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-21 WITH TCLD421HZ(CLKT421)

Representative (Tested) Model: CLED4A/P/R-21 WITH TCLD421HZ(CLKT421)(3000K)
CLED4A/P/R-21 WITH TCLD421HZ(CLKT421)(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-B
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	L-TECH CORPORTION	
Brand Name	L-TECH CORP	
Model Number	CLED4A/P/R-21 WITH TCLD421HZ(CLKT421)(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	--	22.76	W
Input Current	--	0.1908	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9938	
Off-State Power	--	0	W
Photometric Characteristics			
Total Initial Lumen Output	--	1538.9	lm
Initial Lumen Efficacy	--	67.61	lm/w
Correlated color temperature / CCT	2984	--	K
Color rendering index / CRI	81.5	--	
R9 Value	5	--	
Duv	0.0003	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	-----	1022	cd
Beam angle (if applicable)		69.7	°
Zonal lumens in the 0 °-60 °zone		90.5	%
Zonal lumens in the 60 °-90 °zone		9.4	%
Zonal lumens in the 90 °-120 °zone		0	%
Zonal lumens in the 120 °-180 °zone		0	%

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Laboratory Information:

Name of Test Laboratory	Standard-Tech Co. Ltd
Date of Test Report	Jan.13, 2016
Test Report No.	GZE160118-B
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	L-TECH CORPORTION	
Brand Name	L-TECH CORP	
Model Number	CLED4A/P/R-21 WITH TCLD421HZ(CLKT421)(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	22.98	--	W
Input Current	0.1929	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9925	--	
Off-State Power	0	--	W
Photometric Characteristics			
Total Initial Lumen Output	1587	--	lm
Initial Lumen Efficacy	69.06	--	lm/w
Correlated color temperature / CCT	4033	--	K
Color rendering index / CRI	84.0	--	
R9 Value	21	--	
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:

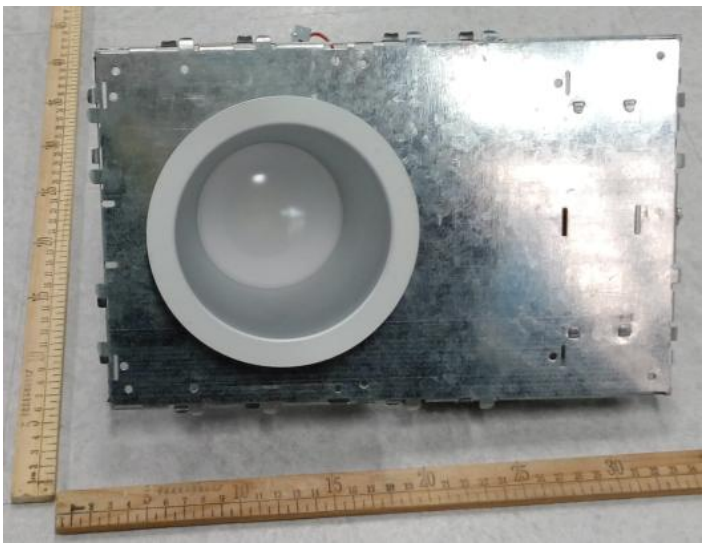
Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25 °C ±1 °C, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 Volts AC, 60Hz. It was stabilized before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

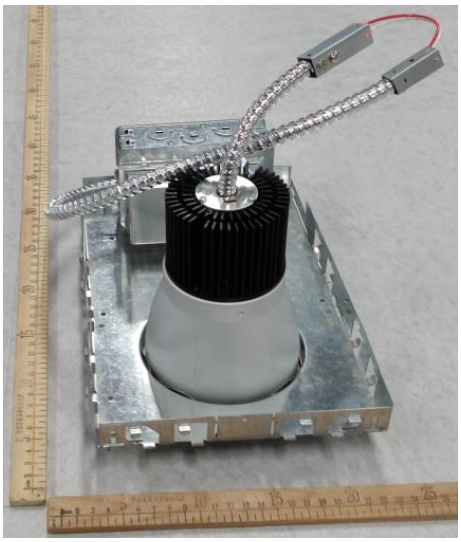
2. Photometric and Electrical Measurements – Integrating Sphere Method:

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-B
Luminaire Type	LED DOWNLIGHT
Rated Voltage / Frequency	120Vac, 60 Hz
Nominal Power	23W
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-B1,B2,B3(3000K),B4(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-21 WITH TCLD421HZ(CLKT421)(3000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE160118-B1	120.0	60	0.1908	22.76	0.9938
GZE160118-B2	120.0	60	0.1915	22.81	0.9925
GZE160118-B3	120.0	60	0.1911	22.79	0.9936
Average			0.1908	22.79	0.9933

Sphere-Spectroradiometer Method:

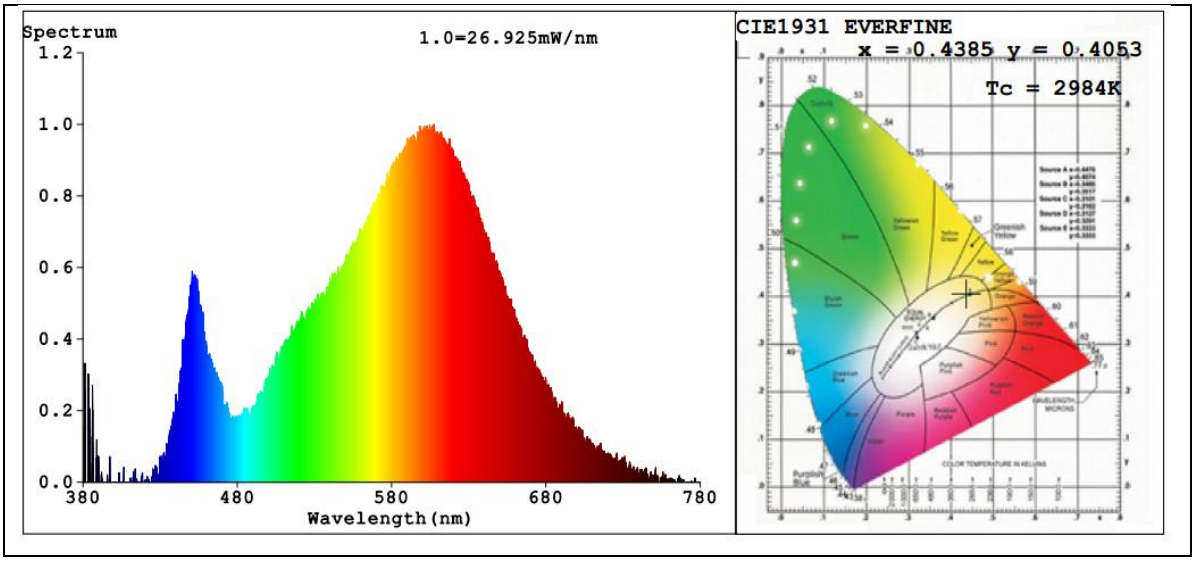
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	81.5
R9	5
CCT (K)	2984
Chromaticity (x, y)	x=0.4385 y=0.4053
Chromaticity (u', v')	u'=0.2510 v'=0.5221
Duv	0.0003

Special Color Rendering Indices			
R1	80	R9	5
R2	90	R10	77
R3	97	R11	77
R4	78	R12	65
R5	79	R13	82
R6	87	R14	99
R7	83	R15	73
R8	58	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1538.9
Luminous Efficacy (lm/W)	67.61
Beam Angle °	69.7
Center Beam Candle Power (cd)	1022

Spectral Power Distribution and Chromaticity Diagram



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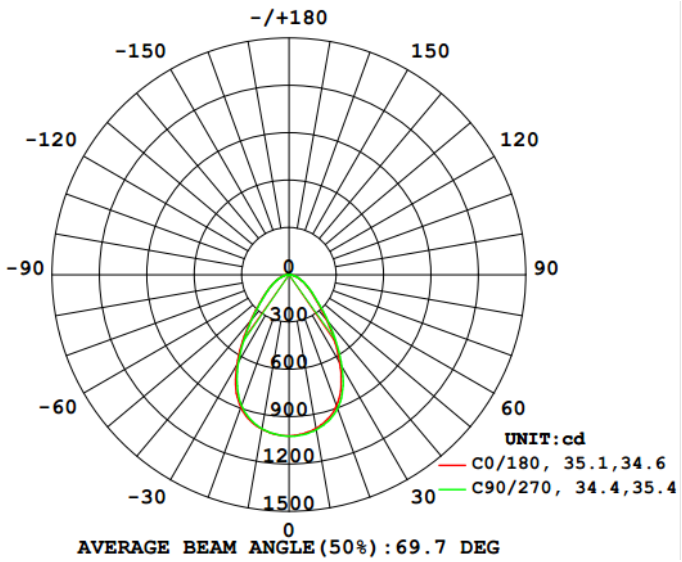
Zonal Lumen Tabulation



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	723.2	47%
0-40	1,039.6	67.6%
0-60	1,393.3	90.5%
60-90	145.3	9.4%
70-100	56.4	3.7%
90-120	0.0	0%
0-90	1,538.6	100%
90-180	0.1	0%
0-180	1,538.7	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	96.1	6.2%	90-100	0.0	0%
10-20	267.5	17.4%	100-110	0.0	0%
20-30	359.6	23.4%	110-120	0.0	0%
30-40	316.4	20.6%	120-130	0.0	0%
40-50	212.5	13.8%	130-140	0.0	0%
50-60	141.2	9.2%	140-150	0.0	0%
60-70	89.0	5.8%	150-160	0.0	0%
70-80	45.8	3.0%	160-170	0.0	0%
80-90	10.5	0.7%	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-21 WITH TCLD421HZ(CLKT421)(4000K)		

Electrical Measurement:

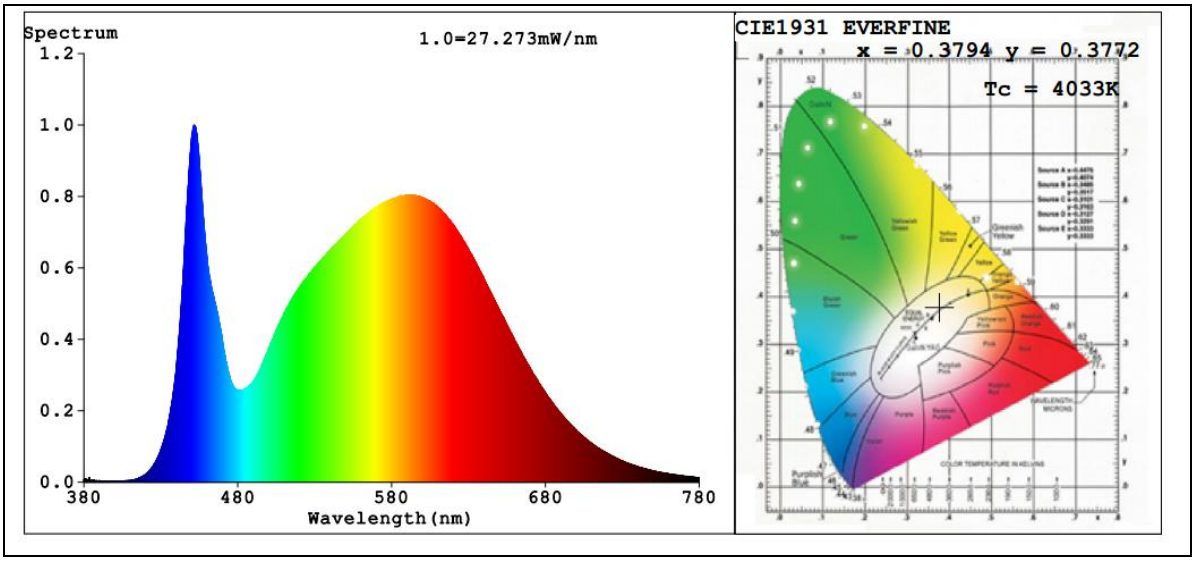
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE160118-B4	120.0	60	0.1929	22.98	0.9925

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	84.0
R9	21
CCT (K)	4033
Chromaticity (x, y)	x=0.3794 y=0.3772
Chromaticity (u', v')	u'=0.2242 v'=0.5016
Duv	0.0005
Total Luminous (lm)	1587
Luminous Efficacy (lm/W)	69.06

Special Color Rendering Indices			
R1	82	R9	21
R2	90	R10	74
R3	94	R11	80
R4	82	R12	58
R5	82	R13	84
R6	84	R14	97
R7	88	R15	78
R8	70	--	--

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-21 WITH TCLD421HZ(CLKT421)(3000K)):

Test date	2016-01-12	Test Ambient	25.1°C
Sample No.		Maximum Δu'v'	
GZE160118-B1		0.0023	

Gamma\C	CIE u'	CIE v'	du'v'	CIE u'	CIE v'	du'v'
-64	0.2463	0.5186	0.0022	0.2463	0.5185	0.0023
-63	0.2463	0.5186	0.0022	0.2464	0.5186	0.0021
-62	0.2464	0.5186	0.0021	0.2465	0.5186	0.0021
-61	0.2465	0.5187	0.0021	0.2465	0.5186	0.002
-60	0.2466	0.5187	0.0019	0.2467	0.5187	0.0018
-59	0.2466	0.5187	0.0019	0.2467	0.5187	0.0018
-58	0.2467	0.5188	0.0018	0.2467	0.5187	0.0018
-57	0.2468	0.5188	0.0017	0.2469	0.5188	0.0016
-56	0.2469	0.5188	0.0016	0.247	0.5188	0.0015
-55	0.2469	0.5189	0.0015	0.247	0.5188	0.0015
-54	0.2471	0.5189	0.0014	0.2472	0.5189	0.0013

-53	0.2471	0.519	0.0013	0.2473	0.5189	0.0012
-52	0.2473	0.519	0.0012	0.2473	0.5189	0.0012
-51	0.2473	0.5189	0.0012	0.2473	0.5189	0.0011
-50	0.2473	0.5189	0.0011	0.2475	0.5189	0.001
-49	0.2472	0.5188	0.0013	0.2474	0.5188	0.0011
-48	0.2473	0.5188	0.0012	0.2474	0.5187	0.0012
-47	0.2472	0.5187	0.0014	0.2474	0.5187	0.0012
-46	0.2473	0.5187	0.0013	0.2474	0.5186	0.0013
-45	0.2472	0.5186	0.0014	0.2473	0.5185	0.0014
-44	0.2472	0.5186	0.0015	0.2473	0.5185	0.0013
-43	0.2471	0.5185	0.0015	0.2473	0.5184	0.0014
-42	0.2471	0.5185	0.0016	0.2473	0.5184	0.0014
-41	0.2473	0.5186	0.0013	0.2474	0.5185	0.0013
-40	0.2473	0.5187	0.0012	0.2474	0.5185	0.0013
-39	0.2474	0.5187	0.0012	0.2475	0.5185	0.0012
-38	0.2475	0.5187	0.0011	0.2477	0.5186	0.001
-37	0.2478	0.5189	0.0007	0.2478	0.5187	0.0009
-36	0.2479	0.519	0.0006	0.2478	0.5188	0.0008
-35	0.248	0.519	0.0005	0.2481	0.5189	0.0005
-34	0.2481	0.5191	0.0004	0.2482	0.519	0.0004

-33	0.2482	0.5192	0.0002	0.2483	0.5191	0.0002
-32	0.2486	0.5194	0.0002	0.2485	0.5192	0.0001
-31	0.2487	0.5195	0.0003	0.2486	0.5193	0.0002
-30	0.2488	0.5195	0.0005	0.2487	0.5194	0.0003
-29	0.2489	0.5196	0.0006	0.2488	0.5195	0.0005
-28	0.249	0.5197	0.0007	0.2491	0.5196	0.0008
-27	0.2491	0.5197	0.0008	0.2492	0.5197	0.0009
-26	0.2492	0.5198	0.0009	0.2493	0.5197	0.0009
-25	0.2493	0.5199	0.001	0.2493	0.5198	0.001
-24	0.2493	0.5199	0.0011	0.2493	0.5198	0.001
-23	0.2493	0.5199	0.0011	0.2495	0.5199	0.0013
-22	0.2495	0.5199	0.0012	0.2496	0.5199	0.0013
-21	0.2494	0.5199	0.0012	0.2495	0.5199	0.0013
-20	0.2494	0.5199	0.0012	0.2495	0.5199	0.0013
-19	0.2494	0.5199	0.0012	0.2495	0.5199	0.0012
-18	0.2494	0.5199	0.0011	0.2495	0.5199	0.0012
-17	0.2495	0.5199	0.0012	0.2494	0.5199	0.0012
-16	0.2494	0.5199	0.0012	0.2494	0.5198	0.0012
-15	0.2494	0.5199	0.0012	0.2494	0.5198	0.0011
-14	0.2494	0.5199	0.0011	0.2494	0.5198	0.0011

-13	0.2494	0.5198	0.0011	0.2493	0.5198	0.001
-12	0.2494	0.5198	0.0011	0.2493	0.5198	0.0011
-11	0.2493	0.5198	0.0011	0.2493	0.5198	0.001
-10	0.2493	0.5198	0.0011	0.2493	0.5198	0.001
-9	0.2493	0.5198	0.0011	0.2493	0.5198	0.001
-8	0.2493	0.5198	0.0011	0.2493	0.5198	0.001
-7	0.2493	0.5198	0.001	0.2493	0.5198	0.001
-6	0.2493	0.5198	0.0011	0.2493	0.5198	0.001
-5	0.2493	0.5198	0.0011	0.2493	0.5198	0.001
-4	0.2493	0.5198	0.001	0.2493	0.5198	0.001
-3	0.2493	0.5198	0.001	0.2492	0.5198	0.001
-2	0.2493	0.5198	0.001	0.2493	0.5198	0.001
-1	0.2493	0.5198	0.001	0.2493	0.5198	0.001
0	0.2496	0.52	0.0014	0.2496	0.52	0.0014
1	0.2493	0.5198	0.001	0.2493	0.5198	0.001
2	0.2494	0.5198	0.0011	0.2492	0.5197	0.0009
3	0.2493	0.5198	0.0011	0.2492	0.5197	0.0009
4	0.2494	0.5198	0.0011	0.2492	0.5197	0.0009
5	0.2493	0.5198	0.0011	0.2492	0.5197	0.0009
6	0.2494	0.5198	0.0011	0.2492	0.5197	0.0009

7	0.2494	0.5198	0.0011	0.2492	0.5197	0.0009
8	0.2494	0.5198	0.0011	0.2492	0.5197	0.0009
9	0.2493	0.5198	0.0011	0.2492	0.5197	0.0009
10	0.2494	0.5198	0.0011	0.2492	0.5197	0.0009
11	0.2494	0.5198	0.0011	0.2492	0.5197	0.0009
12	0.2494	0.5198	0.0011	0.2492	0.5197	0.0009
13	0.2493	0.5198	0.001	0.2492	0.5197	0.0009
14	0.2493	0.5198	0.001	0.2492	0.5197	0.0009
15	0.2493	0.5198	0.001	0.2492	0.5197	0.0009
16	0.2494	0.5198	0.0011	0.2492	0.5197	0.0009
17	0.2493	0.5198	0.0011	0.2492	0.5197	0.0009
18	0.2494	0.5199	0.0011	0.2493	0.5198	0.001
19	0.2494	0.5198	0.0011	0.2492	0.5197	0.0009
20	0.2494	0.5199	0.0012	0.2492	0.5197	0.0009
21	0.2494	0.5198	0.0012	0.2492	0.5198	0.0009
22	0.2493	0.5198	0.001	0.2492	0.5197	0.0009
23	0.2493	0.5198	0.001	0.2493	0.5198	0.001
24	0.2493	0.5198	0.001	0.2491	0.5197	0.0008
25	0.2492	0.5198	0.0009	0.2491	0.5197	0.0008
26	0.2492	0.5197	0.0009	0.2491	0.5197	0.0007

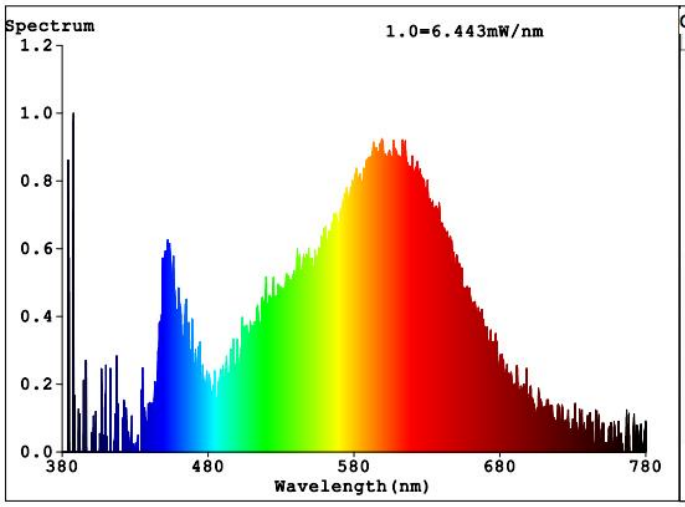
27	0.2492	0.5197	0.0008	0.249	0.5196	0.0007
28	0.2489	0.5196	0.0006	0.2489	0.5196	0.0005
29	0.2488	0.5195	0.0005	0.2488	0.5195	0.0004
30	0.2488	0.5194	0.0004	0.2487	0.5194	0.0003
31	0.2487	0.5193	0.0003	0.2486	0.5194	0.0002
32	0.2484	0.5192	0.0001	0.2485	0.5193	0.0001
33	0.2483	0.5192	0.0002	0.2484	0.5192	0.0001
34	0.2482	0.5191	0.0003	0.248	0.519	0.0005
35	0.2481	0.519	0.0005	0.248	0.5189	0.0006
36	0.2479	0.5188	0.0007	0.2478	0.5188	0.0007
37	0.2477	0.5188	0.0009	0.2478	0.5188	0.0008
38	0.2476	0.5187	0.001	0.2477	0.5187	0.001
39	0.2474	0.5186	0.0012	0.2473	0.5185	0.0013
40	0.2474	0.5186	0.0013	0.2473	0.5184	0.0014
41	0.2473	0.5185	0.0014	0.2472	0.5184	0.0015
42	0.2472	0.5184	0.0015	0.2471	0.5183	0.0016
43	0.2472	0.5184	0.0015	0.2469	0.5182	0.0018
44	0.2471	0.5184	0.0016	0.247	0.5182	0.0018
45	0.2471	0.5185	0.0015	0.247	0.5183	0.0017
46	0.2472	0.5185	0.0014	0.2471	0.5184	0.0016

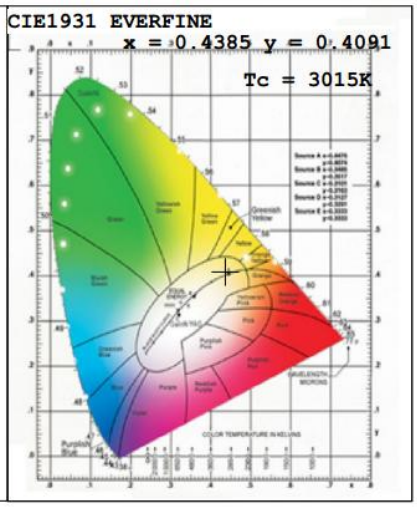
47	0.2472	0.5185	0.0015	0.2471	0.5184	0.0015
48	0.2473	0.5187	0.0013	0.247	0.5184	0.0016
49	0.2473	0.5187	0.0012	0.2471	0.5185	0.0015
50	0.2473	0.5188	0.0012	0.2471	0.5186	0.0015
51	0.2473	0.5189	0.0011	0.2472	0.5187	0.0014
52	0.2473	0.519	0.0011	0.2471	0.5188	0.0014
53	0.2474	0.519	0.0011	0.2472	0.5188	0.0013
54	0.2472	0.519	0.0013	0.2472	0.5189	0.0013
55	0.2472	0.5189	0.0013	0.2471	0.5189	0.0014
56	0.2471	0.5189	0.0014	0.2471	0.5188	0.0014
57	0.2469	0.5188	0.0016	0.2468	0.5187	0.0017
58	0.2468	0.5188	0.0016	0.2467	0.5187	0.0018
59	0.2468	0.5188	0.0017	0.2467	0.5187	0.0018
60	0.2467	0.5188	0.0018	0.2466	0.5187	0.0019
61	0.2466	0.5187	0.0019	0.2466	0.5187	0.0019
62	0.2466	0.5187	0.0019	0.2463	0.5185	0.0022
63	0.2465	0.5187	0.002	0.2463	0.5185	0.0022
64	0.2463	0.5186	0.0022	0.2463	0.5185	0.0022

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-B1	120.0 V / 60 Hz	306.4	3015	83.7	0.3995
GZE160118-B2	120.0 V / 60 Hz	272.3	3019	83.7	0.3790
GZE160118-B3	120.0 V / 60 Hz	298.2	2970	83.0	0.3932
Average		292.3	3001	83.5	0.3906





Color Parameters:

Chromaticity Coordinate:x=0.4385 y=0.4091/u'=0.2494 v'=0.5236

Tc=3015K(Duv=0.0018) Dominant WL:Ld =582.1nm Purity=54.4%

Peak WL:Lp=387.7nm HWL:Lhd=115.6nm

Render Index:Ra=83.7 CRI=78.0

R1 =82	R2 =92	R3 =97	R4 =81	R5 =82	R6 =90	R7 =84	
R8 =62	R9 =14	R10=81	R11=80	R12=64	R13=85	R14=99	R15=75

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

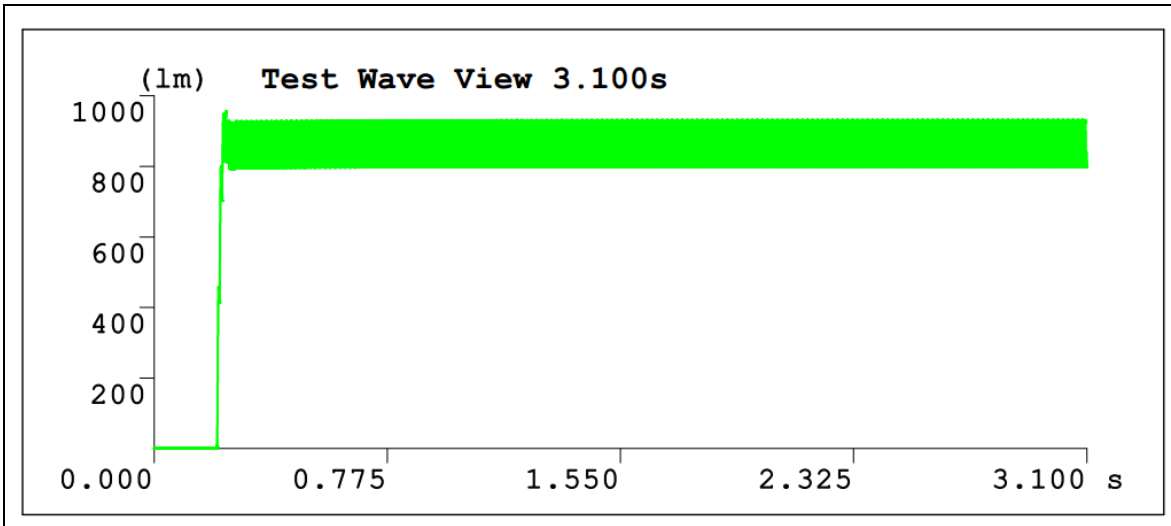
Dimmer	Peak Noise Reading (dBA)	Test Condition	Distance between the microphone and the UUT
LEVITON MFG CO INC (E31373), Cat. No. 6681	20.6	Dimmer adjusted to lowest light output	< 1 m

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-B1	120.12
GZE160118-B2	120.10
GZE160118-B3	120.04
Average	120.09

Graph:

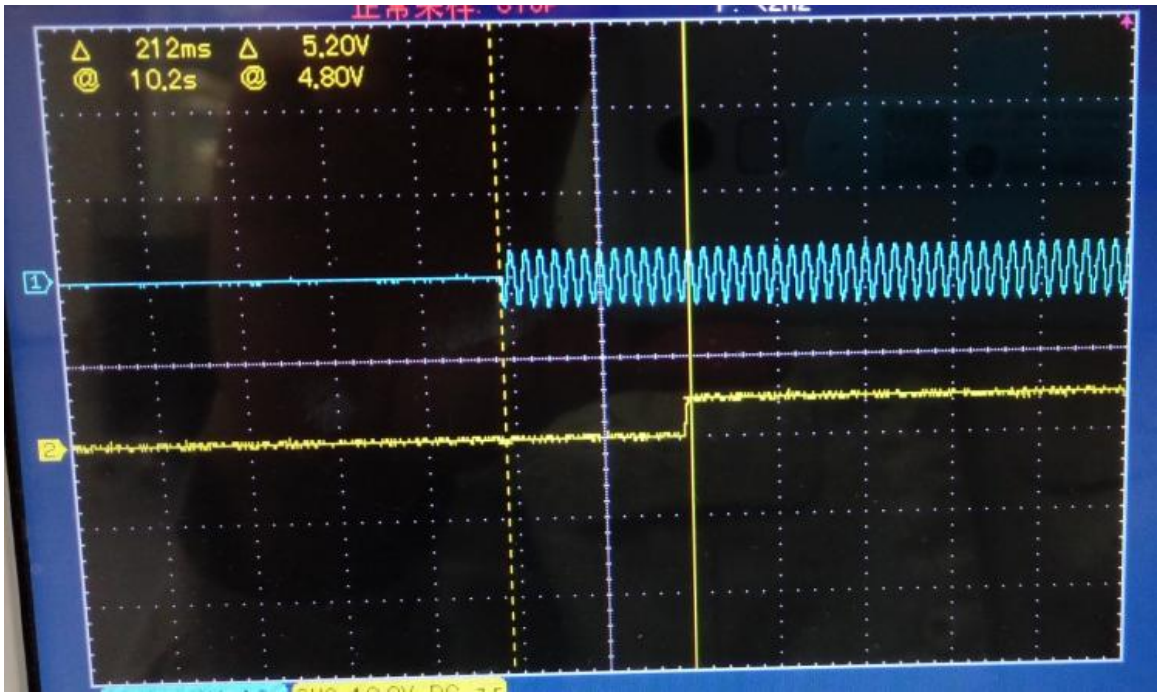


5 Starting Time *(Refer to Work Instruction QD28)*	ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0

Test date	2016-01-12	Test Ambient:	25.1°C

Sample No.	Start Time (ms)
GZE160118-B1	212
GZE160118-B2	198
GZE160118-B3	236
Average	215

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

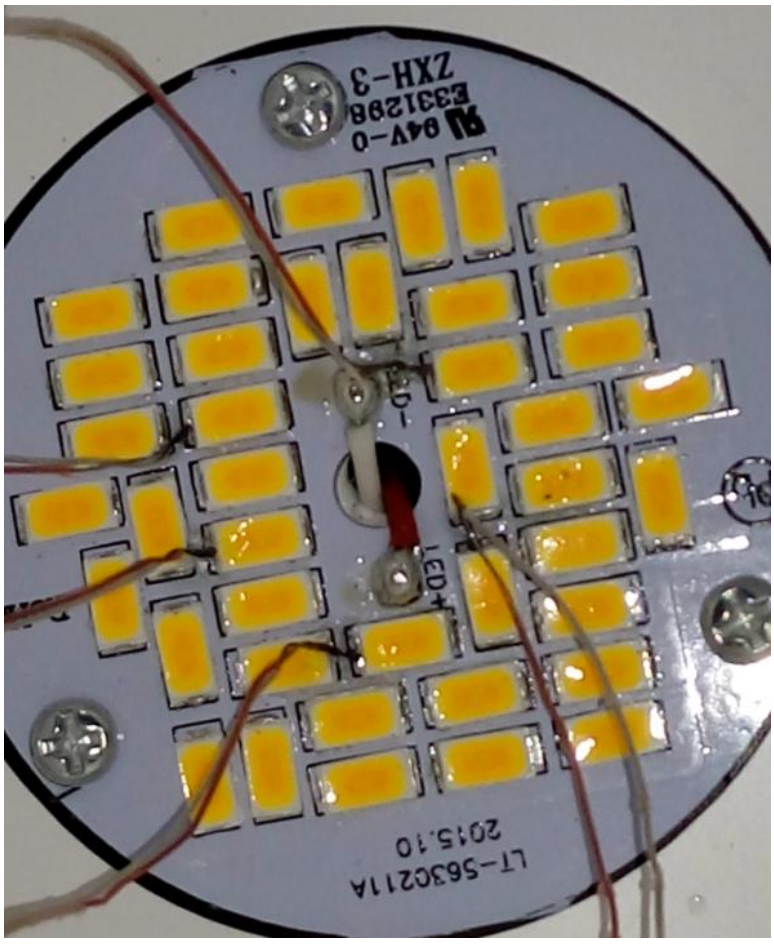
Test voltage: 120V,60Hz

Test date	2016-01-16	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
GZE160118-B1		Pass	
GZE160118-B2		Pass	
GZE160118-B3		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)	149
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE160118-B1	62-217D(3000 K)	67.1	95

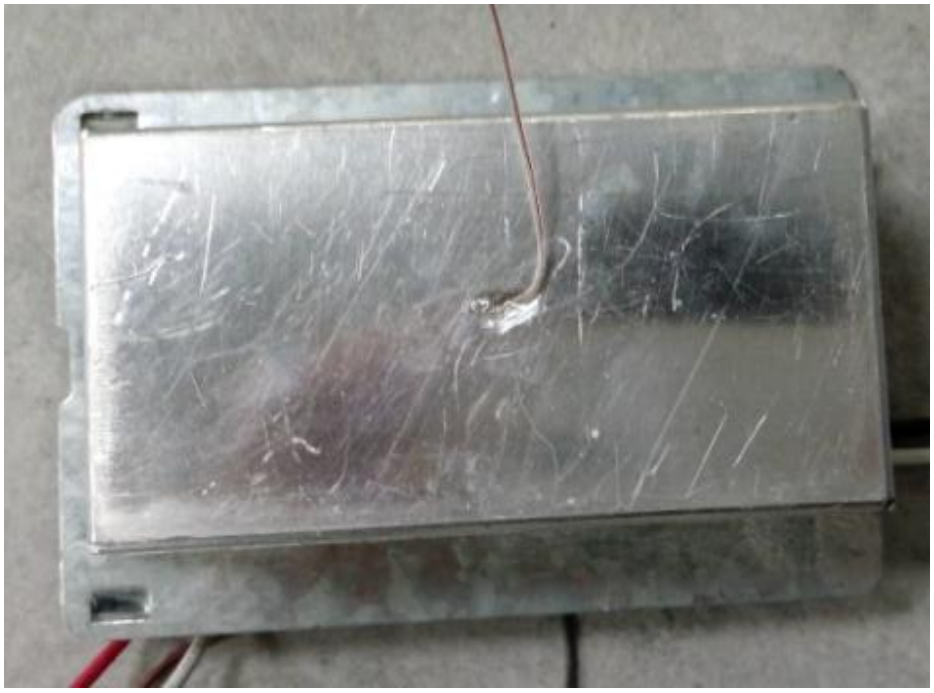
In-Situ Picture - Ts:



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-B1	69.3	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 ******