



Report No.: GZE151140-A

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): LED55SQ(LTSQ550/553)

Representative (Tested) Model: LED55SQ(LTSQ550/553)

Model Difference: N/A

Test & Report By:

Johnson Sun

Engineer: Johnson Sun

Date: Dec.07,2015

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.

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

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guanhong Road,Guangzhou Science City, Guangzhou 510663, China

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

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	Dec.07,2015
Test Report No.	GZE151140-A
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	L-TECH CORPORTION	
Brand Name	L-TECH CORP	
Model Number	LED55SQ(LTSQ550/553)	
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

Integrating Sphere
Goniophotometer
Electrical Measurements:
Output
Output

Input Wattage	--	29.78	W
Input Current	--	0.2502	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9919	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	2539.3	lm
Initial Lumen Efficacy	--	85.27	lm/w
Correlated color temperature / CCT	2746	--	K
Color rendering index / CRI	81.7	--	
R9 Value	6	--	
Duv	0.0006	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)		976	cd
Beam angle (if applicable)		106.4	°
Zonal lumens in the 0°-60° zone		83.6	%
Zonal lumens in the 60°-90° zone	-----	16.4	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0	%

Laboratory: Standard-Tech Co. Ltd Testing Center

NVLAP CODE: 201011-0

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guan hong Road, Guangzhou Science City, Guangzhou 510663, China

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

Test Specifications:	
Date of Receipt	Nov.16,2015
Date of Test	Nov.21,2015
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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 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.

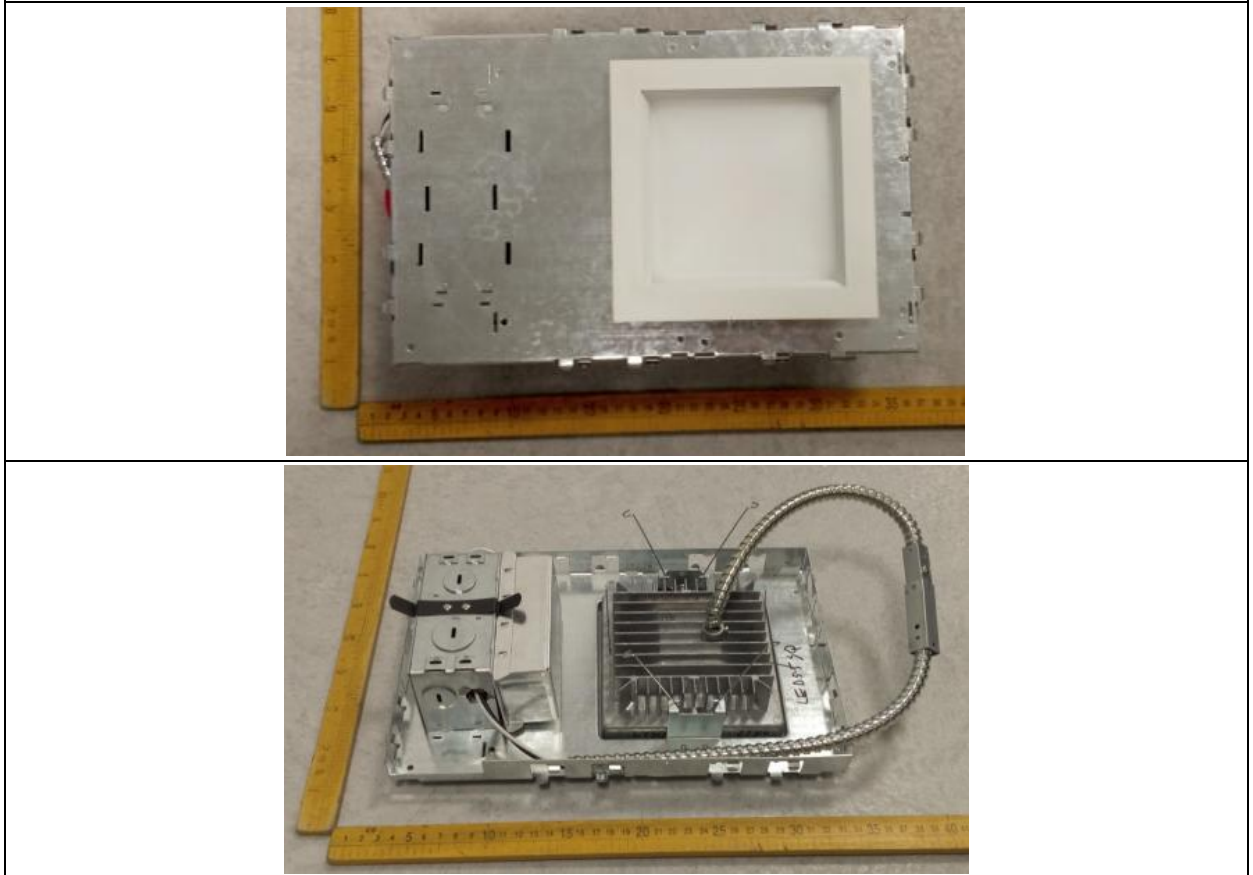
2. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 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	GZE151140-A
Luminaire Type	LED DOWNLIGHT
Rated Voltage / Frequency	120Vac, 60 Hz
Nominal Power	30W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,4000K,5000K
LED Manufacturer	Seoul Semiconductor Co.,Ltd
LED Model	STWxC2SB
Sample Receipt Date	Nov.16,2015
Sample Number	GZE151140-A1,A2,A3

Photo



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

Test date	2015-11-21	Test Ambient:	25.0 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LED55SQ(LTSQ550/553)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE151140-A1	120.0	60	0.2502	29.78	0.9919
GZE151140-A2	120.0	60	0.2509	29.82	0.9903
GZE151140-A3	120.0	60	0.2501	29.65	0.9879
Average			0.2504	29.75	0.9900

Sphere-Spectroradiometer Method:

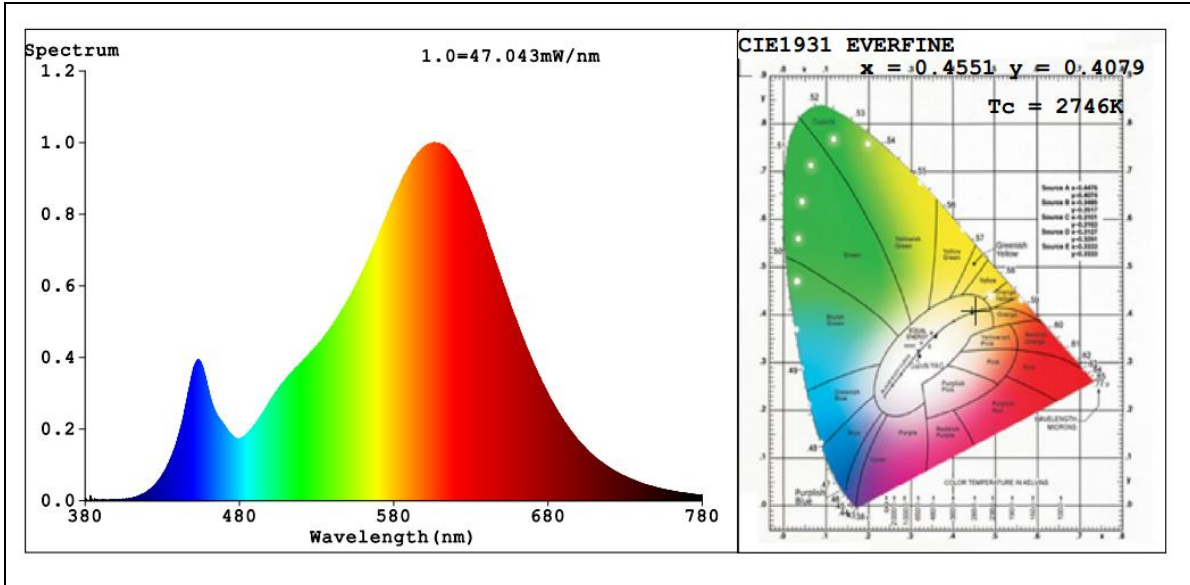
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	81.7
R9	6
CCT (K)	2746
Chromaticity (x, y)	x=0.4551 y=0.4079
Chromaticity (u', v')	u'=0.2606 v'=0.5256
Duv	-0.0006

Special Color Rendering Indices			
R1	80	R9	6
R2	92	R10	81
R3	95	R11	77
R4	78	R12	75
R5	80	R13	83
R6	90	R14	98
R7	81	R15	73
R8	57	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2539.3
Luminous Efficacy (lm/W)	85.27
Beam Angle°	106.4
Center Beam Candle Power (cd)	976

Spectral Power Distribution and Chromaticity Diagram



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

Report Format Number STD/QR4910-A/1

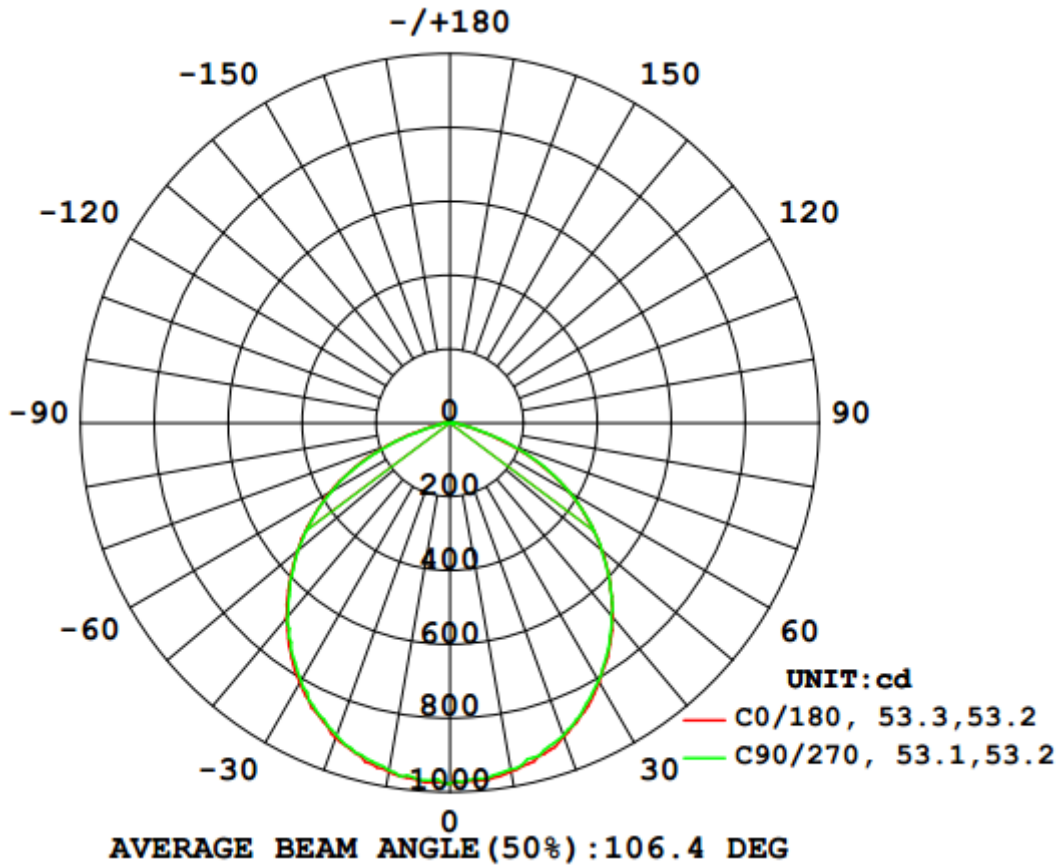
Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	755.0	29.7%
0-40	1,228.3	48.4%
0-60	2,123.7	83.6%
60-90	415.2	16.4%
70-100	127.7	5%
90-120	0.1	0%
0-90	2,539.0	100%
90-180	0.2	0%
0-180	2,539.1	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	92.5	3.6%	90-100	0.0	0%
10-20	264.4	10.4%	100-110	0.0	0%
20-30	398.1	15.7%	110-120	0.0	0%
30-40	473.3	18.6%	120-130	0.0	0%
40-50	479.3	18.9%	130-140	0.0	0%
50-60	416.2	16.4%	140-150	0.0	0%
60-70	287.5	11.3%	150-160	0.0	0%
70-80	109.3	4.3%	160-170	0.0	0%
80-90	18.4	0.7%	170-180	0.0	0%



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

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

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 LED55SQ(LTSQ550/553)):

Test date	2015-11-21	Test Ambient	25.1°C
Sample No.		Maximum $\Delta u'v'$	
GZE151140-A1		0.0017	

Gamma\C	CIE u'	CIE v'	$du'v'$	CIE u'	CIE v'	$du'v'$
-76	0.2583	0.5252	0.0013	0.2587	0.5256	0.0014
-75	0.258	0.5247	0.0013	0.2584	0.5251	0.0012
-74	0.2579	0.5244	0.0014	0.258	0.5246	0.0013
-73	0.2577	0.5241	0.0016	0.2581	0.5244	0.0012
-72	0.2578	0.524	0.0015	0.2579	0.5241	0.0014
-71	0.2578	0.5238	0.0016	0.258	0.524	0.0014
-70	0.258	0.5238	0.0014	0.2581	0.5239	0.0013
-69	0.258	0.5238	0.0014	0.2582	0.5239	0.0012
-68	0.258	0.5238	0.0014	0.2582	0.5238	0.0012
-67	0.2582	0.5238	0.0013	0.2584	0.5238	0.0011
-66	0.2581	0.5238	0.0013	0.2584	0.5238	0.0011
-65	0.2582	0.5238	0.0012	0.2584	0.5239	0.001

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

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

-64	0.2585	0.5239	0.0009	0.2586	0.5239	0.0009
-63	0.2585	0.5239	0.0009	0.2586	0.5239	0.0008
-62	0.2585	0.5239	0.0009	0.2586	0.5239	0.0008
-61	0.2586	0.524	0.0008	0.2587	0.524	0.0007
-60	0.2586	0.524	0.0008	0.2587	0.524	0.0007
-59	0.2587	0.524	0.0007	0.2588	0.524	0.0006
-58	0.2586	0.524	0.0007	0.2587	0.5241	0.0006
-57	0.2589	0.5241	0.0005	0.2589	0.5241	0.0004
-56	0.2589	0.5241	0.0005	0.2589	0.5241	0.0005
-55	0.2589	0.5242	0.0005	0.2589	0.5241	0.0004
-54	0.2588	0.5242	0.0005	0.2589	0.5242	0.0004
-53	0.2589	0.5242	0.0005	0.2589	0.5242	0.0004
-52	0.2589	0.5242	0.0004	0.2589	0.5242	0.0004
-51	0.2589	0.5242	0.0004	0.2591	0.5243	0.0002
-50	0.2592	0.5243	0.0001	0.2591	0.5243	0.0002
-49	0.2592	0.5243	0.0001	0.2592	0.5243	0.0001
-48	0.2592	0.5243	0.0001	0.2592	0.5243	0.0001
-47	0.2592	0.5243	0.0001	0.2592	0.5243	0.0001
-46	0.2591	0.5243	0.0001	0.2591	0.5243	0.0002
-45	0.2591	0.5244	0.0002	0.2592	0.5243	0.0001

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

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

-44	0.2591	0.5244	0.0002	0.2593	0.5244	0.0001
-43	0.2594	0.5244	0.0002	0.2594	0.5244	0.0001
-42	0.2594	0.5245	0.0001	0.2593	0.5244	0.0001
-41	0.2594	0.5245	0.0002	0.2593	0.5244	0.0001
-40	0.2594	0.5245	0.0001	0.2595	0.5245	0.0002
-39	0.2594	0.5245	0.0002	0.2595	0.5245	0.0003
-38	0.2593	0.5245	0.0002	0.2595	0.5245	0.0003
-37	0.2595	0.5245	0.0002	0.2595	0.5245	0.0003
-36	0.2594	0.5246	0.0002	0.2595	0.5245	0.0003
-35	0.2594	0.5245	0.0002	0.2595	0.5245	0.0003
-34	0.2594	0.5246	0.0002	0.2595	0.5246	0.0003
-33	0.2596	0.5246	0.0004	0.2596	0.5246	0.0003
-32	0.2596	0.5246	0.0004	0.2596	0.5246	0.0003
-31	0.2596	0.5246	0.0004	0.2595	0.5246	0.0003
-30	0.2596	0.5246	0.0004	0.2596	0.5246	0.0004
-29	0.2596	0.5246	0.0004	0.2596	0.5246	0.0004
-28	0.2596	0.5247	0.0004	0.2596	0.5246	0.0004
-27	0.2596	0.5246	0.0004	0.2596	0.5246	0.0004
-26	0.2596	0.5247	0.0004	0.2596	0.5246	0.0004
-25	0.2596	0.5246	0.0004	0.2596	0.5246	0.0004

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

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

-24	0.2598	0.5247	0.0006	0.2596	0.5246	0.0004
-23	0.2598	0.5247	0.0006	0.2598	0.5247	0.0006
-22	0.2599	0.5248	0.0007	0.2598	0.5247	0.0006
-21	0.2599	0.5247	0.0007	0.2599	0.5247	0.0007
-20	0.2599	0.5247	0.0007	0.2598	0.5247	0.0006
-19	0.2599	0.5247	0.0007	0.2598	0.5247	0.0006
-18	0.2599	0.5247	0.0007	0.2599	0.5247	0.0007
-17	0.2599	0.5247	0.0007	0.2599	0.5247	0.0007
-16	0.2599	0.5247	0.0007	0.2599	0.5247	0.0007
-15	0.2599	0.5248	0.0008	0.2599	0.5247	0.0007
-14	0.2599	0.5247	0.0007	0.26	0.5247	0.0008
-13	0.2599	0.5247	0.0007	0.26	0.5247	0.0008
-12	0.26	0.5248	0.0008	0.2599	0.5247	0.0007
-11	0.2599	0.5248	0.0008	0.2599	0.5247	0.0007
-10	0.2599	0.5247	0.0007	0.26	0.5247	0.0008
-9	0.2599	0.5248	0.0008	0.2599	0.5247	0.0007
-8	0.26	0.5248	0.0008	0.2599	0.5247	0.0008
-7	0.26	0.5248	0.0008	0.2599	0.5248	0.0008
-6	0.2599	0.5248	0.0007	0.26	0.5248	0.0008
-5	0.26	0.5247	0.0008	0.26	0.5248	0.0008

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

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

-4	0.26	0.5247	0.0008	0.26	0.5247	0.0008
-3	0.2599	0.5247	0.0007	0.26	0.5248	0.0008
-2	0.2599	0.5248	0.0007	0.2599	0.5247	0.0007
-1	0.26	0.5247	0.0008	0.26	0.5247	0.0008
0	0.26	0.5248	0.0008	0.26	0.5248	0.0008
1	0.2599	0.5247	0.0008	0.2599	0.5247	0.0007
2	0.2599	0.5248	0.0007	0.2599	0.5248	0.0008
3	0.26	0.5247	0.0008	0.2599	0.5248	0.0008
4	0.26	0.5247	0.0008	0.2599	0.5247	0.0007
5	0.2599	0.5247	0.0008	0.2599	0.5247	0.0007
6	0.2599	0.5248	0.0008	0.26	0.5248	0.0008
7	0.26	0.5247	0.0008	0.2599	0.5247	0.0007
8	0.26	0.5247	0.0008	0.26	0.5247	0.0008
9	0.26	0.5247	0.0008	0.2599	0.5247	0.0007
10	0.26	0.5247	0.0008	0.2599	0.5247	0.0007
11	0.2599	0.5247	0.0007	0.2599	0.5247	0.0007
12	0.26	0.5247	0.0008	0.2599	0.5247	0.0007
13	0.2599	0.5247	0.0007	0.2599	0.5247	0.0007
14	0.2599	0.5247	0.0007	0.2599	0.5247	0.0007
15	0.2599	0.5247	0.0007	0.2598	0.5247	0.0007

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

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

16	0.2599	0.5247	0.0007	0.2599	0.5247	0.0007
17	0.2599	0.5247	0.0007	0.2599	0.5247	0.0007
18	0.2599	0.5247	0.0007	0.2598	0.5247	0.0006
19	0.2599	0.5247	0.0007	0.2599	0.5247	0.0007
20	0.2599	0.5247	0.0007	0.2599	0.5247	0.0007
21	0.2599	0.5247	0.0007	0.2598	0.5247	0.0006
22	0.2598	0.5247	0.0006	0.2599	0.5247	0.0007
23	0.2599	0.5247	0.0007	0.2599	0.5247	0.0007
24	0.2598	0.5247	0.0006	0.2598	0.5247	0.0006
25	0.2598	0.5247	0.0006	0.2596	0.5246	0.0004
26	0.2596	0.5246	0.0004	0.2596	0.5246	0.0004
27	0.2596	0.5246	0.0004	0.2596	0.5246	0.0004
28	0.2595	0.5246	0.0003	0.2596	0.5246	0.0004
29	0.2595	0.5246	0.0003	0.2596	0.5246	0.0004
30	0.2595	0.5246	0.0003	0.2596	0.5246	0.0004
31	0.2595	0.5246	0.0003	0.2596	0.5246	0.0004
32	0.2595	0.5246	0.0003	0.2595	0.5246	0.0003
33	0.2595	0.5246	0.0003	0.2595	0.5245	0.0002
34	0.2595	0.5246	0.0003	0.2594	0.5245	0.0002
35	0.2595	0.5245	0.0003	0.2594	0.5245	0.0002

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

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

36	0.2595	0.5245	0.0003	0.2594	0.5245	0.0002
37	0.2595	0.5245	0.0003	0.2594	0.5245	0.0001
38	0.2595	0.5245	0.0002	0.2594	0.5245	0.0002
39	0.2595	0.5245	0.0002	0.2594	0.5245	0.0002
40	0.2595	0.5245	0.0002	0.2594	0.5244	0.0001
41	0.2594	0.5244	0.0002	0.2593	0.5245	0.0001
42	0.2593	0.5244	0	0.2593	0.5244	0.0001
43	0.2594	0.5244	0.0001	0.2593	0.5244	0.0001
44	0.2593	0.5244	0.0001	0.2591	0.5244	0.0002
45	0.2593	0.5244	0	0.2592	0.5244	0.0001
46	0.2593	0.5244	0	0.2592	0.5244	0.0001
47	0.2591	0.5243	0.0002	0.2592	0.5243	0.0001
48	0.2591	0.5243	0.0002	0.2592	0.5243	0.0001
49	0.2591	0.5243	0.0002	0.2592	0.5243	0.0002
50	0.2591	0.5243	0.0002	0.259	0.5243	0.0003
51	0.2591	0.5243	0.0002	0.259	0.5242	0.0003
52	0.2591	0.5242	0.0003	0.2588	0.5242	0.0005
53	0.2589	0.5242	0.0004	0.2588	0.5242	0.0005
54	0.2589	0.5241	0.0005	0.2589	0.5241	0.0005
55	0.2589	0.5241	0.0004	0.2589	0.5241	0.0005

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

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

56	0.2589	0.5241	0.0004	0.2588	0.5241	0.0005
57	0.2589	0.5241	0.0005	0.2588	0.5241	0.0005
58	0.2589	0.5241	0.0005	0.2588	0.5241	0.0006
59	0.2587	0.524	0.0007	0.2586	0.524	0.0008
60	0.2587	0.524	0.0007	0.2586	0.524	0.0008
61	0.2587	0.524	0.0007	0.2586	0.524	0.0008
62	0.2587	0.524	0.0007	0.2585	0.5239	0.0009
63	0.2586	0.5239	0.0009	0.2585	0.5239	0.0009
64	0.2585	0.5239	0.0009	0.2583	0.5238	0.0012
65	0.2586	0.5239	0.0009	0.2583	0.5238	0.0012
66	0.2584	0.5238	0.0011	0.2583	0.5238	0.0012
67	0.2584	0.5239	0.001	0.2582	0.5237	0.0012
68	0.2582	0.5238	0.0012	0.258	0.5236	0.0015
69	0.2582	0.5238	0.0012	0.258	0.5236	0.0015
70	0.2581	0.5238	0.0013	0.258	0.5236	0.0015
71	0.2581	0.5239	0.0012	0.2577	0.5236	0.0017
72	0.258	0.524	0.0013	0.2577	0.5237	0.0017
73	0.258	0.5241	0.0013	0.2577	0.5239	0.0016
74	0.258	0.5243	0.0013	0.2577	0.524	0.0016
75	0.2581	0.5247	0.0012	0.2577	0.5243	0.0016

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

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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



Report No.: GZE151140-A

NVLAP LAB CODE 201011-0

76	0.2583	0.5252	0.0012	0.2581	0.5248	0.0013
----	--------	--------	--------	--------	--------	--------

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

Report Format Number STD/QR4910-A/1

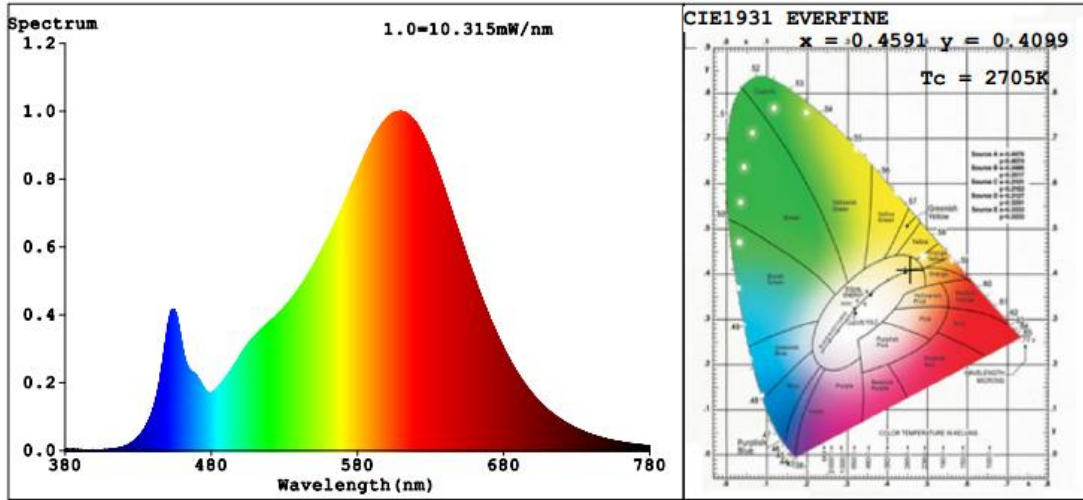
Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

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	2015-11-21	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.
GZE151140-A1	120.0 V / 60 Hz	376.9	2705	82.9	0.3512
GZE151140-A2	120.0 V / 60 Hz	347.0	2700	82.9	0.3305
GZE151140-A3	120.0 V / 60 Hz	432.1	2700	82.9	0.3953
Average		385.3	2702	82.9	0.3590

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



Color Parameters:

Chromaticity Coordinate: $x=0.4591$ $y=0.4099$ / $u'=0.2623$ $v'=0.5270$

$T_c=2705K$ ($Duv=-0.0002$) Dominant WL:Ld =584.3nm Purity=60.8%

Peak WL:Lp=609.6nm HWL:Lhd=117.2nm

Render Index:Ra=82.9 CRI=78.2

R1 =82 R2 =93 R3 =95 R4 =80 R5 =82 R6 =92 R7 =82

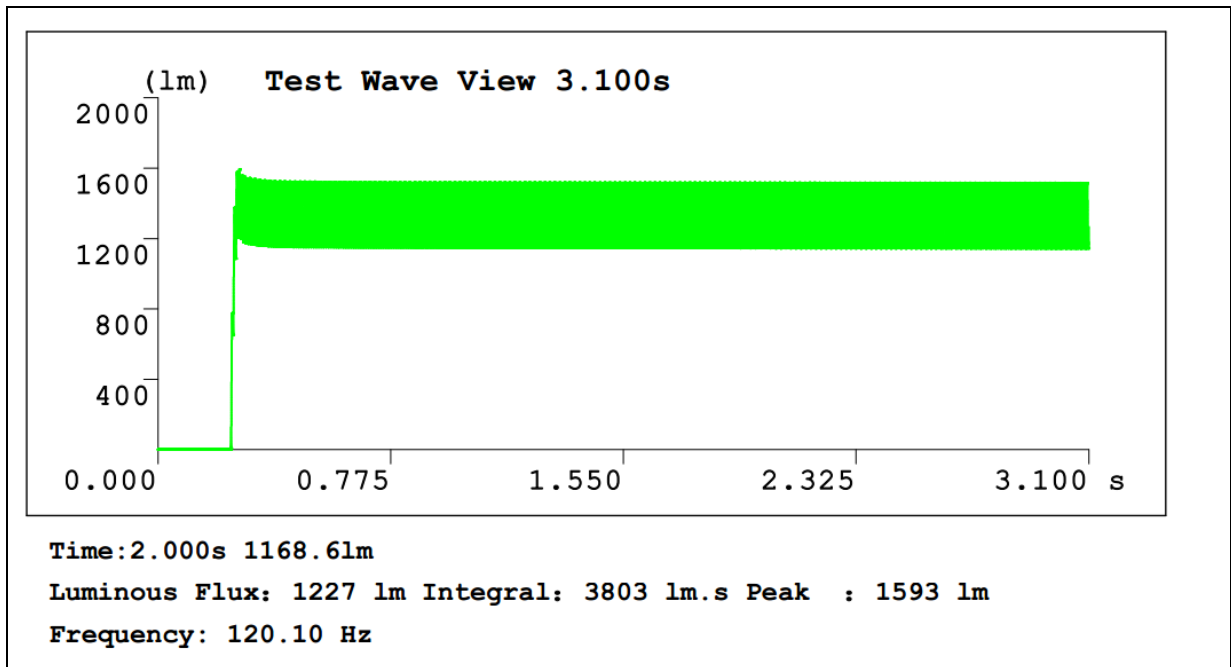
R8 =59 R9 =11 R10=83 R11=79 R12=76 R13=84 R14=98 R15=74

Dimmer	Peak Noise Reading (dBA)	Test Condition	Distance between the microphone and the UUT
LEVITON MFG CO INC (E31373), Cat. No. 6681	20.1	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	2015-11-21	Test Ambient:	25.1°C
Sample No.		Operating Frequency (Hz)	
GZE151140-A1		120.10	
GZE151140-A2		120.09	
GZE151140-A3		120.05	
Average		120.08	

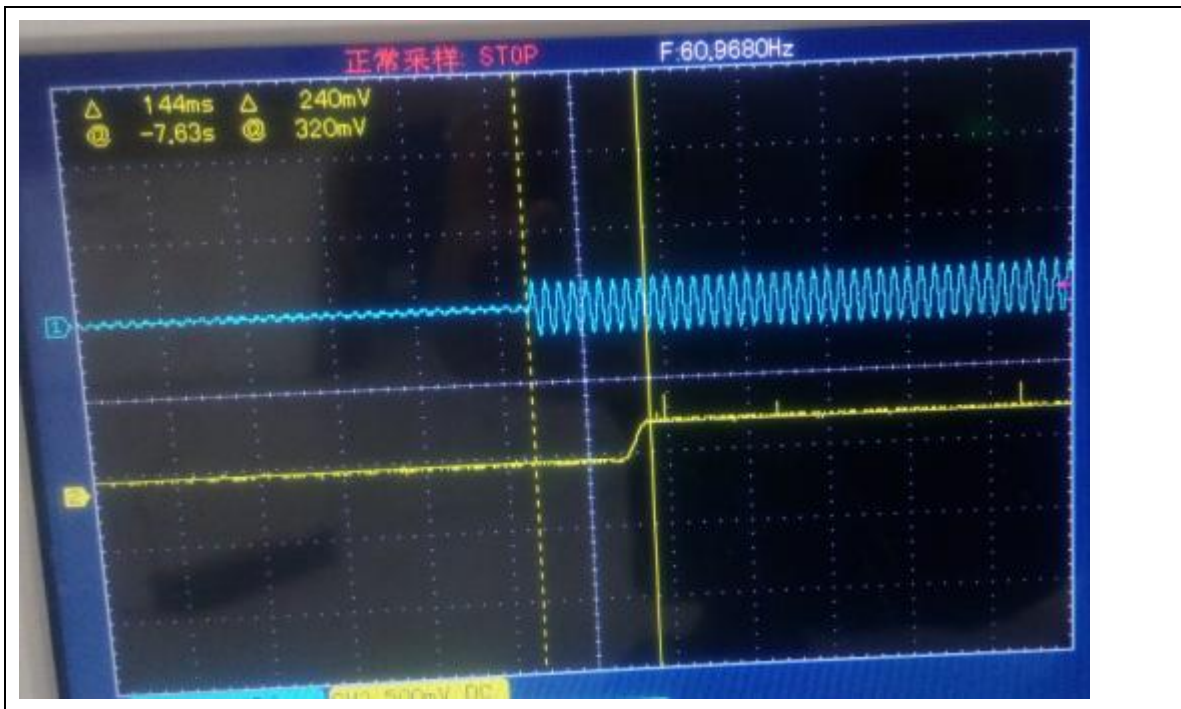
Graph:



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	2015-11-21	Test Ambient:	25.1°C
Sample No.	Start Time (ms)		
GZE151140-A1	144		
GZE151140-A2	146		
GZE151140-A3	157		
Average	149		

Graph (Start Time):



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

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

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

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

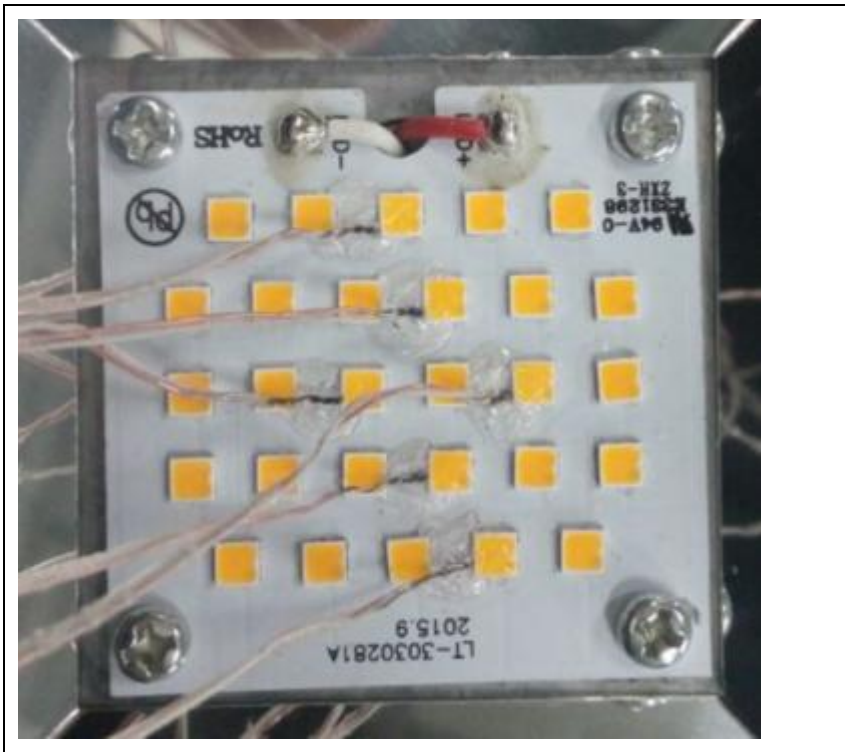
Test voltage: 120V,60Hz

Test date	2015-11-21	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
GZE151140-A1		Pass	
GZE151140-A2		Pass	
GZE151140-A3		Pass	

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

Test date	2015-11-21	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Driver(mA)	117
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE151140-A1	STWxC2SB	61.9	105

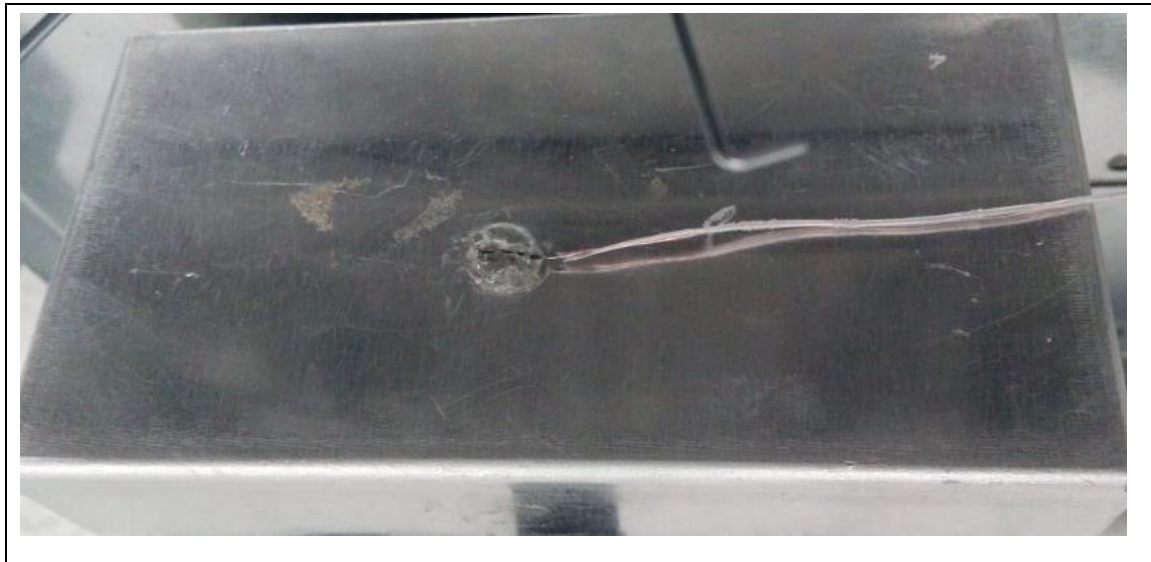
In-Situ Picture - Ts:



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

Test date	2015-11-21	Test Ambient	25.1°C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE151140-A1	65.7	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 *******