



IESNA LM-80-2008

MEASURING LUMEN MAINTENANCE OF LED LIGHT SOURCES

MEASUREMENT AND TEST REPORT

For

Yuji-Xinguang Optoelectronic Tech Co. LTD.

Rm808,Sci.&Tech.Tower,No.9 zhongguancun South Street ,Haidian District, Beijing, P.R. China

Model: LED SMD2835

Report Type: 6000 Hours Test Report	Product Type: LED Package
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Report Number: R2DG150122050-10-M1	
Test Date: 2015-01-22 to 2015-09-29	
Report Date: 2015-11-20	
Reviewed By: Jeanne Han /EE Manager	<i>Jeanne Han</i>
Revised Note:	The previous report R2DG150122050-10 is replaced by this report on 2015-11-20
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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).

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1 - GENERAL INFORMATION

1.1 Description of LED Light Sources

Devices tested

Part Number: LED SMD2835
 Part Type: LED Package
 Nominal CCT: 2700K

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	380-780nm, Diameter:0.3m,0-1999Lumen	2015-03-25	2016-03-25
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	15V/2000mA	2015-03-05	2016-03-05
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	380-780nm	2015-03-25	2016-03-25
Standard Light Source	EVERFINE	D062	1011093	N/A	2015-08-05	2016-08-05
Precision digital stabilized DC power supply	EVERFINE	WY605	G115987C J7321114	300VA	2015-03-05	2016-03-05
Multilayer aging machine	BACL	B2-270	20015	25°C~110°C	2015-03-05	2016-03-05
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11060010	(50V/15A)	2015-03-05	2016-03-05

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 (luminous flux) 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. The uncertainty of the CRI is $U=1.7$ ($K=2$), 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 2015-01-22 and tested during 2015-01-22 to 2015-09-29. The samples were numbered from 1 to 25, 26 to 50 and 51 to 75

Data Set 1: 55 °C, 60mA

Part Number:	LED SMD2835
Number of Units:	25
Actual Case Temperature(T _S):	T _S =54.1 °C
Actual Ambient Temperature(T _A):	T _A =52.5 °C
Life Test Drive Current:	I _F = 60mA
Measurement Current:	I _F = 60mA

Data Set 2: 85 °C,60mA

Part Number:	LED SMD2835
Number of Units:	25
Actual Case Temperature(T _S):	T _S =84.3 °C
Actual Ambient Temperature(T _A):	T _A =82.8 °C
Life Test Drive Current:	I _F =60mA
Measurement Current:	I _F = 60mA

Data Set 3: 105 °C, 60mA

Part Number:	LED SMD2835
Number of Units:	25
Actual Case Temperature(T _S):	T _S =104.4 °C
Actual Ambient Temperature(T _A):	T _A =102.1 °C
Life Test Drive Current:	I _F = 60mA
Measurement Current:	I _F = 60mA

2 - SUMMARY OF TEST RESULT

Data Set:	Data Set 1, 55 °C, 60mA
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:	97.59%
Average Chromaticity Shift at 6000 hours ($\Delta u'v'$):	0.0028
Reported TM-21 L70 Lifetime:	>36000 hours

Data Set:	Data Set 2, 85 °C, 60mA
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:	96.53%
Average Chromaticity Shift at 6000 hours($\Delta u'v'$):	0.0024
Reported TM-21 L ₇₀ Lifetime:	>36000 hours

Data Set:	Data Set 3, 105 °C, 60mA
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:	95.64%
Average Chromaticity Shift at 6000 hours($\Delta u'v'$):	0.0030
Reported TM-21 L ₇₀ Lifetime:	>36000 hours

3 - Test Data

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

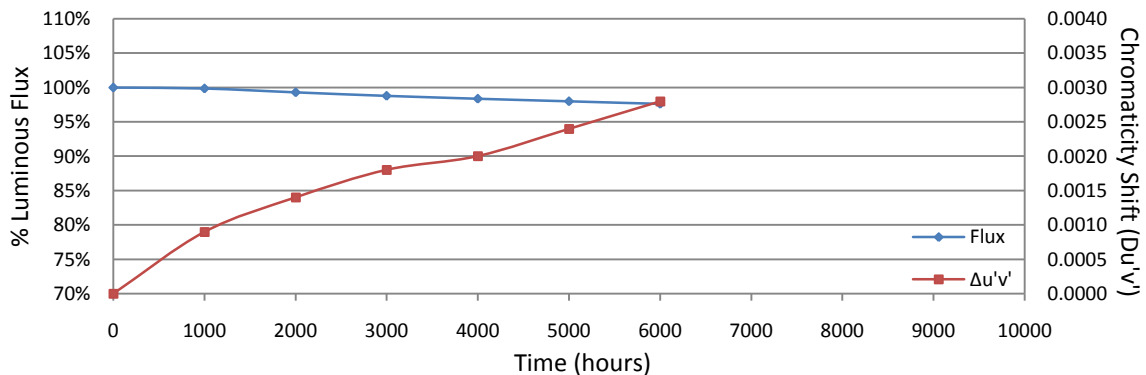
No.	V _F (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	2.934	16.23	100.18	99.57	99.01	98.34	97.84	97.41
2	2.923	15.77	100.00	99.49	98.99	98.22	97.46	97.08
3	2.931	15.67	100.06	99.74	99.23	98.98	98.53	98.21
4	2.936	15.64	99.55	99.36	98.79	98.21	98.15	97.83
5	2.927	14.37	100.56	100.07	99.44	98.61	98.26	97.98
6	2.929	15.84	100.13	99.31	98.86	98.23	97.98	97.29
7	2.926	15.55	99.81	98.78	98.33	97.94	97.88	97.49
8	2.928	15.79	100.00	99.62	99.11	98.86	98.67	98.48
9	2.927	15.27	100.33	99.48	99.08	98.23	97.90	97.58
10	2.931	15.21	99.67	98.88	98.36	98.09	97.90	97.70
11	2.925	15.39	99.68	99.35	98.83	98.25	97.60	97.01
12	2.926	15.56	99.23	99.04	98.46	97.88	97.75	97.43
13	2.951	15.92	99.94	99.18	98.62	98.30	98.12	97.86
14	2.941	16.15	99.75	99.26	98.89	98.51	98.02	97.46
15	2.927	15.24	99.67	98.95	98.49	97.83	97.38	97.11
16	2.925	15.01	100.20	99.87	99.27	98.80	98.20	97.67
17	2.928	15.72	99.55	99.05	98.66	98.22	97.90	97.84
18	2.925	15.35	99.54	98.76	98.37	98.31	97.52	97.07
19	2.938	15.83	99.56	98.93	98.48	98.29	98.17	97.79
20	2.924	15.49	99.81	99.29	98.71	98.71	98.39	98.13
21	2.925	15.56	100.00	99.49	98.97	98.59	98.07	97.62
22	3.179	14.17	100.07	99.65	98.94	98.73	98.31	97.88
23	2.929	15.56	99.68	98.78	98.26	98.20	97.30	96.98
24	2.931	16.43	99.57	99.21	98.72	98.66	97.75	97.38
25	2.934	15.26	99.67	99.48	98.89	98.30	97.90	97.58
Ave.	2.940	15.52	99.85	99.30	98.79	98.37	97.96	97.59
Med.	2.928	15.56	99.81	99.31	98.83	98.30	97.90	97.58
st dev	0.050	0.50	0.3023	0.3520	0.3172	0.3034	0.3457	0.3896
Min.	2.923	14.17	99.23	98.76	98.26	97.83	97.30	96.98
Max.	3.179	16.43	100.56	100.07	99.44	98.98	98.67	98.48

TM-21 Projection:

Test Duration: 6000 hours
Failures Observed: 0
 α : 4.557E-06
 β : 1.002
Calculated L₇₀: 79000 hours
Reported L₇₀: >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	0.2585	0.5254	2795	0.0011	0.0014	0.0019	0.0015	0.0013	0.0019
2	0.2549	0.5273	2864	0.0011	0.0015	0.0019	0.0022	0.0020	0.0019
3	0.2616	0.5249	2728	0.0010	0.0018	0.0023	0.0024	0.0026	0.0030
4	0.2639	0.5282	2668	0.0011	0.0017	0.0021	0.0023	0.0026	0.0030
5	0.2667	0.5275	2614	0.0009	0.0013	0.0023	0.0036	0.0042	0.0045
6	0.2578	0.5298	2789	0.0008	0.0012	0.0016	0.0017	0.0023	0.0027
7	0.2657	0.5269	2638	0.0007	0.0013	0.0017	0.0019	0.0023	0.0026
8	0.2560	0.5267	2843	0.0006	0.0010	0.0012	0.0013	0.0017	0.0021
9	0.2636	0.5301	2667	0.0009	0.0013	0.0016	0.0024	0.0028	0.0032
10	0.2662	0.5264	2628	0.0008	0.0012	0.0016	0.0018	0.0021	0.0025
11	0.2648	0.5294	2645	0.0011	0.0016	0.0020	0.0022	0.0029	0.0031
12	0.2627	0.5263	2700	0.0012	0.0019	0.0023	0.0026	0.0029	0.0033
13	0.2595	0.5249	2774	0.0011	0.0016	0.0018	0.0021	0.0024	0.0028
14	0.2585	0.5247	2796	0.0011	0.0017	0.0022	0.0023	0.0026	0.0030
15	0.2660	0.5284	2626	0.0008	0.0013	0.0021	0.0027	0.0030	0.0033
16	0.2682	0.5282	2583	0.0011	0.0015	0.0019	0.0026	0.0032	0.0037
17	0.2594	0.5285	2760	0.0008	0.0014	0.0015	0.0016	0.0019	0.0025
18	0.2550	0.5269	2863	0.0006	0.0012	0.0013	0.0013	0.0018	0.0023
19	0.2593	0.5195	2805	0.0009	0.0015	0.0019	0.0019	0.0024	0.0029
20	0.2649	0.5287	2647	0.0009	0.0016	0.0018	0.0018	0.0021	0.0026
21	0.2563	0.5273	2833	0.0009	0.0013	0.0016	0.0016	0.0021	0.0025
22	0.2648	0.5299	2644	0.0008	0.0015	0.0018	0.0016	0.0021	0.0025
23	0.2627	0.5272	2696	0.0011	0.0014	0.0017	0.0016	0.0021	0.0025
24	0.2561	0.5252	2847	0.0008	0.0015	0.0017	0.0016	0.0021	0.0025
25	0.2639	0.5253	2678	0.0008	0.0012	0.0015	0.0016	0.0020	0.0024
Ave.	0.2615	0.5269	2725	0.0009	0.0014	0.0018	0.0020	0.0024	0.0028
Med.	0.2627	0.5272	2700	0.0009	0.0014	0.0018	0.0019	0.0023	0.0026
st dev	0.0041	0.0023	89.3272	0.0002	0.0002	0.0003	0.0005	0.0006	0.0006
Min.	0.2549	0.5195	2583	0.0006	0.0010	0.0012	0.0013	0.0013	0.0019
Max.	0.2682	0.5301	2864	0.0012	0.0019	0.0023	0.0036	0.0042	0.0045



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

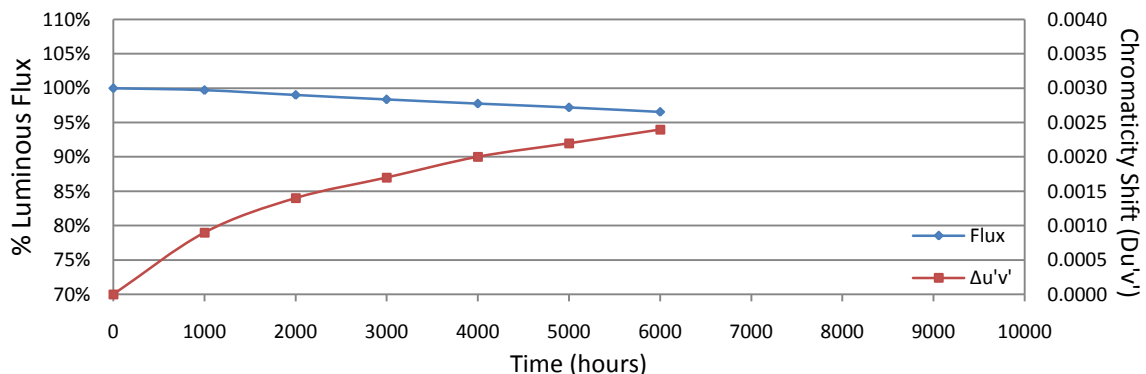
No.	V _F (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	2.932	15.46	99.87	99.74	99.16	99.09	98.51	98.06
27	2.925	16.03	99.81	98.81	98.07	97.63	97.13	96.51
28	2.925	15.85	99.87	99.12	98.55	97.54	96.91	96.53
29	2.927	15.84	99.62	98.99	98.30	97.66	96.97	96.65
30	2.932	15.34	100.07	99.48	98.70	97.98	97.33	96.68
31	2.933	16.44	99.88	99.15	98.48	97.75	96.78	96.11
32	2.926	15.80	99.05	98.48	97.72	97.47	96.65	95.95
33	2.931	15.14	99.67	98.48	97.89	97.23	96.63	96.17
34	2.926	15.33	99.67	98.89	98.30	97.13	96.74	96.02
35	2.925	15.48	99.94	98.58	97.93	97.22	97.03	96.38
36	2.934	15.60	98.91	98.65	97.88	97.18	96.47	95.83
37	2.928	15.89	99.56	98.68	98.05	98.05	97.80	97.61
38	2.925	15.72	99.87	99.11	98.28	98.28	97.71	96.88
39	2.937	15.30	99.67	99.02	98.24	97.39	98.43	97.84
40	2.924	15.46	99.61	99.42	98.97	98.06	97.02	96.25
41	2.929	15.80	99.49	98.54	98.04	97.34	96.77	96.46
42	2.926	16.28	99.57	98.46	97.91	97.24	96.99	95.95
43	2.927	16.19	99.94	99.01	98.39	97.84	97.34	96.48
44	2.925	15.16	100.00	99.54	98.81	98.02	97.16	96.50
45	2.933	15.51	100.06	99.68	98.97	98.97	98.58	97.49
46	2.924	15.23	99.93	98.62	98.03	97.50	96.91	95.80
47	2.924	14.80	99.86	99.05	98.65	98.04	97.23	96.42
48	2.924	15.28	99.35	99.02	98.43	97.97	97.12	96.79
49	2.926	15.90	99.81	98.68	98.05	97.23	96.54	95.72
50	2.928	15.52	99.87	99.36	98.65	97.74	96.97	96.07
Ave.	2.928	15.61	99.72	98.98	98.34	97.74	97.19	96.53
Med.	2.926	15.52	99.81	99.01	98.30	97.66	97.02	96.46
st dev	0.004	0.39	0.2875	0.3872	0.3907	0.5134	0.5900	0.6332
Min.	2.924	14.80	98.91	98.46	97.72	97.13	96.47	95.72
Max.	2.937	16.44	100.07	99.74	99.16	99.09	98.58	98.06

TM-21 Projection:

Test Duration: 6000 hours
Failures Observed: 0
 α : 6.384E-06
 β : 1.003
Calculated L₇₀: 56000 hours
Reported L₇₀: >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	0.2649	0.5305	2639	0.0009	0.0012	0.0017	0.0024	0.0028	0.0034
27	0.2632	0.5297	2677	0.0008	0.0007	0.0011	0.0015	0.0014	0.0017
28	0.2638	0.5255	2680	0.0010	0.0014	0.0015	0.0016	0.0018	0.0020
29	0.2568	0.5292	2813	0.0008	0.0010	0.0014	0.0013	0.0015	0.0018
30	0.2657	0.5295	2627	0.0010	0.0013	0.0014	0.0016	0.0019	0.0021
31	0.2548	0.5247	2880	0.0010	0.0013	0.0016	0.0015	0.0017	0.0019
32	0.2620	0.5247	2722	0.0011	0.0016	0.0022	0.0021	0.0023	0.0025
33	0.2678	0.5296	2586	0.0009	0.0015	0.0017	0.0018	0.0018	0.0020
34	0.2664	0.5275	2620	0.0011	0.0018	0.0021	0.0022	0.0021	0.0024
35	0.2620	0.5292	2703	0.0006	0.0011	0.0014	0.0016	0.0014	0.0017
36	0.2633	0.5277	2682	0.0008	0.0014	0.0020	0.0021	0.0021	0.0024
37	0.2602	0.5262	2754	0.0008	0.0014	0.0020	0.0021	0.0021	0.0023
38	0.2562	0.5276	2833	0.0008	0.0010	0.0012	0.0014	0.0015	0.0016
39	0.2580	0.5267	2799	0.0011	0.0012	0.0016	0.0018	0.0019	0.0019
40	0.2609	0.5273	2734	0.0011	0.0016	0.0021	0.0024	0.0026	0.0028
41	0.2580	0.5285	2791	0.0008	0.0011	0.0016	0.0017	0.0018	0.0021
42	0.2573	0.5367	2770	0.0007	0.0011	0.0014	0.0015	0.0017	0.0020
43	0.2555	0.5283	2847	0.0009	0.0014	0.0019	0.0021	0.0024	0.0024
44	0.2668	0.5283	2609	0.0009	0.0015	0.0020	0.0022	0.0026	0.0027
45	0.2617	0.5262	2722	0.0011	0.0019	0.0024	0.0026	0.0031	0.0031
46	0.2662	0.5267	2627	0.0008	0.0012	0.0019	0.0024	0.0026	0.0028
47	0.2612	0.5288	2721	0.0009	0.0013	0.0018	0.0025	0.0028	0.0030
48	0.2665	0.5285	2616	0.0011	0.0016	0.0019	0.0023	0.0026	0.0028
49	0.2607	0.5249	2748	0.0008	0.0013	0.0016	0.0020	0.0023	0.0024
50	0.2673	0.5297	2595	0.0012	0.0019	0.0021	0.0025	0.0028	0.0030
Ave.	0.2619	0.5281	2712	0.0009	0.0014	0.0017	0.0020	0.0022	0.0024
Med.	0.2620	0.5283	2721	0.0009	0.0013	0.0017	0.0021	0.0021	0.0024
st dev	0.0040	0.0025	84.9392	0.0001	0.0003	0.0003	0.0004	0.0005	0.0005
Min.	0.2548	0.5247	2586	0.0006	0.0007	0.0011	0.0013	0.0014	0.0016
Max.	0.2678	0.5367	2880	0.0012	0.0019	0.0024	0.0026	0.0031	0.0034



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

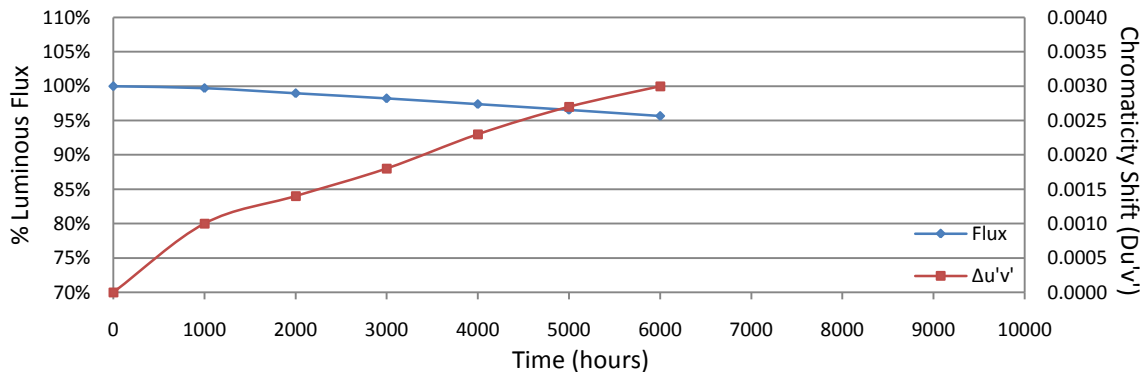
No.	V _F (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	2.926	15.37	99.87	99.80	99.15	98.96	98.18	97.66
52	2.925	15.10	100.00	99.87	99.01	98.01	96.82	95.56
53	2.924	15.55	99.87	99.04	98.26	97.81	97.17	96.66
54	2.926	15.45	99.74	98.19	97.54	96.44	95.73	94.89
55	2.948	15.90	99.43	98.93	98.18	97.55	96.79	95.66
56	2.925	15.50	99.61	98.71	98.00	97.55	96.84	96.00
57	2.921	15.67	99.87	98.85	98.21	97.32	96.43	95.47
58	2.925	15.72	99.87	98.66	97.96	97.01	95.99	94.91
59	2.936	15.93	99.50	98.74	98.05	97.11	96.42	95.48
60	2.925	15.56	99.74	99.42	98.65	97.56	96.66	95.95
61	3.181	14.91	99.60	98.86	98.19	97.32	96.51	95.51
62	2.924	15.64	99.55	98.79	97.95	97.31	96.48	95.65
63	2.927	15.37	99.48	99.09	98.44	97.79	96.94	95.90
64	2.925	15.84	99.62	98.55	97.66	96.97	95.96	94.95
65	2.925	15.71	99.55	98.66	97.96	96.94	95.86	95.23
66	2.942	15.97	99.56	98.69	98.06	97.12	96.18	95.05
67	2.931	15.68	99.68	99.68	99.11	98.02	97.07	96.05
68	2.923	15.78	99.56	98.54	97.72	96.58	95.75	94.99
69	2.926	15.61	99.74	98.91	98.27	97.76	97.44	96.67
70	2.932	15.61	100.00	99.62	99.04	97.89	96.73	95.52
71	2.924	15.28	100.13	99.21	98.23	96.99	95.94	95.09
72	2.926	15.28	99.54	99.08	98.30	97.32	96.40	95.35
73	2.932	15.57	99.74	99.42	98.01	97.11	96.02	95.25
74	2.926	14.95	99.53	98.26	97.73	97.12	96.52	96.05
75	2.933	15.39	99.61	98.77	97.92	96.88	96.10	95.45
Ave.	2.938	15.53	99.70	98.97	98.22	97.38	96.52	95.64
Med.	2.926	15.57	99.62	98.86	98.18	97.32	96.48	95.51
st dev	0.051	0.28	0.1848	0.4516	0.4519	0.5348	0.5763	0.6445
Min.	2.921	14.91	99.43	98.19	97.54	96.44	95.73	94.89
Max.	3.181	15.97	100.13	99.87	99.15	98.96	98.18	97.66

TM-21 Projection:

Test Duration: 6000 hours
Failures Observed: 0
α: 8.333E-06
β: 1.006
Calculated L₇₀: 44000 hours
Reported L₇₀: >36000 hours

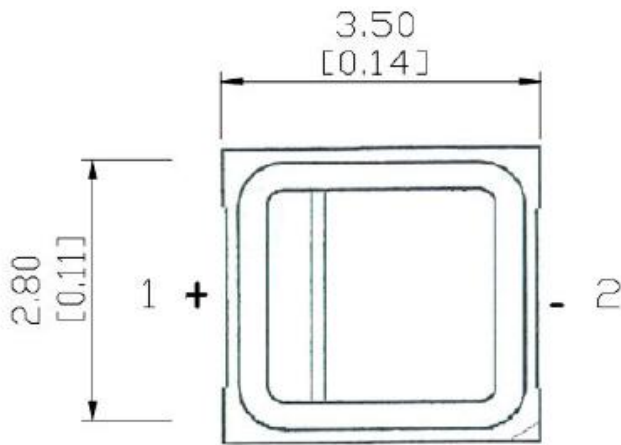
3.6 Data Set 3, 105 °C, 60mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	0.2645	0.5259	2665	0.0011	0.0016	0.0023	0.0029	0.0033	0.0036
52	0.2665	0.5277	2618	0.0010	0.0014	0.0015	0.0021	0.0027	0.0029
53	0.2641	0.5251	2677	0.0013	0.0016	0.0018	0.0024	0.0031	0.0036
54	0.2656	0.5264	2640	0.0014	0.0017	0.0016	0.0021	0.0026	0.0030
55	0.2606	0.5270	2740	0.0010	0.0014	0.0019	0.0026	0.0030	0.0033
56	0.2656	0.5266	2639	0.0009	0.0014	0.0018	0.0023	0.0027	0.0029
57	0.2661	0.5258	2633	0.0009	0.0015	0.0016	0.0021	0.0025	0.0028
58	0.2622	0.5260	2712	0.0009	0.0014	0.0015	0.0021	0.0023	0.0025
59	0.2561	0.5245	2852	0.0010	0.0014	0.0017	0.0021	0.0024	0.0027
60	0.2643	0.5285	2659	0.0011	0.0015	0.0022	0.0026	0.0030	0.0033
61	0.2636	0.5310	2663	0.0011	0.0016	0.0019	0.0021	0.0027	0.0031
62	0.2630	0.5273	2690	0.0011	0.0016	0.0019	0.0023	0.0025	0.0031
63	0.2654	0.5302	2631	0.0010	0.0016	0.0023	0.0026	0.0029	0.0032
64	0.2600	0.5307	2738	0.0010	0.0014	0.0016	0.0019	0.0022	0.0027
65	0.2647	0.5266	2657	0.0008	0.0012	0.0017	0.0019	0.0022	0.0027
66	0.2559	0.5254	2852	0.0010	0.0013	0.0018	0.0020	0.0023	0.0025
67	0.2584	0.5259	2794	0.0009	0.0014	0.0022	0.0030	0.0033	0.0037
68	0.2627	0.5256	2703	0.0010	0.0015	0.0018	0.0021	0.0025	0.0027
69	0.2596	0.5292	2753	0.0009	0.0014	0.0018	0.0021	0.0023	0.0027
70	0.2625	0.5271	2701	0.0010	0.0013	0.0018	0.0028	0.0032	0.0036
71	0.2581	0.5253	2803	0.0011	0.0013	0.0013	0.0018	0.0022	0.0026
72	0.2641	0.5256	2674	0.0011	0.0016	0.0023	0.0033	0.0037	0.0040
73	0.2622	0.5282	2702	0.0009	0.0013	0.0015	0.0023	0.0025	0.0028
74	0.2669	0.5266	2614	0.0010	0.0012	0.0013	0.0019	0.0021	0.0025
75	0.2657	0.5271	2635	0.0009	0.0013	0.0016	0.0021	0.0026	0.0030
Ave.	0.2627	0.5270	2698	0.0010	0.0014	0.0018	0.0023	0.0027	0.0030
Med.	0.2636	0.5266	2677	0.0010	0.0014	0.0018	0.0021	0.0026	0.0029
st dev	0.0032	0.0018	68.8864	0.0001	0.0001	0.0003	0.0004	0.0004	0.0004
Min.	0.2559	0.5245	2614	0.0008	0.0012	0.0013	0.0018	0.0021	0.0025
Max.	0.2669	0.5310	2852	0.0014	0.0017	0.0023	0.0033	0.0037	0.0040



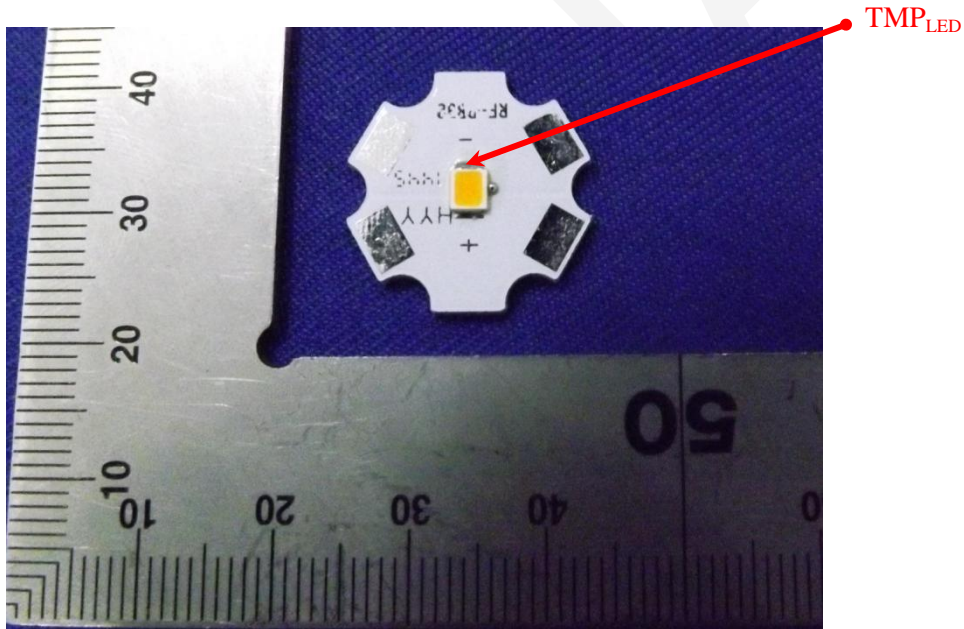
Attachment A – EUT PHOTO

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



All dimensions are in millimeter

A.2 EUT Photo



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