



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

Report Type: 6000 Hours Test Report		Product Type: LED Package	
Test Engineer:	Pote Wang	<i>Pote Wang</i>	
Report Number:	R2DG160920051-10		
Test Date:	2016-09-21 to 2017-05-29		
Report Date:	2017-06-13		
Reviewed By:	Daniel Duan / EE Manager	<i>Daniel Duan</i>	
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax:+86-0769-86858588		

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.

TABLE OF CONTENTS

1 - General Information	3
1.1 Description of LED Light Sources	3
1.2 Standards Used:.....	3
1.3 Test Facility.....	3
1.4 Description of Auxiliary Equipment	3
1.5 Operating Cycle.....	3
1.6 Ambient Conditions	4
1.7 Photometry Measurement Uncertainty	4
1.8 Sample Set.....	5
2 - Summary of Test Result.....	6
3 - Test Data	7
3.1 Data Set 1, 55 °C, 30mA (Lumen Maintenance).....	7
3.2 Data Set 1, 55 °C, 30mA (Chromaticity Shift).....	8
3.3 Data Set 2, 85 °C, 30mA (Lumen Maintenance).....	9
3.4 Data Set 2, 85 °C, 30mA (Chromaticity Shift).....	10
3.5 Data Set 3, 105 °C, 30mA (Lumen Maintenance).....	11
3.6 Data Set 3, 105 °C, 30mA (Chromaticity Shift).....	12
Attachment A – EUT Photo	13
A.1 Mechanical Dimensions (Ta = 25 °C).....	13
A.2 EUT Photo.....	13

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
Integral Sphere	EVERFINE	Diameter 0.3m	1011119	0.3m	2017-03-09	2018-03-08
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	15V/2000mA	2017-03-03	2018-03-02
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	380-780nm	2017-03-09	2018-03-08
Standard Light Source	EVERFINE	D062	1011093	3000K	2016-09-13	2017-09-12
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987CJ7321114	300VA	2017-03-03	2018-03-02
Multilayer aging machine	BACL	B2-270	20005	25 °C~130 °C	2016-09-01	2017-09-01
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090008	(50V/15A)	2016-07-07	2017-07-06

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 2016-09-20 and tested during 2016-09-21 to 2017-05-29. The samples were numbered from 1 to 25, 26 to 50 and 51 to 75

Data Set 1: 55 °C, 30mA

Part Number:	SMD 2835
Number of Units:	25
Actual Case Temperature(T_S):	$T_S = 54.2$ °C
Actual Ambient Temperature(T_A):	$T_A = 52.0$ °C
Life Test Drive Current:	$I_F = 30$ mA
Measurement Current:	$I_F = 30$ mA

Data Set 2: 85 °C, 30Ma

Part Number:	SMD 2835
Number of Units:	25
Actual Case Temperature(T_S):	$T_S = 84.3$ °C
Actual Ambient Temperature(T_A):	$T_A = 82.4$ °C
Life Test Drive Current:	$I_F = 30$ mA
Measurement Current:	$I_F = 30$ mA

Data Set 3: 105 °C, 30mA

Part Number:	SMD 2835
Number of Units:	25
Actual Case Temperature(T_S):	$T_S = 104.0$ °C
Actual Ambient Temperature(T_A):	$T_A = 102.7$ °C
Life Test Drive Current:	$I_F = 30$ mA
Measurement Current:	$I_F = 30$ mA

2 - Summary of Test Result

Data Set:	Data Set 1, 55 °C, 30mA
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:	99.32%
Average Chromaticity Shift at 6000 hours ($\Delta u'v'$):	0.0013
Reported TM-21 L ₇₀ Lifetime:	>36000hours

Data Set:	Data Set 2, 85 °C, 30mA
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:	98.99%
Average Chromaticity Shift at 6000 hours($\Delta u'v'$):	0.0015
Reported TM-21 L ₇₀ Lifetime:	>36000hours

Data Set:	Data Set 3, 105 °C, 30mA
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:	98.68%
Average Chromaticity Shift at 6000 hours($\Delta u'v'$):	0.0017
Reported TM-21 L ₇₀ Lifetime:	>36000hours

3 - Test Data

3.1 Data Set 1, 55 °C, 30mA (Lumen Maintenance)

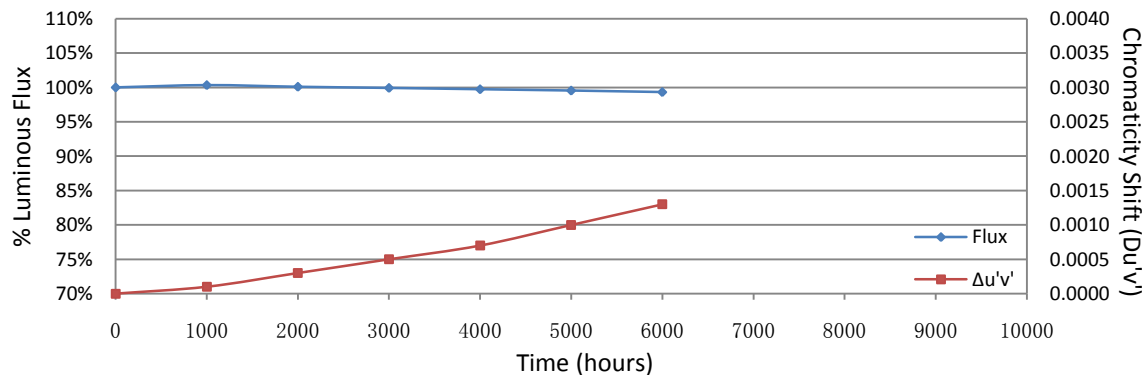
No.	V _F (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	17.42	72.02	100.31	100.19	99.97	99.69	99.58	99.32
2	17.57	69.45	100.29	100.07	99.70	99.67	99.38	99.14
3	17.45	71.90	100.17	100.01	99.89	99.60	99.39	99.18
4	17.44	72.33	100.21	100.14	100.07	99.93	99.81	99.56
5	17.52	72.41	100.29	100.19	99.93	99.68	99.30	99.02
6	17.51	71.62	100.34	100.17	100.07	99.94	99.72	99.69
7	17.56	72.42	100.32	100.25	100.19	100.01	99.90	99.82
8	17.42	72.28	100.25	100.11	100.07	99.78	99.60	99.34
9	17.43	72.29	100.26	99.94	99.79	99.63	99.46	99.10
10	17.42	72.02	100.22	100.04	99.99	99.76	99.51	99.39
11	17.52	69.68	100.36	100.10	99.96	99.80	99.64	99.40
12	17.40	70.47	100.31	99.83	99.47	99.12	98.91	98.68
13	17.53	71.13	100.35	100.30	100.17	100.11	99.93	99.83
14	17.64	70.08	100.31	100.10	99.86	99.60	99.30	99.06
15	17.43	71.86	100.45	100.08	99.92	99.79	99.58	99.42
16	17.40	70.84	100.28	99.80	99.66	99.58	99.29	99.01
17	17.58	71.49	100.45	100.06	99.87	99.59	99.33	99.12
18	17.58	70.70	100.23	99.94	99.79	99.58	99.39	99.31
19	17.46	70.86	100.27	100.03	99.89	99.77	99.56	99.34
20	17.48	70.62	100.41	100.30	100.17	99.97	99.90	99.60
21	17.47	69.71	100.39	100.11	99.84	99.63	99.40	99.17
22	17.45	71.43	100.45	100.21	99.94	99.86	99.75	99.57
23	17.43	72.33	100.43	100.30	100.01	99.82	99.68	99.46
24	17.65	72.46	100.37	99.94	99.83	99.70	99.50	99.27
25	17.48	70.26	100.44	100.09	99.83	99.62	99.59	99.30
Ave.	17.49	71.31	100.33	100.09	99.92	99.73	99.54	99.32
Med.	17.47	71.49	100.31	100.10	99.92	99.70	99.56	99.32
st dev	0.0731	0.9757	0.0820	0.1337	0.1660	0.1964	0.2347	0.2677
Min.	17.40	69.45	100.17	99.80	99.47	99.12	98.91	98.68
Max.	17.65	72.46	100.45	100.30	100.19	100.11	99.93	99.83

TM-21 Projection:

Test Duration: 6000 hours
Failures Observed: 0
 α : 1.972E-06
 β : 1.005
Reported L₇₀: >36000 hours

3.2 Data Set 1, 55 °C, 30mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.2353	0.5150	3473	0.0002	0.0004	0.0007	0.0009	0.0009	0.0013
2	0.2352	0.5144	3483	0.0001	0.0001	0.0005	0.0011	0.0016	0.0019
3	0.2355	0.5139	3478	0.0001	0.0004	0.0002	0.0006	0.0010	0.0014
4	0.2362	0.5149	3447	0.0001	0.0004	0.0005	0.0008	0.0013	0.0016
5	0.2352	0.5161	3463	0.0001	0.0004	0.0005	0.0006	0.0011	0.0014
6	0.2349	0.5145	3489	0.0001	0.0004	0.0006	0.0011	0.0013	0.0015
7	0.2358	0.5146	3460	0.0000	0.0001	0.0004	0.0006	0.0008	0.0014
8	0.2364	0.5146	3444	0.0000	0.0001	0.0005	0.0007	0.0011	0.0015
9	0.2349	0.5138	3499	0.0001	0.0003	0.0007	0.0008	0.0010	0.0016
10	0.2347	0.5139	3504	0.0001	0.0002	0.0005	0.0008	0.0009	0.0014
11	0.2356	0.5135	3479	0.0001	0.0002	0.0005	0.0006	0.0007	0.0012
12	0.2356	0.5120	3497	0.0001	0.0002	0.0004	0.0006	0.0008	0.0011
13	0.2352	0.5137	3490	0.0001	0.0004	0.0005	0.0006	0.0009	0.0013
14	0.2358	0.5145	3462	0.0001	0.0002	0.0004	0.0006	0.0008	0.0012
15	0.2339	0.5136	3529	0.0000	0.0002	0.0004	0.0007	0.0009	0.0013
16	0.2360	0.5144	3457	0.0001	0.0003	0.0006	0.0006	0.0009	0.0012
17	0.2360	0.5133	3468	0.0001	0.0003	0.0005	0.0006	0.0010	0.0014
18	0.2348	0.5147	3492	0.0001	0.0003	0.0006	0.0007	0.0011	0.0013
19	0.2350	0.5107	3529	0.0001	0.0002	0.0005	0.0006	0.0009	0.0015
20	0.2362	0.5135	3460	0.0001	0.0003	0.0005	0.0006	0.0010	0.0012
21	0.2364	0.5157	3431	0.0001	0.0002	0.0005	0.0006	0.0009	0.0013
22	0.2362	0.5126	3471	0.0001	0.0002	0.0004	0.0006	0.0009	0.0013
23	0.2356	0.5152	3460	0.0001	0.0003	0.0004	0.0004	0.0009	0.0012
24	0.2352	0.5126	3500	0.0000	0.0002	0.0004	0.0007	0.0011	0.0013
25	0.2352	0.5137	3488	0.0001	0.0002	0.0003	0.0005	0.0009	0.0011
Ave.	0.2355	0.5140	3478	0.0001	0.0003	0.0005	0.0007	0.0010	0.0013
Med.	0.2355	0.5139	3478	0.0001	0.0002	0.0005	0.0006	0.0009	0.0013
st dev	0.0006	0.0012	24.2767	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002
Min.	0.2339	0.5107	3431	0.0000	0.0001	0.0002	0.0004	0.0007	0.0011
Max.	0.2364	0.5161	3529	0.0002	0.0004	0.0007	0.0011	0.0016	0.0019



3.3 Data Set 2, 85 °C, 30mA (Lumen Maintenance)

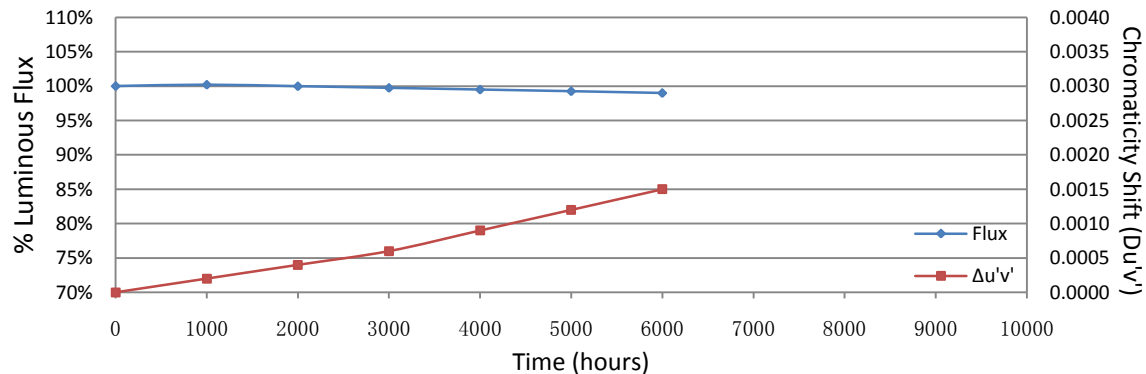
No.	V _F (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	17.55	69.19	100.26	100.01	99.81	99.57	99.34	99.06
27	17.45	72.17	100.29	100.11	99.72	99.47	99.25	99.20
28	17.41	71.73	100.25	100.04	99.68	99.40	99.30	98.93
29	17.56	72.28	100.15	99.71	99.39	99.18	98.93	98.64
30	17.47	71.60	100.18	99.99	99.64	99.34	99.06	98.73
31	17.46	71.79	100.21	99.82	99.72	99.58	99.48	99.30
32	17.51	70.07	100.31	100.19	100.03	99.74	99.59	99.31
33	17.51	71.34	100.24	99.94	99.55	99.26	98.98	98.64
34	17.47	69.20	100.17	100.17	100.07	99.90	99.71	99.51
35	17.45	70.42	100.23	100.09	99.89	99.59	99.46	99.23
36	17.43	71.33	100.11	100.10	99.94	99.80	99.62	99.36
37	17.52	70.01	100.07	99.87	99.60	99.36	99.24	98.89
38	17.40	71.21	100.17	99.85	99.42	99.21	98.90	98.54
39	17.41	71.73	100.22	99.94	99.76	99.53	99.12	98.90
40	17.42	72.69	100.19	99.77	99.60	99.23	98.91	98.61
41	17.40	70.58	100.13	100.03	99.83	99.63	99.45	99.28
42	17.50	73.15	100.14	100.03	99.69	99.36	99.11	98.77
43	17.39	71.71	100.25	100.11	100.01	99.79	99.64	99.40
44	17.48	69.84	100.26	99.84	99.60	99.48	99.20	98.97
45	17.55	68.74	100.23	99.99	99.69	99.37	98.94	98.75
46	17.54	70.47	100.07	99.77	99.62	99.36	98.95	98.64
47	17.41	71.66	100.14	99.80	99.58	99.37	99.12	98.79
48	17.54	72.51	100.23	100.12	99.94	99.68	99.45	99.10
49	17.45	71.71	100.24	99.99	99.79	99.51	99.32	99.21
50	17.54	69.48	100.20	100.17	99.87	99.48	99.19	99.05
Ave.	17.47	71.06	100.20	99.98	99.74	99.49	99.25	98.99
Med.	17.47	71.34	100.21	99.99	99.72	99.48	99.24	98.97
st dev	0.0557	1.1962	0.0639	0.1409	0.1806	0.1941	0.2494	0.2872
Min.	17.39	68.74	100.07	99.71	99.39	99.18	98.90	98.54
Max.	17.56	73.15	100.31	100.19	100.07	99.90	99.71	99.51

TM-21 Projection:

Test Duration: 6000 hours
Failures Observed: 0
 α : 2.435E-06
 β : 1.005
Reported L₇₀: >36000 hours

3.4 Data Set 2, 85 °C, 30mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	0.2355	0.5152	3466	0.0002	0.0003	0.0006	0.0009	0.0011	0.0015
27	0.2351	0.5143	3485	0.0003	0.0003	0.0007	0.0009	0.0012	0.0015
28	0.2366	0.5156	3426	0.0002	0.0003	0.0005	0.0009	0.0011	0.0015
29	0.2358	0.5160	3446	0.0003	0.0004	0.0007	0.0011	0.0013	0.0017
30	0.2358	0.5137	3472	0.0003	0.0003	0.0006	0.0009	0.0011	0.0015
31	0.2348	0.5132	3507	0.0003	0.0004	0.0006	0.0009	0.0012	0.0016
32	0.2349	0.5146	3489	0.0003	0.0021	0.0004	0.0009	0.0011	0.0015
33	0.2343	0.5136	3518	0.0004	0.0009	0.0007	0.0011	0.0013	0.0017
34	0.2365	0.5141	3445	0.0003	0.0005	0.0007	0.0009	0.0012	0.0015
35	0.2357	0.5141	3471	0.0002	0.0002	0.0005	0.0009	0.0011	0.0014
36	0.2353	0.5154	3467	0.0002	0.0002	0.0006	0.0009	0.0011	0.0014
37	0.2354	0.5169	3449	0.0003	0.0008	0.0007	0.0010	0.0013	0.0016
38	0.2357	0.5144	3467	0.0002	0.0006	0.0007	0.0009	0.0011	0.0015
39	0.2344	0.5139	3512	0.0002	0.0002	0.0006	0.0010	0.0012	0.0015
40	0.2357	0.5157	3452	0.0001	0.0002	0.0005	0.0009	0.0011	0.0014
41	0.2364	0.5146	3443	0.0002	0.0007	0.0009	0.0013	0.0016	0.0019
42	0.2349	0.5156	3478	0.0001	0.0002	0.0004	0.0008	0.0012	0.0015
43	0.2355	0.5143	3474	0.0002	0.0002	0.0007	0.0008	0.0011	0.0015
44	0.2353	0.5135	3487	0.0001	0.0002	0.0004	0.0009	0.0010	0.0014
45	0.2353	0.5131	3492	0.0002	0.0003	0.0005	0.0009	0.0012	0.0015
46	0.2354	0.5131	3490	0.0003	0.0003	0.0006	0.0009	0.0012	0.0016
47	0.2358	0.5136	3472	0.0001	0.0002	0.0004	0.0008	0.0011	0.0014
48	0.2351	0.5162	3464	0.0003	0.0004	0.0005	0.0009	0.0012	0.0015
49	0.2350	0.5144	3488	0.0002	0.0003	0.0006	0.0009	0.0012	0.0016
50	0.2359	0.5134	3472	0.0004	0.0004	0.0006	0.0009	0.0011	0.0014
Ave.	0.2354	0.5145	3473	0.0002	0.0004	0.0006	0.0009	0.0012	0.0015
Med.	0.2354	0.5143	3472	0.0002	0.0003	0.0006	0.0009	0.0012	0.0015
st dev	0.0006	0.0011	22.4026	0.0001	0.0004	0.0001	0.0001	0.0001	0.0001
Min.	0.2343	0.5131	3426	0.0001	0.0002	0.0004	0.0008	0.0010	0.0014
Max.	0.2366	0.5169	3518	0.0004	0.0021	0.0009	0.0013	0.0016	0.0019



3.5 Data Set 3, 105 °C, 30mA (Lumen Maintenance)

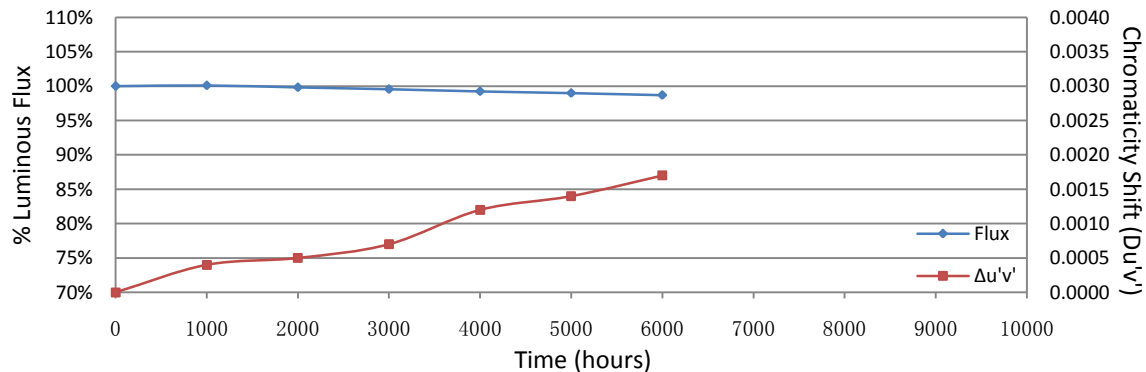
No.	V _F (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	17.54	71.06	100.20	100.06	99.72	99.39	98.99	98.69
52	17.40	70.89	100.17	99.93	99.53	99.11	98.93	98.69
53	17.41	71.57	100.24	100.01	99.72	99.52	99.32	99.15
54	17.40	71.63	100.18	99.87	99.55	99.30	98.98	98.65
55	17.55	69.76	100.17	99.87	99.73	99.27	98.95	98.55
56	17.49	70.78	99.92	99.76	99.58	99.43	99.15	98.95
57	17.45	68.88	99.99	99.87	99.74	99.49	99.33	99.00
58	17.41	71.40	100.21	99.89	99.43	98.99	98.74	98.46
59	17.42	72.28	100.14	99.81	99.39	99.16	98.89	98.59
60	17.47	72.10	100.03	99.76	99.61	99.39	99.07	98.82
61	17.56	71.20	100.07	99.93	99.79	99.44	99.14	98.78
62	17.50	70.38	100.16	99.99	99.84	99.59	99.30	98.92
63	17.64	70.50	99.94	99.66	99.40	99.26	99.04	98.78
64	17.55	70.21	100.06	99.80	99.70	99.29	98.99	98.63
65	17.49	73.03	100.08	99.63	99.18	98.81	98.56	98.27
66	17.43	71.92	99.97	99.71	99.36	99.07	98.72	98.41
67	17.57	71.19	100.17	99.71	99.38	99.03	98.90	98.62
68	17.54	68.84	100.06	99.68	99.45	99.01	98.78	98.55
69	17.40	70.99	99.99	99.52	99.31	99.01	98.92	98.63
70	17.49	71.71	100.10	99.68	99.14	98.93	98.70	98.42
71	17.42	71.58	100.20	99.69	99.54	99.27	98.99	98.64
72	17.49	70.75	100.18	99.97	99.60	99.14	98.88	98.59
73	17.51	68.60	100.16	99.90	99.65	99.29	99.00	98.72
74	17.40	71.26	100.13	99.85	99.83	99.33	99.06	98.61
75	17.54	71.58	100.06	99.87	99.57	99.30	99.11	98.74
Ave.	17.48	70.96	100.10	99.82	99.55	99.23	98.98	98.68
Med.	17.49	71.19	100.13	99.85	99.57	99.27	98.99	98.64
st dev	0.0672	1.0768	0.0913	0.1338	0.1928	0.2007	0.1913	0.1949
Min.	17.40	68.60	99.92	99.52	99.14	98.81	98.56	98.27
Max.	17.64	73.03	100.24	100.06	99.84	99.59	99.33	99.15

TM-21 Projection:

Test Duration: 6000 hours
Failures Observed: 0
α: 2.857E-06
β: 1.004
Reported L₇₀: >36000 hours

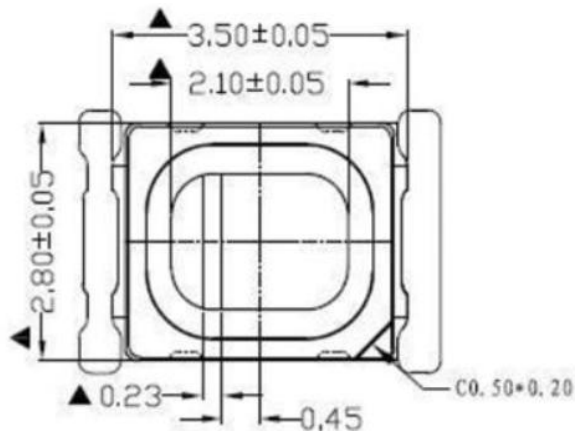
3.6 Data Set 3, 105 °C, 30mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	0.2349	0.5157	3477	0.0004	0.0004	0.0004	0.0010	0.0010	0.0016
52	0.2349	0.5126	3510	0.0004	0.0004	0.0005	0.0009	0.0010	0.0015
53	0.2353	0.5142	3479	0.0004	0.0008	0.0008	0.0011	0.0011	0.0017
54	0.2366	0.5142	3442	0.0004	0.0007	0.0009	0.0011	0.0012	0.0017
55	0.2355	0.5135	3481	0.0004	0.0007	0.0010	0.0010	0.0008	0.0014
56	0.2353	0.5140	3484	0.0003	0.0005	0.0009	0.0014	0.0015	0.0017
57	0.2348	0.5115	3527	0.0005	0.0005	0.0008	0.0013	0.0013	0.0016
58	0.2368	0.5147	3430	0.0003	0.0004	0.0007	0.0012	0.0013	0.0017
59	0.2356	0.5159	3454	0.0004	0.0004	0.0009	0.0013	0.0015	0.0017
60	0.2357	0.5143	3466	0.0004	0.0004	0.0009	0.0014	0.0016	0.0018
61	0.2362	0.5147	3448	0.0004	0.0005	0.0008	0.0014	0.0016	0.0018
62	0.2355	0.5162	3452	0.0004	0.0003	0.0006	0.0012	0.0016	0.0017
63	0.2356	0.5152	3461	0.0004	0.0004	0.0013	0.0012	0.0014	0.0016
64	0.2358	0.5121	3489	0.0004	0.0006	0.0013	0.0015	0.0018	0.0020
65	0.2343	0.5132	3522	0.0004	0.0006	0.0006	0.0013	0.0017	0.0018
66	0.2347	0.5136	3504	0.0004	0.0005	0.0004	0.0012	0.0016	0.0020
67	0.2356	0.5141	3473	0.0004	0.0006	0.0006	0.0012	0.0016	0.0018
68	0.2360	0.5148	3452	0.0004	0.0006	0.0005	0.0012	0.0014	0.0017
69	0.2370	0.5140	3432	0.0004	0.0005	0.0006	0.0012	0.0016	0.0017
70	0.2368	0.5152	3424	0.0005	0.0005	0.0006	0.0012	0.0017	0.0017
71	0.2344	0.5150	3500	0.0004	0.0006	0.0007	0.0012	0.0016	0.0017
72	0.2363	0.5158	3435	0.0004	0.0005	0.0006	0.0012	0.0015	0.0016
73	0.2356	0.5130	3485	0.0004	0.0007	0.0007	0.0012	0.0016	0.0017
74	0.2357	0.5131	3481	0.0003	0.0005	0.0005	0.0012	0.0015	0.0016
75	0.2360	0.5158	3444	0.0005	0.0007	0.0005	0.0012	0.0016	0.0018
Ave.	0.2356	0.5143	3470	0.0004	0.0005	0.0007	0.0012	0.0014	0.0017
Med.	0.2356	0.5142	3473	0.0004	0.0005	0.0007	0.0012	0.0015	0.0017
st dev	0.0007	0.0012	28.9409	0.0001	0.0001	0.0002	0.0001	0.0002	0.0001
Min.	0.2343	0.5115	3424	0.0003	0.0003	0.0004	0.0009	0.0008	0.0014
Max.	0.2370	0.5162	3527	0.0005	0.0008	0.0013	0.0015	0.0018	0.0020



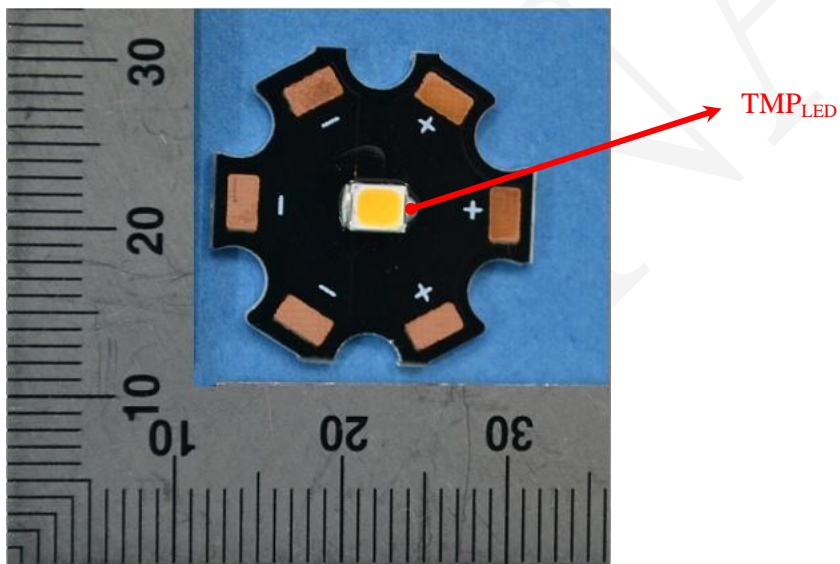
Attachment A – EUT Photo

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



All dimensions are in millimeter

A.2 EUT Photo



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