



TEST REPORT

According to ANSI/IES LM-80-15
For

Lumileds Holding B.V.

370 W. Trimble Road, San Jose, CA 95131, USA

#Model: L128- 2770RB35000A1

Report Type: 9000 Hours Test Report		Product Type: LED Package	
Reviewed By:	Pote Wang 		
Report Number:	R2DG201104050-10		
Test Date:	2019-09-20 to 2020-10-10		
Report Date:	2020-11-04		
Approved by:	Blake Zhang / EE Engineer		
Test Facility:	Test facility was located at No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China.		
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Accreditation:	The IAS Accreditation Number TL-460.		

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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 2019-09-16. The samples were numbered from 1 to 25 and 26 to 50.

#Manufacturer:	Lumileds Holding B.V.
#Part Number:	L128- 2770RB35000A1
#Part Type:	LED Package
#Drive Level:	DC 150mA
#Nominal CCT:	2700K
#Power:	1W
#Average Current Density per LED die:	930mA/mm ²
#Average Power Density per LED die:	3.9767W/mm ²
#CRI:	70
#Die Spacing:	0.15mm

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:

Tested model	Multiple model	Total Input Current (mA)	Power (W)	CCT (K)	Number of dies	Driver current per die (mA)	Current Density per Die (mA/mm ²)	Power Density per PCB (W/mm ²)	Die Spacing (mm)
L128-2770RB35000A1	L128-xxxxRB3500xxx	150	1	2200-6500	2	150	930	0.102	0.15

NOTES:

- The first and second "x" denote designates nominal CCT (27=2700K, 30=3000K, 35=3500K, 40=4000K, 45=4500K, 50=5000K, 57=5700K, 60=6000K, 65=6500K).
- The third and fourth "x" represent the internal code.
- The last three "x" denote designates= Lumileds internal codes (0A1, 0B1, 0C1, etc.=shares the same base part).

Note:

- The applicant Lumileds Holding B.V. declare that their products with model L128- 2770RB35000A1 are the same to the products in report#R2DG190916070-10-9000 and is authorized by original applicant to use their test data.
- All the data in previous report (R2DG190916070-10-9000) is shared in this report.

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
0.5m integrating sphere	EVERFINE	AIS-2	G185304TA1381172	2019-10-22	2020-10-21
LED Test Source	EVERFINE	LTS-300	P185616CD1371113	2020-07-23	2021-07-22
High Accuracy Array Spectroradiometer	EVERFINE	HAAS-2000	P600674CM1381123	2019-10-22	2020-10-21
Standard Light Source	EVERFINE	D062	1011093	2019-11-19	2020-11-18
Multilayer aging machine	BACL	B2-270	20015	2020-03-11	2021-03-10
Programmable D.C. power supply	Xinnuoer	ATP-5005	N/A	2020-07-01	2021-06-30

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 $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$, 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 $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$, 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: 85°C, 150mA

Part Number: L128- 2770RB35000A1
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: L128- 2770RB35000A1
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
1	25	0	1000hrs	9000hrs	2.510E-06	1.004	>54000 hours
2	25	0	1000hrs	9000hrs	2.949E-06	1.002	>54000 hours

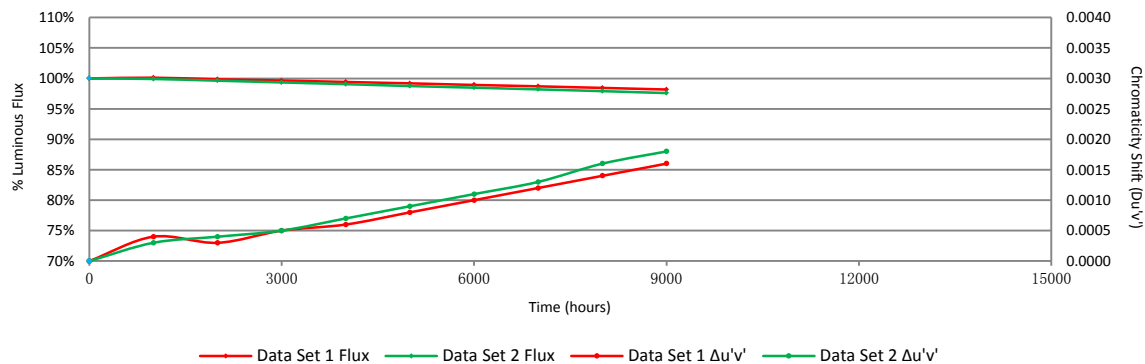
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	100.12%	99.86%	99.66%	99.42%	99.19%	98.93%	98.70%	98.44%	98.18%
2	99.91%	99.63%	99.34%	99.06%	98.75%	98.48%	98.20%	97.91%	97.59%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	0.0004	0.0003	0.0005	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016
2	0.0003	0.0004	0.0005	0.0007	0.0009	0.0011	0.0013	0.0016	0.0018

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 (%)								
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	144.80	100.35	100.14	99.79	99.65	99.45	99.24	99.03	98.90	98.55
2	145.80	100.34	99.86	99.73	99.52	99.38	99.18	98.97	98.63	98.29
3	146.10	100.21	99.86	99.66	99.52	99.25	99.04	98.90	98.70	98.49
4	141.50	100.14	99.93	99.79	99.65	99.36	99.01	98.66	98.37	98.23
5	145.30	99.93	99.79	99.45	99.31	98.97	98.62	98.42	98.07	97.80
6	143.00	99.72	99.58	99.37	99.16	99.02	98.74	98.39	98.25	98.11
7	146.40	99.73	99.45	99.11	98.91	98.70	98.36	98.16	97.81	97.61
8	143.60	99.93	99.58	99.37	99.03	98.82	98.54	98.33	97.98	97.63
9	143.20	100.14	99.86	99.65	99.30	99.16	98.95	98.74	98.60	98.32
10	144.80	100.21	99.86	99.65	99.45	99.31	99.17	98.96	98.76	98.55
11	144.10	100.14	99.86	99.65	99.44	99.10	98.75	98.54	98.20	97.85
12	144.70	100.28	99.93	99.79	99.59	99.45	99.10	98.96	98.62	98.41
13	145.20	100.07	99.86	99.59	99.24	99.04	98.69	98.42	98.21	97.87
14	145.40	100.14	99.86	99.52	99.31	99.04	98.76	98.56	98.35	98.14
15	144.30	100.14	99.86	99.72	99.45	99.31	99.10	98.96	98.68	98.34
16	144.50	100.21	99.93	99.79	99.52	99.31	99.17	98.89	98.62	98.34
17	144.10	100.14	99.93	99.79	99.58	99.24	98.96	98.61	98.47	98.13
18	144.50	100.07	99.86	99.72	99.58	99.38	99.10	98.96	98.62	98.27
19	144.10	100.21	99.93	99.79	99.58	99.24	99.10	98.89	98.54	98.33
20	144.00	100.21	100.07	99.86	99.51	99.24	98.89	98.61	98.33	98.13
21	144.30	100.07	99.79	99.58	99.31	99.03	98.68	98.41	98.20	97.92
22	144.80	100.28	100.14	99.93	99.65	99.38	99.24	98.96	98.62	98.27
23	144.40	100.28	99.93	99.86	99.65	99.45	99.10	98.96	98.75	98.61
24	144.40	100.14	99.86	99.72	99.45	99.31	99.03	98.68	98.48	98.20
25	144.50	99.86	99.65	99.52	99.24	98.96	98.75	98.41	98.27	98.06
Avg.	144.47	100.12	99.86	99.66	99.42	99.19	98.93	98.70	98.44	98.18
Med.	144.50	100.14	99.86	99.72	99.45	99.24	99.01	98.68	98.48	98.23
st dev	1.01	0.17	0.16	0.19	0.20	0.20	0.24	0.26	0.27	0.27
Min.	141.50	99.72	99.45	99.11	98.91	98.70	98.36	98.16	97.81	97.61
Max.	146.40	100.35	100.14	99.93	99.65	99.45	99.24	99.03	98.90	98.61

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

No.	Forward Voltage (V)									
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	6.302	6.299	6.304	6.307	6.307	6.302	6.304	6.306	6.303	6.303
2	6.343	6.330	6.345	6.344	6.350	6.349	6.350	6.352	6.353	6.346
3	6.291	6.286	6.292	6.297	6.293	6.301	6.296	6.301	6.298	6.295
4	6.274	6.262	6.275	6.277	6.276	6.276	6.280	6.274	6.281	6.283
5	6.277	6.259	6.284	6.285	6.278	6.283	6.286	6.284	6.280	6.284
6	6.359	6.352	6.359	6.367	6.361	6.369	6.361	6.360	6.361	6.364
7	6.267	6.257	6.273	6.270	6.272	6.268	6.272	6.270	6.270	6.271
8	6.288	6.280	6.295	6.296	6.288	6.294	6.291	6.293	6.297	6.297
9	6.402	6.373	6.410	6.403	6.411	6.404	6.406	6.408	6.404	6.409
10	6.265	6.262	6.269	6.268	6.269	6.266	6.270	6.272	6.272	6.270
11	6.353	6.343	6.353	6.360	6.354	6.361	6.355	6.356	6.355	6.360
12	6.286	6.293	6.287	6.288	6.288	6.295	6.291	6.293	6.294	6.290
13	6.291	6.279	6.300	6.292	6.301	6.292	6.297	6.295	6.299	6.301
14	6.272	6.332	6.282	6.276	6.275	6.272	6.274	6.274	6.278	6.278
15	6.400	6.382	6.409	6.404	6.404	6.403	6.404	6.402	6.404	6.401
16	6.278	6.271	6.284	6.280	6.280	6.280	6.280	6.282	6.287	6.281
17	6.301	6.289	6.306	6.303	6.303	6.311	6.305	6.303	6.302	6.303
18	6.296	6.288	6.305	6.305	6.303	6.305	6.302	6.303	6.306	6.299
19	6.365	6.354	6.374	6.374	6.365	6.373	6.370	6.369	6.373	6.368
20	6.286	6.282	6.296	6.288	6.295	6.286	6.289	6.289	6.287	6.291
21	6.314	6.317	6.318	6.315	6.315	6.314	6.322	6.320	6.323	6.320
22	6.357	6.358	6.359	6.358	6.358	6.361	6.361	6.362	6.365	6.366
23	6.276	6.275	6.277	6.276	6.277	6.278	6.279	6.284	6.279	6.285
24	6.286	6.283	6.291	6.293	6.292	6.294	6.294	6.287	6.294	6.286
25	6.276	6.267	6.280	6.277	6.277	6.278	6.280	6.284	6.285	6.283
Avg.	6.308	6.303	6.313	6.312	6.312	6.313	6.313	6.313	6.314	6.313
Med.	6.291	6.288	6.296	6.296	6.295	6.295	6.296	6.295	6.298	6.297
st dev	0.042	0.039	0.042	0.042	0.042	0.042	0.041	0.041	0.041	0.041
Min.	6.265	6.257	6.269	6.268	6.269	6.266	6.270	6.270	6.270	6.270
Max.	6.402	6.382	6.410	6.404	6.411	6.404	6.406	6.408	6.404	6.409

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	0.2646	0.5252	2666	0.0003	0.0001	0.0002	0.0006	0.0008	0.0011	0.0014	0.0015	0.0016
2	0.2631	0.5259	2694	0.0004	0.0004	0.0007	0.0007	0.0011	0.0014	0.0015	0.0016	0.0017
3	0.2634	0.5233	2698	0.0004	0.0001	0.0004	0.0005	0.0006	0.0008	0.0009	0.0013	0.0015
4	0.2628	0.5259	2699	0.0003	0.0003	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0015
5	0.2621	0.5234	2725	0.0004	0.0004	0.0002	0.0003	0.0005	0.0005	0.0006	0.0011	0.0013
6	0.2653	0.5255	2649	0.0004	0.0004	0.0006	0.0006	0.0009	0.0011	0.0015	0.0017	0.0018
7	0.2641	0.5260	2673	0.0004	0.0003	0.0003	0.0005	0.0008	0.0010	0.0013	0.0013	0.0016
8	0.2659	0.5258	2636	0.0002	0.0004	0.0004	0.0006	0.0008	0.0009	0.0012	0.0016	0.0020
9	0.2640	0.5234	2684	0.0003	0.0004	0.0007	0.0009	0.0011	0.0014	0.0016	0.0018	0.0020
10	0.2648	0.5247	2663	0.0003	0.0001	0.0004	0.0004	0.0007	0.0009	0.0011	0.0013	0.0016
11	0.2638	0.5232	2690	0.0004	0.0004	0.0007	0.0010	0.0011	0.0015	0.0018	0.0020	0.0021
12	0.2635	0.5242	2691	0.0005	0.0005	0.0007	0.0007	0.0010	0.0012	0.0012	0.0016	0.0018
13	0.2648	0.5275	2652	0.0003	0.0002	0.0004	0.0006	0.0008	0.0008	0.0012	0.0013	0.0016
14	0.2637	0.5242	2687	0.0002	0.0002	0.0003	0.0005	0.0008	0.0009	0.0011	0.0011	0.0014
15	0.2634	0.5255	2689	0.0002	0.0003	0.0006	0.0008	0.0010	0.0011	0.0014	0.0018	0.0021
16	0.2632	0.5257	2691	0.0003	0.0003	0.0001	0.0001	0.0001	0.0001	0.0002	0.0004	0.0007
17	0.2646	0.5244	2667	0.0004	0.0003	0.0005	0.0008	0.0011	0.0012	0.0014	0.0015	0.0015
18	0.2654	0.5271	2641	0.0003	0.0003	0.0002	0.0001	0.0004	0.0007	0.0009	0.0011	0.0013
19	0.2645	0.5246	2669	0.0002	0.0003	0.0004	0.0005	0.0008	0.0010	0.0011	0.0015	0.0019
20	0.2646	0.5258	2663	0.0004	0.0004	0.0005	0.0006	0.0007	0.0010	0.0013	0.0017	0.0019
21	0.2637	0.5236	2690	0.0004	0.0006	0.0004	0.0007	0.0007	0.0009	0.0009	0.0012	0.0014
22	0.2640	0.5263	2674	0.0004	0.0003	0.0002	0.0004	0.0005	0.0009	0.0010	0.0012	0.0013
23	0.2647	0.5270	2657	0.0003	0.0000	0.0004	0.0007	0.0010	0.0011	0.0014	0.0017	0.0019
24	0.2634	0.5256	2688	0.0004	0.0006	0.0008	0.0007	0.0009	0.0012	0.0013	0.0015	0.0016
25	0.2642	0.5252	2674	0.0005	0.0006	0.0005	0.0008	0.0010	0.0012	0.0013	0.0016	0.0018
Avg.	0.2641	0.5252	2676	0.0004	0.0003	0.0005	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016
Med.	0.2640	0.5255	2674	0.0004	0.0003	0.0004	0.0006	0.0008	0.0010	0.0012	0.0015	0.0016
st dev	0.0009	0.0012	21	0.0001	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003
Min.	0.2621	0.5232	2636	0.0002	0.0000	0.0001	0.0001	0.0001	0.0001	0.0002	0.0004	0.0007
Max.	0.2659	0.5275	2725	0.0005	0.0006	0.0008	0.0010	0.0011	0.0015	0.0018	0.0020	0.0021

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

No.	Φ(lm)	Lumen Maintenance (%)								
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	143.20	100.21	99.86	99.58	99.23	98.88	98.74	98.53	98.25	98.04
27	145.30	99.72	99.38	99.04	98.76	98.42	98.21	98.00	97.80	97.59
28	143.80	99.72	99.37	99.17	98.96	98.54	98.26	98.12	97.98	97.64
29	143.40	99.79	99.65	99.23	98.95	98.54	98.33	97.91	97.49	97.21
30	144.50	99.65	99.45	99.17	99.03	98.62	98.34	98.13	97.72	97.30
31	144.50	100.07	99.93	99.72	99.38	99.10	98.89	98.75	98.55	98.34
32	144.00	99.86	99.51	99.24	99.10	98.82	98.47	98.19	98.06	97.64
33	144.20	99.93	99.65	99.24	98.89	98.75	98.40	98.13	97.85	97.50
34	144.70	99.86	99.65	99.24	98.83	98.41	98.13	97.86	97.58	97.24
35	144.10	99.86	99.51	99.17	99.03	98.82	98.61	98.40	98.20	97.92
36	143.70	100.07	99.72	99.44	99.30	98.96	98.68	98.40	98.19	97.77
37	144.30	99.93	99.51	99.17	98.82	98.68	98.41	98.20	97.85	97.57
38	144.30	99.93	99.79	99.38	99.24	99.03	98.61	98.27	97.92	97.71
39	143.80	99.79	99.51	99.30	98.96	98.61	98.47	98.05	97.91	97.71
40	145.70	99.86	99.73	99.45	99.04	98.63	98.22	97.94	97.60	97.25
41	145.10	99.79	99.66	99.31	98.90	98.76	98.55	98.14	97.73	97.38
42	143.90	99.79	99.44	99.24	98.96	98.61	98.26	97.92	97.57	97.15
43	143.50	99.93	99.58	99.44	99.02	98.68	98.47	98.12	97.70	97.35
44	145.10	99.72	99.38	99.17	98.90	98.48	98.14	98.00	97.73	97.38
45	143.90	99.93	99.51	99.24	98.82	98.61	98.47	98.05	97.71	97.29
46	143.10	100.07	99.65	99.37	99.23	99.02	98.74	98.39	98.18	97.76
47	144.20	99.86	99.72	99.31	99.03	98.68	98.54	98.20	97.92	97.57
48	144.50	100.14	99.86	99.65	99.38	98.96	98.62	98.34	97.92	97.58
49	145.30	100.07	99.86	99.72	99.38	99.11	98.76	98.49	98.21	97.94
50	145.00	100.21	99.86	99.52	99.31	98.97	98.69	98.41	98.21	97.93
Avg.	144.28	99.91	99.63	99.34	99.06	98.75	98.48	98.20	97.91	97.59
Med.	144.20	99.86	99.65	99.30	99.03	98.68	98.47	98.14	97.91	97.58
st dev	0.69	0.15	0.17	0.19	0.19	0.21	0.21	0.22	0.26	0.30
Min.	143.10	99.65	99.37	99.04	98.76	98.41	98.13	97.86	97.49	97.15
Max.	145.70	100.21	99.93	99.72	99.38	99.11	98.89	98.75	98.55	98.34

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

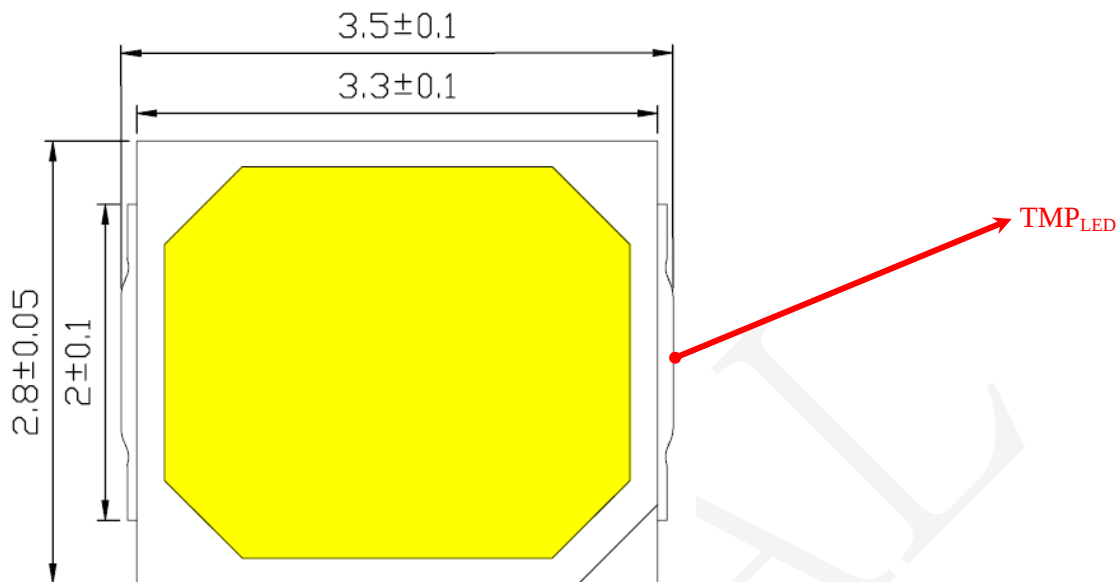
No.	Forward Voltage (V)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	6.328	6.321	6.337	6.335	6.337	6.329	6.328	6.336	6.336	6.330
27	6.261	6.260	6.267	6.261	6.265	6.269	6.270	6.267	6.265	6.261
28	6.334	6.332	6.342	6.337	6.343	6.343	6.334	6.342	6.339	6.343
29	6.278	6.274	6.282	6.282	6.278	6.279	6.281	6.282	6.280	6.283
30	6.267	6.264	6.270	6.271	6.276	6.276	6.269	6.272	6.275	6.277
31	6.344	6.336	6.349	6.346	6.353	6.351	6.347	6.351	6.347	6.349
32	6.281	6.270	6.286	6.282	6.285	6.284	6.288	6.289	6.289	6.287
33	6.284	6.279	6.291	6.293	6.292	6.285	6.285	6.292	6.284	6.285
34	6.312	6.307	6.316	6.317	6.320	6.316	6.315	6.313	6.317	6.315
35	6.283	6.280	6.290	6.292	6.289	6.290	6.290	6.288	6.286	6.286
36	6.383	6.379	6.392	6.387	6.389	6.386	6.385	6.384	6.392	6.388
37	6.345	6.330	6.351	6.350	6.347	6.345	6.351	6.353	6.354	6.346
38	6.334	6.325	6.342	6.339	6.341	6.335	6.343	6.340	6.344	6.341
39	6.317	6.312	6.322	6.325	6.323	6.326	6.325	6.324	6.325	6.323
40	6.299	6.299	6.307	6.308	6.304	6.303	6.303	6.305	6.301	6.306
41	6.322	6.317	6.325	6.327	6.330	6.323	6.329	6.323	6.331	6.331
42	6.351	6.345	6.355	6.355	6.360	6.360	6.358	6.360	6.354	6.361
43	6.254	6.248	6.256	6.261	6.258	6.259	6.257	6.261	6.258	6.255
44	6.330	6.354	6.335	6.339	6.332	6.340	6.339	6.339	6.331	6.338
45	6.356	6.355	6.363	6.360	6.361	6.365	6.358	6.359	6.360	6.359
46	6.338	6.342	6.343	6.338	6.339	6.346	6.346	6.347	6.340	6.347
47	6.329	6.334	6.332	6.335	6.332	6.337	6.334	6.338	6.330	6.335
48	6.286	6.290	6.291	6.296	6.290	6.287	6.291	6.293	6.294	6.295
49	6.299	6.298	6.307	6.306	6.304	6.305	6.309	6.307	6.300	6.301
50	6.261	6.262	6.266	6.268	6.269	6.264	6.271	6.271	6.271	6.270
Avg.	6.311	6.309	6.317	6.316	6.317	6.316	6.316	6.317	6.316	6.316
Med.	6.317	6.312	6.322	6.325	6.323	6.323	6.325	6.323	6.325	6.323
st dev	0.035	0.035	0.035	0.034	0.035	0.035	0.034	0.034	0.035	0.035
Min.	6.254	6.248	6.256	6.261	6.258	6.259	6.257	6.261	6.258	6.255
Max.	6.383	6.379	6.392	6.387	6.389	6.386	6.385	6.384	6.392	6.388

3.6 Data Set 2, 105°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
26	0.2638	0.5244	2685	0.0004	0.0006	0.0009	0.0011	0.0012	0.0012	0.0014	0.0016	0.0018
27	0.2634	0.5250	2690	0.0004	0.0001	0.0003	0.0004	0.0008	0.0011	0.0012	0.0014	0.0016
28	0.2662	0.5262	2630	0.0004	0.0006	0.0007	0.0011	0.0014	0.0015	0.0017	0.0019	0.0022
29	0.2660	0.5269	2630	0.0002	0.0001	0.0003	0.0004	0.0007	0.0008	0.0008	0.0011	0.0013
30	0.2649	0.5259	2657	0.0002	0.0003	0.0004	0.0008	0.0009	0.0012	0.0014	0.0017	0.0020
31	0.2642	0.5257	2672	0.0004	0.0005	0.0005	0.0009	0.0010	0.0013	0.0013	0.0015	0.0018
32	0.2648	0.5249	2662	0.0004	0.0003	0.0006	0.0009	0.0009	0.0013	0.0017	0.0021	0.0024
33	0.2643	0.5249	2672	0.0003	0.0002	0.0003	0.0005	0.0009	0.0011	0.0012	0.0014	0.0017
34	0.2633	0.5261	2688	0.0001	0.0001	0.0003	0.0006	0.0007	0.0009	0.0012	0.0014	0.0016
35	0.2619	0.5249	2722	0.0001	0.0001	0.0002	0.0004	0.0005	0.0006	0.0008	0.0011	0.0014
36	0.2650	0.5258	2655	0.0003	0.0003	0.0005	0.0007	0.0008	0.0009	0.0011	0.0013	0.0015
37	0.2640	0.5253	2677	0.0004	0.0006	0.0006	0.0006	0.0006	0.0007	0.0007	0.0008	0.0011
38	0.2641	0.5244	2678	0.0003	0.0003	0.0004	0.0006	0.0008	0.0009	0.0011	0.0013	0.0016
39	0.2649	0.5250	2660	0.0004	0.0004	0.0005	0.0006	0.0008	0.0011	0.0013	0.0016	0.0017
40	0.2639	0.5254	2679	0.0004	0.0004	0.0006	0.0009	0.0011	0.0014	0.0017	0.0021	0.0021
41	0.2627	0.5259	2702	0.0002	0.0003	0.0006	0.0006	0.0008	0.0010	0.0014	0.0016	0.0019
42	0.2637	0.5254	2682	0.0002	0.0003	0.0006	0.0006	0.0009	0.0011	0.0013	0.0016	0.0019
43	0.2651	0.5249	2656	0.0002	0.0005	0.0006	0.0008	0.0011	0.0013	0.0015	0.0016	0.0019
44	0.2636	0.5258	2683	0.0004	0.0005	0.0006	0.0009	0.0010	0.0014	0.0016	0.0017	0.0019
45	0.2651	0.5260	2652	0.0003	0.0005	0.0008	0.0008	0.0011	0.0014	0.0018	0.0021	0.0024
46	0.2646	0.5245	2667	0.0003	0.0005	0.0005	0.0006	0.0008	0.0009	0.0012	0.0016	0.0019
47	0.2651	0.5235	2661	0.0004	0.0003	0.0005	0.0008	0.0012	0.0015	0.0019	0.0019	0.0020
48	0.2623	0.5241	2717	0.0001	0.0002	0.0005	0.0009	0.0009	0.0013	0.0015	0.0019	0.0021
49	0.2642	0.5257	2671	0.0003	0.0004	0.0006	0.0006	0.0009	0.0012	0.0013	0.0015	0.0016
50	0.2622	0.5240	2720	0.0003	0.0005	0.0007	0.0008	0.0009	0.0013	0.0017	0.0017	0.0020
Avg.	0.2641	0.5252	2675	0.0003	0.0004	0.0005	0.0007	0.0009	0.0011	0.0013	0.0016	0.0018
Med.	0.2642	0.5253	2672	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0013	0.0016	0.0019
st dev	0.0011	0.0008	24	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003
Min.	0.2619	0.5235	2630	0.0001	0.0001	0.0002	0.0004	0.0005	0.0006	0.0007	0.0008	0.0011
Max.	0.2662	0.5269	2722	0.0004	0.0006	0.0009	0.0011	0.0014	0.0015	0.0019	0.0021	0.0024

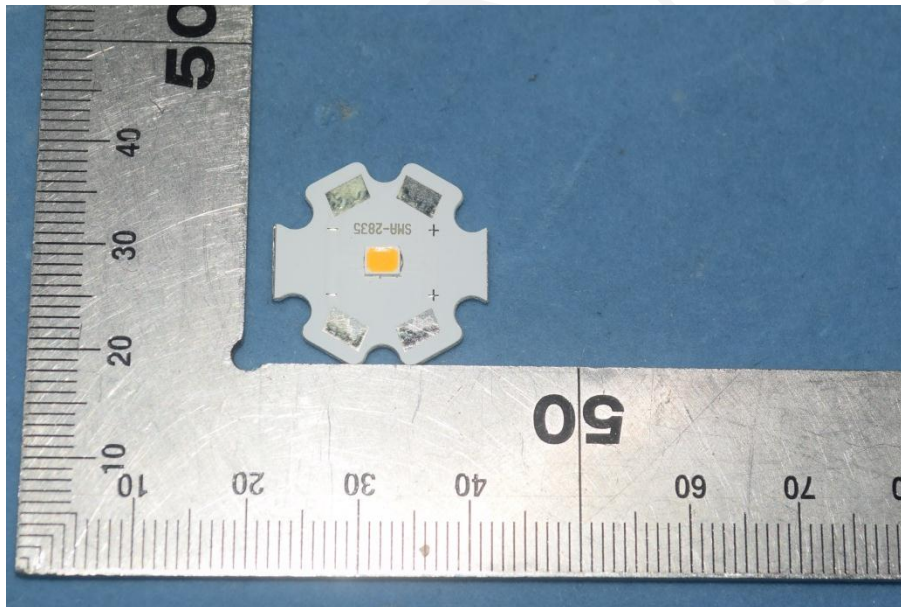
4 - DUT Photo

4.1 #Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



Directions

1. The information marked "superscript #" 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*****