



TEST REPORT

According to ANSI/IES LM-80-15
For

Xiamen Dacol Photoelectronics Technology Co., Ltd.

No. 8021 Xiang'an West Road(Xiang'an) industrial zone, Torch Hi-Tech Industrial Development Zone ,Xiamen City,Fujian,China

Model: 2835

Report Type: 6000 Hours Test Report		Product Type: LED Package	
Test Engineer:	Pote Wang	<i>Pote Wang</i>	
Report Number:	R2DG180329050-10-6000-M1		
Test Date:	2018-04-05 to 2018-12-12		
Report Date:	2019-01-24		
Reviewed By:	Blake Zhang / EE Engineer	<i>Blake Zhang</i>	
Revised Note:	The previous report R2DG180329050-10-6000 is replaced by this report on 2019-01-24		
Test Facility:	Test facility was located at No.69,Pulongcun ,Puxihu Industrial Area, Tangxia , Dongguan, Guangdong, China.		
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Accreditation:	The IAS Accreditation Number TL-460.		

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

Sample Size:

75 PCS samples were received on 2018-03-29. The samples were numbered from 1 to 25, 26 to 50 and 51 to 75.

Manufacturer:	Xiamen Dacol Photoelectronics Technology Co., Ltd.
Part Number:	2835
Part Type:	LED Package
Drive Level:	DC 20mA
Nominal CCT:	3000K
Power:	1.08W
Average Current Density per LED die:	71.76mA/mm ²
Average Power Density per LED die:	1.29W/mm ²
CRI:	80
Die Spacing:	0.12mm

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.

1.2 Standards and Reference Documentations

- ANSI/IES LM-80-15: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.
- CIE 127:2007: Measurement of LEDs
- ENERGY STAR[®] Requirements for the Use of LM-80 Data (This standard was not accredited by IAS)

1.3 Testing Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
1.0m integrating sphere	SENSING	SCD-20008	N/A	2018-06-28	2019-06-28
spectroradiometer	SENSING	SCD-20008	N/A	2018-06-28	2019-06-28
DC Power Supply	Hanshenpuyuan	HSPY-100-05	2013010210003	2018-05-04	2019-05-04
Standard Light Source	EVERFINE	D204	G100283CA8351158	2018-01-08	2019-01-08
DC Power Supply	BACL	B25001	90020	2018-12-18	2019-12-18
Multilayer aging machine	BACL	B2-270	20024	2018-03-13	2019-03-13
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090004	2018-03-26	2019-03-26

1.4 Drive Level

Samples are driven with a constant direct current (DC) during maintenance test, photometric and electrical measurement. The current value was regulated to within $\pm 3\%$ of the specified value of the manufacturer during maintenance test, and was within $\pm 0.5\%$ during photometric and electrical measurement test.

1.5 Ambient Conditions for Maintenance Test

For lumen maintenance test, samples within one data set, were installed on cooling boards in thermal chambers with minimal ambient airflow. The case temperature and ambient temperature was monitored by thermocouples which one was soldered to the coldest DUTs' case (TMP_{LED}) location, while the other is mounted at a distance of 5 mm above the TMP location.

During life testing, TMP_{LED} of the coldest LEDs were maintained at a temperature that was greater than or equal to 2°C below the corresponding nominal case temperature. Surrounding air was maintained at a temperature that was greater than or equal to 5°C below the corresponding nominal case temperature. Thermocouples were shielded from direct DUT optical radiation and comply with ASTM E230 Table 1 "Special Limits".

Samples were connected to DC power supply in series circuits with a constant current. The forward current was regulated to within ±3% of the specified value of the manufacturer.

The relative humidity within chamber was kept less than 65% during test.

For photometry measurement, the ambient temperature during test was set to 25°C ± 2°C, RH <65%.

1.6 Photometric Measurement Method and Uncertainty

Integrating sphere and spectroradiometer is used to measure luminous flux and chromaticity coordinate u'v'. 2π measurement was used and sample was driven by DC power supply. The forward current was regulated to within ±0.5% of the nominal value. The test system was calibrated by halogen reference lamp. The ambient temperature during test was set to 25°C ± 2°C, RH <65%. The temperature measurement point was located in the sphere and the temperature was detected by a temperature probe.

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=21K (K=2), at the 95% confidence level.

The uncertainty of the temperature is U=0.8671°C (K=2), at the 95% confidence level.

1.7 Statement of Traceability

Bay Area Compliance Laboratories Corp. (Dongguan) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

1.8 Sample Set

Data Set 1: 55°C, 20mA

Part Number: 2835
Number of Units: 25
Case Temperature: >53°C
Ambient Temperature: >50°C
Life Test Drive Current: 20mA
Measurement Current: 20mA

Data Set 2: 85°C, 20mA

Part Number: 2835
Number of Units: 25
Case Temperature: >83°C
Ambient Temperature: >80°C
Life Test Drive Current: 20mA
Measurement Current: 20mA

Data Set 3: 105°C, 20mA

Part Number: 2835
Number of Units: 25
Case Temperature: >103°C
Ambient Temperature: >100°C
Life Test Drive Current: 20mA
Measurement Current: 20mA

2 - Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	α	β	Reported TM-21 L ₇₀ Lifetime
1	25	0	1000hrs	6000hrs	2.759E-06	1.003	>36000hrs
2	25	0	1000hrs	6000hrs	3.491E-06	1.002	>36000hrs
3	25	0	1000hrs	6000hrs	3.820E-06	1.002	>36000hrs

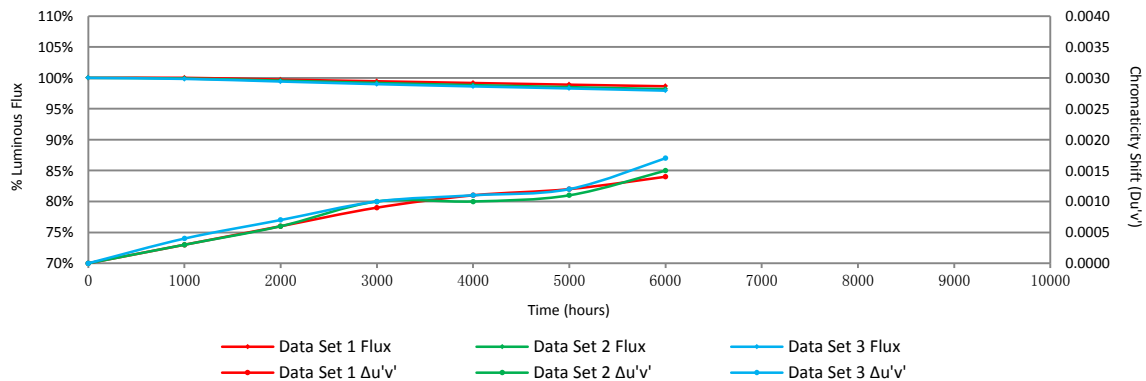
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	100.01%	99.72%	99.45%	99.17%	98.90%	98.64%
2	99.90%	99.55%	99.18%	98.83%	98.50%	98.18%
3	99.83%	99.41%	98.98%	98.62%	98.29%	97.93%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.0003	0.0006	0.0009	0.0011	0.0012	0.0014
2	0.0003	0.0006	0.0010	0.0010	0.0011	0.0015
3	0.0004	0.0007	0.0010	0.0011	0.0012	0.0017

Average Lumen Maintenance and Chromaticity Shift VS. Time



3 - Test Data

3.1 Data Set 1, 55°C, 20mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)					
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	118.6	99.82	99.40	98.81	98.47	98.22	98.05
2	119.4	100.33	99.91	99.57	99.49	99.32	98.99
3	119.9	99.88	99.72	99.55	99.13	98.80	98.55
4	120.5	99.94	99.69	99.53	98.86	98.70	98.36
5	120.6	99.83	99.74	99.49	99.33	99.08	98.75
6	120.1	99.77	99.68	99.52	99.27	98.68	98.43
7	119.8	100.24	100.08	99.99	99.91	99.82	99.66
8	118.4	99.79	99.70	99.45	99.28	98.94	98.69
9	120.5	100.02	99.78	99.19	98.86	98.70	98.45
10	119.7	100.18	100.10	99.93	99.60	99.52	99.18
11	118.0	100.04	99.45	99.19	98.94	98.43	98.18
12	118.5	100.10	100.02	99.76	99.17	99.09	98.84
13	119.8	99.91	99.41	99.24	98.91	98.49	98.24
14	118.8	99.71	99.28	98.86	98.36	97.94	97.77
15	118.1	100.27	99.93	99.42	99.00	98.83	98.58
16	118.1	100.02	99.76	99.59	99.51	99.17	98.83
17	119.2	100.04	99.87	99.79	99.71	99.37	99.12
18	118.2	100.32	99.73	99.56	99.48	99.31	99.14
19	118.5	100.10	99.85	99.51	99.17	99.09	98.92
20	119.9	100.05	99.63	99.55	99.13	98.63	98.13
21	119.7	100.18	100.02	99.93	99.85	99.52	99.26
22	120.3	99.97	99.47	98.89	98.55	98.22	98.06
23	119.2	99.87	99.54	99.20	98.87	98.70	98.36
24	119.5	99.97	99.63	99.38	99.05	98.80	98.54
25	118.8	99.87	99.62	99.37	99.28	99.12	98.95
Avg.	119.3	100.01	99.72	99.45	99.17	98.90	98.64
Med.	119.4	100.02	99.72	99.51	99.17	98.83	98.58
st dev	0.8	0.18	0.22	0.31	0.40	0.45	0.45
Min.	118.0	99.71	99.28	98.81	98.36	97.94	97.77
Max.	120.6	100.33	100.10	99.99	99.91	99.82	99.66

3.2 Data Set 1, 55°C, 20mA (Forward Voltage)

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	53.55	53.97	53.96	53.93	53.97	53.36	53.41
2	53.68	53.79	53.74	53.74	53.87	53.35	53.30
3	53.79	54.10	54.08	54.06	54.02	53.54	53.58
4	53.74	54.05	54.05	54.04	54.03	53.64	53.55
5	54.35	54.07	54.04	54.03	54.05	53.91	53.54
6	53.50	53.85	53.84	53.80	53.83	53.32	53.37
7	54.07	54.20	54.22	54.16	54.20	53.57	53.75
8	53.74	54.00	53.74	53.74	53.79	53.20	53.33
9	53.74	54.10	54.10	54.06	54.07	53.51	53.59
10	53.70	54.36	54.10	54.06	54.06	53.49	53.59
11	54.10	54.05	54.02	53.97	53.98	53.44	53.53
12	53.43	53.82	53.82	53.79	53.77	53.29	53.36
13	53.85	54.07	54.07	54.02	54.02	53.49	53.97
14	53.39	53.66	53.64	53.62	53.66	53.17	53.37
15	53.35	53.71	53.74	53.93	53.72	53.22	53.31
16	53.58	53.97	53.91	53.86	53.90	53.36	53.66
17	53.58	53.91	53.90	53.87	53.89	53.34	53.45
18	53.38	53.78	53.78	53.71	53.75	53.26	53.35
19	53.72	53.72	53.87	53.69	53.72	53.20	53.29
20	53.44	53.76	53.78	53.75	53.76	53.24	53.34
21	53.48	53.76	53.74	53.71	53.72	53.21	53.31
22	53.60	53.77	53.78	53.77	53.79	53.27	53.36
23	53.65	54.08	54.04	54.02	54.04	53.49	53.58
24	53.76	54.54	53.99	53.98	53.96	53.39	53.52
25	53.82	53.78	53.70	53.77	53.75	53.24	53.34
Avg.	53.68	53.95	53.91	53.88	53.89	53.38	53.47
Med.	53.68	53.97	53.90	53.87	53.89	53.35	53.41
st dev	0.24	0.21	0.16	0.15	0.15	0.17	0.17
Min.	53.35	53.66	53.64	53.62	53.66	53.17	53.29
Max.	54.35	54.54	54.22	54.16	54.20	53.91	53.97

3.3 Data Set 1, 55°C, 20mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.2503	0.5244	2988	0.0004	0.0008	0.0010	0.0015	0.0016	0.0018
2	0.2485	0.5253	3026	0.0004	0.0007	0.0010	0.0015	0.0017	0.0018
3	0.2496	0.5242	3008	0.0003	0.0006	0.0008	0.0006	0.0010	0.0015
4	0.2519	0.5271	2934	0.0004	0.0006	0.0010	0.0013	0.0013	0.0014
5	0.2505	0.5253	2978	0.0002	0.0005	0.0009	0.0012	0.0013	0.0014
6	0.2490	0.5236	3024	0.0004	0.0008	0.0010	0.0014	0.0016	0.0017
7	0.2500	0.5255	2988	0.0003	0.0006	0.0009	0.0008	0.0010	0.0015
8	0.2494	0.5245	3008	0.0005	0.0006	0.0010	0.0008	0.0009	0.0012
9	0.2485	0.5240	3034	0.0001	0.0006	0.0008	0.0007	0.0009	0.0012
10	0.2502	0.5249	2988	0.0005	0.0009	0.0013	0.0014	0.0012	0.0012
11	0.2482	0.5246	3038	0.0003	0.0005	0.0007	0.0010	0.0010	0.0012
12	0.2495	0.5240	3010	0.0002	0.0004	0.0008	0.0009	0.0011	0.0013
13	0.2491	0.5256	3008	0.0003	0.0004	0.0007	0.0009	0.0008	0.0011
14	0.2495	0.5244	3008	0.0004	0.0006	0.0009	0.0012	0.0013	0.0013
15	0.2494	0.5240	3012	0.0001	0.0005	0.0008	0.0010	0.0011	0.0014
16	0.2505	0.5238	2986	0.0003	0.0005	0.0009	0.0010	0.0011	0.0013
17	0.2484	0.5235	3040	0.0004	0.0005	0.0006	0.0009	0.0010	0.0009
18	0.2498	0.5256	2992	0.0006	0.0009	0.0012	0.0014	0.0017	0.0017
19	0.2485	0.5241	3034	0.0005	0.0007	0.0012	0.0014	0.0016	0.0017
20	0.2494	0.5247	3006	0.0004	0.0006	0.0009	0.0011	0.0011	0.0013
21	0.2499	0.5252	2992	0.0004	0.0008	0.0010	0.0012	0.0012	0.0013
22	0.2501	0.5252	2988	0.0004	0.0006	0.0011	0.0012	0.0012	0.0016
23	0.2494	0.5220	3024	0.0002	0.0002	0.0005	0.0006	0.0008	0.0009
24	0.2506	0.5248	2978	0.0002	0.0004	0.0009	0.0009	0.0012	0.0012
25	0.2486	0.5227	3042	0.0003	0.0005	0.0009	0.0012	0.0009	0.0011
Avg.	0.2496	0.5245	3005	0.0003	0.0006	0.0009	0.0011	0.0012	0.0014
Med.	0.2495	0.5245	3008	0.0004	0.0006	0.0009	0.0011	0.0011	0.0013
st dev	0.0009	0.0010	25	0.0001	0.0002	0.0002	0.0003	0.0003	0.0003
Min.	0.2482	0.5220	2934	0.0001	0.0002	0.0005	0.0006	0.0008	0.0009
Max.	0.2519	0.5271	3042	0.0006	0.0009	0.0013	0.0015	0.0017	0.0018

3.4 Data Set 2, 85°C, 20mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)					
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	120.1	99.77	99.27	98.77	98.02	97.85	97.60
27	119.8	99.74	99.57	98.99	98.82	98.49	98.24
28	119.5	99.88	99.63	99.38	98.88	98.46	97.96
29	119.8	99.66	99.49	99.24	98.82	98.41	97.99
30	117.7	99.93	99.42	98.74	98.66	98.23	97.89
31	118.0	99.96	99.70	99.62	99.28	99.19	98.86
32	120.5	99.94	99.28	98.70	98.28	97.95	97.70
33	121.1	99.72	99.47	99.39	99.31	99.06	98.73
34	118.2	99.98	99.48	99.05	98.55	98.21	97.70
35	120.7	99.97	99.72	99.64	99.47	99.30	99.22
36	120.1	100.18	99.93	99.77	99.35	99.02	98.68
37	118.9	99.76	99.26	99.09	98.67	98.33	98.00
38	120.2	100.07	99.49	98.91	98.58	98.33	98.08
39	118.5	100.02	99.68	99.09	98.58	98.16	97.74
40	119.2	99.96	99.79	99.71	99.62	99.45	99.12
41	119.9	99.72	99.30	98.97	98.80	98.63	98.38
42	117.2	99.96	99.87	99.53	99.45	99.10	98.76
43	120.1	100.02	99.35	98.77	98.27	97.85	97.35
44	118.6	99.91	99.57	98.90	98.56	98.05	97.80
45	119.5	99.72	99.38	99.30	98.71	98.13	97.88
46	120.3	99.88	99.72	99.14	98.55	98.22	97.89
47	119.9	100.22	99.97	99.63	99.55	99.13	98.80
48	119.9	99.97	99.72	99.38	99.05	98.47	98.05
49	118.4	99.62	99.11	98.69	98.35	98.18	97.85
50	120.3	100.05	99.47	99.05	98.55	98.39	98.14
Avg.	119.5	99.90	99.55	99.18	98.83	98.50	98.18
Med.	119.8	99.94	99.49	99.09	98.71	98.39	98.00
st dev	1.0	0.16	0.23	0.34	0.44	0.48	0.50
Min.	117.2	99.62	99.11	98.69	98.02	97.85	97.35
Max.	121.1	100.22	99.97	99.77	99.62	99.45	99.22

3.5 Data Set 2, 85°C, 20mA (Forward Voltage)

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	53.43	53.79	53.77	53.73	53.76	53.68	53.39
27	53.81	54.17	54.08	54.05	54.10	53.50	53.65
28	53.59	54.03	54.00	53.96	53.99	53.47	53.67
29	53.60	53.84	53.84	53.77	53.78	53.31	53.54
30	53.39	53.73	53.67	53.66	53.68	53.22	53.30
31	53.71	53.74	53.74	53.68	53.68	53.21	53.46
32	54.18	54.25	54.20	54.18	54.21	53.62	53.73
33	54.02	54.10	54.10	54.10	54.09	53.55	53.64
34	53.40	53.75	53.70	53.69	53.70	53.22	53.33
35	53.85	54.08	54.07	54.07	54.10	53.52	53.62
36	53.50	53.98	53.82	53.77	53.83	53.30	53.49
37	53.89	54.25	54.15	54.16	54.15	53.62	53.72
38	53.87	54.33	54.13	54.10	54.08	53.56	53.63
39	53.72	54.04	54.04	54.00	54.05	53.50	53.58
40	53.70	53.91	53.88	53.88	53.89	53.36	53.45
41	53.52	53.71	53.69	53.69	53.70	53.22	53.33
42	53.38	53.86	53.64	53.84	53.65	53.24	53.46
43	53.85	54.16	54.14	54.14	54.16	53.57	53.67
44	53.84	53.84	53.85	53.82	53.83	53.32	53.54
45	53.61	54.00	53.98	54.04	53.98	53.44	53.55
46	54.02	54.15	54.20	54.16	54.17	53.62	53.79
47	53.58	53.88	53.84	53.83	53.82	53.38	53.40
48	53.74	53.96	53.79	53.78	53.76	53.24	53.35
49	53.61	53.65	53.67	53.76	53.63	53.16	53.26
50	54.16	53.95	53.92	53.95	53.93	53.42	53.49
Avg.	53.72	53.97	53.92	53.91	53.91	53.41	53.52
Med.	53.71	53.96	53.88	53.88	53.89	53.42	53.54
st dev	0.23	0.19	0.18	0.18	0.19	0.16	0.15
Min.	53.38	53.65	53.64	53.66	53.63	53.16	53.26
Max.	54.18	54.33	54.20	54.18	54.21	53.68	53.79

3.6 Data Set 2, 85°C, 20mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	0.2489	0.5251	3018	0.0005	0.0008	0.0011	0.0014	0.0014	0.0013
27	0.2499	0.5248	2996	0.0005	0.0008	0.0011	0.0013	0.0016	0.0017
28	0.2483	0.5247	3036	0.0001	0.0005	0.0009	0.0010	0.0013	0.0017
29	0.2497	0.5243	3004	0.0002	0.0006	0.0009	0.0012	0.0014	0.0016
30	0.2491	0.5248	3016	0.0006	0.0008	0.0012	0.0015	0.0016	0.0018
31	0.2493	0.5248	3010	0.0004	0.0006	0.0011	0.0015	0.0016	0.0017
32	0.2497	0.5245	3002	0.0003	0.0005	0.0009	0.0013	0.0013	0.0015
33	0.2502	0.5259	2982	0.0004	0.0007	0.0009	0.0008	0.0010	0.0018
34	0.2512	0.5230	2976	0.0003	0.0008	0.0012	0.0010	0.0011	0.0014
35	0.2500	0.5260	2986	0.0004	0.0006	0.0009	0.0009	0.0009	0.0012
36	0.2487	0.5237	3032	0.0002	0.0006	0.0008	0.0005	0.0008	0.0012
37	0.2492	0.5247	3014	0.0006	0.0009	0.0013	0.0013	0.0013	0.0018
38	0.2490	0.5239	3024	0.0003	0.0005	0.0011	0.0010	0.0010	0.0017
39	0.2499	0.5237	3002	0.0002	0.0005	0.0009	0.0006	0.0004	0.0011
40	0.2496	0.5249	3002	0.0003	0.0006	0.0009	0.0009	0.0007	0.0010
41	0.2488	0.5248	3022	0.0005	0.0008	0.0011	0.0009	0.0010	0.0014
42	0.2492	0.5234	3020	0.0003	0.0007	0.0009	0.0007	0.0008	0.0010
43	0.2507	0.5256	2970	0.0004	0.0006	0.0009	0.0008	0.0008	0.0014
44	0.2497	0.5233	3010	0.0004	0.0007	0.0009	0.0010	0.0010	0.0017
45	0.2495	0.5223	3020	0.0002	0.0004	0.0009	0.0006	0.0007	0.0016
46	0.2500	0.5258	2988	0.0002	0.0005	0.0011	0.0011	0.0009	0.0016
47	0.2495	0.5244	3008	0.0001	0.0002	0.0006	0.0004	0.0004	0.0011
48	0.2486	0.5258	3022	0.0002	0.0005	0.0009	0.0009	0.0009	0.0015
49	0.2499	0.5226	3008	0.0004	0.0008	0.0010	0.0012	0.0011	0.0018
50	0.2510	0.5275	2952	0.0005	0.0008	0.0010	0.0012	0.0014	0.0018
Avg.	0.2496	0.5246	3005	0.0003	0.0006	0.0010	0.0010	0.0011	0.0015
Med.	0.2496	0.5247	3008	0.0003	0.0006	0.0009	0.0010	0.0010	0.0016
st dev	0.0007	0.0012	20	0.0001	0.0002	0.0002	0.0003	0.0003	0.0003
Min.	0.2483	0.5223	2952	0.0001	0.0002	0.0006	0.0004	0.0004	0.0010
Max.	0.2512	0.5275	3036	0.0006	0.0009	0.0013	0.0015	0.0016	0.0018

3.7 Data Set 3, 105°C, 20mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)					
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	119.0	99.82	99.15	98.56	98.48	98.31	98.06
52	119.3	99.85	99.68	99.18	98.84	98.68	98.34
53	118.8	100.04	99.71	99.12	98.44	98.11	97.77
54	120.1	99.85	99.52	99.27	98.77	98.52	98.18
55	120.5	99.86	99.44	98.95	98.70	98.28	97.95
56	118.8	99.79	99.45	98.95	98.78	98.36	98.02
57	118.1	99.59	99.09	98.66	98.41	98.32	97.98
58	119.3	99.77	99.35	98.93	98.59	98.26	97.84
59	118.0	99.79	99.45	98.94	98.26	97.92	97.58
60	119.2	99.79	99.29	98.62	98.53	98.45	98.03
61	119.0	99.66	99.40	99.24	98.65	98.14	97.64
62	118.9	100.02	99.60	99.18	98.50	97.91	97.49
63	120.9	100.19	99.94	99.45	99.28	99.11	98.78
64	119.9	100.13	99.97	99.47	99.30	98.88	98.55
65	117.4	99.73	99.22	98.79	97.94	97.34	96.92
66	119.8	99.74	99.16	98.57	98.07	97.82	97.49
67	119.5	99.72	99.13	98.71	98.46	98.29	97.88
68	120.6	99.58	98.91	98.42	97.75	97.26	96.92
69	119.7	99.77	99.35	99.10	98.93	98.68	98.18
70	120.1	99.68	99.43	98.93	98.52	98.02	97.68
71	118.6	99.82	99.40	98.81	98.56	98.39	98.05
72	119.7	100.02	99.35	99.26	99.10	98.85	98.43
73	120.2	100.07	99.41	98.99	98.41	98.00	97.75
74	121.0	99.83	99.41	99.17	99.00	98.59	98.17
75	118.8	99.71	99.54	99.37	99.20	98.78	98.44
Avg.	119.4	99.83	99.41	98.98	98.62	98.29	97.93
Med.	119.3	99.79	99.41	98.95	98.56	98.31	97.98
st dev	0.9	0.16	0.25	0.29	0.39	0.44	0.45
Min.	117.4	99.58	98.91	98.42	97.75	97.26	96.92
Max.	121.0	100.19	99.97	99.47	99.30	99.11	98.78

3.8 Data Set 3, 105°C, 20mA (Forward Voltage)

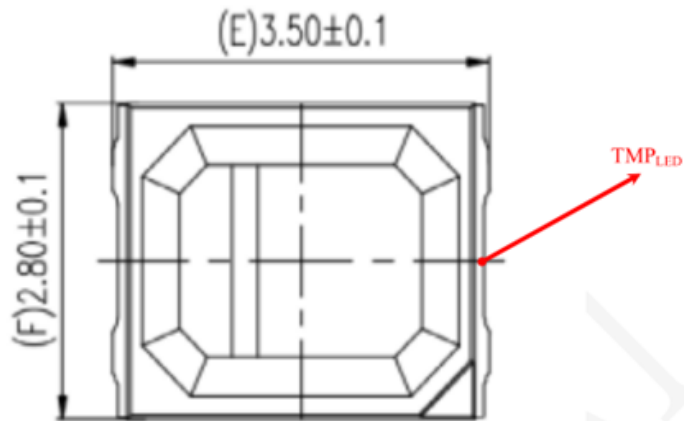
No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	53.87	54.07	54.09	54.21	54.10	53.56	53.64
52	53.58	53.80	53.77	53.82	53.74	53.28	53.34
53	53.61	54.11	54.08	54.13	54.10	53.52	53.77
54	53.68	53.90	53.91	53.93	53.88	53.38	53.47
55	53.73	54.10	54.06	54.10	54.08	53.56	53.65
56	53.43	53.82	53.81	53.83	53.82	53.27	53.37
57	53.72	53.72	53.72	53.79	53.72	53.46	53.40
58	53.35	53.72	53.69	53.69	53.67	53.21	53.29
59	53.43	53.63	53.64	53.65	53.64	53.14	53.26
60	53.81	53.92	53.86	53.92	53.90	53.45	53.50
61	53.66	53.98	53.99	54.01	54.00	53.45	53.55
62	53.81	54.11	54.09	54.12	54.10	53.54	53.66
63	53.58	53.87	53.86	53.87	53.88	53.32	53.44
64	53.95	54.15	54.15	54.17	54.14	53.57	53.69
65	53.62	53.87	53.87	53.89	53.87	53.39	53.40
66	53.57	53.98	53.99	53.98	53.98	53.44	53.50
67	53.58	54.02	53.98	54.00	53.99	53.46	53.55
68	54.07	54.26	54.27	54.28	54.27	53.72	53.73
69	53.76	54.16	54.15	54.18	54.15	53.59	53.71
70	53.90	54.15	54.10	54.12	54.14	53.57	53.64
71	53.59	53.91	53.92	53.97	53.91	53.40	53.46
72	53.76	53.96	53.95	53.96	53.96	53.41	53.56
73	53.68	53.89	53.90	53.89	53.92	53.41	53.48
74	53.80	54.15	54.09	54.14	54.12	53.57	53.65
75	53.50	53.69	53.67	53.82	53.68	53.17	53.40
Avg.	53.68	53.96	53.94	53.98	53.95	53.43	53.52
Med.	53.68	53.96	53.95	53.97	53.96	53.45	53.50
st dev	0.17	0.17	0.17	0.17	0.17	0.14	0.14
Min.	53.35	53.63	53.64	53.65	53.64	53.14	53.26
Max.	54.07	54.26	54.27	54.28	54.27	53.72	53.77

3.9 Data Set 3, 105°C, 20mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	0.2498	0.5240	3002	0.0004	0.0006	0.0008	0.0012	0.0011	0.0015
52	0.2499	0.5238	3002	0.0005	0.0007	0.0009	0.0012	0.0015	0.0018
53	0.2499	0.5251	2994	0.0005	0.0008	0.0010	0.0011	0.0014	0.0017
54	0.2521	0.5276	2928	0.0007	0.0012	0.0013	0.0013	0.0014	0.0017
55	0.2487	0.5243	3028	0.0003	0.0007	0.0009	0.0011	0.0013	0.0016
56	0.2497	0.5248	3000	0.0003	0.0006	0.0008	0.0010	0.0011	0.0015
57	0.2495	0.5229	3018	0.0005	0.0008	0.0010	0.0012	0.0014	0.0018
58	0.2482	0.5250	3036	0.0005	0.0008	0.0011	0.0012	0.0016	0.0020
59	0.2495	0.5237	3012	0.0001	0.0005	0.0007	0.0009	0.0011	0.0016
60	0.2510	0.5240	2974	0.0002	0.0011	0.0013	0.0013	0.0013	0.0015
61	0.2508	0.5246	2976	0.0004	0.0007	0.0010	0.0012	0.0014	0.0016
62	0.2508	0.5247	2974	0.0005	0.0008	0.0011	0.0012	0.0015	0.0018
63	0.2501	0.5261	2984	0.0005	0.0009	0.0011	0.0013	0.0014	0.0017
64	0.2494	0.5250	3006	0.0004	0.0006	0.0009	0.0010	0.0013	0.0016
65	0.2493	0.5235	3018	0.0005	0.0008	0.0011	0.0013	0.0015	0.0018
66	0.2497	0.5255	2996	0.0004	0.0008	0.0011	0.0010	0.0012	0.0019
67	0.2505	0.5241	2986	0.0004	0.0006	0.0010	0.0012	0.0011	0.0018
68	0.2495	0.5252	3004	0.0003	0.0007	0.0010	0.0011	0.0010	0.0016
69	0.2499	0.5260	2986	0.0004	0.0007	0.0009	0.0011	0.0010	0.0016
70	0.2498	0.5232	3010	0.0004	0.0005	0.0008	0.0010	0.0009	0.0015
71	0.2506	0.5267	2966	0.0004	0.0006	0.0009	0.0013	0.0010	0.0016
72	0.2490	0.5236	3024	0.0001	0.0004	0.0007	0.0008	0.0006	0.0014
73	0.2493	0.5252	3008	0.0005	0.0008	0.0012	0.0012	0.0012	0.0019
74	0.2494	0.5257	3002	0.0004	0.0009	0.0012	0.0011	0.0010	0.0015
75	0.2486	0.5230	3038	0.0006	0.0006	0.0007	0.0008	0.0010	0.0014
Avg.	0.2498	0.5247	2999	0.0004	0.0007	0.0010	0.0011	0.0012	0.0017
Med.	0.2497	0.5247	3002	0.0004	0.0007	0.0010	0.0012	0.0012	0.0016
st dev	0.0008	0.0012	24	0.0001	0.0002	0.0002	0.0001	0.0002	0.0002
Min.	0.2482	0.5229	2928	0.0001	0.0004	0.0007	0.0008	0.0006	0.0014
Max.	0.2521	0.5276	3038	0.0007	0.0012	0.0013	0.0013	0.0016	0.0020

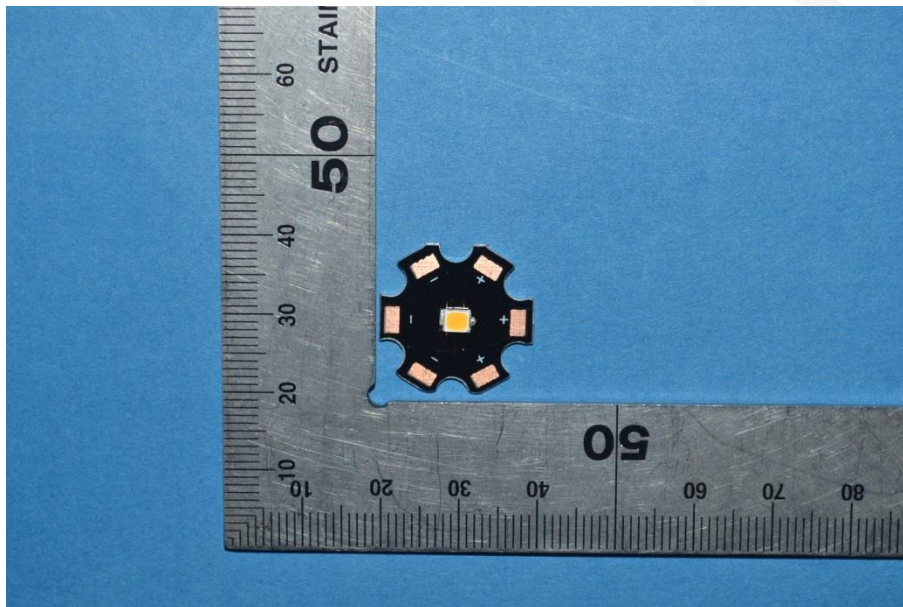
4 - DUT Photo

4.1 Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



5 - Report Revision

Report Number	Report Date	Contents
R2DG180329050-10-6000	2018-12-19	Original report.
R2DG180329050-10-6000-M1	2019-01-24	Revise the Power, Average Current Density per LED die and Average Power Density per LED die in page 3.

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