ISTMT)	UL1993-2012, 4th Edition

Test date	2016-01-12	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Driver(mA)	147
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE160118-A1	62-217D(3000 K)	64.8	95

In-Situ Picture - Ts:



7.2 Maximum Measured Ballast or Driver Case Temperature	UL1598-2008, 3rd Edition UL1993-2012, 4th Edition

Test date	2016-01-12	Test Ambient	25.1°C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE160118-A1	67.5	105	

In-Situ Picture - Ts:

8. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2015-07-01	2016-06-30
ST-R-331	Spectral analysis system HAAS-2000	2015-07-01	2016-06-30
EE-09	Goniophotometer system	2015-07-01	2016-06-30
D908S	Standard Lamp	2015-07-01	2016-06-30
D204	Standard Lamp	2015-07-01	2016-06-30
PF2010	Power Meter for Integrating Sphere	2015-07-01	2016-06-30
PF210	Power Meter for Goniophotometer	2015-07-01	2016-06-30
EE-015	Flux Meter	2015-07-01	2016-06-30
ST-R-277	Oscillograph	2015-07-01	2016-06-30
ST-R-EM01	Surge Generator	2015-07-01	2016-06-30
ST-R-EM02	EMC Coupler/Decoupler Module	2015-07-01	2016-06-30
Uncertainty Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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