



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:3030

Report Type: 6000 Hours Test Report	Product Type: LED Package
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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: 3030
 Part Name: SMD LED
 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	380-780nm, Diameter:0.3m,0-1999Lumen	2014-03-04	2015-03-04
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	15V/2000mA	2014-03-12	2015-03-12
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	380-780nm	2013-12-26	2014-12-26
Standard Light Source	EVERFINE	D062	1011093	N/A	2014-05-06	2015-05-06
Precision digital stabilized DC power supply	EVERFINE	WY605	G115987C J7321114	300VA	2014-03-12	2015-03-12
Multilayen aging machine	BACL	B2-270	20005	N/A	2013-08-01	2014-08-01
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090005	(50/15A)	2014-03-12	2015-03-12

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, 85 °C and Ts 105 °C were received at 2013-11-05 and tested during 2013-11-07 to 2014-07-18. The samples were numbered from 1 to 25, 26 to 50 and 51 to 75

Data Set 1: 55 °C, 150mA

Part Number:	3030
Number of Units:	25
Actual Case Temperature(T _S):	T _S =54.0 °C
Actual Ambient Temperature(T _A):	T _A =52.5 °C
Life Test Drive Current:	I _F = 150mA
Measurement Current:	I _F = 150mA

Data Set 2: 85 °C, 150mA

Part Number:	3030
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 = 150mA
Measurement Current:	I _F = 150mA

Data Set 3: 105 °C, 150mA

Part Number:	3030
Number of Units:	25
Actual Case Temperature(T _S):	T _S =104.1 °C
Actual Ambient Temperature(T _A):	T _A =103.4 °C
Life Test Drive Current:	I _F = 150mA
Measurement Current:	I _F = 150mA

2 - SUMMARY OF TEST RESULT

Data Set:	Data Set 1, 55 °C, 150mA
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:	97.27%
Average Chromaticity Shift at 6000 hours ($\Delta u'v'$):	0.0018
Reported TM-21 L ₇₀ Lifetime:	>36,000 hours

Data Set:	Data Set 2, 85 °C, 150mA
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:	96.51%
Average Chromaticity Shift at 6000 hours($\Delta u'v'$):	0.0019
Reported TM-21 L ₇₀ Lifetime:	>36,000 hours

Data Set:	Data Set 3, 105 °C, 150mA
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:	95.59%
Average Chromaticity Shift at 6000 hours($\Delta u'v'$):	0.0025
Reported TM-21 L ₇₀ Lifetime:	>36,000 hours

3 - Test Data

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

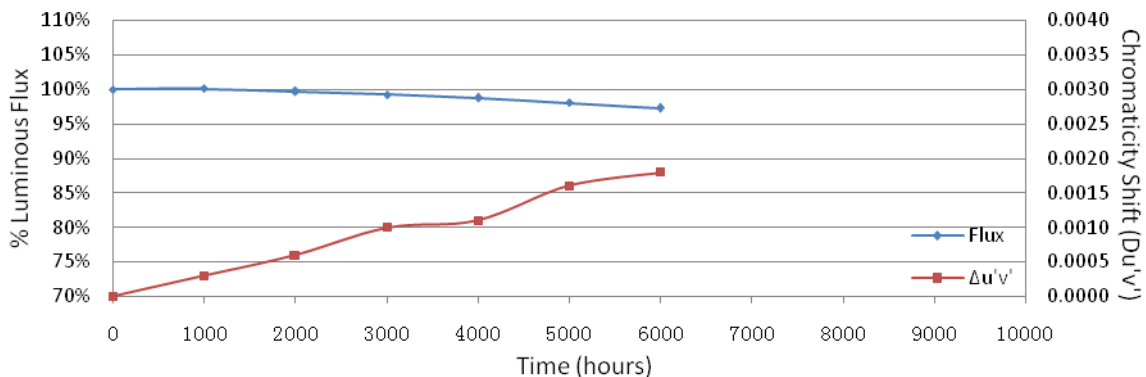
No.	V _F (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	6.444	121.1	100.41	99.92	99.67	99.09	98.27	97.19
2	6.446	124.1	100.40	99.92	99.44	99.03	98.15	97.26
3	6.455	121.7	99.84	99.75	99.59	98.85	98.11	97.21
4	6.434	121.7	99.84	99.75	99.34	98.85	98.44	97.53
5	6.426	122.3	100.25	99.84	99.43	98.77	98.20	97.47
6	6.476	121.0	100.08	99.67	99.17	98.68	98.18	97.11
7	6.469	121.4	100.33	99.84	99.51	99.09	98.27	97.36
8	6.465	120.7	100.17	99.67	99.42	98.67	98.01	97.02
9	6.468	120.1	100.17	99.67	99.00	98.75	98.17	97.17
10	6.421	123.5	100.24	99.84	99.11	98.87	98.14	97.09
11	6.429	121.1	100.00	99.59	98.93	98.35	97.77	96.86
12	6.422	123.2	100.32	99.84	99.19	98.86	98.05	97.16
13	6.436	122.6	100.24	99.59	98.86	98.69	97.96	96.82
14	6.437	119.4	100.34	99.66	99.08	98.91	98.24	97.07
15	6.419	123.1	100.00	99.51	99.27	98.94	98.29	97.32
16	6.447	123.3	99.92	99.68	99.03	98.54	97.89	97.08
17	6.456	121.7	100.00	99.42	98.85	98.52	97.86	97.21
18	6.405	122.5	99.92	99.35	98.86	98.20	97.55	97.22
19	6.414	122.4	99.92	99.75	99.26	98.77	98.04	97.63
20	6.458	121.3	99.84	99.51	98.68	98.43	97.77	97.53
21	6.422	121.1	100.33	99.83	99.67	98.93	98.35	98.02
22	6.422	122.9	99.92	99.51	99.19	98.78	98.13	97.80
23	6.454	121.0	100.25	99.92	99.50	98.93	98.26	97.85
24	6.425	123.1	99.84	99.59	98.94	98.54	97.64	96.91
25	6.457	121.6	100.08	99.67	99.01	98.44	97.86	96.96
Ave.	6.440	121.9	100.11	99.69	99.20	98.74	98.06	97.27
Med.	6.437	121.7	100.08	99.67	99.19	98.77	98.13	97.21
st dev	0.0196	1.1452	0.1973	0.1572	0.2783	0.2327	0.2260	0.3117
Min.	6.405	119.4	99.84	99.35	98.68	98.20	97.55	96.82
Max.	6.476	124.1	100.41	99.92	99.67	99.09	98.44	98.02

TM-21 Projection:

Test Duration: 6000 hours
Failures Observed: 0
 α : 5.657E-06
 β : 1.008
Calculated L₇₀: 64,000hours
Reported L₇₀: >36,000hours

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	0.2349	0.5062	3586	0.0003	0.0008	0.0015	0.0016	0.0018	0.0020
2	0.2344	0.5086	3572	0.0004	0.0008	0.0015	0.0016	0.0017	0.0019
3	0.2351	0.5069	3570	0.0002	0.0008	0.0014	0.0015	0.0017	0.0018
4	0.2356	0.5055	3572	0.0004	0.0006	0.0009	0.0016	0.0018	0.0020
5	0.2366	0.5087	3502	0.0002	0.0006	0.0009	0.0013	0.0017	0.0018
6	0.2349	0.5074	3572	0.0004	0.0007	0.0010	0.0011	0.0018	0.0019
7	0.2354	0.5095	3529	0.0004	0.0006	0.0009	0.0011	0.0017	0.0018
8	0.2358	0.5065	3552	0.0003	0.0006	0.0009	0.0011	0.0018	0.0021
9	0.2366	0.5067	3524	0.0003	0.0006	0.0009	0.0011	0.0018	0.0021
10	0.2347	0.5051	3608	0.0004	0.0007	0.0010	0.0011	0.0018	0.0019
11	0.2353	0.5069	3563	0.0003	0.0005	0.0009	0.0011	0.0014	0.0021
12	0.2358	0.5086	3526	0.0004	0.0007	0.0010	0.0012	0.0013	0.0019
13	0.2346	0.5066	3590	0.0003	0.0005	0.0009	0.0010	0.0015	0.0014
14	0.2368	0.5091	3492	0.0002	0.0005	0.0009	0.0010	0.0014	0.0014
15	0.2364	0.5088	3508	0.0001	0.0005	0.0009	0.0011	0.0014	0.0017
16	0.2346	0.5091	3559	0.0003	0.0006	0.0009	0.0010	0.0014	0.0017
17	0.2346	0.5090	3561	0.0003	0.0005	0.0009	0.0010	0.0014	0.0018
18	0.2361	0.5074	3534	0.0002	0.0005	0.0009	0.0009	0.0015	0.0018
19	0.2350	0.5073	3568	0.0004	0.0006	0.0010	0.0011	0.0014	0.0017
20	0.2354	0.5083	3544	0.0001	0.0004	0.0007	0.0008	0.0016	0.0019
21	0.2345	0.5052	3611	0.0003	0.0005	0.0009	0.0010	0.0014	0.0018
22	0.2348	0.5082	3564	0.0002	0.0005	0.0008	0.0009	0.0015	0.0018
23	0.2351	0.5070	3568	0.0004	0.0006	0.0009	0.0010	0.0014	0.0016
24	0.2367	0.5112	3469	0.0002	0.0005	0.0008	0.0009	0.0014	0.0016
25	0.2355	0.5083	3542	0.0003	0.0006	0.0009	0.0010	0.0014	0.0015
Ave.	0.2354	0.5077	3551	0.0003	0.0006	0.0010	0.0011	0.0016	0.0018
Med.	0.2353	0.5074	3561	0.0003	0.0006	0.0009	0.0011	0.0015	0.0018
st dev	0.0008	0.0015	34.7863	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002
Min.	0.2344	0.5051	3469	0.0001	0.0004	0.0007	0.0008	0.0013	0.0014
Max.	0.2368	0.5112	3611	0.0004	0.0008	0.0015	0.0016	0.0018	0.0021



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

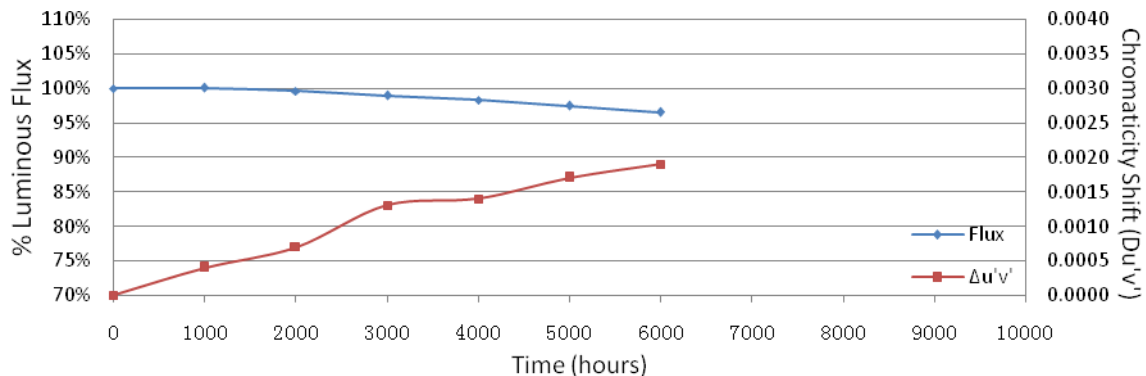
No.	V _F (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	6.422	124.0	99.84	99.52	98.87	98.31	97.42	96.69
27	6.441	121.9	99.92	99.43	98.69	98.03	97.21	96.64
28	6.438	122.1	99.75	99.51	98.77	98.28	97.22	96.48
29	6.453	120.5	99.83	99.75	98.76	98.09	97.18	96.51
30	6.414	124.7	100.24	99.68	98.96	98.48	97.51	96.55
31	6.420	124.7	100.08	99.76	98.96	98.40	97.19	96.55
32	6.470	121.8	100.00	99.67	98.77	98.11	97.13	96.88
33	6.419	125.2	100.00	99.68	98.80	98.32	97.20	96.96
34	6.701	120.0	100.25	99.83	99.17	98.33	97.33	97.08
35	6.415	123.5	100.16	99.76	99.19	98.38	97.49	96.52
36	6.437	121.5	100.08	99.75	99.18	98.19	97.37	96.38
37	6.423	124.2	100.08	99.84	99.28	98.47	97.58	96.46
38	6.432	122.9	100.16	99.67	99.19	98.45	97.56	96.34
39	6.447	120.3	100.08	99.50	99.42	98.42	97.67	96.34
40	6.463	121.2	99.92	99.42	99.34	98.43	97.69	96.29
41	6.447	121.4	99.75	99.26	99.09	98.27	97.45	96.21
42	6.424	122.6	100.24	99.67	99.27	98.53	97.72	96.41
43	6.440	122.3	100.25	99.75	98.94	98.45	97.63	96.48
44	6.439	122.4	100.41	99.84	98.69	98.37	97.63	96.24
45	6.409	124.2	100.16	99.44	98.71	98.31	97.58	96.38
46	6.414	122.9	100.08	99.43	98.86	98.21	97.64	96.50
47	6.424	123.0	99.76	99.27	98.54	98.13	97.40	96.42
48	6.428	121.9	99.92	99.26	98.61	98.03	97.46	96.39
49	6.453	121.1	100.00	99.59	98.76	98.18	97.61	96.53
50	6.451	121.4	99.75	99.42	98.85	98.11	97.69	96.54
Ave.	6.445	122.5	100.03	99.59	98.95	98.29	97.46	96.51
Med.	6.437	122.3	100.08	99.67	98.87	98.31	97.49	96.48
st dev	0.0558	1.4453	0.1842	0.1858	0.2480	0.1495	0.1886	0.2108
Min.	6.409	120.0	99.75	99.26	98.54	98.03	97.13	96.21
Max.	6.701	125.2	100.41	99.84	99.42	98.53	97.72	97.08

TM-21 Projection:

Test Duration: 6000 hours
Failures Observed: 0
α: 7.162E-06
β: 1.010
Calculated L₇₀: 51,000hours
Reported L₇₀: >36,000hours

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	0.2356	0.5087	3531	0.0004	0.0007	0.0013	0.0014	0.0017	0.0018
27	0.2350	0.5067	3578	0.0004	0.0007	0.0012	0.0014	0.0018	0.0020
28	0.2352	0.5076	3559	0.0004	0.0009	0.0014	0.0015	0.0017	0.0019
29	0.2365	0.5051	3548	0.0002	0.0006	0.0012	0.0013	0.0020	0.0021
30	0.2365	0.5100	3488	0.0004	0.0008	0.0013	0.0015	0.0018	0.0018
31	0.2344	0.5071	3592	0.0005	0.0009	0.0014	0.0015	0.0018	0.0019
32	0.2358	0.5094	3520	0.0004	0.0008	0.0012	0.0014	0.0018	0.0020
33	0.2345	0.5067	3593	0.0004	0.0007	0.0013	0.0014	0.0018	0.0020
34	0.2349	0.5064	3583	0.0004	0.0008	0.0013	0.0015	0.0018	0.0019
35	0.2353	0.5073	3561	0.0004	0.0007	0.0013	0.0013	0.0019	0.0021
36	0.2358	0.5069	3548	0.0004	0.0008	0.0013	0.0014	0.0018	0.0022
37	0.2344	0.5060	3605	0.0004	0.0008	0.0013	0.0014	0.0019	0.0021
38	0.2361	0.5088	3516	0.0004	0.0007	0.0013	0.0014	0.0016	0.0020
39	0.2354	0.5068	3561	0.0004	0.0007	0.0013	0.0014	0.0016	0.0016
40	0.2355	0.5076	3547	0.0004	0.0008	0.0013	0.0015	0.0015	0.0016
41	0.2355	0.5062	3565	0.0003	0.0006	0.0012	0.0014	0.0019	0.0018
42	0.2342	0.5066	3604	0.0005	0.0008	0.0014	0.0014	0.0017	0.0016
43	0.2347	0.5076	3577	0.0004	0.0007	0.0013	0.0014	0.0017	0.0019
44	0.2344	0.5060	3606	0.0002	0.0005	0.0012	0.0013	0.0018	0.0021
45	0.2347	0.5078	3574	0.0004	0.0006	0.0012	0.0013	0.0017	0.0020
46	0.2355	0.5085	3539	0.0004	0.0006	0.0013	0.0014	0.0017	0.0020
47	0.2358	0.5072	3545	0.0005	0.0009	0.0014	0.0015	0.0016	0.0019
48	0.2356	0.5064	3562	0.0004	0.0008	0.0014	0.0014	0.0017	0.0019
49	0.2348	0.5066	3586	0.0005	0.0007	0.0014	0.0015	0.0017	0.0019
50	0.2354	0.5093	3531	0.0004	0.0008	0.0013	0.0014	0.0016	0.0018
Ave.	0.2353	0.5073	3561	0.0004	0.0007	0.0013	0.0014	0.0017	0.0019
Med.	0.2354	0.5071	3561	0.0004	0.0007	0.0013	0.0014	0.0017	0.0019
st dev	0.0006	0.0012	30.1016	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
Min.	0.2342	0.5051	3488	0.0002	0.0005	0.0012	0.0013	0.0015	0.0016
Max.	0.2365	0.5100	3606	0.0005	0.0009	0.0014	0.0015	0.0020	0.0022



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

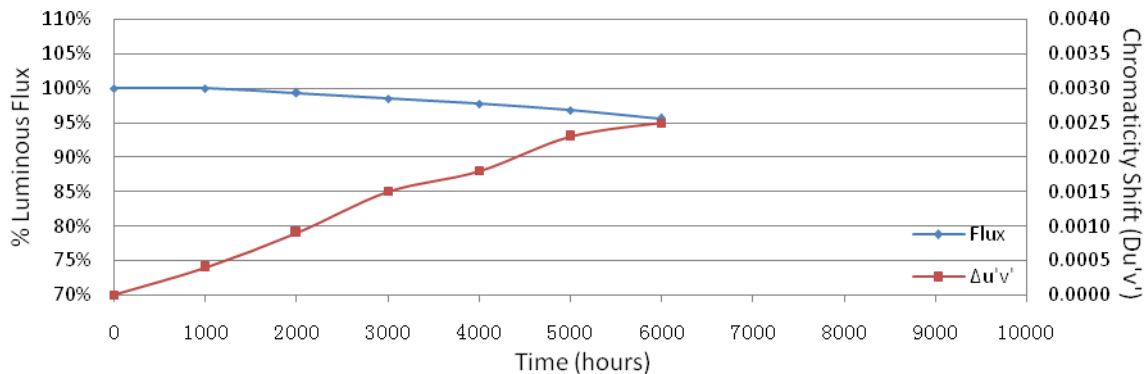
No.	V _F (V)	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	6.417	124.8	99.76	99.12	98.48	97.92	96.96	95.83
52	6.461	119.3	99.83	99.16	98.49	98.07	97.15	95.89
53	6.449	120.7	99.83	99.09	98.43	97.85	96.85	95.77
54	6.429	123.7	100.16	99.43	98.79	98.38	97.57	96.28
55	6.421	124.2	100.00	99.19	98.55	97.99	97.10	95.65
56	6.423	126.1	100.00	99.21	98.65	98.02	97.30	95.72
57	6.472	120.8	99.92	99.42	98.43	97.76	96.94	95.53
58	6.421	122.3	100.08	99.26	98.53	97.79	96.97	95.75
59	6.416	125.0	100.24	99.76	98.64	98.08	97.12	95.92
60	6.460	122.3	100.25	99.84	98.61	97.55	96.97	95.34
61	6.423	125.4	100.16	99.36	98.56	97.69	96.65	95.53
62	6.428	120.8	100.00	99.34	98.10	97.60	96.69	95.45
63	6.445	120.4	100.00	99.50	98.50	97.67	96.84	95.27
64	6.452	121.2	99.92	99.17	98.43	97.94	97.03	95.21
65	6.415	121.2	100.00	99.42	98.68	98.02	96.70	95.38
66	6.451	121.5	100.00	99.42	98.77	97.70	96.79	95.64
67	6.463	121.1	99.75	99.17	98.51	97.69	96.61	95.62
68	6.415	123.8	99.68	98.95	98.38	97.42	96.45	95.56
69	6.437	121.0	99.75	99.09	98.60	97.52	96.61	95.54
70	6.463	120.9	100.00	99.42	98.35	97.35	96.36	95.29
71	6.422	123.5	100.08	99.68	98.38	97.41	96.44	95.38
72	6.458	123.1	99.92	99.27	98.46	97.32	96.10	95.45
73	6.422	123.2	99.84	99.11	98.46	97.32	96.27	95.37
74	6.417	122.6	100.00	99.43	98.53	97.72	96.82	95.76
75	6.466	122.8	99.92	99.27	98.45	97.48	96.74	95.52
Ave.	6.438	122.5	99.96	99.32	98.51	97.73	96.80	95.59
Med.	6.429	122.3	100.00	99.27	98.50	97.70	96.82	95.54
st dev	0.0197	1.7766	0.1504	0.2162	0.1432	0.2771	0.3337	0.2448
Min.	6.415	119.3	99.68	98.95	98.10	97.32	96.10	95.21
Max.	6.472	126.1	100.25	99.84	98.79	98.38	97.57	96.28

TM-21 Projection:

Test Duration: 6000 hours
Failures Observed: 0
α: 8.816E-06
β: 1.010
Calculated L₇₀: 42,000 hours
Reported L₇₀: >36,000 hours

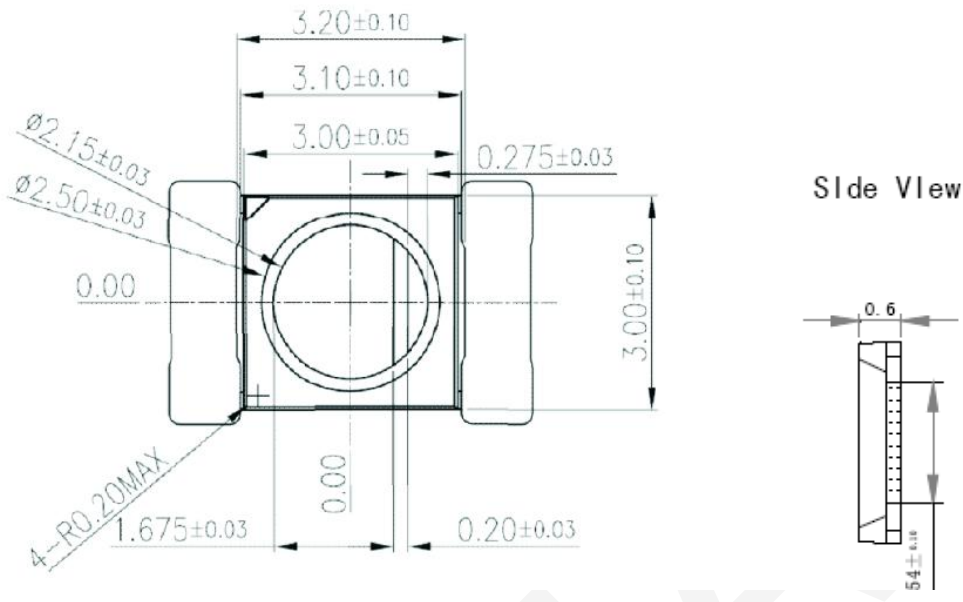
3.6 Data Set 3, 105 °C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	0.2355	0.5082	3541	0.0004	0.0008	0.0013	0.0019	0.0023	0.0024
52	0.2360	0.5075	3533	0.0004	0.0008	0.0016	0.0019	0.0023	0.0024
53	0.2343	0.5055	3614	0.0003	0.0008	0.0016	0.0016	0.0026	0.0026
54	0.2365	0.5091	3501	0.0004	0.0007	0.0016	0.0016	0.0024	0.0026
55	0.2352	0.5080	3554	0.0004	0.0008	0.0015	0.0017	0.0022	0.0027
56	0.2336	0.5082	3605	0.0004	0.0010	0.0016	0.0019	0.0020	0.0025
57	0.2359	0.5062	3553	0.0004	0.0009	0.0016	0.0018	0.0023	0.0027
58	0.2358	0.5129	3480	0.0004	0.0009	0.0016	0.0018	0.0021	0.0026
59	0.2343	0.5092	3569	0.0004	0.0008	0.0016	0.0018	0.0022	0.0025
60	0.2349	0.5077	3569	0.0003	0.0008	0.0015	0.0017	0.0022	0.0026
61	0.2355	0.5117	3500	0.0004	0.0009	0.0014	0.0019	0.0021	0.0024
62	0.2361	0.5075	3531	0.0004	0.0009	0.0015	0.0018	0.0022	0.0025
63	0.2353	0.5063	3570	0.0004	0.0009	0.0014	0.0018	0.0023	0.0024
64	0.2354	0.5069	3562	0.0004	0.0009	0.0015	0.0017	0.0023	0.0025
65	0.2348	0.5086	3559	0.0003	0.0009	0.0015	0.0017	0.0025	0.0024
66	0.2347	0.5077	3574	0.0004	0.0009	0.0015	0.0018	0.0023	0.0023
67	0.2349	0.5074	3571	0.0004	0.0009	0.0015	0.0018	0.0022	0.0023
68	0.2357	0.5069	3550	0.0004	0.0010	0.0015	0.0019	0.0023	0.0024
69	0.2345	0.5055	3608	0.0004	0.0009	0.0015	0.0018	0.0023	0.0025
70	0.2355	0.5064	3564	0.0003	0.0009	0.0016	0.0018	0.0020	0.0024
71	0.2355	0.5059	3570	0.0004	0.0011	0.0016	0.0019	0.0020	0.0023
72	0.2344	0.5087	3573	0.0004	0.0010	0.0016	0.0018	0.0024	0.0023
73	0.2353	0.5071	3563	0.0002	0.0009	0.0016	0.0019	0.0024	0.0024
74	0.2350	0.5087	3551	0.0004	0.0010	0.0016	0.0019	0.0022	0.0022
75	0.2356	0.5089	3530	0.0004	0.0009	0.0015	0.0018	0.0023	0.0026
Ave.	0.2352	0.5079	3556	0.0004	0.0009	0.0015	0.0018	0.0023	0.0025
Med.	0.2353	0.5077	3562	0.0004	0.0009	0.0015	0.0018	0.0023	0.0024
st dev	0.0007	0.0017	31.7936	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Min.	0.2336	0.5055	3480	0.0002	0.0007	0.0013	0.0016	0.0020	0.0022
Max.	0.2365	0.5129	3614	0.0004	0.0011	0.0016	0.0019	0.0026	0.0027



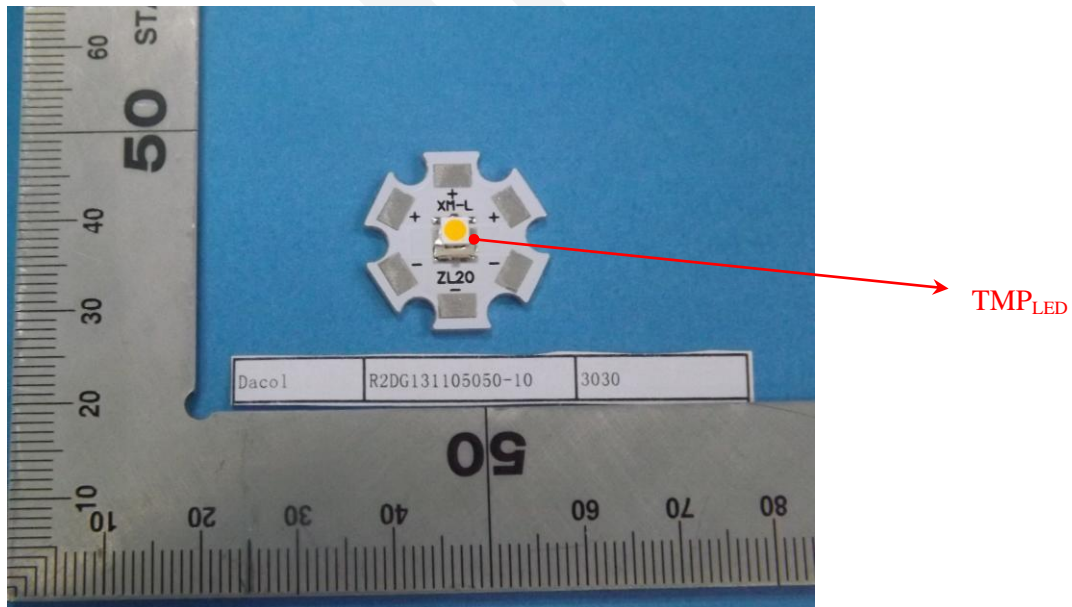
Appendix A – EUT PHOTO

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



All dimensions are in millimeter

A.2 EUT Photo



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