



# 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 2835-0.5W**

<b>Report Type:</b> 6000 Hours Test Report	<b>Product Type:</b> LED Package
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<b>Report Number:</b> R2DG150812050-10	
<b>Test Date:</b> 2015-08-13 to 2016-04-28	
<b>Report Date:</b> 2016-05-06	
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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 2835-0.5W  
 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 Pu Long Cun 69, Puxinghu Industrial Area, Tangxia Town, Dongguan, Guangdong, P.R.China.

### 1.4 Description of Auxiliary Equipment

Device	Manufacture	Model No	Serial No	Test Range	Calibration date	Calibration due date
Integral Sphere	EVERFINE	Diameter 0.3m	1011119	0.3m	2016-03-10	2017-03-09
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	15V/2000mA	2016-03-04	2017-03-03
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	380-780nm	2016-03-10	2017-03-09
Standard Light Source	EVERFINE	D062	1011093	3000K	2015-09-17	2016-09-16
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987CJ7321114	300VA	2016-03-04	2017-03-03
Multilayer aging machine	BACL	B2-270	20005	25 °C~110 °C	2015-09-14	2016-09-13
Multilayer aging machine	BACL	B2-270	20022	25 °C~110 °C	2015-11-23	2016-11-22
Multilayer aging machine	BACL	B2-270	20013	25 °C~110 °C	2015-09-14	2016-09-13

Device	Manufacture	Model No	Serial No	Test Range	Calibration date	Calibration due date
DC Power Supply	Taishan Xingguang	T0150E8.5-80	ST06606	0~5V,0~40A	2015-10-30	2016-10-29

### 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  $25\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ , 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 2015-08-12 and tested during 2015-08-13 to 2016-04-28. The samples were numbered from 1 to 25, 26 to 50 and 51 to 75

#### Data Set 1: 55 °C, 150mA

Part Number:	SMD 2835-0.5W
Number of Units:	25
Actual Case Temperature(T <sub>S</sub> ):	T <sub>S</sub> =54.2 °C
Actual Ambient Temperature(T <sub>A</sub> ):	T <sub>A</sub> =51.5 °C
Life Test Drive Current:	I <sub>F</sub> = 150mA
Measurement Current:	I <sub>F</sub> = 150mA

#### Data Set 2: 85 °C,150mA

Part Number:	SMD 2835-0.5W
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> =82.5 °C
Life Test Drive Current:	I <sub>F</sub> =150mA
Measurement Current:	I <sub>F</sub> = 150mA

#### Data Set 3: 105 °C, 150mA

Part Number:	SMD 2835-0.5W
Number of Units:	25
Actual Case Temperature(T <sub>S</sub> ):	T <sub>S</sub> =104.5 °C
Actual Ambient Temperature(T <sub>A</sub> ):	T <sub>A</sub> =103.7 °C
Life Test Drive Current:	I <sub>F</sub> = 150mA
Measurement Current:	I <sub>F</sub> = 150mA

## 2 - Summary of Test Result

<b>Data Set:</b>	<b>Data Set 1, 55 °C, 150mA</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:	98.20%
Average Chromaticity Shift at 6000 hours ( $\Delta u'v'$ ):	0.0017
Reported TM-21 L <sub>70</sub> Lifetime:	>36,000 hours

<b>Data Set:</b>	<b>Data Set 2, 85 °C, 150mA</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:	97.56%
Average Chromaticity Shift at 6000 hours( $\Delta u'v'$ ):	0.0021
Reported TM-21 L <sub>70</sub> Lifetime:	>36,000 hours

<b>Data Set:</b>	<b>Data Set 3, 105 °C, 150mA</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:	96.92%
Average Chromaticity Shift at 6000 hours( $\Delta u'v'$ ):	0.0024
Reported TM-21 L <sub>70</sub> Lifetime:	>36,000 hours

### 3 - Test Data

#### 3.1 Data Set 1, 55 °C, 150mA (Lumen Maintenance)

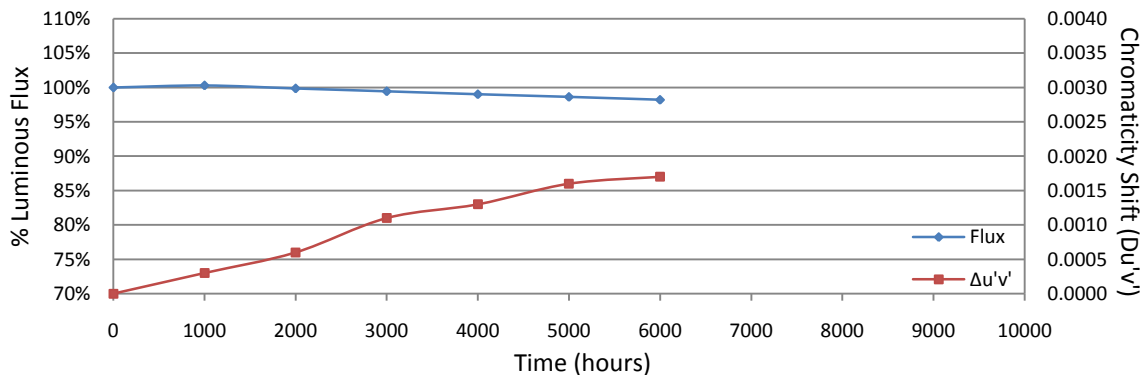
No.	V <sub>F</sub> (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	2.954	73.19	100.31	99.92	99.48	99.08	98.73	98.36
2	2.953	74.23	100.46	99.91	99.22	98.87	98.57	98.33
3	2.950	73.74	100.45	99.88	99.55	99.21	98.82	98.40
4	2.964	74.19	100.20	99.78	99.45	99.10	98.76	98.40
5	2.968	74.28	100.13	99.82	99.29	99.00	98.51	98.26
6	2.969	74.31	100.28	99.87	99.54	99.07	98.88	98.41
7	2.957	74.36	100.43	100.05	99.58	99.03	98.59	98.36
8	2.964	74.74	100.40	100.04	99.61	98.93	98.74	98.22
9	2.960	74.86	100.19	99.93	99.39	98.52	97.85	97.54
10	2.947	73.42	100.42	99.85	99.39	98.71	98.38	98.07
11	2.956	73.55	100.27	99.95	99.58	99.17	98.56	97.93
12	2.944	71.73	100.31	99.55	99.30	99.12	98.59	98.12
13	2.943	72.16	100.25	100.01	99.79	99.36	99.02	98.39
14	2.960	75.18	99.93	99.73	99.31	99.02	98.84	98.34
15	2.963	75.50	99.88	99.79	99.14	98.89	98.73	98.24
16	2.955	73.27	100.22	100.18	99.58	99.37	98.88	98.33
17	2.947	73.89	100.27	100.05	99.46	99.30	98.93	98.47
18	2.952	73.97	100.12	100.01	99.45	99.03	98.46	98.23
19	2.944	71.77	100.17	99.67	99.26	98.79	98.54	97.99
20	2.954	72.08	100.07	99.93	99.50	99.25	98.89	98.58
21	2.957	75.05	100.53	99.93	99.25	98.67	98.44	98.03
22	2.957	74.42	100.48	99.33	99.03	98.63	98.13	97.81
23	2.945	72.59	100.69	100.06	99.70	99.35	98.98	98.40
24	2.959	74.24	100.59	100.23	100.07	99.54	98.88	98.37
25	2.954	73.69	100.35	99.01	98.97	98.24	97.90	97.46
Ave.	2.955	73.78	100.30	99.86	99.44	99.01	98.62	98.20
Med.	2.955	73.97	100.28	99.92	99.45	99.03	98.73	98.33
st dev	0.0074	1.0508	0.1926	0.2602	0.2380	0.3014	0.3102	0.2784
Min.	2.943	71.73	99.88	99.01	98.97	98.24	97.85	97.46
Max.	2.969	75.50	100.69	100.23	100.07	99.54	99.02	98.58

TM-21 Projection:

**Test Duration:** 6,000 hours  
**Failures Observed:** 0  
 $\alpha$ : 4.218E-06  
 $\beta$ : 1.007  
**Calculated L<sub>70</sub>:** 86,000 hours  
**Reported L<sub>70</sub>:** >36,000 hours

### 3.2 Data Set 1, 55 °C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ( $\Delta u'v'$ )					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.2367	0.5106	3475	0.0005	0.0006	0.0009	0.0011	0.0013	0.0016
2	0.2371	0.5116	3452	0.0006	0.0006	0.0010	0.0011	0.0013	0.0014
3	0.2369	0.5098	3479	0.0008	0.0009	0.0012	0.0013	0.0014	0.0018
4	0.2367	0.5119	3464	0.0006	0.0010	0.0013	0.0015	0.0016	0.0018
5	0.2361	0.5117	3485	0.0005	0.0008	0.0012	0.0014	0.0016	0.0018
6	0.2366	0.5108	3478	0.0004	0.0008	0.0012	0.0013	0.0015	0.0016
7	0.2361	0.5105	3496	0.0003	0.0006	0.0011	0.0012	0.0015	0.0017
8	0.2369	0.5118	3458	0.0002	0.0006	0.0012	0.0013	0.0016	0.0016
9	0.2363	0.5109	3486	0.0002	0.0005	0.0011	0.0013	0.0013	0.0015
10	0.2370	0.5112	3460	0.0002	0.0005	0.0011	0.0012	0.0013	0.0016
11	0.2364	0.5088	3506	0.0002	0.0006	0.0011	0.0013	0.0013	0.0016
12	0.2376	0.5071	3487	0.0002	0.0005	0.0010	0.0012	0.0014	0.0016
13	0.2368	0.5084	3498	0.0002	0.0005	0.0009	0.0011	0.0014	0.0016
14	0.2359	0.5106	3502	0.0002	0.0005	0.0010	0.0012	0.0013	0.0016
15	0.2350	0.5124	3511	0.0002	0.0006	0.0011	0.0013	0.0013	0.0016
16	0.2370	0.5091	3484	0.0001	0.0005	0.0009	0.0011	0.0013	0.0016
17	0.2356	0.5087	3533	0.0002	0.0006	0.0010	0.0012	0.0013	0.0016
18	0.2353	0.5111	3516	0.0003	0.0006	0.0010	0.0010	0.0015	0.0016
19	0.2375	0.5104	3452	0.0004	0.0007	0.0013	0.0015	0.0021	0.0020
20	0.2373	0.5091	3475	0.0002	0.0004	0.0013	0.0015	0.0024	0.0018
21	0.2368	0.5112	3468	0.0003	0.0005	0.0010	0.0014	0.0018	0.0021
22	0.2369	0.5119	3454	0.0002	0.0003	0.0010	0.0014	0.0018	0.0016
23	0.2376	0.5111	3444	0.0004	0.0006	0.0012	0.0016	0.0022	0.0018
24	0.2357	0.5110	3503	0.0003	0.0005	0.0010	0.0015	0.0022	0.0019
25	0.2370	0.5112	3460	0.0005	0.0007	0.0012	0.0017	0.0020	0.0020
Ave.	0.2366	0.5105	3481	0.0003	0.0006	0.0011	0.0013	0.0016	0.0017
Med.	0.2368	0.5109	3479	0.0003	0.0006	0.0011	0.0013	0.0015	0.0016
st dev	0.0007	0.0013	23.0154	0.0002	0.0001	0.0001	0.0002	0.0003	0.0002
Min.	0.2350	0.5071	3444	0.0001	0.0003	0.0009	0.0010	0.0013	0.0014
Max.	0.2376	0.5124	3533	0.0008	0.0010	0.0013	0.0017	0.0024	0.0021





**3.3 Data Set 2, 85 °C, 150mA (Lumen Maintenance)**

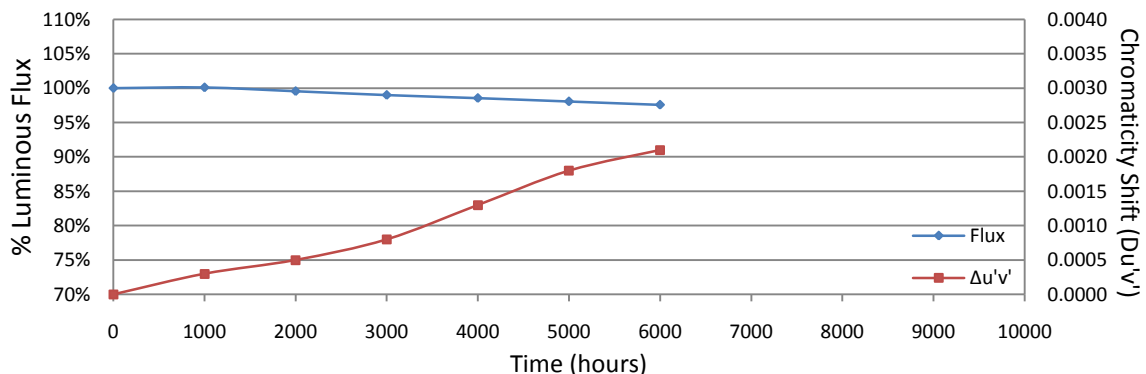
No.	V <sub>F</sub> (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	2.955	74.60	100.48	99.89	99.38	98.71	98.20	97.49
27	2.956	75.00	99.93	99.60	99.07	98.69	98.12	97.57
28	2.955	73.57	100.01	99.44	99.06	98.70	98.08	97.51
29	2.944	72.95	99.88	99.36	98.82	98.59	98.01	97.40
30	2.964	74.61	100.24	99.81	99.13	98.61	98.11	97.86
31	2.953	73.50	99.93	99.61	99.16	98.60	97.93	97.46
32	2.961	74.50	99.91	99.53	99.06	98.54	97.97	97.46
33	2.963	75.33	99.92	99.58	99.03	98.57	98.09	97.36
34	2.955	73.95	100.24	99.73	99.28	98.58	98.03	97.51
35	2.953	73.04	99.99	99.52	99.06	98.51	98.19	97.73
36	2.962	73.50	100.39	99.62	98.91	98.44	97.70	97.40
37	2.958	75.09	99.96	99.33	98.83	98.72	98.20	97.71
38	2.961	75.41	99.92	99.23	98.83	98.42	97.98	97.65
39	2.952	74.16	100.12	99.53	98.88	98.72	98.30	97.71
40	2.965	75.63	100.19	99.47	98.74	98.28	97.90	97.49
41	2.954	74.87	100.27	99.64	99.02	98.26	97.85	97.65
42	2.957	74.05	100.28	99.72	99.16	98.33	98.06	97.57
43	2.949	74.27	100.08	99.41	98.75	98.59	98.05	97.60
44	2.959	75.24	100.08	99.49	98.90	98.67	98.42	97.99
45	2.953	75.01	100.08	99.49	98.92	98.71	98.27	97.59
46	2.961	75.40	100.17	99.56	99.02	98.86	98.42	97.75
47	2.952	73.47	100.14	99.55	98.97	98.45	98.05	97.60
48	2.945	72.93	100.15	99.48	98.97	98.33	97.79	97.24
49	2.952	73.11	100.04	99.48	98.92	98.26	97.73	97.32
50	2.944	72.49	100.11	99.59	98.91	98.32	97.85	97.35
Ave.	2.955	74.23	100.10	99.55	98.99	98.54	98.05	97.56
Med.	2.955	74.27	100.08	99.53	98.97	98.58	98.05	97.57
st dev	0.0059	0.9327	0.1588	0.1455	0.1560	0.1707	0.1919	0.1746
Min.	2.944	72.49	99.88	99.23	98.74	98.26	97.70	97.24
Max.	2.965	75.63	100.48	99.89	99.38	98.86	98.42	97.99

**TM-21 Projection:**

**Test Duration:** 6,000 hours  
**Failures Observed:** 0  
**α:** 5.103E-06  
**β:** 1.006  
**Calculated L<sub>70</sub>:** 71,000 hours  
**Reported L<sub>70</sub>:** >36,000 hours

### 3.4 Data Set 2, 85 °C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ( $\Delta u'v'$ )					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	0.2368	0.5123	3454	0.0005	0.0006	0.0010	0.0015	0.0019	0.0021
27	0.2375	0.5133	3423	0.0004	0.0008	0.0011	0.0016	0.0017	0.0021
28	0.2373	0.5100	3464	0.0004	0.0006	0.0010	0.0015	0.0018	0.0021
29	0.2364	0.5094	3499	0.0004	0.0005	0.0009	0.0014	0.0017	0.0021
30	0.2359	0.5125	3481	0.0005	0.0007	0.0011	0.0014	0.0020	0.0022
31	0.2371	0.5116	3455	0.0003	0.0005	0.0009	0.0013	0.0018	0.0021
32	0.2368	0.5137	3439	0.0002	0.0006	0.0009	0.0013	0.0018	0.0021
33	0.2364	0.5134	3456	0.0004	0.0007	0.0011	0.0015	0.0018	0.0022
34	0.2361	0.5117	3484	0.0003	0.0006	0.0009	0.0012	0.0018	0.0021
35	0.2361	0.5091	3513	0.0004	0.0007	0.0011	0.0013	0.0021	0.0023
36	0.2375	0.5119	3437	0.0003	0.0003	0.0007	0.0011	0.0016	0.0020
37	0.2358	0.5128	3481	0.0003	0.0004	0.0008	0.0011	0.0018	0.0019
38	0.2361	0.5121	3479	0.0001	0.0002	0.0006	0.0011	0.0017	0.0019
39	0.2370	0.5105	3468	0.0004	0.0005	0.0007	0.0011	0.0016	0.0019
40	0.2362	0.5128	3470	0.0002	0.0004	0.0006	0.0011	0.0018	0.0020
41	0.2359	0.5132	3472	0.0003	0.0005	0.0007	0.0013	0.0019	0.0022
42	0.2361	0.5124	3476	0.0004	0.0005	0.0008	0.0011	0.0018	0.0020
43	0.2370	0.5121	3450	0.0004	0.0006	0.0007	0.0012	0.0017	0.0020
44	0.2347	0.5108	3536	0.0004	0.0005	0.0008	0.0012	0.0017	0.0020
45	0.2366	0.5105	3480	0.0004	0.0005	0.0008	0.0012	0.0018	0.0020
46	0.2359	0.5120	3487	0.0003	0.0005	0.0007	0.0011	0.0017	0.0018
47	0.2363	0.5106	3489	0.0003	0.0005	0.0008	0.0012	0.0018	0.0020
48	0.2363	0.5085	3512	0.0003	0.0004	0.0008	0.0011	0.0018	0.0021
49	0.2376	0.5105	3450	0.0004	0.0005	0.0008	0.0012	0.0017	0.0020
50	0.2357	0.5086	3530	0.0003	0.0005	0.0008	0.0013	0.0018	0.0020
Ave.	0.2364	0.5115	3475	0.0003	0.0005	0.0008	0.0013	0.0018	0.0021
Med.	0.2363	0.5119	3476	0.0004	0.0005	0.0008	0.0012	0.0018	0.0020
st dev	0.0007	0.0015	27.9628	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
Min.	0.2347	0.5085	3423	0.0001	0.0002	0.0006	0.0011	0.0016	0.0018
Max.	0.2376	0.5137	3536	0.0005	0.0008	0.0011	0.0016	0.0021	0.0023



**3.5 Data Set 3, 105 °C, 150mA (Lumen Maintenance)**

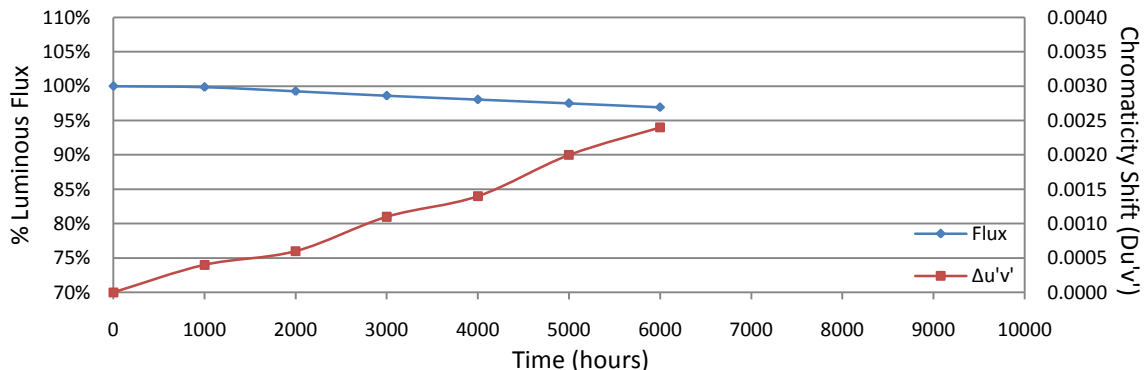
No.	V <sub>F</sub> (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	2.954	73.83	99.99	99.38	98.77	98.32	97.83	97.36
52	2.950	73.95	99.96	99.35	98.63	98.34	97.71	97.07
53	2.963	75.64	99.96	99.46	98.74	98.22	97.54	96.88
54	2.955	72.38	99.83	99.31	98.73	98.41	98.04	97.65
55	2.958	74.79	99.91	99.38	98.76	98.40	97.81	97.21
56	2.957	73.95	99.73	99.26	98.69	97.88	97.36	96.67
57	2.959	75.24	99.81	99.32	98.68	97.86	97.24	96.72
58	2.956	74.71	100.09	99.38	98.77	98.02	97.68	97.00
59	2.948	73.88	100.07	99.38	98.82	98.23	97.74	97.10
60	2.956	74.27	99.81	99.19	98.57	98.38	97.81	97.33
61	2.955	75.01	99.84	99.25	98.57	97.80	97.27	96.51
62	2.956	74.99	99.77	99.19	98.57	97.92	97.45	96.88
63	2.950	74.01	99.72	98.92	98.34	97.66	97.08	96.57
64	2.961	74.40	99.77	99.11	98.44	97.84	97.12	96.67
65	2.960	75.79	99.84	99.30	98.38	97.85	97.22	96.65
66	2.957	73.54	99.73	99.05	98.15	97.82	97.28	96.67
67	2.958	74.60	99.93	99.41	98.69	97.96	97.41	96.73
68	2.956	73.92	99.81	99.13	98.54	97.96	97.39	96.94
69	2.962	74.81	99.83	99.21	98.62	98.26	97.67	96.99
70	2.950	73.37	99.92	99.03	98.49	98.11	97.63	97.04
71	2.963	75.84	99.76	99.39	98.79	97.88	97.20	96.64
72	2.958	74.88	99.83	99.20	98.61	98.45	97.86	97.36
73	2.961	73.75	99.78	99.31	98.62	97.84	97.29	96.71
74	2.951	75.50	99.92	99.27	98.61	97.83	97.25	96.58
75	2.962	75.24	99.84	99.36	98.60	98.10	97.67	96.98
Ave.	2.957	74.49	99.86	99.26	98.61	98.05	97.50	96.92
Med.	2.957	74.60	99.83	99.30	98.62	97.96	97.45	96.88
st dev	0.0043	0.8432	0.1010	0.1344	0.1568	0.2379	0.2696	0.2981
Min.	2.948	72.38	99.72	98.92	98.15	97.66	97.08	96.51
Max.	2.963	75.84	100.09	99.46	98.82	98.45	98.04	97.65

**TM-21 Projection:**

**Test Duration:** 6,000 hours  
**Failures Observed:** 0  
**α:** 5.965E-06  
**β:** 1.004  
**Calculated L<sub>70</sub>:** 61,000 hours  
**Reported L<sub>70</sub>:** >36,000 hours

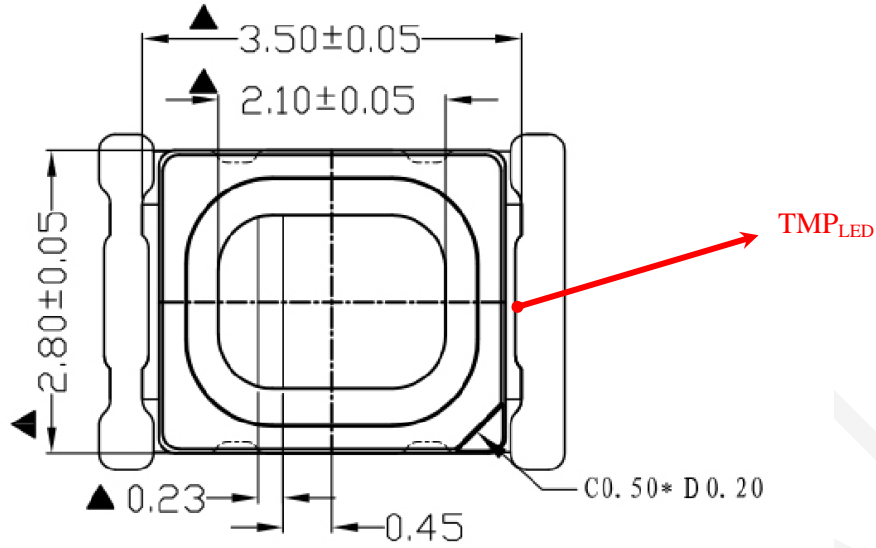
### 3.6 Data Set 3, 105 °C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ( $\Delta u'v'$ )					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	0.2367	0.5108	3475	0.0004	0.0006	0.0013	0.0016	0.0020	0.0024
52	0.2369	0.5100	3478	0.0004	0.0005	0.0011	0.0013	0.0019	0.0022
53	0.2360	0.5132	3469	0.0004	0.0005	0.0011	0.0014	0.0020	0.0024
54	0.2363	0.5110	3483	0.0004	0.0006	0.0011	0.0014	0.0021	0.0024
55	0.2353	0.5102	3526	0.0004	0.0005	0.0011	0.0014	0.0019	0.0023
56	0.2374	0.5113	3446	0.0004	0.0005	0.0010	0.0013	0.0018	0.0020
57	0.2362	0.5120	3477	0.0004	0.0006	0.0011	0.0014	0.0021	0.0024
58	0.2368	0.5111	3466	0.0002	0.0005	0.0010	0.0013	0.0018	0.0022
59	0.2356	0.5107	3510	0.0003	0.0006	0.0011	0.0014	0.0018	0.0022
60	0.2363	0.5111	3482	0.0004	0.0006	0.0012	0.0014	0.0020	0.0023
61	0.2363	0.5116	3479	0.0003	0.0004	0.0010	0.0014	0.0018	0.0023
62	0.2351	0.5108	3524	0.0003	0.0006	0.0011	0.0014	0.0020	0.0022
63	0.2374	0.5114	3447	0.0004	0.0006	0.0011	0.0015	0.0021	0.0023
64	0.2364	0.5107	3484	0.0003	0.0005	0.0010	0.0013	0.0019	0.0022
65	0.2368	0.5125	3453	0.0003	0.0008	0.0011	0.0014	0.0021	0.0023
66	0.2353	0.5107	3521	0.0004	0.0007	0.0011	0.0014	0.0020	0.0024
67	0.2360	0.5112	3493	0.0004	0.0007	0.0011	0.0014	0.0023	0.0027
68	0.2365	0.5109	3478	0.0003	0.0006	0.0010	0.0013	0.0020	0.0025
69	0.2364	0.5097	3495	0.0003	0.0008	0.0012	0.0015	0.0022	0.0026
70	0.2373	0.5107	3458	0.0004	0.0007	0.0011	0.0013	0.0019	0.0022
71	0.2371	0.5130	3438	0.0003	0.0007	0.0010	0.0016	0.0020	0.0025
72	0.2365	0.5108	3481	0.0004	0.0006	0.0010	0.0014	0.0019	0.0023
73	0.2370	0.5118	3455	0.0004	0.0007	0.0011	0.0016	0.0024	0.0027
74	0.2359	0.5117	3490	0.0004	0.0008	0.0011	0.0013	0.0019	0.0024
75	0.2374	0.5121	3440	0.0004	0.0008	0.0011	0.0012	0.0019	0.0023
Ave.	0.2364	0.5112	3478	0.0004	0.0006	0.0011	0.0014	0.0020	0.0024
Med.	0.2364	0.5111	3478	0.0004	0.0006	0.0011	0.0014	0.0020	0.0023
st dev	0.0007	0.0009	24.8796	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002
Min.	0.2351	0.5097	3438	0.0002	0.0004	0.0010	0.0012	0.0018	0.0020
Max.	0.2374	0.5132	3526	0.0004	0.0008	0.0013	0.0016	0.0024	0.0027



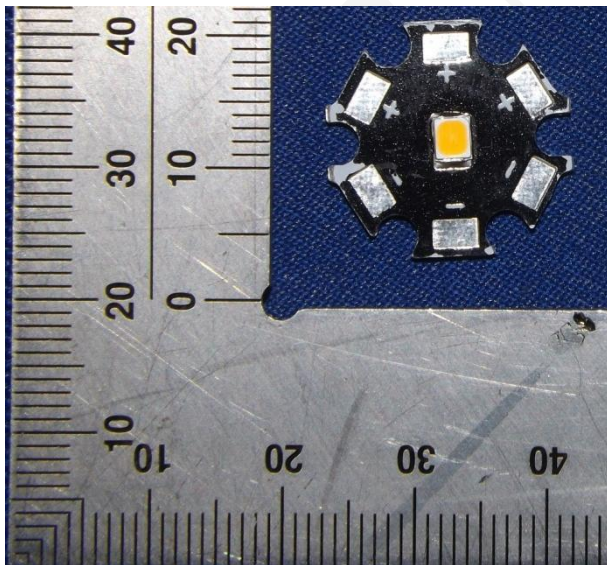
## Attachment A – EUT Photo

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



All dimensions are in millimeter

### A.2 EUT Photo



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