



# IESNA LM-80-2008

MEASURING LUMEN MAINTENANCE OF LED LIGHT SOURCES

## MEASUREMENT AND TEST REPORT

For

### Xiamen Dacol Photoelectronics Technology Co., Ltd.

8021 Xiang'an West Road (Xiang'an) industrial zone, Torch Hi-Tech Industrial Development Zone,  
Xiamen City, Fujian, China

**Model: SMD 2835**

<b>Report Type:</b> 6000 Hours Test Report		<b>Product Type:</b> LED Package	
<b>Test Engineer:</b>	Pote Wang	<i>Pote Wang</i>	
<b>Report Number:</b>	R2DG161104050-10		
<b>Test Date:</b>	2016-11-07 to 2017-07-15		
<b>Report Date:</b>	2017-08-11		
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**Note:** The test data was only valid for the test sample(s). This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

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## 1 - General Information

### 1.1 Description of LED Light Sources

Devices tested

Part Number: SMD 2835  
 Part Type: LED Package  
 Nominal CCT: 3500K

### 1.2 Standards Used:

- IESNA LM-80-08: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.
- ENERGY STAR® Program Guidance Regarding LED Package, LED Array and LED Module Lumen Maintenance Performance Data Supporting Qualification of Lighting Products(This test method was not accredited by IAS)

### 1.3 Test Facility

The testing facility used by Bay Area Compliance Laboratories Corp. (Dongguan). is located at No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China.

### 1.4 Description of Auxiliary Equipment

Device	Manufacture	Model No	Serial No	Test Range	Calibration date	Calibration due date
0.3m integrating sphere	EVERFINE	Diameter 0.3m	1011119	0.3m	2017-03-09	2018-03-09
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	15V/2000mA	2017-03-03	2018-03-03
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	380-780nm	2017-03-09	2018-03-09
Standard Light Source	EVERFINE	D062	1011093	3000K	2016-09-13	2017-09-13
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987CJ 7321114	300VA	2017-03-03	2018-03-03
Multilayer aging machine	BACL	B2-270	20023	25°C~130°C	2017-03-03	2018-03-03
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090005	(50/15A)	2017-03-03	2018-03-03
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090006	(50/15A)	2017-03-03	2018-03-03
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090009	(50/15A)	2016-12-15	2017-12-15

## 1.5 Operating Cycle

Samples are driven with a constant direct current (DC)

## 1.6 Ambient Conditions

For lumen maintenance test, samples were operated in thermal chambers with minimal ambient airflow. For long term reliability test, the case temperature was controlled by mounting several thermocouples on a sample reliability stress board at the designated thermal measurement point, as shown in APPENDIX. The ambient temperature  $T_A$  was measured by several thermocouples at a distance of 5 mm above the reliability test board. The relative humidity within chamber was less than 65%.

For photometry measurement, temperature was set to  $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , RH <65%.

## 1.7 Photometry Measurement Uncertainty

The uncertainty of the light output measurements is  $U=1.59\%$  ( $K=2$ ), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is  $U=21\text{K}$  ( $K=2$ ), at the 95% confidence level. This calibration results traceable to the NATIONAL INSTITUTE OF METROLOGY (NIM).

## 1.8 Sample Set

### Sampling Method:

LED samples for IESNA LM-80 testing consist of units built from a minimum of three manufacturing lots with each manufacturing lot built from different wafer lots built on non-consecutive days.

These manufacturing lots are picked to represent a wide parametric distribution.

Each Sample is soldered to all of the reliability stress boards for a given set of IESNA LM-80 tests.

### Sample Size:

Total 75Pcs;

Each Ts test condition 25Pcs

The samples tested at Ts 55°C, Ts 85°C and Ts 105°C were received at 2016-11-04 and tested during 2016-11-07 to 2017-07-15. The samples were numbered from 1 to 25, 26 to 50 and 51 to 75

#### Data Set 1: 55°C, 60mA

Part Number:	SMD 2835
Number of Units:	25
Actual Case Temperature(T <sub>S</sub> ):	T <sub>S</sub> =54.1°C
Actual Ambient Temperature(T <sub>A</sub> ):	T <sub>A</sub> =52.1°C
Life Test Drive Current:	I <sub>F</sub> = 60mA
Measurement Current:	I <sub>F</sub> = 60mA

#### Data Set 2: 85°C,60mA

Part Number:	SMD 2835
Number of Units:	25
Actual Case Temperature(T <sub>S</sub> ):	T <sub>S</sub> =84.2°C
Actual Ambient Temperature(T <sub>A</sub> ):	T <sub>A</sub> =81.5°C
Life Test Drive Current:	I <sub>F</sub> =60mA
Measurement Current:	I <sub>F</sub> = 60mA

#### Data Set 3: 105°C, 60mA

Part Number:	SMD 2835
Number of Units:	25
Actual Case Temperature(T <sub>S</sub> ):	T <sub>S</sub> =104.3°C
Actual Ambient Temperature(T <sub>A</sub> ):	T <sub>A</sub> =101.4°C
Life Test Drive Current:	I <sub>F</sub> = 60mA
Measurement Current:	I <sub>F</sub> = 60mA

## 2 - Summary of Test Result

<b>Data Set:</b>	<b>Data Set 1, 55°C, 60mA</b>
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h
Average. Lumen Maintenance at 6000 hours:	99.06%
Average Chromaticity Shift at 6000 hours ( $\Delta u'v'$ ):	0.0016
Reported TM-21 L <sub>70</sub> Lifetime:	>36000 hours

<b>Data Set:</b>	<b>Data Set 2, 85°C, 60mA</b>
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h
Average. Lumen Maintenance at 6000 hours:	98.78%
Average Chromaticity Shift at 6000 hours( $\Delta u'v'$ ):	0.0017
Reported TM-21 L <sub>70</sub> Lifetime:	>36000 hours

<b>Data Set:</b>	<b>Data Set 3, 105°C, 60mA</b>
Number of Units:	25
Failures Observed:	0
Test Interval and Test Duration:	0h,1000h,2000h,3000h,4000h,5000h,6000h
Average. Lumen Maintenance at 6000 hours:	98.50%
Average Chromaticity Shift at 6000 hours( $\Delta u'v'$ ):	0.0016
Reported TM-21 L <sub>70</sub> Lifetime:	>36000 hours

### 3 - Test Data

#### 3.1 Data Set 1, 55°C, 60mA (Lumen Maintenance)

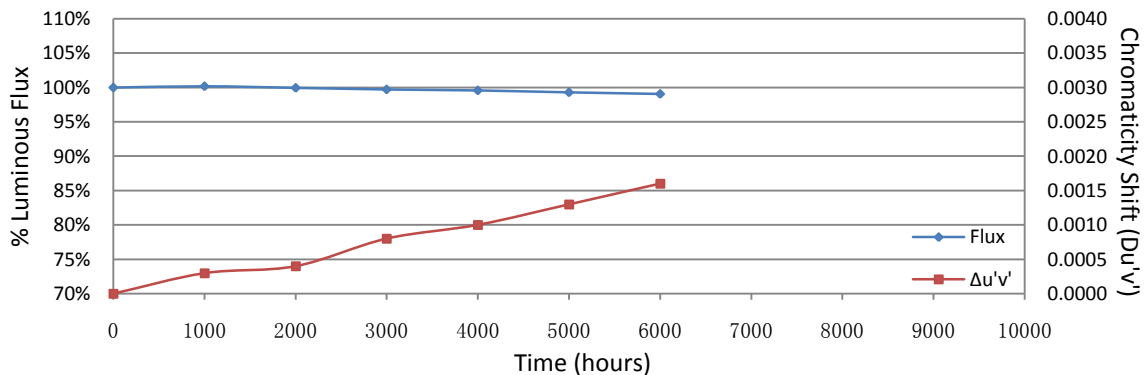
No.	V <sub>F</sub> (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	18.26	121.1	100.08	99.83	99.67	99.59	99.50	99.34
2	18.29	121.7	100.16	100.08	99.84	99.67	99.34	99.01
3	18.24	117.8	100.17	99.83	99.49	99.41	99.24	98.98
4	18.24	122.2	100.08	100.00	99.75	99.51	99.18	98.94
5	18.22	119.5	100.17	99.83	99.75	99.58	99.33	99.16
6	18.21	120.7	100.25	100.08	99.92	99.75	99.42	99.17
7	18.21	121.9	100.25	100.08	99.75	99.59	99.34	99.10
8	18.27	119.1	100.34	100.17	99.92	99.83	99.50	99.24
9	18.23	123.5	100.08	99.92	99.68	99.60	99.27	99.19
10	18.19	119.7	99.92	99.58	99.33	99.08	98.83	98.50
11	18.30	121.4	100.16	99.92	99.59	99.51	99.18	99.01
12	18.20	120.4	100.17	100.08	99.83	99.67	99.42	99.09
13	18.30	121.0	100.08	99.83	99.59	99.42	99.17	99.09
14	18.22	119.0	100.25	100.08	99.75	99.58	99.33	99.16
15	18.23	121.7	99.84	99.59	99.51	99.42	99.01	98.85
16	18.28	121.4	100.08	99.92	99.59	99.26	99.18	98.93
17	18.34	118.0	100.17	99.92	99.66	99.49	99.15	98.73
18	18.22	122.3	100.25	100.16	99.75	99.51	99.35	99.26
19	18.19	118.4	99.92	99.66	99.32	99.16	98.82	98.48
20	18.28	121.9	100.41	100.16	99.84	99.51	99.18	98.85
21	18.20	120.1	100.08	99.75	99.50	99.33	99.17	99.00
22	18.29	119.2	100.34	100.25	99.92	99.75	99.58	99.41
23	18.22	120.9	100.08	99.83	99.67	99.59	99.34	99.09
24	18.24	122.4	100.41	100.08	99.84	99.75	99.67	99.51
25	18.20	120.1	100.33	100.17	100.08	99.83	99.67	99.33
Ave.	18.24	120.6	100.16	99.95	99.70	99.54	99.29	99.06
Med.	18.23	120.9	100.17	99.92	99.75	99.58	99.33	99.09
st dev	0.0408	1.4924	0.1463	0.1876	0.1842	0.1919	0.2161	0.2506
Min.	18.19	117.8	99.84	99.58	99.32	99.08	98.82	98.48
Max.	18.34	123.5	100.41	100.25	100.08	99.83	99.67	99.51

TM-21 Projection:

**Test Duration:** 6000 hours  
**Failures Observed:** 0  
 $\alpha$ : 2.191E-06  
 $\beta$ : 1.004  
**Reported L<sub>70</sub>:** >36000 hours

### 3.2 Data Set 1, 55°C, 60mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ( $\Delta u'v'$ )					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.2360	0.5133	3470	0.0003	0.0009	0.0011	0.0011	0.0012	0.0014
2	0.2358	0.5139	3468	0.0004	0.0006	0.0011	0.0014	0.0017	0.0020
3	0.2357	0.5117	3496	0.0004	0.0008	0.0010	0.0013	0.0013	0.0014
4	0.2359	0.5130	3476	0.0002	0.0007	0.0014	0.0015	0.0018	0.0021
5	0.2358	0.5126	3481	0.0011	0.0013	0.0014	0.0013	0.0015	0.0018
6	0.2364	0.5116	3476	0.0003	0.0006	0.0009	0.0012	0.0017	0.0020
7	0.2354	0.5145	3474	0.0002	0.0003	0.0006	0.0011	0.0014	0.0017
8	0.2367	0.5108	3474	0.0001	0.0003	0.0006	0.0010	0.0014	0.0017
9	0.2348	0.5143	3494	0.0002	0.0003	0.0006	0.0010	0.0013	0.0017
10	0.2353	0.5119	3505	0.0002	0.0002	0.0004	0.0008	0.0011	0.0015
11	0.2349	0.5121	3515	0.0001	0.0002	0.0005	0.0005	0.0008	0.0008
12	0.2366	0.5120	3465	0.0002	0.0004	0.0007	0.0008	0.0011	0.0016
13	0.2359	0.5122	3483	0.0001	0.0004	0.0006	0.0010	0.0014	0.0014
14	0.2356	0.5115	3501	0.0001	0.0003	0.0004	0.0008	0.0011	0.0012
15	0.2364	0.5133	3455	0.0001	0.0002	0.0006	0.0009	0.0013	0.0013
16	0.2361	0.5129	3471	0.0004	0.0004	0.0007	0.0011	0.0015	0.0017
17	0.2355	0.5117	3502	0.0001	0.0003	0.0005	0.0008	0.0012	0.0013
18	0.2352	0.5128	3497	0.0001	0.0002	0.0006	0.0011	0.0013	0.0015
19	0.2362	0.5130	3467	0.0004	0.0005	0.0007	0.0011	0.0014	0.0017
20	0.2352	0.5127	3501	0.0002	0.0002	0.0006	0.0008	0.0013	0.0015
21	0.2361	0.5127	3472	0.0002	0.0005	0.0007	0.0009	0.0012	0.0016
22	0.2354	0.5127	3493	0.0001	0.0003	0.0007	0.0009	0.0011	0.0015
23	0.2360	0.5132	3470	0.0001	0.0002	0.0007	0.0009	0.0013	0.0017
24	0.2349	0.5129	3506	0.0001	0.0001	0.0007	0.0009	0.0012	0.0016
25	0.2358	0.5120	3488	0.0001	0.0001	0.0008	0.0009	0.0012	0.0014
Ave.	0.2357	0.5126	3484	0.0003	0.0004	0.0008	0.0010	0.0013	0.0016
Med.	0.2358	0.5127	3481	0.0002	0.0003	0.0007	0.0010	0.0013	0.0016
st dev	0.0005	0.0009	15.9269	0.0002	0.0003	0.0003	0.0002	0.0002	0.0003
Min.	0.2348	0.5108	3455	0.0001	0.0001	0.0004	0.0005	0.0008	0.0008
Max.	0.2367	0.5145	3515	0.0011	0.0013	0.0014	0.0015	0.0018	0.0021





**3.3 Data Set 2, 85°C, 60mA (Lumen Maintenance)**

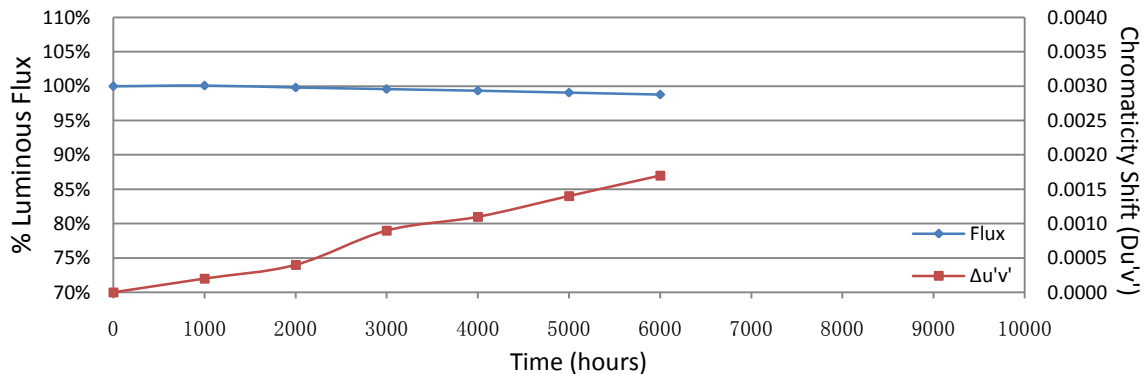
No.	V <sub>F</sub> (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	18.34	121.9	100.16	99.84	99.51	99.34	99.10	98.85
27	18.32	122.6	100.08	99.92	99.59	99.43	99.27	98.94
28	18.32	121.5	100.16	99.84	99.67	99.42	99.18	98.93
29	18.33	120.2	99.92	99.75	99.50	99.25	98.92	98.67
30	18.33	120.7	99.83	99.67	99.42	99.17	98.92	98.51
31	18.22	120.3	100.25	100.17	100.08	99.92	99.67	99.33
32	18.29	122.3	100.16	99.92	99.75	99.51	99.18	98.94
33	18.34	122.6	99.92	99.76	99.59	99.35	99.10	99.02
34	18.31	118.6	99.75	99.49	99.16	98.90	98.48	98.06
35	18.29	121.3	100.08	100.00	99.75	99.59	99.42	99.26
36	18.24	121.2	100.08	99.75	99.42	99.34	99.09	99.01
37	18.21	120.8	99.83	99.50	99.17	99.01	98.59	98.26
38	18.14	119.0	100.08	99.83	99.66	99.50	99.16	98.91
39	18.17	119.8	100.25	100.08	99.92	99.75	99.42	99.08
40	18.20	119.4	100.25	99.83	99.58	99.25	98.99	98.74
41	18.26	121.1	100.08	99.92	99.75	99.50	99.01	98.60
42	18.28	122.1	100.25	99.84	99.59	99.34	99.26	99.02
43	18.18	120.0	100.08	99.75	99.42	99.17	99.00	98.83
44	18.18	120.6	100.25	99.92	99.59	99.25	99.00	98.67
45	18.19	119.8	100.25	99.75	99.58	99.33	99.00	98.75
46	18.32	121.1	99.92	99.83	99.42	99.09	98.84	98.68
47	18.31	120.6	99.75	99.42	99.17	98.92	98.59	98.26
48	18.32	120.2	100.17	99.75	99.33	99.17	98.84	98.59
49	18.28	120.8	100.17	99.83	99.42	99.17	99.01	98.84
50	18.24	121.0	100.08	99.83	99.59	99.34	98.93	98.76
Ave.	18.26	120.8	100.07	99.81	99.55	99.32	99.04	98.78
Med.	18.28	120.8	100.08	99.83	99.58	99.34	99.01	98.83
st dev	0.0622	1.0504	0.1614	0.1678	0.2194	0.2350	0.2653	0.2983
Min.	18.14	118.6	99.75	99.42	99.16	98.90	98.48	98.06
Max.	18.34	122.6	100.25	100.17	100.08	99.92	99.67	99.33

**TM-21 Projection:**

**Test Duration:** 6000 hours  
**Failures Observed:** 0  
**α:** 2.583E-06  
**β:** 1.003  
**Reported L<sub>70</sub>:** >36000 hours

### 3.4 Data Set 2, 85°C, 60mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ( $\Delta u'v'$ )					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	0.2360	0.5142	3459	0.0002	0.0002	0.0009	0.0010	0.0013	0.0015
27	0.2348	0.5143	3495	0.0002	0.0005	0.0011	0.0011	0.0013	0.0016
28	0.2364	0.5139	3450	0.0002	0.0002	0.0009	0.0011	0.0013	0.0017
29	0.2355	0.5130	3486	0.0002	0.0003	0.0009	0.0012	0.0011	0.0013
30	0.2355	0.5132	3487	0.0003	0.0004	0.0012	0.0011	0.0013	0.0016
31	0.2358	0.5119	3490	0.0002	0.0003	0.0011	0.0012	0.0013	0.0016
32	0.2358	0.5150	3458	0.0003	0.0004	0.0010	0.0012	0.0013	0.0018
33	0.2358	0.5140	3467	0.0002	0.0003	0.0010	0.0012	0.0012	0.0016
34	0.2352	0.5127	3499	0.0003	0.0002	0.0005	0.0008	0.0009	0.0011
35	0.2353	0.5126	3497	0.0004	0.0004	0.0008	0.0012	0.0014	0.0016
36	0.2367	0.5138	3442	0.0002	0.0005	0.0011	0.0013	0.0015	0.0016
37	0.2351	0.5144	3486	0.0002	0.0004	0.0007	0.0011	0.0013	0.0014
38	0.2357	0.5116	3496	0.0003	0.0005	0.0009	0.0012	0.0015	0.0015
39	0.2352	0.5119	3509	0.0004	0.0008	0.0008	0.0011	0.0015	0.0014
40	0.2364	0.5133	3455	0.0004	0.0006	0.0012	0.0014	0.0019	0.0020
41	0.2345	0.5150	3496	0.0002	0.0006	0.0009	0.0012	0.0014	0.0018
42	0.2345	0.5139	3509	0.0001	0.0005	0.0009	0.0011	0.0013	0.0017
43	0.2357	0.5129	3481	0.0002	0.0006	0.0009	0.0012	0.0015	0.0018
44	0.2361	0.5137	3461	0.0001	0.0005	0.0009	0.0012	0.0014	0.0018
45	0.2365	0.5138	3450	0.0002	0.0004	0.0007	0.0011	0.0013	0.0018
46	0.2356	0.5121	3496	0.0002	0.0004	0.0010	0.0013	0.0016	0.0020
47	0.2348	0.5135	3503	0.0002	0.0004	0.0009	0.0010	0.0014	0.0019
48	0.2365	0.5128	3461	0.0002	0.0004	0.0009	0.0011	0.0016	0.0021
49	0.2357	0.5134	3478	0.0002	0.0005	0.0010	0.0013	0.0015	0.0019
50	0.2345	0.5129	3519	0.0001	0.0003	0.0009	0.0012	0.0015	0.0018
Ave.	0.2356	0.5134	3481	0.0002	0.0004	0.0009	0.0011	0.0014	0.0017
Med.	0.2357	0.5134	3486	0.0002	0.0004	0.0009	0.0012	0.0014	0.0017
st dev	0.0007	0.0009	21.6506	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002
Min.	0.2345	0.5116	3442	0.0001	0.0002	0.0005	0.0008	0.0009	0.0011
Max.	0.2367	0.5150	3519	0.0004	0.0008	0.0012	0.0014	0.0019	0.0021



**3.5 Data Set 3, 105°C, 60mA (Lumen Maintenance)**

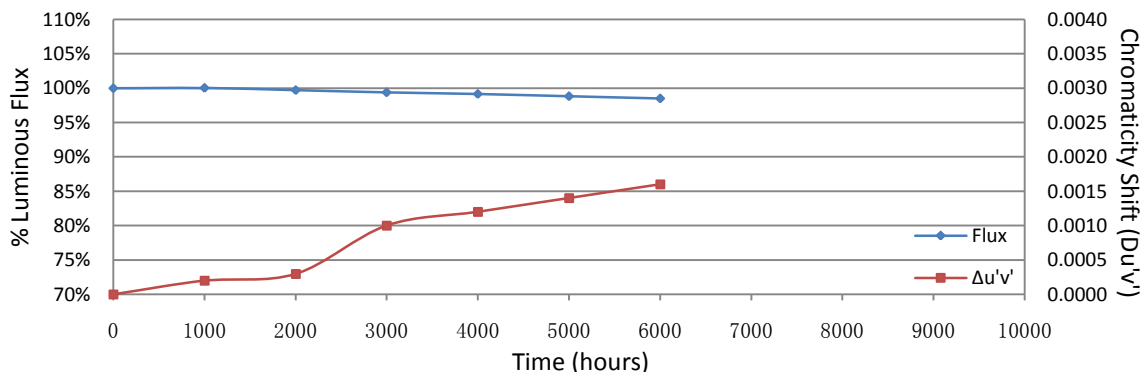
No.	V <sub>F</sub> (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	18.20	120.9	100.17	99.83	99.50	99.26	98.92	98.51
52	18.17	119.6	99.75	99.33	99.08	98.91	98.49	98.24
53	18.29	122.1	99.84	99.67	99.34	99.02	98.61	98.28
54	18.27	120.1	100.17	99.92	99.75	99.58	99.33	99.00
55	18.21	122.1	100.08	99.84	99.51	99.26	98.94	98.61
56	18.32	119.6	100.17	99.75	99.50	99.25	98.91	98.58
57	18.29	121.2	100.08	99.59	99.17	98.84	98.51	98.27
58	18.20	120.6	99.67	99.34	99.00	98.76	98.26	97.84
59	18.31	119.7	100.17	99.92	99.58	99.33	99.08	98.91
60	18.17	115.8	99.83	99.40	98.96	98.79	98.45	98.01
61	18.27	119.5	99.83	99.58	99.41	99.33	99.25	98.91
62	18.30	122.0	100.16	99.84	99.59	99.34	99.02	98.77
63	18.25	120.2	99.75	99.42	99.00	98.75	98.42	98.09
64	18.31	121.0	100.08	99.83	99.59	99.42	99.09	98.84
65	18.24	118.7	100.17	99.92	99.58	99.41	98.99	98.65
66	18.29	123.0	99.92	99.67	99.51	99.27	99.11	98.78
67	18.24	121.5	99.84	99.67	99.34	99.18	98.85	98.44
68	18.25	120.9	100.17	100.08	99.67	99.42	99.09	98.76
69	18.29	119.9	100.08	99.92	99.83	99.67	99.42	99.17
70	18.20	118.8	100.17	99.92	99.58	99.33	98.91	98.57
71	18.24	121.9	100.16	99.84	99.34	99.18	98.85	98.61
72	18.22	120.5	99.92	99.59	99.17	98.92	98.51	98.26
73	18.24	122.8	99.92	99.51	99.02	98.70	98.29	98.13
74	18.28	120.4	100.17	99.75	99.34	99.09	98.67	98.34
75	18.20	120.3	99.92	99.50	99.09	98.59	98.25	97.84
Ave.	18.25	120.5	100.01	99.70	99.38	99.14	98.81	98.50
Med.	18.25	120.5	100.08	99.75	99.41	99.25	98.91	98.57
st dev	0.0449	1.5147	0.1679	0.2076	0.2542	0.2915	0.3406	0.3594
Min.	18.17	115.8	99.67	99.33	98.96	98.59	98.25	97.84
Max.	18.32	123.0	100.17	100.08	99.83	99.67	99.42	99.17

**TM-21 Projection:**

**Test Duration:** 6000 hours  
**Failures Observed:** 0  
 $\alpha$ : 3.011E-06  
 $\beta$ : 1.003  
**Reported L<sub>70</sub>:** >36000 hours

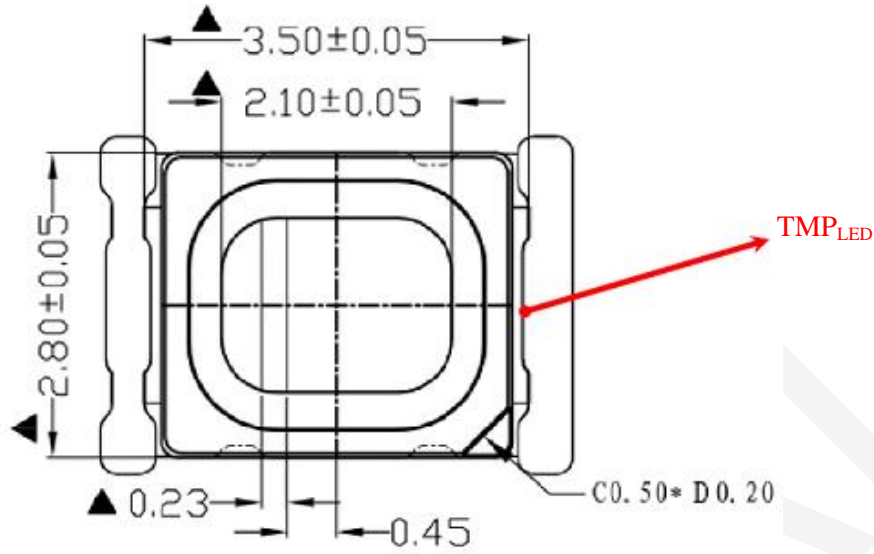
### 3.6 Data Set 3, 105°C, 60mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ( $\Delta u'v'$ )					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	0.2355	0.5125	3493	0.0002	0.0002	0.0011	0.0012	0.0014	0.0019
52	0.2349	0.5117	3520	0.0002	0.0003	0.0010	0.0011	0.0015	0.0018
53	0.2350	0.5143	3488	0.0002	0.0004	0.0009	0.0011	0.0013	0.0017
54	0.2362	0.5118	3478	0.0001	0.0002	0.0007	0.0009	0.0012	0.0014
55	0.2353	0.5124	3502	0.0003	0.0004	0.0011	0.0011	0.0014	0.0017
56	0.2357	0.5115	3499	0.0003	0.0005	0.0011	0.0012	0.0015	0.0018
57	0.2367	0.5130	3451	0.0002	0.0004	0.0009	0.0010	0.0014	0.0017
58	0.2366	0.5139	3445	0.0003	0.0005	0.0011	0.0010	0.0014	0.0017
59	0.2368	0.5137	3441	0.0003	0.0006	0.0010	0.0011	0.0014	0.0017
60	0.2372	0.5125	3442	0.0002	0.0004	0.0009	0.0009	0.0012	0.0014
61	0.2360	0.5143	3460	0.0002	0.0003	0.0009	0.0011	0.0013	0.0015
62	0.2357	0.5143	3466	0.0001	0.0002	0.0010	0.0012	0.0014	0.0017
63	0.2368	0.5113	3467	0.0002	0.0002	0.0011	0.0012	0.0016	0.0019
64	0.2363	0.5123	3469	0.0001	0.0001	0.0009	0.0011	0.0013	0.0017
65	0.2360	0.5111	3493	0.0001	0.0002	0.0009	0.0009	0.0012	0.0016
66	0.2358	0.5136	3471	0.0001	0.0004	0.0011	0.0012	0.0014	0.0018
67	0.2357	0.5124	3487	0.0002	0.0003	0.0012	0.0013	0.0014	0.0017
68	0.2366	0.5136	3449	0.0002	0.0004	0.0011	0.0013	0.0015	0.0014
69	0.2356	0.5124	3491	0.0001	0.0003	0.0010	0.0012	0.0013	0.0014
70	0.2353	0.5130	3494	0.0002	0.0003	0.0009	0.0012	0.0012	0.0014
71	0.2376	0.5131	3423	0.0001	0.0004	0.0011	0.0013	0.0014	0.0016
72	0.2364	0.5135	3455	0.0002	0.0003	0.0012	0.0013	0.0014	0.0016
73	0.2346	0.5143	3501	0.0002	0.0003	0.0010	0.0013	0.0013	0.0015
74	0.2355	0.5123	3494	0.0001	0.0004	0.0010	0.0013	0.0013	0.0016
75	0.2362	0.5119	3479	0.0002	0.0006	0.0012	0.0014	0.0015	0.0017
Ave.	0.2360	0.5128	3474	0.0002	0.0003	0.0010	0.0012	0.0014	0.0016
Med.	0.2360	0.5125	3478	0.0002	0.0003	0.0010	0.0012	0.0014	0.0017
st dev	0.0007	0.0010	24.0498	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
Min.	0.2346	0.5111	3423	0.0001	0.0001	0.0007	0.0009	0.0012	0.0014
Max.	0.2376	0.5143	3520	0.0003	0.0006	0.0012	0.0014	0.0016	0.0019



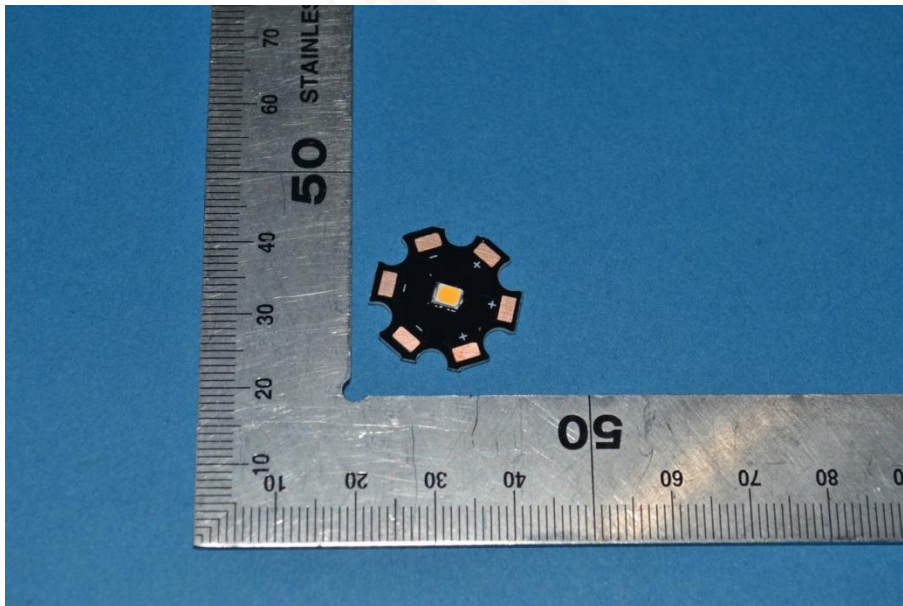
## Attachment A – EUT Photo

### A.1 Mechanical Dimensions (Ta = 25°C)



All dimensions are in millimeter

### A.2 EUT Photo



\*\*\*\*\*END OF REPORT\*\*\*\*\*