

# 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: SMD-2835**

<b>Report Type:</b> 6000 Hours Test Report		<b>Product Type:</b> LED Package	
<b>Test Engineer:</b>	Pote Wang		
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<b>Accreditation:</b>	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 2017-11-16. The samples were numbered from 1 to 25, 26 to 50 and 51 to 75.

Manufacturer:	Xiamen Dacol Photoelectronics Technology Co., Ltd.
Part Number:	SMD-2835
Part Type:	LED Package
Drive Level:	DC 150mA
Nominal CCT:	3000K
Power:	0.93W
Average Current Density per LED die:	638.73mA/mm <sup>2</sup>
Average Power Density per LED die:	1.98W/mm <sup>2</sup>
CRI:	80
Die Spacing:	0.31mm

#### 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 Used:

- ANSI/IES LM-80-15: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.
- CIE 127:2007: Measurement of LEDs
- ENERGY STAR<sup>®</sup> 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
0.3m integrating sphere	EVERFINE	Diameter 0.3m	1011119	2018-03-18	2019-03-18
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	2018-03-26	2019-03-26
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	2018-03-18	2019-03-18
Standard Light Source	EVERFINE	D062	1011064	2018-01-15	2019-01-15
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987CJ7321114	2018-03-26	2019-03-26
Multilayer aging machine	BACL	B2-270	20015	2018-03-13	2019-03-13
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090003	2018-05-04	2019-05-04

### 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<sub>LED</sub>) location, while the other is mounted at a distance of 5 mm above the TMP location.

During life testing, TMP<sub>LED</sub> 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 (luminous flux) measurements is U=1.6% (K=2), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is U=20K (K=2), at the 95% confidence level. The uncertainty of the CRI is U=1.6 (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, 150mA

Part Number: SMD-2835  
Number of Units: 25  
Case Temperature: >53°C  
Ambient Temperature: >50°C  
Life Test Drive Current: 150mA  
Measurement Current: 150mA

### Data Set 2: 85°C, 150mA

Part Number: SMD-2835  
Number of Units: 25  
Case Temperature: >83°C  
Ambient Temperature: >80°C  
Life Test Drive Current: 150mA  
Measurement Current: 150mA

### Data Set 3: 105°C, 150mA

Part Number: SMD-2835  
Number of Units: 25  
Case Temperature: >103°C  
Ambient Temperature: >100°C  
Life Test Drive Current: 150mA  
Measurement Current: 150mA

## 2 - Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	$\alpha$	$\beta$	Reported TM-21 L <sub>70</sub> Lifetime
1	25	0	1000hrs	6000hrs	3.452E-06	1.006	>36000
2	25	0	1000hrs	6000hrs	4.387E-06	1.005	>36000
3	25	0	1000hrs	6000hrs	5.000E-06	1.004	>36000

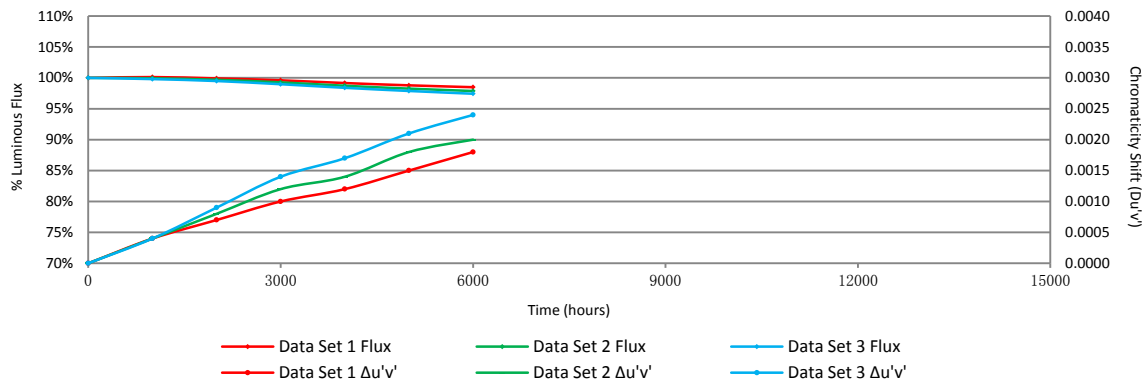
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	100.13%	99.91%	99.60%	99.16%	98.79%	98.49%
2	99.94%	99.69%	99.27%	98.72%	98.26%	97.87%
3	99.80%	99.49%	98.97%	98.39%	97.88%	97.43%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.0004	0.0007	0.0010	0.0012	0.0015	0.0018
2	0.0004	0.0008	0.0012	0.0014	0.0018	0.0020
3	0.0004	0.0009	0.0014	0.0017	0.0021	0.0024

Average Lumen Maintenance and Chromaticity Shift VS. Time



### 3 - Test Data

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

No.	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	106.40	99.91	99.62	99.25	98.87	98.50	98.03
2	105.00	100.19	100.10	99.90	99.24	98.86	98.57
3	106.00	100.09	99.91	99.81	99.15	98.87	98.49
4	105.10	100.10	99.81	99.62	99.05	98.57	98.38
5	105.40	100.19	100.09	99.81	99.62	99.34	99.05
6	106.00	100.28	99.91	99.72	99.25	98.87	98.68
7	104.60	100.19	100.10	99.90	99.43	98.85	98.57
8	104.00	100.19	99.90	99.52	99.33	99.04	98.85
9	106.10	100.28	100.09	99.62	99.15	98.77	98.59
10	106.70	100.09	99.81	99.53	99.25	98.88	98.59
11	104.00	99.90	99.62	99.33	98.94	98.46	98.17
12	105.90	100.19	99.91	99.62	99.24	99.06	98.77
13	105.00	100.29	100.10	99.81	99.52	99.24	99.14
14	106.60	100.19	100.09	99.72	99.25	98.97	98.50
15	104.90	100.19	99.90	99.52	99.05	98.57	98.19
16	107.10	99.91	99.72	99.25	98.60	98.32	98.23
17	104.70	100.19	99.90	99.62	99.04	98.57	98.47
18	103.50	100.19	100.10	99.81	99.32	98.94	98.65
19	107.10	100.09	99.81	99.53	99.25	98.97	98.69
20	106.00	100.09	99.91	99.53	99.15	98.77	98.58
21	105.80	99.91	99.72	99.43	98.96	98.68	98.20
22	107.40	100.09	99.81	99.44	98.88	98.32	97.95
23	105.20	100.19	100.10	99.62	99.14	98.67	98.38
24	104.30	100.10	99.81	99.52	99.14	98.75	98.18
25	103.80	100.19	99.90	99.52	99.23	98.84	98.36
Avg.	105.46	100.13	99.91	99.60	99.16	98.79	98.49
Med.	105.40	100.19	99.90	99.62	99.15	98.84	98.50
st dev	1.10	0.1159	0.1534	0.1828	0.2161	0.2546	0.2941
Min.	103.50	99.90	99.62	99.25	98.60	98.32	97.95
Max.	107.40	100.29	100.10	99.90	99.62	99.34	99.14

**3.2 Data Set 1, 55°C, 150mA (Forward Voltage)**

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	5.931	6.048	5.968	5.930	5.946	5.912	5.963
2	5.914	5.909	5.968	5.989	5.966	5.909	5.964
3	6.092	6.006	6.046	5.967	6.067	5.966	6.002
4	5.920	6.032	6.045	5.930	5.919	5.924	5.996
5	5.973	5.997	5.964	5.964	5.942	5.955	6.025
6	5.925	5.979	6.037	5.991	5.988	5.925	6.034
7	5.927	5.876	5.900	5.877	5.902	5.908	6.001
8	6.024	5.964	6.012	5.970	5.977	5.982	6.046
9	5.937	5.934	5.976	5.942	5.946	5.943	5.942
10	5.939	5.928	5.971	5.943	5.938	5.926	6.007
11	5.963	5.994	6.023	5.905	5.920	5.933	6.014
12	6.125	6.021	5.975	5.955	5.945	6.099	5.972
13	5.953	5.920	5.943	5.929	5.927	5.911	5.935
14	5.985	5.979	6.020	5.990	5.991	5.984	6.019
15	6.171	6.009	6.010	5.941	5.915	5.897	5.945
16	6.042	5.912	6.033	5.906	5.980	5.898	6.096
17	5.983	5.982	5.999	6.097	5.974	5.967	6.019
18	5.940	5.928	5.967	5.933	5.945	5.932	5.971
19	5.916	5.897	5.935	5.934	5.914	5.914	5.936
20	5.872	5.858	5.975	5.923	5.877	5.875	5.874
21	5.984	5.956	5.996	5.959	5.965	5.961	5.993
22	5.943	5.937	5.976	5.940	5.950	5.943	5.970
23	6.006	5.902	5.921	5.903	5.903	5.923	5.920
24	6.130	5.900	5.925	5.894	5.907	5.901	5.925
25	6.024	5.943	5.958	5.927	6.017	5.993	5.967
Avg.	5.985	5.952	5.982	5.946	5.949	5.939	5.981
Med.	5.963	5.943	5.975	5.940	5.945	5.926	5.972
st dev	0.076	0.051	0.040	0.043	0.041	0.045	0.048
Min.	5.872	5.858	5.900	5.877	5.877	5.875	5.874
Max.	6.171	6.048	6.046	6.097	6.067	6.099	6.096



**3.3 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
1	0.2490	0.5196	3050	0.0002	0.0005	0.0009	0.0011	0.0016	0.0013
2	0.2501	0.5211	3013	0.0003	0.0005	0.0010	0.0012	0.0018	0.0019
3	0.2492	0.5197	3046	0.0003	0.0005	0.0010	0.0011	0.0014	0.0020
4	0.2498	0.5188	3035	0.0004	0.0006	0.0010	0.0012	0.0014	0.0016
5	0.2511	0.5219	2985	0.0003	0.0007	0.0010	0.0012	0.0014	0.0017
6	0.2491	0.5212	3037	0.0003	0.0007	0.0011	0.0012	0.0015	0.0018
7	0.2498	0.5167	3051	0.0004	0.0007	0.0011	0.0013	0.0014	0.0016
8	0.2505	0.5197	3012	0.0003	0.0007	0.0010	0.0013	0.0014	0.0018
9	0.2475	0.5184	3098	0.0003	0.0006	0.0011	0.0013	0.0016	0.0016
10	0.2493	0.5208	3035	0.0004	0.0007	0.0010	0.0012	0.0015	0.0019
11	0.2485	0.5186	3072	0.0004	0.0007	0.0010	0.0013	0.0016	0.0017
12	0.2517	0.5195	2985	0.0004	0.0006	0.0010	0.0013	0.0015	0.0017
13	0.2492	0.5180	3056	0.0002	0.0006	0.0010	0.0011	0.0014	0.0016
14	0.2498	0.5212	3020	0.0003	0.0007	0.0009	0.0013	0.0016	0.0021
15	0.2487	0.5202	3055	0.0003	0.0007	0.0010	0.0012	0.0015	0.0017
16	0.2499	0.5208	3020	0.0004	0.0008	0.0010	0.0013	0.0015	0.0018
17	0.2483	0.5179	3082	0.0004	0.0007	0.0011	0.0013	0.0016	0.0019
18	0.2493	0.5204	3040	0.0004	0.0007	0.0010	0.0012	0.0013	0.0017
19	0.2478	0.5199	3079	0.0002	0.0007	0.0009	0.0011	0.0014	0.0016
20	0.2496	0.5210	3026	0.0004	0.0006	0.0009	0.0013	0.0016	0.0017
21	0.2494	0.5201	3038	0.0004	0.0007	0.0010	0.0011	0.0014	0.0017
22	0.2493	0.5208	3035	0.0004	0.0006	0.0010	0.0012	0.0014	0.0017
23	0.2507	0.5216	2996	0.0004	0.0007	0.0010	0.0013	0.0015	0.0018
24	0.2514	0.5190	2996	0.0005	0.0009	0.0012	0.0014	0.0016	0.0019
25	0.2494	0.5166	3062	0.0004	0.0006	0.0011	0.0013	0.0015	0.0021
Avg.	0.2495	0.5197	3037	0.0004	0.0007	0.0010	0.0012	0.0015	0.0018
Med.	0.2494	0.5199	3037	0.0004	0.0007	0.0010	0.0012	0.0015	0.0017
st dev	0.0010	0.0014	30	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
Min.	0.2475	0.5166	2985	0.0002	0.0005	0.0009	0.0011	0.0013	0.0013
Max.	0.2517	0.5219	3098	0.0005	0.0009	0.0012	0.0014	0.0018	0.0021

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

No.	Φ(lm)	Lumen Maintenance (%)					
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	104.30	99.90	99.62	99.23	98.75	98.47	97.79
27	105.40	99.72	99.34	98.96	98.48	98.20	97.72
28	104.00	99.71	99.62	99.13	98.75	98.37	97.98
29	108.40	99.91	99.72	99.45	98.71	98.34	98.06
30	108.00	99.72	99.44	98.98	98.33	97.87	97.41
31	105.20	99.90	99.52	99.05	98.48	98.19	98.10
32	106.90	99.91	99.72	99.35	98.50	98.13	97.47
33	103.50	99.90	99.81	99.23	98.55	98.07	97.49
34	106.40	100.09	99.91	99.53	99.15	98.68	98.21
35	106.90	100.09	99.81	99.53	98.69	98.04	97.75
36	106.80	99.91	99.72	99.34	98.50	98.03	97.66
37	107.20	100.09	99.81	99.44	98.69	98.13	97.48
38	107.50	100.19	99.91	99.44	98.60	98.23	97.58
39	106.70	99.91	99.72	99.25	98.97	98.41	98.13
40	107.80	100.09	99.81	99.35	98.61	98.24	98.05
41	107.70	99.91	99.63	99.26	98.79	98.24	97.86
42	107.30	100.09	99.91	99.44	98.70	98.14	97.86
43	106.70	100.09	99.81	99.16	98.88	98.41	98.13
44	105.70	100.19	99.91	99.53	98.96	98.58	98.20
45	105.60	100.09	99.91	99.43	98.86	98.30	98.11
46	104.50	99.90	99.52	99.23	99.04	98.47	98.18
47	104.20	99.81	99.71	99.33	98.85	98.46	97.98
48	106.60	99.72	99.53	99.16	98.87	98.31	97.94
49	107.80	99.81	99.54	99.17	98.70	98.24	98.05
50	106.30	99.72	99.44	98.87	98.59	98.02	97.65
Avg.	106.30	99.94	99.69	99.27	98.72	98.26	97.87
Med.	106.70	99.91	99.72	99.26	98.70	98.24	97.94
st dev	1.39	0.1554	0.1685	0.1846	0.1976	0.1915	0.2568
Min.	103.50	99.71	99.34	98.87	98.33	97.87	97.41
Max.	108.40	100.19	99.91	99.53	99.15	98.68	98.21

**3.5 Data Set 2, 85°C, 150mA (Forward Voltage)**

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	6.056	5.918	5.973	5.925	5.938	5.939	5.950
27	6.068	5.870	5.913	5.901	5.890	5.905	5.894
28	6.077	5.915	6.034	5.909	5.912	5.966	5.952
29	5.941	5.930	6.023	5.933	5.939	5.938	5.955
30	5.950	5.921	5.980	5.967	5.986	5.962	5.981
31	5.997	6.030	6.007	6.001	5.985	6.018	6.034
32	5.961	5.904	5.950	5.948	5.917	5.924	6.048
33	5.967	5.945	5.988	5.956	5.958	6.009	5.984
34	5.947	5.923	5.959	5.929	5.933	5.938	5.964
35	5.914	5.906	5.938	5.908	5.916	5.910	5.932
36	6.082	5.965	6.000	6.002	5.970	5.966	6.060
37	5.964	5.957	6.048	5.960	5.969	5.970	5.999
38	5.985	5.943	6.025	5.952	5.965	5.995	5.984
39	5.998	5.983	6.033	6.035	6.018	6.003	6.074
40	5.965	5.933	5.988	5.945	5.949	5.962	5.958
41	5.932	5.920	5.968	5.923	5.936	5.939	6.090
42	5.908	5.893	5.924	5.923	5.905	5.928	5.972
43	5.974	5.941	5.992	5.921	5.948	5.922	5.962
44	5.888	5.867	5.889	5.875	5.879	5.904	5.886
45	5.983	5.970	6.002	5.968	5.970	6.004	6.067
46	5.993	5.920	6.002	5.930	5.939	5.953	5.995
47	5.935	5.910	5.943	5.919	5.929	5.926	6.006
48	6.008	5.931	5.976	5.932	5.968	6.043	6.053
49	5.925	5.892	5.917	5.899	5.919	5.908	5.936
50	5.990	5.957	5.996	5.958	5.973	5.979	5.998
Avg.	5.976	5.930	5.979	5.941	5.944	5.956	5.989
Med.	5.967	5.923	5.988	5.932	5.939	5.953	5.984
st dev	0.052	0.036	0.042	0.036	0.032	0.039	0.054
Min.	5.888	5.867	5.889	5.875	5.879	5.904	5.886
Max.	6.082	6.030	6.048	6.035	6.018	6.043	6.090

**3.6 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	0.2508	0.5187	3011	0.0004	0.0008	0.0011	0.0012	0.0015	0.0016
27	0.2488	0.5200	3053	0.0004	0.0008	0.0011	0.0012	0.0017	0.0020
28	0.2500	0.5208	3017	0.0004	0.0008	0.0012	0.0013	0.0018	0.0022
29	0.2499	0.5205	3022	0.0003	0.0007	0.0010	0.0013	0.0017	0.0018
30	0.2484	0.5197	3066	0.0004	0.0008	0.0012	0.0015	0.0017	0.0020
31	0.2512	0.5200	2993	0.0003	0.0008	0.0011	0.0013	0.0016	0.0020
32	0.2499	0.5205	3021	0.0004	0.0008	0.0011	0.0015	0.0018	0.0020
33	0.2504	0.5198	3014	0.0002	0.0007	0.0010	0.0014	0.0016	0.0019
34	0.2487	0.5188	3063	0.0004	0.0008	0.0012	0.0014	0.0016	0.0018
35	0.2504	0.5212	3006	0.0004	0.0009	0.0012	0.0015	0.0018	0.0022
36	0.2481	0.5210	3065	0.0004	0.0007	0.0011	0.0014	0.0018	0.0021
37	0.2494	0.5199	3039	0.0003	0.0007	0.0011	0.0013	0.0018	0.0021
38	0.2504	0.5207	3008	0.0004	0.0007	0.0011	0.0013	0.0017	0.0018
39	0.2491	0.5194	3050	0.0004	0.0008	0.0011	0.0014	0.0019	0.0023
40	0.2494	0.5206	3034	0.0004	0.0007	0.0012	0.0016	0.0017	0.0020
41	0.2483	0.5191	3073	0.0004	0.0007	0.0012	0.0015	0.0018	0.0020
42	0.2501	0.5209	3014	0.0002	0.0008	0.0011	0.0014	0.0018	0.0020
43	0.2501	0.5220	3007	0.0002	0.0008	0.0011	0.0014	0.0017	0.0020
44	0.2507	0.5208	3000	0.0004	0.0007	0.0011	0.0015	0.0017	0.0020
45	0.2497	0.5184	3042	0.0003	0.0008	0.0012	0.0015	0.0021	0.0022
46	0.2502	0.5185	3028	0.0004	0.0009	0.0013	0.0016	0.0019	0.0022
47	0.2483	0.5175	3083	0.0004	0.0008	0.0013	0.0016	0.0018	0.0023
48	0.2489	0.5207	3046	0.0005	0.0008	0.0012	0.0015	0.0018	0.0020
49	0.2493	0.5207	3035	0.0004	0.0008	0.0011	0.0015	0.0018	0.0020
50	0.2474	0.5189	3097	0.0005	0.0009	0.0013	0.0016	0.0018	0.0021
Avg.	0.2495	0.5200	3035	0.0004	0.0008	0.0012	0.0014	0.0018	0.0020
Med.	0.2497	0.5200	3034	0.0004	0.0008	0.0011	0.0014	0.0018	0.0020
st dev	0.0010	0.0011	28	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
Min.	0.2474	0.5175	2993	0.0002	0.0007	0.0010	0.0012	0.0015	0.0016
Max.	0.2512	0.5220	3097	0.0005	0.0009	0.0013	0.0016	0.0021	0.0023

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

No.	Φ(lm)	Lumen Maintenance (%)					
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	105.50	99.81	99.53	98.86	98.01	97.44	96.97
52	106.00	99.72	99.43	99.06	98.49	98.11	97.45
53	104.90	99.71	99.33	98.67	98.57	98.00	97.52
54	103.20	99.90	99.52	99.03	98.74	98.16	97.67
55	106.10	99.62	99.53	99.06	98.59	98.11	97.83
56	107.70	99.91	99.63	99.16	98.51	98.05	97.77
57	105.10	99.90	99.62	99.14	98.48	98.00	97.62
58	107.30	99.91	99.63	99.07	98.42	98.04	97.48
59	106.80	99.72	99.44	98.88	98.22	97.66	97.19
60	107.60	99.63	99.44	99.07	98.42	97.86	97.49
61	105.30	99.91	99.62	99.15	98.29	97.82	97.63
62	105.00	99.71	99.33	98.86	98.29	97.71	97.14
63	107.70	99.72	99.35	98.70	98.14	97.59	97.31
64	106.50	99.91	99.44	98.97	98.50	97.93	97.28
65	107.30	99.81	99.63	99.07	98.23	97.86	97.39
66	106.80	99.63	99.34	98.78	98.41	97.85	97.38
67	106.90	99.91	99.63	98.97	98.41	98.04	97.57
68	106.60	99.81	99.34	98.69	98.12	97.65	97.09
69	108.50	99.91	99.63	99.08	98.53	97.97	97.42
70	108.40	99.91	99.45	98.99	98.52	97.79	97.23
71	106.40	99.72	99.53	98.97	98.50	98.12	97.65
72	105.80	99.81	99.43	99.15	98.58	98.11	97.83
73	106.20	99.91	99.62	99.15	98.12	97.55	97.27
74	106.20	99.81	99.44	99.06	98.40	97.83	97.36
75	107.00	99.72	99.35	98.79	98.32	97.66	97.20
Avg.	106.43	99.80	99.49	98.97	98.39	97.88	97.43
Med.	106.50	99.81	99.45	99.03	98.42	97.86	97.42
st dev	1.20	0.1025	0.1124	0.1555	0.1776	0.2037	0.2317
Min.	103.20	99.62	99.33	98.67	98.01	97.44	96.97
Max.	108.50	99.91	99.63	99.16	98.74	98.16	97.83

**3.8 Data Set 3, 105°C, 150mA (Forward Voltage)**

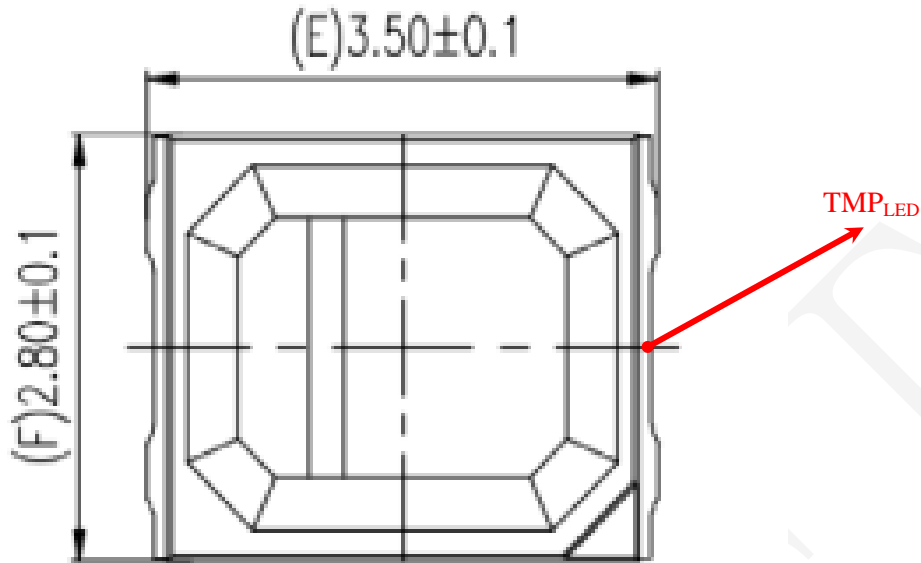
No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
51	5.979	5.950	5.984	5.954	5.958	5.993	6.086
52	6.018	5.933	5.961	5.969	5.936	5.958	5.984
53	5.931	5.925	5.967	5.923	5.945	5.961	5.957
54	5.950	5.946	6.072	5.943	5.959	6.038	5.998
55	5.903	5.895	5.995	5.900	5.925	5.925	5.956
56	5.967	5.928	5.970	5.941	5.954	5.950	5.968
57	6.126	5.901	6.068	5.956	5.930	5.978	5.948
58	6.045	5.939	5.959	6.009	5.971	6.014	5.963
59	6.038	5.968	6.002	6.055	5.983	6.002	6.004
60	6.051	5.936	5.926	5.907	5.988	5.928	5.924
61	5.932	5.925	5.975	5.968	5.942	5.952	5.981
62	5.925	5.912	5.948	5.923	5.927	5.919	5.939
63	5.884	5.873	5.979	5.908	5.889	5.895	5.945
64	6.014	5.952	5.919	5.967	5.942	5.918	5.937
65	5.920	5.915	5.953	5.925	5.929	5.929	5.978
66	6.085	5.937	6.014	6.013	5.944	5.977	6.003
67	5.966	5.955	5.962	5.941	5.927	5.937	5.956
68	5.956	5.935	5.974	5.936	5.937	5.946	5.999
69	5.971	5.963	6.003	5.968	5.974	5.990	6.005
70	5.978	5.871	5.978	5.880	5.879	5.869	5.902
71	5.912	5.920	6.004	5.912	5.921	5.921	5.937
72	5.944	5.933	5.970	5.965	5.942	5.940	5.974
73	5.935	5.903	5.928	5.905	5.907	5.920	5.926
74	6.012	5.957	5.994	5.948	5.955	5.987	5.982
75	6.000	5.968	6.019	5.984	5.971	5.990	5.978
Avg.	5.978	5.930	5.981	5.948	5.941	5.953	5.969
Med.	5.967	5.933	5.975	5.943	5.942	5.950	5.968
st dev	0.060	0.027	0.037	0.040	0.027	0.040	0.037
Min.	5.884	5.871	5.919	5.880	5.879	5.869	5.902
Max.	6.126	5.968	6.072	6.055	5.988	6.038	6.086

**3.9 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	0.2488	0.5197	3055	0.0003	0.0009	0.0014	0.0016	0.0018	0.0020
52	0.2508	0.5200	3002	0.0003	0.0009	0.0014	0.0018	0.0019	0.0022
53	0.2505	0.5212	3002	0.0003	0.0009	0.0014	0.0017	0.0021	0.0022
54	0.2507	0.5199	3007	0.0004	0.0009	0.0014	0.0018	0.0021	0.0025
55	0.2505	0.5206	3006	0.0004	0.0010	0.0014	0.0018	0.0022	0.0023
56	0.2494	0.5207	3033	0.0004	0.0009	0.0014	0.0018	0.0022	0.0024
57	0.2481	0.5170	3094	0.0003	0.0009	0.0014	0.0017	0.0021	0.0023
58	0.2489	0.5213	3042	0.0003	0.0010	0.0013	0.0017	0.0022	0.0025
59	0.2491	0.5201	3045	0.0003	0.0010	0.0013	0.0017	0.0022	0.0026
60	0.2486	0.5183	3069	0.0003	0.0008	0.0014	0.0016	0.0021	0.0025
61	0.2498	0.5190	3034	0.0003	0.0009	0.0014	0.0017	0.0020	0.0024
62	0.2513	0.5210	2986	0.0004	0.0010	0.0014	0.0018	0.0021	0.0026
63	0.2494	0.5197	3041	0.0004	0.0009	0.0015	0.0018	0.0021	0.0024
64	0.2486	0.5204	3056	0.0003	0.0008	0.0013	0.0016	0.0020	0.0024
65	0.2490	0.5195	3052	0.0004	0.0009	0.0014	0.0018	0.0022	0.0024
66	0.2476	0.5172	3105	0.0004	0.0009	0.0014	0.0021	0.0023	0.0025
67	0.2479	0.5195	3081	0.0004	0.0009	0.0014	0.0018	0.0022	0.0025
68	0.2478	0.5179	3094	0.0006	0.0010	0.0016	0.0019	0.0021	0.0026
69	0.2488	0.5185	3063	0.0003	0.0009	0.0014	0.0017	0.0019	0.0024
70	0.2481	0.5184	3082	0.0004	0.0009	0.0014	0.0016	0.0021	0.0025
71	0.2487	0.5196	3059	0.0004	0.0009	0.0014	0.0018	0.0022	0.0025
72	0.2496	0.5173	3051	0.0004	0.0009	0.0014	0.0016	0.0019	0.0023
73	0.2495	0.5181	3048	0.0004	0.0009	0.0014	0.0018	0.0020	0.0024
74	0.2498	0.5208	3023	0.0004	0.0010	0.0014	0.0018	0.0022	0.0025
75	0.2479	0.5210	3069	0.0004	0.0009	0.0014	0.0016	0.0022	0.0026
Avg.	0.2492	0.5195	3048	0.0004	0.0009	0.0014	0.0017	0.0021	0.0024
Med.	0.2490	0.5197	3051	0.0004	0.0009	0.0014	0.0018	0.0021	0.0024
st dev	0.0010	0.0013	31	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Min.	0.2476	0.5170	2986	0.0003	0.0008	0.0013	0.0016	0.0018	0.0020
Max.	0.2513	0.5213	3105	0.0006	0.0010	0.0016	0.0021	0.0023	0.0026

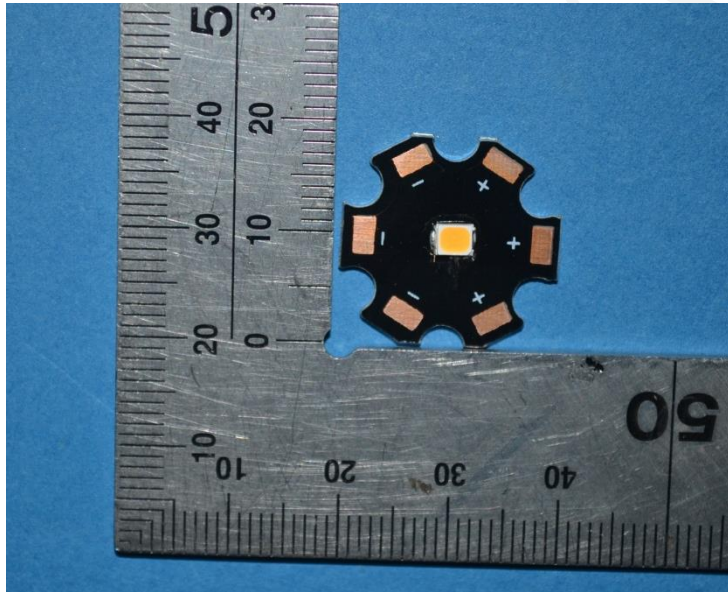
#### 4 - DUT Photo

##### 4.1 Mechanical Dimensions



All dimensions are in millimeter

##### 4.2 DUT Photo



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