TEST REPORT

According to ANSI/IES LM-80-15
For

Lumileds Holding B.V.

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

#Model: L128-2790RG35000A1

Report Type: 9000 Hours Test Report	**Product Type:** LED Package
Test Engineer:	Pote Wang
Report Number:	R2DG200325051-10
Test Date:	2019-02-18 to 2020-03-03
Report Date:	2020-03-25
Reviewed By:	Blake Zhang / EE Engineer
Test Facility:	Test facility was located at No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China.
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax:+86-0769-86858588
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 2019-02-15. The samples were numbered from 1 to 25 and 26 to 50.

#Manufacturer:	Lumileds Holding B.V.
#Part Number:	L128-2790RG35000A1
#Part Type:	LED Package
#Drive Level:	DC 80mA
#Nominal CCT:	2700K
#Power:	1.04W
#Average Current Density per LED die:	402.59mA/mm^2
#Average Power Density per LED die:	1.3085W/mm^2
#CRI:	90
#Die Spacing:	0.1mm

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)
L128-2790RG35000A1	L128-xx90RG35xxxxx	80	1.04	2700	4	80	402.59	0.106	0.1

Note 1:

1. 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).

2. The last three x denote designates = Lumileds internal codes (0A1, 0B1, 0C1, etc.= shares the same base part).

Note 2:

1. The applicant Lumileds Holding B.V. declare that their products with model L128-2790RG35000A1 are the same to the products in report # R2DG190215060-10 and is authorized by original applicant to use their test data.

2. All the data in previous report (R2DG190215060-10) 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	2019-06-28	2020-06-27
LED Test Source	EVERFINE	LTS-300	P185616CD1371113	2019-07-23	2020-07-22
High Accuracy Array Spectroradiometer	EVERFINE	HAAS-2000	P600674CM1381123	2019-06-28	2020-06-27
Standard Light Source	EVERFINE	D062	G100278CJ7351206	2019-12-24	2020-12-23
Multilayer aging machine	BACL	B2-270	20023	2019-03-10	2020-03-09
DC Power Supply	BACL	B12001-12	90023	2020-01-07	2021-01-07

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 ±3% of the specified value of the manufacturer during maintenance test, and was within ±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 drived 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=1.8% (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=1.5 (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, 80mA

Part Number:	L128-2790RG35000A1
Number of Units:	25
Case Temperature:	>83°C
Ambient Temperature:	>80°C
Life Test Drive Current:	80mA
Measurement Current:	80mA

Data Set 2: 105°C, 80mA

Part Number:	L128-2790RG35000A1
Number of Units:	25
Case Temperature:	>103°C
Ambient Temperature:	>100°C
Life Test Drive Current:	80mA
Measurement Current:	80mA

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	2.659E-06	1.004	>54000hrs	41,000hrs
2	25	0	1000hrs	9000hrs	3.177E-06	1.003	>54000hrs	34,000hrs

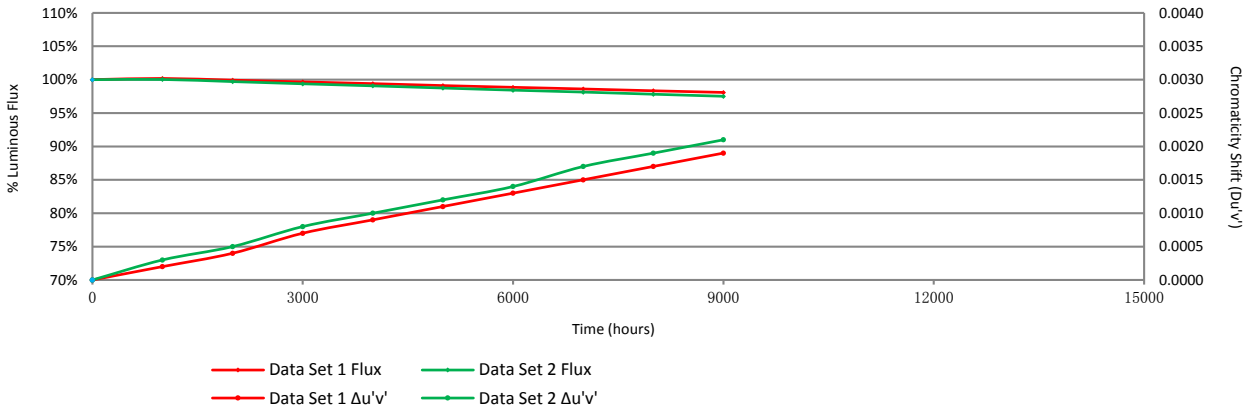
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	100.18%	99.92%	99.66%	99.40%	99.11%	98.85%	98.60%	98.33%	98.08%
2	100.03%	99.71%	99.38%	99.07%	98.74%	98.42%	98.13%	97.81%	97.50%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	0.0002	0.0004	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019
2	0.0003	0.0005	0.0008	0.0010	0.0012	0.0014	0.0017	0.0019	0.0021

Average Lumen Maintenance and Chromaticity Shift VS. Time



3 - Test Data

3.1 Data Set 1, 85°C, 80mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)								
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	113.9	100.26	99.91	99.74	99.56	99.39	99.12	98.95	98.77	98.42
2	116.8	100.17	99.83	99.57	99.32	99.06	98.72	98.46	98.20	98.03
3	113.0	100.27	100.09	99.82	99.65	99.29	99.12	98.94	98.67	98.50
4	115.5	100.17	99.91	99.74	99.48	99.22	98.96	98.53	98.27	98.01
5	114.6	100.17	99.74	99.48	99.21	98.95	98.78	98.52	98.25	97.99
6	114.2	100.09	99.91	99.47	99.21	98.95	98.69	98.51	98.16	97.90
7	113.6	100.09	99.82	99.56	99.38	99.12	98.77	98.59	98.24	98.06
8	115.4	100.26	99.91	99.74	99.48	99.05	98.87	98.61	98.35	98.09
9	112.3	100.09	99.82	99.55	99.38	99.11	98.84	98.58	98.40	98.13
10	113.9	100.09	99.91	99.56	99.30	98.95	98.51	98.24	97.98	97.63
11	113.8	100.18	99.91	99.65	99.38	99.21	98.95	98.68	98.42	98.07
12	115.5	100.17	99.91	99.74	99.31	98.96	98.70	98.44	98.18	98.01
13	115.1	100.26	99.91	99.74	99.48	99.30	98.96	98.70	98.26	98.00
14	117.0	100.17	99.91	99.66	99.32	99.06	98.72	98.38	98.03	97.86
15	115.6	100.17	100.09	99.91	99.57	99.13	98.88	98.70	98.44	98.27
16	114.6	100.09	99.83	99.56	99.39	99.04	98.87	98.69	98.43	98.08
17	113.0	100.27	100.09	99.82	99.56	99.20	98.94	98.58	98.41	98.05
18	114.5	100.26	100.17	99.91	99.56	99.39	99.21	98.95	98.69	98.43
19	115.6	100.09	99.83	99.57	99.39	99.22	98.96	98.70	98.44	98.27
20	115.5	100.17	99.91	99.57	99.31	99.05	98.79	98.44	98.18	97.92
21	113.8	100.18	99.91	99.65	99.30	98.95	98.77	98.51	98.33	97.89
22	114.0	100.09	99.74	99.30	99.12	98.77	98.42	98.16	97.89	97.63
23	114.4	100.09	99.91	99.65	99.39	99.13	98.86	98.69	98.43	98.25
24	114.8	100.35	99.91	99.65	99.39	99.13	98.87	98.69	98.43	98.17
25	115.0	100.26	100.17	99.83	99.57	99.22	98.87	98.70	98.43	98.26
Avg.	114.6	100.18	99.92	99.66	99.40	99.11	98.85	98.60	98.33	98.08
Med.	114.6	100.17	99.91	99.65	99.39	99.12	98.87	98.59	98.35	98.06
st dev	1.1	0.08	0.12	0.15	0.13	0.15	0.18	0.19	0.21	0.22
Min.	112.3	100.09	99.74	99.30	99.12	98.77	98.42	98.16	97.89	97.63
Max.	117.0	100.35	100.17	99.91	99.65	99.39	99.21	98.95	98.77	98.50

3.2 Data Set 1, 85°C, 80mA (Forward Voltage)

No.	Forward Voltage (V)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	11.82	11.82	11.82	11.81	11.81	11.83	11.82	11.85	11.84	11.83
2	11.84	11.85	11.84	11.83	11.83	11.85	11.84	11.86	11.86	11.85
3	11.82	11.82	11.81	11.81	11.81	11.82	11.81	11.84	11.83	11.83
4	11.79	11.80	11.79	11.79	11.79	11.80	11.78	11.82	11.81	11.80
5	11.80	11.80	11.80	11.79	11.79	11.80	11.80	11.82	11.82	11.80
6	11.80	11.81	11.81	11.80	11.80	11.81	11.81	11.82	11.82	11.81
7	11.85	11.84	11.84	11.83	11.83	11.84	11.84	11.85	11.85	11.85
8	11.79	11.81	11.79	11.78	11.79	11.80	11.80	11.82	11.82	11.81
9	11.80	11.79	11.79	11.78	11.78	11.79	11.78	11.81	11.81	11.80
10	11.83	11.82	11.82	11.80	11.82	11.83	11.82	11.83	11.83	11.82
11	11.86	11.88	11.87	11.86	11.86	11.87	11.86	11.87	11.88	11.87
12	11.82	11.83	11.83	11.81	11.81	11.82	11.82	11.84	11.84	11.82
13	11.85	11.84	11.84	11.83	11.82	11.85	11.84	11.86	11.86	11.85
14	11.84	11.84	11.85	11.85	11.84	11.85	11.85	11.87	11.86	11.85
15	11.82	11.81	11.82	11.82	11.81	11.82	11.82	11.84	11.84	11.83
16	11.85	11.85	11.85	11.83	11.84	11.85	11.84	11.86	11.86	11.85
17	11.76	11.75	11.76	11.76	11.74	11.77	11.76	11.78	11.77	11.77
18	11.82	11.82	11.82	11.81	11.80	11.82	11.81	11.83	11.83	11.82
19	11.85	11.85	11.86	11.85	11.84	11.85	11.84	11.86	11.87	11.86
20	11.85	11.84	11.85	11.84	11.85	11.86	11.84	11.87	11.87	11.86
21	11.84	11.83	11.83	11.83	11.82	11.84	11.82	11.84	11.85	11.84
22	11.78	11.78	11.77	11.77	11.77	11.78	11.78	11.80	11.80	11.79
23	11.82	11.82	11.82	11.82	11.80	11.82	11.81	11.84	11.84	11.83
24	11.81	11.81	11.81	11.80	11.80	11.81	11.80	11.82	11.82	11.81
25	11.82	11.82	11.82	11.81	11.82	11.82	11.82	11.84	11.84	11.83
Avg.	11.82	11.82	11.82	11.81	11.81	11.82	11.82	11.84	11.84	11.83
Med.	11.82	11.82	11.82	11.81	11.81	11.82	11.82	11.84	11.84	11.83
st dev	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.03	0.02
Min.	11.76	11.75	11.76	11.76	11.74	11.77	11.76	11.78	11.77	11.77
Max.	11.86	11.88	11.87	11.86	11.86	11.87	11.86	11.87	11.88	11.87

3.3 Data Set 1, 85°C, 80mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')								
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	0.2597	0.5228	2779	0.0002	0.0004	0.0006	0.0007	0.0009	0.0012	0.0014	0.0016	0.0019
2	0.2588	0.5234	2798	0.0002	0.0004	0.0006	0.0008	0.0011	0.0013	0.0015	0.0017	0.0018
3	0.2615	0.5250	2731	0.0003	0.0006	0.0008	0.0011	0.0013	0.0016	0.0017	0.0020	0.0021
4	0.2597	0.5235	2776	0.0001	0.0004	0.0006	0.0009	0.0011	0.0014	0.0016	0.0018	0.0020
5	0.2622	0.5233	2722	0.0001	0.0004	0.0006	0.0008	0.0011	0.0013	0.0016	0.0019	0.0022
6	0.2597	0.5242	2773	0.0002	0.0005	0.0006	0.0009	0.0011	0.0012	0.0014	0.0017	0.0019
7	0.2592	0.5227	2790	0.0001	0.0004	0.0007	0.0009	0.0012	0.0013	0.0016	0.0019	0.0021
8	0.2592	0.5224	2791	0.0002	0.0004	0.0006	0.0008	0.0011	0.0013	0.0016	0.0018	0.0019
9	0.2628	0.5224	2715	0.0001	0.0003	0.0005	0.0008	0.0011	0.0013	0.0016	0.0018	0.0020
10	0.2632	0.5254	2694	0.0002	0.0004	0.0006	0.0007	0.0009	0.0011	0.0013	0.0016	0.0018
11	0.2622	0.5240	2720	0.0001	0.0004	0.0007	0.0009	0.0010	0.0012	0.0015	0.0017	0.0018
12	0.2601	0.5255	2759	0.0001	0.0003	0.0004	0.0006	0.0007	0.0009	0.0010	0.0012	0.0015
13	0.2593	0.5227	2790	0.0001	0.0005	0.0008	0.0010	0.0012	0.0014	0.0017	0.0018	0.0019
14	0.2585	0.5236	2802	0.0001	0.0004	0.0006	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019
15	0.2591	0.5204	2803	0.0001	0.0004	0.0007	0.0009	0.0011	0.0014	0.0017	0.0019	0.0021
16	0.2603	0.5206	2777	0.0001	0.0004	0.0006	0.0009	0.0011	0.0013	0.0015	0.0018	0.0020
17	0.2613	0.5214	2750	0.0003	0.0006	0.0007	0.0010	0.0011	0.0014	0.0017	0.0020	0.0023
18	0.2628	0.5252	2702	0.0003	0.0005	0.0008	0.0011	0.0013	0.0014	0.0017	0.0020	0.0021
19	0.2612	0.5248	2738	0.0002	0.0004	0.0007	0.0009	0.0011	0.0014	0.0017	0.0019	0.0021
20	0.2615	0.5239	2735	0.0002	0.0004	0.0006	0.0009	0.0010	0.0012	0.0014	0.0015	0.0017
21	0.2610	0.5256	2740	0.0003	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0016	0.0017
22	0.2597	0.5231	2778	0.0001	0.0004	0.0005	0.0006	0.0009	0.0011	0.0014	0.0016	0.0017
23	0.2616	0.5230	2738	0.0002	0.0004	0.0006	0.0008	0.0010	0.0011	0.0014	0.0017	0.0020
24	0.2606	0.5262	2745	0.0002	0.0003	0.0006	0.0007	0.0008	0.0011	0.0013	0.0014	0.0017
25	0.2597	0.5236	2777	0.0002	0.0004	0.0007	0.0008	0.0011	0.0013	0.0016	0.0017	0.0019
Avg.	0.2606	0.5235	2757	0.0002	0.0004	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019
Med.	0.2603	0.5235	2759	0.0002	0.0004	0.0006	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019
st dev	0.0014	0.0015	32	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002
Min.	0.2585	0.5204	2694	0.0001	0.0003	0.0004	0.0006	0.0007	0.0009	0.0010	0.0012	0.0015
Max.	0.2632	0.5262	2803	0.0003	0.0006	0.0008	0.0011	0.0013	0.0016	0.0017	0.0020	0.0023

3.4 Data Set 2, 105°C, 80mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)								
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	113.1	100.09	99.82	99.47	99.20	98.76	98.41	98.05	97.79	97.52
27	114.2	100.09	99.74	99.56	99.39	99.04	98.77	98.42	98.16	97.90
28	115.3	99.91	99.74	99.48	99.13	98.87	98.53	98.27	97.92	97.57
29	113.9	100.18	99.74	99.47	99.12	98.86	98.42	98.16	97.72	97.45
30	111.9	100.09	99.73	99.37	99.02	98.75	98.39	98.03	97.77	97.41
31	115.5	99.91	99.74	99.31	98.87	98.44	98.10	97.84	97.49	97.14
32	115.0	100.09	99.74	99.30	98.87	98.61	98.26	98.00	97.74	97.39
33	115.1	100.09	99.74	99.39	99.13	98.70	98.44	98.18	97.83	97.48
34	114.9	99.83	99.48	99.13	98.87	98.52	98.26	97.91	97.65	97.21
35	115.6	99.91	99.74	99.39	98.96	98.70	98.36	98.18	97.84	97.58
36	114.5	99.83	99.39	99.04	98.69	98.25	98.08	97.64	97.29	97.03
37	115.5	100.26	100.17	99.91	99.74	99.31	99.05	98.79	98.53	98.18
38	113.6	100.18	99.82	99.47	99.21	98.94	98.59	98.24	97.89	97.62
39	116.1	100.17	99.74	99.48	99.14	98.79	98.45	98.19	97.85	97.42
40	115.5	99.91	99.74	99.31	99.05	98.70	98.35	98.18	97.92	97.66
41	114.0	99.91	99.56	99.30	98.95	98.60	98.42	97.98	97.63	97.28
42	117.9	100.08	99.83	99.49	99.32	99.07	98.81	98.56	98.22	97.96
43	114.5	99.91	99.56	99.13	98.86	98.43	98.17	97.82	97.55	97.21
44	115.4	99.83	99.48	99.05	98.70	98.35	97.92	97.66	97.31	96.97
45	114.8	99.91	99.56	99.30	99.04	98.61	98.17	97.82	97.39	97.04
46	115.7	100.17	99.83	99.48	99.22	98.96	98.79	98.44	98.18	98.01
47	114.4	100.09	99.74	99.56	99.30	99.13	98.78	98.51	98.08	97.90
48	114.8	100.09	99.65	99.39	99.04	98.69	98.43	98.17	97.82	97.56
49	113.8	100.26	99.91	99.47	99.21	98.86	98.51	98.33	98.07	97.80
50	115.6	99.91	99.57	99.13	98.70	98.44	98.10	97.92	97.58	97.23
Avg.	114.8	100.03	99.71	99.38	99.07	98.74	98.42	98.13	97.81	97.50
Med.	114.9	100.09	99.74	99.39	99.05	98.70	98.42	98.17	97.82	97.48
st dev	1.1	0.14	0.16	0.19	0.24	0.26	0.27	0.28	0.30	0.33
Min.	111.9	99.83	99.39	99.04	98.69	98.25	97.92	97.64	97.29	96.97
Max.	117.9	100.26	100.17	99.91	99.74	99.31	99.05	98.79	98.53	98.18

3.5 Data Set 2, 105°C, 80mA (Forward Voltage)

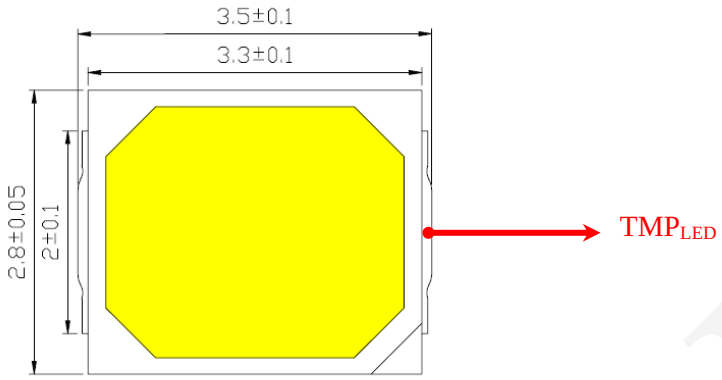
No.	Forward Voltage (V)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	11.77	11.77	11.77	11.76	11.76	11.77	11.77	11.80	11.79	11.78
27	11.87	11.87	11.86	11.86	11.86	11.86	11.87	11.89	11.88	11.88
28	11.84	11.84	11.83	11.83	11.84	11.83	11.83	11.85	11.84	11.84
29	11.79	11.79	11.79	11.78	11.78	11.78	11.78	11.82	11.80	11.80
30	11.86	11.87	11.87	11.85	11.86	11.86	11.86	11.89	11.88	11.88
31	11.83	11.84	11.84	11.83	11.84	11.83	11.84	11.86	11.86	11.85
32	11.84	11.84	11.84	11.84	11.84	11.84	11.84	11.87	11.86	11.84
33	11.82	11.82	11.82	11.81	11.84	11.82	11.83	11.85	11.84	11.83
34	11.79	11.80	11.79	11.78	11.81	11.78	11.78	11.81	11.80	11.79
35	11.84	11.85	11.85	11.83	11.85	11.84	11.83	11.87	11.86	11.84
36	11.85	11.85	11.84	11.84	11.87	11.85	11.84	11.87	11.86	11.85
37	11.84	11.85	11.83	11.83	11.85	11.84	11.83	11.86	11.86	11.85
38	11.78	11.79	11.80	11.78	11.80	11.80	11.78	11.81	11.81	11.80
39	11.82	11.83	11.82	11.82	11.84	11.82	11.82	11.85	11.85	11.83
40	11.78	11.79	11.78	11.77	11.80	11.78	11.77	11.80	11.80	11.79
41	11.84	11.86	11.84	11.84	11.86	11.84	11.84	11.86	11.87	11.85
42	11.80	11.81	11.80	11.79	11.81	11.80	11.79	11.82	11.82	11.81
43	11.84	11.84	11.83	11.83	11.86	11.83	11.83	11.86	11.85	11.84
44	11.80	11.80	11.79	11.80	11.81	11.80	11.79	11.82	11.82	11.81
45	11.81	11.81	11.81	11.79	11.82	11.80	11.80	11.82	11.82	11.81
46	11.85	11.85	11.84	11.84	11.87	11.84	11.83	11.87	11.87	11.86
47	11.78	11.79	11.79	11.78	11.79	11.78	11.77	11.81	11.80	11.80
48	11.84	11.85	11.84	11.85	11.86	11.84	11.84	11.86	11.86	11.86
49	11.83	11.84	11.84	11.84	11.85	11.84	11.83	11.86	11.85	11.85
50	11.78	11.79	11.79	11.79	11.80	11.79	11.78	11.81	11.81	11.80
Avg.	11.82	11.83	11.82	11.81	11.83	11.82	11.81	11.84	11.84	11.83
Med.	11.83	11.84	11.83	11.83	11.84	11.83	11.83	11.85	11.85	11.84
st dev	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Min.	11.77	11.77	11.77	11.76	11.76	11.77	11.77	11.80	11.79	11.78
Max.	11.87	11.87	11.87	11.86	11.87	11.86	11.87	11.89	11.88	11.88

3.6 Data Set 2, 105°C, 80mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')								
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	0.2624	0.5216	2727	0.0001	0.0002	0.0005	0.0007	0.0009	0.0012	0.0015	0.0018	0.0020
27	0.2600	0.5261	2757	0.0002	0.0004	0.0006	0.0008	0.0009	0.0011	0.0012	0.0014	0.0016
28	0.2605	0.5219	2765	0.0004	0.0006	0.0008	0.0010	0.0013	0.0014	0.0016	0.0019	0.0020
29	0.2618	0.5246	2725	0.0001	0.0004	0.0006	0.0008	0.0011	0.0012	0.0013	0.0015	0.0016
30	0.2612	0.5221	2750	0.0004	0.0006	0.0007	0.0009	0.0012	0.0015	0.0018	0.0021	0.0024
31	0.2595	0.5202	2795	0.0004	0.0005	0.0007	0.0010	0.0013	0.0016	0.0019	0.0020	0.0022
32	0.2584	0.5238	2804	0.0004	0.0005	0.0008	0.0010	0.0011	0.0013	0.0016	0.0018	0.0021
33	0.2587	0.5243	2795	0.0004	0.0007	0.0010	0.0011	0.0014	0.0015	0.0016	0.0018	0.0021
34	0.2598	0.5259	2764	0.0004	0.0006	0.0010	0.0013	0.0016	0.0017	0.0018	0.0019	0.0021
35	0.2596	0.5213	2788	0.0003	0.0006	0.0009	0.0011	0.0013	0.0016	0.0018	0.0019	0.0020
36	0.2590	0.5206	2804	0.0004	0.0008	0.0011	0.0012	0.0014	0.0017	0.0019	0.0021	0.0023
37	0.2617	0.5251	2727	0.0004	0.0008	0.0011	0.0014	0.0016	0.0019	0.0022	0.0024	0.0026
38	0.2624	0.5246	2714	0.0002	0.0006	0.0010	0.0013	0.0014	0.0015	0.0018	0.0021	0.0023
39	0.2619	0.5274	2712	0.0002	0.0004	0.0008	0.0011	0.0014	0.0016	0.0018	0.0021	0.0024
40	0.2586	0.5209	2813	0.0002	0.0005	0.0008	0.0010	0.0012	0.0016	0.0018	0.0021	0.0023
41	0.2610	0.5250	2742	0.0003	0.0005	0.0008	0.0009	0.0011	0.0013	0.0015	0.0018	0.0020
42	0.2580	0.5218	2823	0.0004	0.0005	0.0008	0.0009	0.0011	0.0015	0.0016	0.0017	0.0020
43	0.2596	0.5219	2787	0.0003	0.0005	0.0009	0.0011	0.0013	0.0016	0.0018	0.0021	0.0022
44	0.2578	0.5222	2824	0.0002	0.0004	0.0007	0.0010	0.0012	0.0013	0.0016	0.0018	0.0021
45	0.2587	0.5213	2809	0.0003	0.0006	0.0008	0.0011	0.0012	0.0013	0.0016	0.0018	0.0021
46	0.2590	0.5209	2805	0.0004	0.0005	0.0008	0.0010	0.0011	0.0013	0.0016	0.0018	0.0021
47	0.2608	0.5229	2754	0.0002	0.0004	0.0006	0.0009	0.0011	0.0012	0.0014	0.0017	0.0019
48	0.2612	0.5242	2740	0.0003	0.0005	0.0006	0.0008	0.0011	0.0013	0.0014	0.0016	0.0018
49	0.2596	0.5216	2788	0.0004	0.0005	0.0008	0.0010	0.0013	0.0014	0.0017	0.0019	0.0020
50	0.2585	0.5208	2816	0.0003	0.0004	0.0007	0.0010	0.0013	0.0015	0.0016	0.0018	0.0019
Avg.	0.2600	0.5229	2773	0.0003	0.0005	0.0008	0.0010	0.0012	0.0014	0.0017	0.0019	0.0021
Med.	0.2596	0.5221	2787	0.0003	0.0005	0.0008	0.0010	0.0012	0.0015	0.0016	0.0018	0.0021
st dev	0.0014	0.0020	36	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Min.	0.2578	0.5202	2712	0.0001	0.0002	0.0005	0.0007	0.0009	0.0011	0.0012	0.0014	0.0016
Max.	0.2624	0.5274	2824	0.0004	0.0008	0.0011	0.0014	0.0016	0.0019	0.0022	0.0024	0.0026

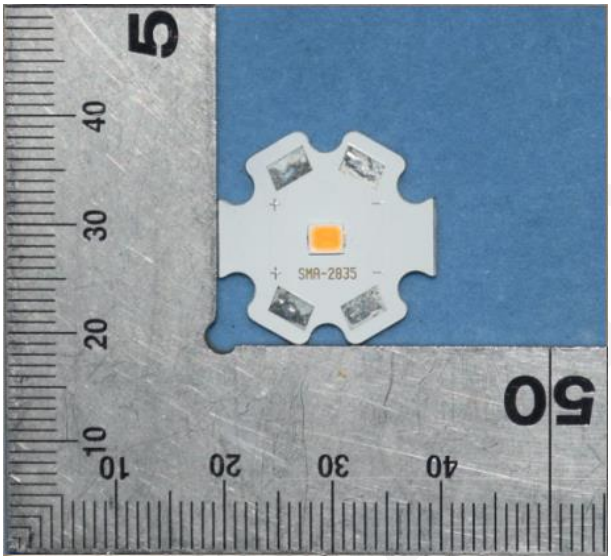
4 - DUT Photo

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**********