



TEST REPORT

According to ANSI/IES LM-80-15
For

Shenzhen Runlite Technology Co.,Ltd

Building A15, Tantou the 4th Industrial Estate, SongGang Town, BaoAn District, ShenZhen, China

#Model: P28351-W27SJ2K0FD4D6-LX02

Report Type: 9000 Hours Test Report		Product Type: LED Package	
Test Engineer:	Pote Wang	<i>Pote Wang</i>	
Report Number:	RSZ180905532-10		
Test Date:	2018-09-06 to 2019-09-20		
Report Date:	2019-10-23		
Reviewed By:	Bill Xiong / EE Engineer	<i>Bill Xiong</i>	
Test Facility:	Test facility was located at No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China.		
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1 - General Information

1.1 Description of LED Light Sources

Sample Size:

50 PCS test samples were in good condition and received on 2018-09-05. The samples were numbered from 1 to 25 and 26 to 50.

#Manufacturer:	Shenzhen Runlite Technology Co.,Ltd
#Part Number:	P28351-W27SJ2K0FD4D6-LX02
#Part Type:	LED Package
#Drive Level:	DC 150mA
#Nominal CCT:	2700K
#Power:	1W
#Average Current Density per LED die:	830.36mA/mm ²
#Average Power Density per LED die:	2.49W/mm ²
#CRI:	80
#Die Spacing:	0.3mm

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.

#Family products covered by this report:

According to *ENERGY STAR® Requirements for the Use of LM-80 Data*, the following products can be covered by this report base on the information and declaration provided by manufacturer. The information of these models shows that the covered products meet all section 4 requirements of *ENERGY STAR® Requirements for the Use of LM-80 Data* (September 28, 2017)

This report covers the following models:

Model Name	Total Input Current (mA)	CCT (K)	Series	Parallel	Driver current per die (mA)	Current Density per Die (mA/mm ²)	Power Density per PCB (W/mm ²)	Die Spacing (mm)
P28351-W27SJ2K0FD4D6-LX02	150	2700	2	1	150	830.36	0.0918	0.3
X2835X-WXXXXXXXXXXXX-XXXX-AA	150	≥2200	2	1	150	830.36	0.0918	0.3
X2835X-WXXXXXXXXXXXX-XXXX-AB	150	≥2200	1	1	150	830.36	0.0459	NA
X2835X-WXXXXXXXXXXXX-XXXX-AC	300	≥2200	1	2	150	830.36	0.0918	0.3

Note:

Table "X" means internal code number, it can be Numbers or letters.

AA/AB/AC is not the part of our products code rules, we only use it to distinguish the parallel and series mode of the chip.

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
0.3m integrating sphere	EVERFINE	Diameter 0.3m	1011119	2019-03-08	2020-03-07
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	2019-03-08	2020-03-07
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	2019-03-08	2020-03-07
Standard Light Source	EVERFINE	D062	G100278CJ7351206	2018-12-24	2019-12-24
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987CJ7321114	2019-03-08	2020-03-07
Multilayer aging machine	BACL	B2-270	20023	2019-03-10	2020-03-09
DC Power Supply	BACL	B12001-12	90023	2019-01-07	2020-01-07

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 $\pm 3\%$ 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 \pm 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'. 2 π measurement was used and sample was driven by DC power supply. The forward current was regulated to within $\pm 0.5\%$ of the nominal value. The test system was calibrated by halogen reference lamp. The ambient temperature during test was set to 25°C \pm 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=2.5% (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=2.5 (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: 85°C, 150mA

Part Number: P28351-W27SJ2K0FD4D6-LX02
Number of Units: 25
Case Temperature: >83°C
Ambient Temperature: >80°C
Life Test Drive Current: 150mA
Measurement Current: 150mA

Data Set 2: 105°C, 150mA

Part Number: P28351-W27SJ2K0FD4D6-LX02
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	α	β	Reported TM-21 L ₇₀ Lifetime	Reported TM-21 L ₉₀ Lifetime
1	25	0	1000hrs	9000hrs	2.876E-06	1.003	>54000hrs	38,000hrs
2	25	0	1000hrs	9000hrs	4.024E-06	1.005	>54000hrs	27,000hrs

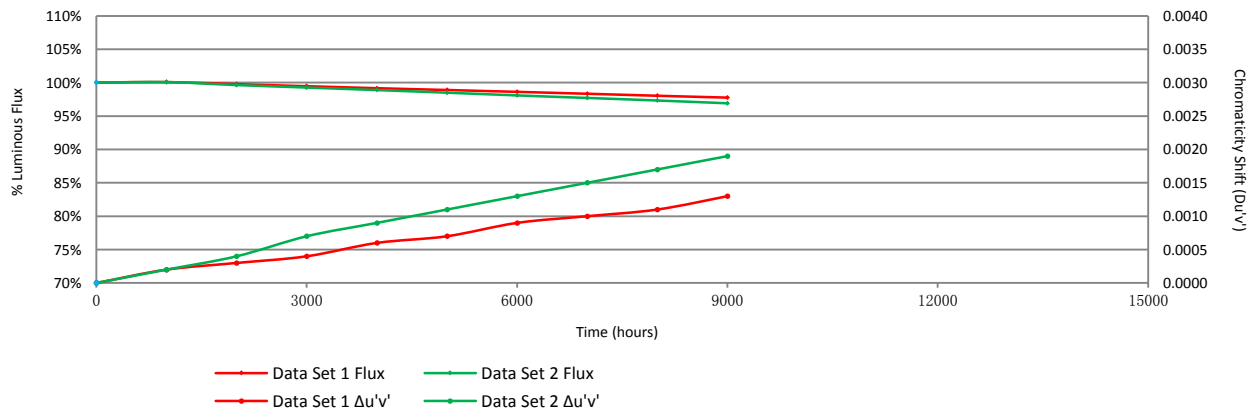
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	100.09%	99.77%	99.47%	99.17%	98.90%	98.62%	98.34%	98.04%	97.76%
2	100.08%	99.64%	99.27%	98.89%	98.50%	98.09%	97.71%	97.33%	96.91%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	0.0002	0.0003	0.0004	0.0006	0.0007	0.0009	0.0010	0.0011	0.0013
2	0.0002	0.0004	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019

Average Lumen Maintenance and Chromaticity Shift VS. Time



3 - Test Data

3.1 Data Set 1, 85°C, 150mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)								
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	127.3	100.08	99.84	99.37	99.06	98.82	98.59	98.35	97.96	97.72
2	130.1	100.08	99.77	99.54	99.23	99.00	98.69	98.39	98.23	97.92
3	125.6	100.16	99.76	99.60	99.12	98.89	98.65	98.33	98.09	97.77
4	129.0	100.08	99.84	99.53	99.22	98.84	98.60	98.29	97.98	97.75
5	130.0	100.15	99.69	99.46	99.15	98.92	98.69	98.46	98.15	97.85
6	130.4	100.08	99.92	99.69	99.39	99.00	98.85	98.54	98.16	97.85
7	129.3	100.08	99.92	99.54	99.15	98.92	98.61	98.38	98.14	97.91
8	130.4	100.15	99.85	99.54	99.23	99.08	98.70	98.47	98.08	97.78
9	130.4	100.08	99.77	99.46	99.23	98.93	98.54	98.16	97.93	97.70
10	129.6	100.15	99.85	99.46	99.15	98.92	98.61	98.23	97.84	97.45
11	127.1	100.08	99.76	99.45	99.29	98.98	98.74	98.51	98.19	97.80
12	128.8	100.08	99.92	99.69	99.38	99.22	98.91	98.68	98.45	98.14
13	130.8	100.00	99.62	99.31	99.01	98.70	98.39	98.09	97.78	97.55
14	126.4	100.08	99.76	99.53	99.21	98.81	98.50	98.10	97.78	97.47
15	126.8	100.08	99.68	99.37	98.97	98.82	98.50	98.11	97.71	97.40
16	128.6	100.16	99.61	99.46	99.22	98.99	98.68	98.37	98.06	97.90
17	124.9	100.08	99.84	99.44	99.12	98.88	98.80	98.56	98.32	98.00
18	126.2	100.08	99.76	99.37	99.13	98.89	98.49	98.26	97.94	97.70
19	122.7	100.00	99.76	99.51	99.19	98.86	98.61	98.37	97.96	97.64
20	123.6	100.08	99.76	99.60	99.27	98.87	98.62	98.46	98.30	98.14
21	128.0	100.08	99.77	99.38	99.06	98.83	98.59	98.36	98.05	97.81
22	122.3	100.16	99.59	99.26	99.02	98.61	98.36	98.12	97.79	97.55
23	126.2	100.16	99.52	99.21	98.89	98.65	98.42	98.10	97.70	97.39
24	128.6	100.08	99.84	99.53	99.22	99.14	98.76	98.44	98.21	97.90
25	128.8	100.08	99.84	99.53	99.22	98.99	98.60	98.37	98.14	97.83
Avg.	127.7	100.09	99.77	99.47	99.17	98.90	98.62	98.34	98.04	97.76
Med.	128.6	100.08	99.77	99.46	99.19	98.89	98.61	98.37	98.06	97.78
st dev	2.5	0.05	0.10	0.12	0.12	0.14	0.13	0.16	0.20	0.21
Min.	122.3	100.00	99.52	99.21	98.89	98.61	98.36	98.09	97.70	97.39
Max.	130.8	100.16	99.92	99.69	99.39	99.22	98.91	98.68	98.45	98.14

3.2 Data Set 1, 85°C, 150mA (Forward Voltage)

No.	Forward Voltage (V)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	6.394	6.375	6.349	6.362	6.407	6.375	6.407	6.375	6.420	6.407
2	6.393	6.412	6.348	6.419	6.361	6.412	6.419	6.348	6.406	6.374
3	6.388	6.356	6.356	6.401	6.407	6.407	6.401	6.401	6.407	6.414
4	6.396	6.422	6.377	6.364	6.415	6.409	6.422	6.364	6.377	6.409
5	6.381	6.400	6.349	6.362	6.336	6.362	6.336	6.362	6.336	6.349
6	6.403	6.358	6.429	6.384	6.358	6.429	6.416	6.416	6.429	6.371
7	6.434	6.389	6.402	6.447	6.389	6.453	6.415	6.453	6.453	6.447
8	6.428	6.409	6.409	6.396	6.383	6.409	6.409	6.383	6.409	6.409
9	6.416	6.429	6.384	6.429	6.384	6.397	6.435	6.397	6.435	6.435
10	6.403	6.422	6.422	6.422	6.384	6.384	6.371	6.358	6.371	6.422
11	6.431	6.450	6.386	6.386	6.444	6.450	6.412	6.444	6.444	6.386
12	6.431	6.444	6.399	6.457	6.399	6.412	6.444	6.450	6.386	6.412
13	6.387	6.413	6.400	6.355	6.368	6.368	6.355	6.368	6.342	6.413
14	6.384	6.365	6.352	6.339	6.410	6.410	6.410	6.397	6.365	6.365
15	6.373	6.354	6.392	6.341	6.341	6.386	6.354	6.354	6.341	6.392
16	6.364	6.377	6.319	6.377	6.319	6.383	6.389	6.389	6.389	6.383
17	6.373	6.354	6.328	6.398	6.328	6.354	6.398	6.398	6.328	6.392
18	6.368	6.387	6.381	6.393	6.336	6.393	6.349	6.323	6.323	6.349
19	6.335	6.291	6.360	6.316	6.360	6.354	6.316	6.303	6.291	6.348
20	6.367	6.322	6.386	6.380	6.322	6.380	6.386	6.386	6.348	6.348
21	6.335	6.354	6.316	6.360	6.348	6.360	6.291	6.316	6.316	6.348
22	6.329	6.285	6.310	6.354	6.297	6.297	6.354	6.285	6.348	6.385
23	6.398	6.417	6.424	6.379	6.417	6.353	6.379	6.424	6.366	6.353
24	6.382	6.363	6.350	6.363	6.337	6.408	6.395	6.401	6.395	6.363
25	6.403	6.371	6.358	6.416	6.429	6.358	6.384	6.358	6.358	6.429
Avg.	6.388	6.381	6.371	6.384	6.371	6.388	6.386	6.378	6.375	6.388
Med.	6.388	6.377	6.377	6.380	6.368	6.386	6.395	6.383	6.371	6.386
st dev	0.029	0.043	0.034	0.034	0.039	0.034	0.037	0.043	0.043	0.031
Min.	6.329	6.285	6.310	6.316	6.297	6.297	6.291	6.285	6.291	6.348
Max.	6.434	6.450	6.429	6.457	6.444	6.453	6.444	6.453	6.453	6.447

3.3 Data Set 1, 85°C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)								
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	0.2594	0.5267	2768	0.0002	0.0004	0.0004	0.0006	0.0008	0.0010	0.0011	0.0012	0.0013
2	0.2571	0.5278	2813	0.0002	0.0004	0.0004	0.0006	0.0008	0.0010	0.0011	0.0013	0.0015
3	0.2609	0.5266	2737	0.0001	0.0002	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0010
4	0.2586	0.5251	2793	0.0002	0.0002	0.0002	0.0004	0.0006	0.0007	0.0010	0.0011	0.0013
5	0.2578	0.5250	2812	0.0002	0.0004	0.0006	0.0006	0.0008	0.0009	0.0009	0.0011	0.0013
6	0.2593	0.5267	2770	0.0003	0.0003	0.0004	0.0006	0.0006	0.0009	0.0010	0.0011	0.0012
7	0.2612	0.5263	2731	0.0001	0.0003	0.0005	0.0007	0.0007	0.0009	0.0009	0.0010	0.0011
8	0.2585	0.5271	2786	0.0003	0.0006	0.0006	0.0008	0.0010	0.0012	0.0015	0.0016	0.0016
9	0.2593	0.5278	2765	0.0002	0.0003	0.0004	0.0006	0.0007	0.0007	0.0008	0.0011	0.0012
10	0.2603	0.5265	2751	0.0001	0.0002	0.0004	0.0004	0.0004	0.0004	0.0006	0.0006	0.0008
11	0.2616	0.5239	2733	0.0002	0.0005	0.0006	0.0008	0.0010	0.0011	0.0013	0.0013	0.0015
12	0.2587	0.5249	2791	0.0001	0.0004	0.0005	0.0008	0.0010	0.0013	0.0016	0.0017	0.0019
13	0.2558	0.5275	2843	0.0001	0.0003	0.0004	0.0006	0.0007	0.0008	0.0009	0.0011	0.0013
14	0.2616	0.5249	2728	0.0002	0.0004	0.0007	0.0009	0.0010	0.0012	0.0013	0.0013	0.0015
15	0.2604	0.5266	2747	0.0001	0.0003	0.0004	0.0006	0.0008	0.0010	0.0011	0.0011	0.0012
16	0.2584	0.5254	2796	0.0001	0.0004	0.0004	0.0006	0.0007	0.0008	0.0008	0.0008	0.0010
17	0.2616	0.5275	2717	0.0002	0.0004	0.0006	0.0008	0.0009	0.0011	0.0013	0.0013	0.0014
18	0.2605	0.5241	2755	0.0002	0.0002	0.0003	0.0005	0.0007	0.0007	0.0008	0.0010	0.0011
19	0.2612	0.5256	2735	0.0001	0.0003	0.0004	0.0005	0.0007	0.0009	0.0010	0.0013	0.0014
20	0.2592	0.5251	2780	0.0002	0.0003	0.0005	0.0006	0.0006	0.0007	0.0009	0.0010	0.0012
21	0.2587	0.5242	2794	0.0002	0.0004	0.0006	0.0006	0.0008	0.0009	0.0010	0.0013	0.0016
22	0.2579	0.5257	2806	0.0000	0.0001	0.0002	0.0004	0.0004	0.0006	0.0007	0.0008	0.0009
23	0.2598	0.5271	2757	0.0002	0.0003	0.0004	0.0007	0.0010	0.0010	0.0011	0.0013	0.0013
24	0.2580	0.5278	2793	0.0001	0.0002	0.0003	0.0004	0.0005	0.0007	0.0009	0.0011	0.0013
25	0.2582	0.5257	2798	0.0001	0.0002	0.0003	0.0004	0.0005	0.0007	0.0009	0.0011	0.0012
Avg.	0.2594	0.5261	2772	0.0002	0.0003	0.0004	0.0006	0.0007	0.0009	0.0010	0.0011	0.0013
Med.	0.2593	0.5263	2770	0.0002	0.0003	0.0004	0.0006	0.0007	0.0009	0.0010	0.0011	0.0013
st dev	0.0015	0.0012	32	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Min.	0.2558	0.5239	2717	0.0000	0.0001	0.0002	0.0004	0.0004	0.0004	0.0006	0.0006	0.0008
Max.	0.2616	0.5278	2843	0.0003	0.0006	0.0007	0.0009	0.0010	0.0013	0.0016	0.0017	0.0019

3.4 Data Set 2, 105°C, 150mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)								
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	126.5	100.08	99.76	99.29	98.89	98.50	98.02	97.71	97.47	96.92
27	123.2	100.16	99.43	99.19	98.86	98.38	97.97	97.48	97.16	96.75
28	121.4	100.00	99.59	99.09	98.60	98.19	97.69	97.36	96.95	96.29
29	127.4	100.08	99.53	99.06	98.74	98.19	97.80	97.49	97.17	96.86
30	128.5	99.92	99.53	99.14	98.75	98.52	98.13	97.67	97.28	96.96
31	126.9	100.08	99.76	99.37	99.05	98.74	98.42	98.11	97.64	97.16
32	128.2	100.08	99.61	99.38	98.99	98.60	98.13	97.74	97.19	96.72
33	127.6	100.00	99.76	99.53	99.14	98.75	98.35	97.96	97.49	97.18
34	125.4	100.08	99.68	99.36	99.04	98.48	98.09	97.61	97.29	97.05
35	122.8	100.16	99.76	99.51	99.19	98.86	98.37	97.80	97.31	96.99
36	127.9	100.00	99.45	98.98	98.59	98.28	97.89	97.50	97.26	96.79
37	128.1	100.08	99.53	99.14	98.59	98.20	97.81	97.42	97.03	96.49
38	129.9	100.08	99.69	99.31	98.85	98.46	98.08	97.69	97.38	96.84
39	124.7	100.16	99.68	99.36	98.96	98.48	98.16	97.75	97.43	96.95
40	129.5	100.08	99.77	99.38	99.07	98.61	98.07	97.84	97.45	97.07
41	125.9	100.08	99.84	99.44	99.13	98.89	98.41	98.01	97.62	97.14
42	121.5	100.08	99.59	99.26	98.85	98.52	98.02	97.61	97.28	96.95
43	129.5	100.08	99.77	99.38	99.07	98.46	97.99	97.61	97.14	96.68
44	123.7	100.16	99.51	99.11	98.79	98.30	97.98	97.74	97.17	96.69
45	119.7	100.25	99.67	99.50	99.16	98.83	98.33	97.91	97.49	96.99
46	123.5	100.08	99.76	99.51	99.03	98.87	98.54	98.14	97.81	97.33
47	129.1	100.08	99.61	99.23	98.92	98.61	98.14	97.68	97.37	97.06
48	127.4	100.08	99.37	98.90	98.43	98.12	97.72	97.49	97.17	96.78
49	129.9	100.00	99.62	99.15	98.77	98.31	98.08	97.61	97.38	97.00
50	130.4	100.15	99.69	99.23	98.85	98.39	98.01	97.70	97.39	97.01
Avg.	126.3	100.08	99.64	99.27	98.89	98.50	98.09	97.71	97.33	96.91
Med.	127.4	100.08	99.67	99.29	98.89	98.48	98.08	97.69	97.31	96.95
st dev	3.0	0.07	0.12	0.17	0.20	0.23	0.22	0.20	0.20	0.23
Min.	119.7	99.92	99.37	98.90	98.43	98.12	97.69	97.36	96.95	96.29
Max.	130.4	100.25	99.84	99.53	99.19	98.89	98.54	98.14	97.81	97.33

3.5 Data Set 2, 105°C, 150mA (Forward Voltage)

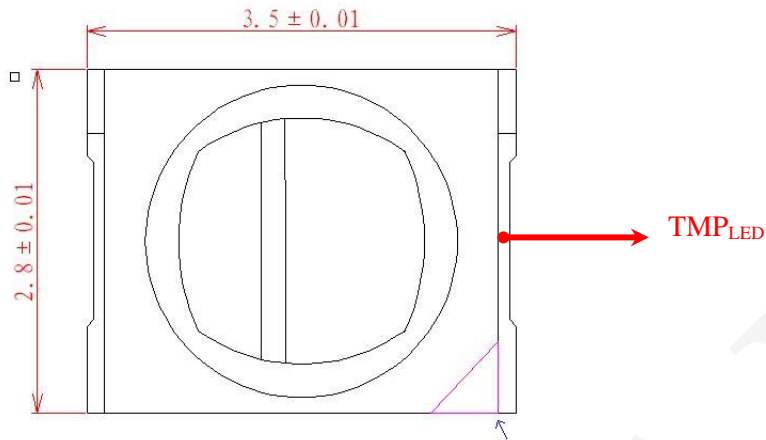
No.	Forward Voltage (V)									
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	6.379	6.347	6.398	6.360	6.405	6.334	6.347	6.347	6.334	6.392
27	6.358	6.383	6.377	6.326	6.371	6.339	6.313	6.313	6.326	6.313
28	6.447	6.415	6.402	6.473	6.428	6.466	6.428	6.402	6.466	6.402
29	6.434	6.415	6.402	6.453	6.453	6.415	6.415	6.447	6.460	6.453
30	6.444	6.470	6.463	6.412	6.470	6.412	6.399	6.457	6.425	6.399
31	6.395	6.408	6.421	6.421	6.363	6.421	6.376	6.414	6.414	6.376
32	6.417	6.436	6.443	6.398	6.385	6.372	6.443	6.372	6.385	6.385
33	6.416	6.384	6.435	6.397	6.397	6.384	6.371	6.384	6.435	6.435
34	6.415	6.441	6.396	6.441	6.434	6.434	6.441	6.370	6.396	6.396
35	6.421	6.434	6.376	6.376	6.447	6.440	6.440	6.389	6.434	6.389
36	6.390	6.358	6.409	6.371	6.358	6.345	6.416	6.358	6.409	6.409
37	6.405	6.360	6.373	6.360	6.431	6.373	6.373	6.431	6.386	6.386
38	6.407	6.433	6.362	6.375	6.388	6.388	6.388	6.388	6.362	6.433
39	6.362	6.343	6.375	6.387	6.381	6.317	6.387	6.343	6.381	6.330
40	6.362	6.387	6.381	6.343	6.387	6.387	6.375	6.387	6.330	6.381
41	6.367	6.348	6.322	6.348	6.386	6.380	6.322	6.348	6.386	6.335
42	6.385	6.404	6.404	6.411	6.366	6.353	6.404	6.353	6.353	6.353
43	6.369	6.350	6.324	6.394	6.324	6.324	6.382	6.394	6.350	6.394
44	6.378	6.359	6.391	6.346	6.397	6.404	6.359	6.397	6.404	6.359
45	6.416	6.371	6.384	6.384	6.429	6.429	6.371	6.435	6.429	6.371
46	6.368	6.387	6.387	6.349	6.393	6.336	6.381	6.336	6.349	6.387
47	6.375	6.394	6.343	6.330	6.401	6.330	6.401	6.356	6.330	6.330
48	6.367	6.322	6.322	6.348	6.392	6.392	6.380	6.380	6.380	6.335
49	6.343	6.311	6.324	6.362	6.311	6.299	6.362	6.356	6.356	6.368
50	6.397	6.410	6.378	6.423	6.365	6.410	6.352	6.378	6.410	6.352
Avg.	6.393	6.387	6.384	6.384	6.394	6.379	6.385	6.381	6.388	6.379
Med.	6.390	6.387	6.384	6.376	6.392	6.384	6.381	6.380	6.386	6.385
st dev	0.028	0.040	0.037	0.039	0.038	0.044	0.034	0.036	0.041	0.035
Min.	6.343	6.311	6.322	6.326	6.311	6.299	6.313	6.313	6.326	6.313
Max.	6.447	6.470	6.463	6.473	6.470	6.466	6.443	6.457	6.466	6.453

3.6 Data Set 2, 105°C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)								
	Ohr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	0.2597	0.5252	2770	0.0001	0.0004	0.0005	0.0008	0.0011	0.0015	0.0017	0.0018	0.0021
27	0.2595	0.5204	2795	0.0002	0.0005	0.0008	0.0010	0.0011	0.0016	0.0019	0.0021	0.0023
28	0.2590	0.5241	2789	0.0003	0.0005	0.0007	0.0007	0.0011	0.0012	0.0015	0.0017	0.0019
29	0.2584	0.5238	2803	0.0004	0.0007	0.0011	0.0013	0.0016	0.0021	0.0023	0.0027	0.0029
30	0.2588	0.5248	2790	0.0003	0.0006	0.0009	0.0011	0.0011	0.0014	0.0014	0.0015	0.0015
31	0.2586	0.5241	2798	0.0003	0.0004	0.0005	0.0005	0.0006	0.0008	0.0009	0.0010	0.0011
32	0.2592	0.5261	2776	0.0000	0.0003	0.0003	0.0006	0.0008	0.0010	0.0012	0.0016	0.0018
33	0.2559	0.5282	2838	0.0003	0.0006	0.0009	0.0012	0.0015	0.0018	0.0021	0.0023	0.0025
34	0.2605	0.5258	2748	0.0004	0.0007	0.0007	0.0009	0.0012	0.0015	0.0018	0.0019	0.0021
35	0.2577	0.5237	2819	0.0001	0.0003	0.0006	0.0008	0.0009	0.0011	0.0015	0.0016	0.0016
36	0.2561	0.5234	2856	0.0003	0.0006	0.0010	0.0014	0.0016	0.0017	0.0018	0.0020	0.0021
37	0.2600	0.5247	2763	0.0003	0.0006	0.0009	0.0012	0.0015	0.0017	0.0017	0.0021	0.0023
38	0.2588	0.5252	2788	0.0004	0.0006	0.0009	0.0011	0.0012	0.0013	0.0016	0.0017	0.0021
39	0.2588	0.5259	2785	0.0000	0.0002	0.0003	0.0005	0.0005	0.0008	0.0009	0.0010	0.0011
40	0.2583	0.5275	2790	0.0003	0.0004	0.0007	0.0008	0.0010	0.0013	0.0016	0.0019	0.0021
41	0.2586	0.5234	2800	0.0000	0.0003	0.0006	0.0006	0.0010	0.0012	0.0013	0.0014	0.0016
42	0.2573	0.5246	2824	0.0001	0.0004	0.0007	0.0008	0.0011	0.0013	0.0013	0.0014	0.0016
43	0.2573	0.5264	2816	0.0002	0.0005	0.0008	0.0009	0.0012	0.0012	0.0015	0.0015	0.0018
44	0.2582	0.5235	2810	0.0004	0.0006	0.0008	0.0009	0.0011	0.0014	0.0017	0.0017	0.0019
45	0.2594	0.5252	2774	0.0002	0.0003	0.0004	0.0008	0.0008	0.0009	0.0010	0.0014	0.0017
46	0.2596	0.5256	2768	0.0001	0.0001	0.0004	0.0005	0.0008	0.0012	0.0012	0.0015	0.0019
47	0.2585	0.5248	2797	0.0003	0.0003	0.0005	0.0009	0.0010	0.0010	0.0012	0.0012	0.0012
48	0.2610	0.5259	2738	0.0002	0.0004	0.0004	0.0006	0.0009	0.0011	0.0015	0.0018	0.0019
49	0.2583	0.5264	2794	0.0002	0.0004	0.0006	0.0008	0.0008	0.0008	0.0011	0.0015	0.0019
50	0.2565	0.5256	2836	0.0002	0.0004	0.0008	0.0010	0.0011	0.0012	0.0015	0.0017	0.0018
Avg.	0.2586	0.5250	2795	0.0002	0.0004	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019
Med.	0.2586	0.5252	2794	0.0002	0.0004	0.0007	0.0008	0.0011	0.0012	0.0015	0.0017	0.0019
st dev	0.0013	0.0016	28	0.0001	0.0002	0.0002	0.0002	0.0003	0.0003	0.0004	0.0004	0.0004
Min.	0.2559	0.5204	2738	0.0000	0.0001	0.0003	0.0005	0.0005	0.0008	0.0009	0.0010	0.0011
Max.	0.2610	0.5282	2856	0.0004	0.0007	0.0011	0.0014	0.0016	0.0021	0.0023	0.0027	0.0029

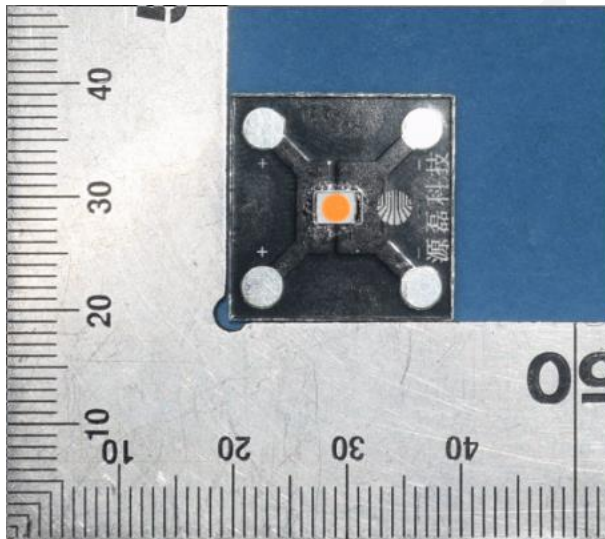
4 - DUT Photo

4.1 #Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



Directions

1. The information marked # is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
3. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.
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*****END OF REPORT*****