



TEST REPORT

According to ANSI/IES LM-80-21
For

Bridgelux Inc.

46410 Fremont Boulevard , Fremont ,CA 94538 USA

Model: BXHR-27C-1JA-54CL

Report Type: 12000 Hours Test Report	Product Type: LED Package
Reviewed By:	Bruce Lu <i>Bruce Lu</i>
Report Number:	2602P42403E-EE
Test Date:	2023-04-28 to 2024-09-09
Report Date:	2026-01-21
Approved by:	Blake Zhang / EE Engineer <i>Blake Zhang</i>
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). No.12, Pulong East 1 st Road, Tangxia Town, Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax: +86-0769-86858588
Test Facility:	Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

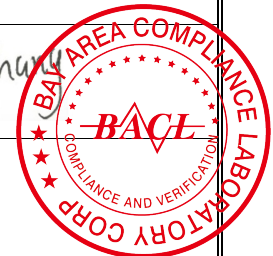


TABLE OF CONTENTS

1 - General Information.....	3
1.1 Description of LED Light Sources [#]	3
1.2 Standards and Reference Documentations	4
1.3 Testing Equipment	4
1.4 Drive Level	4
1.5 Ambient Conditions for Maintenance Test	4
1.6 Photometric Measurement Method and Uncertainty.....	4
1.7 Statement of Traceability	5
1.8 Sample Set.....	5
2 - Summary of Test Result.....	6
3 - Test Data.....	7
3.1 Data Set 1, 85°C, 60mA (Lumen Maintenance).....	7
3.2 Data Set 1, 85°C, 60mA (Forward Voltage).....	8
3.3 Data Set 1, 85°C, 60mA (Chromaticity Shift)	9
3.4 Data Set 2, 105°C, 60mA (Lumen Maintenance).....	10
3.5 Data Set 2, 105°C, 60mA (Forward Voltage).....	11
3.6 Data Set 2, 105°C, 60mA (Chromaticity Shift)	12
4 - DUT Photo	13
4.1 Mechanical Dimensions	13
4.2 DUT Photo.....	13
Statement.....	14

1 - General Information

1.1 Description of LED Light Sources[#]

Sample Size:

50 PCS test samples were in good condition and received on 2023-04-26. The samples were numbered from 1 to 25 and 26 to 50

Manufacturer:	Bridgelux Inc.
Part Number:	BXLR-27C-1JA-54CL
Part Type:	LED Package
Drive Level:	DC 60mA
Nominal CCT:	2700K
Power:	4W
Average Current Density per LED die:	120mA/mm ²
Average Power Density per LED die:	0.34W/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.

Note:

Except for 9000hrs to 12000hrs test data, the test facility of the data of other test was located at No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China

Note:

1. The applicant Bridgelux Inc. declare that their products with model BXLR-27C-1JA-54CL are the same to the products in report #2302S82502E-EE-1-12000 and is authorized by original applicant to use their test data.
2. All the data in previous report (2302S82502E-EE-1-12000) is shared in this report.

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)	Power (W)	CCT (K)	Number of dies	Current Density per Die(mA/mm ²)	Power Density per PCB (W/mm ²)	Die Spacing (mm)
BXLR-27C-1JA-54CL	60	4	2700	24	120	0.085	0.15
BXLR-***-1JA-54CL	50	2.5	2700-6500	18	100	0.055	0.15
BXLR-***-1JA-54DL	50	2.5	2700-6500	18	100	0.055	0.15

NOTES:

1. The first and second * denote designates nominal CCT (22=2200K, 27=2700K, 30=3000K, 35=3500K, 40=4000K, 45=4500K, 50=5000K, 57=5700K, 60=6000K, 65=6500K).
2. The third * is a different product solution (Color coordinate and applications and special solution etc...)

1.2 Standards and Reference Documentations

- ANSI/IES LM-80-21: IES Approved method: measuring maintenance of light output characteristics of solid-state 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	Hangzhouyuming	0.5m	NA	2024-07-25	2025-07-24
0.5m Integrating Sphere/CCD Spectrometer	Hangzhouyuming	0.5m /SPM-5000	C612012A	2024-07-25	2025-07-24
CC&CV DC Power Supply	Hangzhouyuming	DPS-500	W412022M	2024-07-25	2025-07-24
Standard Light Source	EVERFINE	D062	M133799CM1381112	2023-05-12	2025-05-11
Multilayer aging machine	BACL	B2-270	20013	2024-07-26	2025-07-25
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090008	2024-08-30	2025-08-29

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'. 2π 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 $U=21\text{K}$ ($K=2$), at the 95% confidence level.

The uncertainty of the temperature is $U=0.8671^{\circ}\text{C}$ ($K=2$), at the 95% confidence level.



Bay Area Compliance Laboratories Corp. (Dongguan)

No.12, Pulong East 1st Road, Tangxia Town,
Dongguan, Guangdong, China.

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, 60mA

Part Number: BXLRL-27C-1JA-54CL

Number of Units: 25

TMP Temperature: >83°C

Ambient Temperature: >80°C

Life Test Drive Current: 60mA

Measurement Current: 60mA

Data Set 2: 105°C, 60mA

Part Number: BXLRL-27C-1JA-54CL

Number of Units: 25

TMP Temperature: >103°C

Ambient Temperature: >100°C

Life Test Drive Current: 60mA

Measurement Current: 60mA

2 - Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	α	B	Reported TM-21 L ₇₀ Lifetime	Reported TM-21 L ₉₀ Lifetime
1	25	0	1000hrs	12000hrs	2.082e-6	1.0053	> 72,000 hours	53,200 hours
2	25	0	1000hrs	12000hrs	2.140e-6	1.0038	> 72,000 hours	51,000 hours

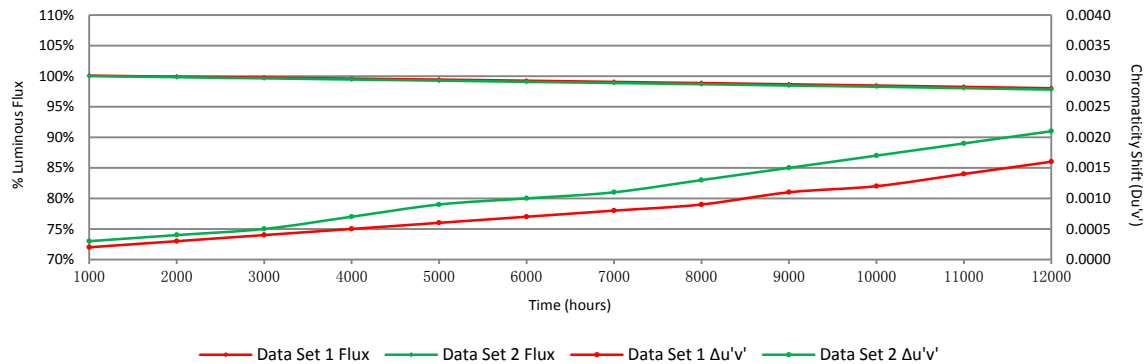
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
1	100.10%	99.93%	99.78%	99.61%	99.45%	99.27%	99.07%	98.88%	98.68%	98.47%	98.26%	98.03%
2	100.03%	99.84%	99.65%	99.46%	99.27%	99.08%	98.88%	98.69%	98.47%	98.28%	98.04%	97.81%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
1	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012	0.0014	0.0016
2	0.0003	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0015	0.0017	0.0019	0.0021

Average Lumen Maintenance and Chromaticity Shift VS. Time



3 - Test Data

3.1 Data Set 1, 85°C, 60mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)											
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
1	865.70	100.08	99.91	99.76	99.54	99.42	99.15	98.87	98.68	98.54	98.21	98.01	97.86
2	869.30	100.14	100.00	99.79	99.57	99.52	99.28	99.14	98.95	98.72	98.50	98.04	97.80
3	861.60	100.16	99.99	99.84	99.70	99.54	99.37	99.16	99.03	98.87	98.72	98.54	98.34
4	872.60	100.08	99.91	99.74	99.61	99.42	99.27	99.08	98.91	98.72	98.64	98.51	98.05
5	861.10	100.09	99.94	99.77	99.64	99.43	99.27	99.09	98.87	98.62	98.50	98.27	98.04
6	862.60	100.08	99.92	99.78	99.61	99.44	99.25	99.11	98.85	98.69	98.38	98.21	97.98
7	863.50	100.08	99.92	99.77	99.57	99.46	99.28	99.10	98.90	98.71	98.61	98.47	98.03
8	862.30	100.09	99.92	99.78	99.61	99.47	99.32	99.13	98.92	98.71	98.64	98.52	98.33
9	865.30	100.08	99.91	99.78	99.62	99.47	99.30	99.08	98.96	98.75	98.27	98.04	97.79
10	859.20	100.08	99.92	99.80	99.62	99.45	99.31	99.13	99.01	98.77	98.64	98.60	98.25
11	868.30	100.08	99.93	99.75	99.61	99.42	99.30	99.14	98.93	98.77	98.61	98.41	98.15
12	866.50	100.15	100.00	99.82	99.71	99.53	99.35	99.20	99.00	98.88	98.72	98.37	98.17
13	858.20	100.15	99.98	99.83	99.66	99.48	99.32	99.18	99.07	98.89	98.60	98.25	97.90
14	872.80	100.18	100.03	99.90	99.70	99.52	99.28	98.81	98.68	98.56	98.28	98.16	98.10
15	866.40	100.01	99.86	99.67	99.54	99.38	99.24	99.11	98.88	98.72	98.55	98.14	97.91
16	866.30	100.16	100.01	99.83	99.65	99.50	99.31	99.02	98.79	98.60	98.14	98.03	97.91
17	863.00	100.08	99.92	99.78	99.61	99.44	99.29	99.07	98.89	98.77	98.63	98.30	98.05
18	869.20	100.09	99.92	99.78	99.60	99.46	99.32	99.14	98.90	98.63	98.32	98.23	98.10
19	867.00	100.08	99.91	99.78	99.61	99.48	99.25	99.03	98.74	98.52	98.41	98.18	97.84
20	862.10	100.13	99.98	99.80	99.62	99.43	99.29	99.18	98.94	98.71	98.57	98.42	98.14
21	853.90	100.01	99.85	99.72	99.55	99.31	99.09	98.91	98.68	98.43	98.16	98.09	97.81
22	867.50	100.08	99.91	99.75	99.60	99.40	99.30	99.14	98.99	98.81	98.61	98.22	98.03
23	863.90	99.92	99.77	99.62	99.42	99.21	98.99	98.75	98.61	98.43	98.28	98.09	97.84
24	866.60	100.13	99.95	99.79	99.67	99.47	99.34	99.17	98.97	98.79	98.63	98.38	98.27
25	860.10	100.16	100.01	99.84	99.67	99.52	99.30	99.10	98.97	98.27	98.10	98.08	98.04
Avg.	864.60	100.10	99.93	99.78	99.61	99.45	99.27	99.07	98.88	98.68	98.47	98.26	98.03
Med.	865.30	100.08	99.92	99.78	99.61	99.46	99.29	99.11	98.91	98.71	98.55	98.23	98.04
st dev	4.40	0.06	0.06	0.06	0.06	0.07	0.08	0.12	0.12	0.15	0.19	0.18	0.16
Min.	853.90	99.92	99.77	99.62	99.42	99.21	98.99	98.75	98.61	98.27	98.10	98.01	97.79
Max.	872.80	100.18	100.03	99.90	99.71	99.54	99.37	99.20	99.07	98.89	98.72	98.60	98.34

3.2 Data Set 1, 85°C, 60mA (Forward Voltage)

No.	Forward Voltage (V)												
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
1	66.23	66.37	66.39	66.36	66.42	66.38	66.39	66.43	66.42	66.41	66.40	66.36	66.36
2	66.39	66.52	66.53	66.50	66.54	66.54	66.56	66.55	66.55	66.51	66.53	66.49	66.47
3	66.23	66.39	66.39	66.38	66.41	66.41	66.42	66.42	66.43	66.38	66.39	66.36	66.34
4	66.42	66.54	66.52	66.54	66.58	66.53	66.55	66.55	66.57	66.54	66.54	66.48	66.49
5	66.32	66.42	66.41	66.43	66.40	66.41	66.41	66.44	66.45	66.40	66.41	66.38	66.36
6	66.21	66.37	66.35	66.31	66.40	66.38	66.39	66.37	66.36	66.35	66.37	66.31	66.30
7	66.35	66.46	66.44	66.45	66.46	66.45	66.50	66.46	66.49	66.44	66.46	66.41	66.39
8	66.24	66.40	66.39	66.41	66.42	66.41	66.41	66.42	66.44	66.42	66.41	66.35	66.35
9	66.22	66.37	66.36	66.34	66.36	66.34	66.38	66.36	66.39	66.37	66.34	66.32	66.30
10	66.22	66.34	66.34	66.35	66.36	66.33	66.39	66.35	66.36	66.36	66.35	66.31	66.27
11	66.48	66.63	66.63	66.60	66.64	66.59	66.62	66.61	66.67	66.64	66.63	66.58	66.56
12	66.24	66.41	66.37	66.36	66.40	66.38	66.40	66.39	66.43	66.34	66.41	66.34	66.32
13	66.32	66.47	66.46	66.43	66.46	66.44	66.45	66.42	66.49	66.42	66.46	66.40	66.37
14	66.49	66.63	66.61	66.58	66.61	66.57	66.64	66.60	66.64	66.61	66.61	66.56	66.54
15	66.34	66.47	66.47	66.44	66.49	66.47	66.55	66.44	66.50	66.47	66.48	66.41	66.41
16	66.46	66.62	66.61	66.60	66.61	66.57	66.60	66.61	66.64	66.60	66.61	66.56	66.53
17	66.34	66.44	66.44	66.40	66.46	66.43	66.45	66.44	66.46	66.44	66.42	66.39	66.36
18	66.34	66.47	66.45	66.43	66.49	66.46	66.48	66.47	66.47	66.47	66.46	66.41	66.40
19	66.34	66.42	66.41	66.44	66.43	66.41	66.43	66.40	66.45	66.42	66.43	66.36	66.35
20	66.21	66.37	66.36	66.35	66.36	66.35	66.38	66.34	66.37	66.38	66.35	66.31	66.29
21	66.34	66.46	66.49	66.46	66.49	66.48	66.49	66.49	66.48	66.52	66.47	66.44	66.41
22	66.51	66.64	66.59	66.63	66.63	66.63	66.64	66.63	66.66	66.62	66.64	66.57	66.56
23	66.51	66.63	66.62	66.60	66.65	66.61	66.62	66.59	66.68	66.59	66.61	66.55	66.54
24	66.33	66.46	66.44	66.45	66.47	66.44	66.46	66.44	66.50	66.47	66.48	66.42	66.41
25	66.36	66.51	66.53	66.48	66.52	66.51	66.51	66.51	66.54	66.49	66.50	66.44	66.44
Avg.	66.34	66.47	66.46	66.45	66.48	66.46	66.48	66.47	66.50	66.47	66.47	66.42	66.40
Med.	66.34	66.46	66.44	66.44	66.46	66.44	66.46	66.44	66.48	66.44	66.46	66.41	66.39
st dev	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.09	0.09	0.09	0.09
Min.	66.21	66.34	66.34	66.31	66.36	66.33	66.38	66.34	66.36	66.34	66.34	66.31	66.27
Max.	66.51	66.64	66.63	66.63	66.65	66.63	66.64	66.63	66.68	66.64	66.64	66.58	66.56

3.3 Data Set 1, 85°C, 60mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)											
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
1	0.2558	0.5248	2856	0.0001	0.0003	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0014	0.0016
2	0.2560	0.5263	2844	0.0001	0.0002	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012	0.0013	0.0015
3	0.2570	0.5259	2825	0.0002	0.0003	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0011	0.0013	0.0014
4	0.2567	0.5264	2827	0.0001	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0012	0.0014	0.0018	0.0021
5	0.2563	0.5263	2839	0.0001	0.0002	0.0003	0.0005	0.0007	0.0009	0.0011	0.0012	0.0014	0.0015	0.0016	0.0017
6	0.2566	0.5261	2832	0.0002	0.0003	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0014	0.0018	0.0022
7	0.2563	0.5261	2839	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0011	0.0013	0.0014
8	0.2559	0.5256	2850	0.0002	0.0003	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0012	0.0012	0.0013	0.0014
9	0.2559	0.5257	2849	0.0002	0.0002	0.0003	0.0003	0.0005	0.0007	0.0009	0.0010	0.0012	0.0012	0.0013	0.0015
10	0.2567	0.5264	2829	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0010	0.0011	0.0012
11	0.2566	0.5257	2835	0.0002	0.0004	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0011	0.0012	0.0013
12	0.2566	0.5272	2826	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0011	0.0013	0.0015
13	0.2568	0.5261	2828	0.0001	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0012	0.0012	0.0013	0.0014
14	0.2569	0.5273	2821	0.0002	0.0002	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0011	0.0012	0.0013
15	0.2565	0.5263	2833	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0014	0.0017
16	0.2570	0.5265	2822	0.0003	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012	0.0013	0.0015
17	0.2560	0.5262	2845	0.0001	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0009	0.0011	0.0012	0.0013	0.0015
18	0.2567	0.5257	2833	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0014	0.0017
19	0.2566	0.5246	2839	0.0001	0.0003	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0015	0.0018
20	0.2564	0.5250	2842	0.0001	0.0002	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012	0.0013	0.0015
21	0.2564	0.5251	2842	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0014	0.0017
22	0.2567	0.5261	2831	0.0001	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0010	0.0013	0.0014	0.0015	0.0017
23	0.2567	0.5260	2830	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0015	0.0018
24	0.2563	0.5272	2833	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0009	0.0011	0.0013	0.0016
25	0.2566	0.5245	2840	0.0003	0.0004	0.0003	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012	0.0013	0.0015
Avg.	0.2565	0.5260	2836	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012	0.0014	0.0016
Med.	0.2566	0.5261	2833	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0011	0.0012	0.0013	0.0015
st dev	0.0003	0.0007	9	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002
Min.	0.2558	0.5245	2821	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0011	0.0012
Max.	0.2570	0.5273	2856	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0011	0.0012	0.0014	0.0015	0.0018	0.0022

3.4 Data Set 2, 105°C, 60mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)											
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
26	869.50	100.17	99.99	99.77	99.62	99.39	99.19	99.03	98.86	98.63	98.39	98.15	97.86
27	863.50	100.16	99.97	99.79	99.51	99.34	99.27	99.06	98.83	98.55	98.40	98.27	97.95
28	863.00	99.90	99.68	99.54	99.28	99.10	98.86	98.67	98.45	98.34	98.20	98.01	97.78
29	863.90	100.08	99.91	99.65	99.51	99.34	99.13	98.95	98.76	98.50	98.26	97.95	97.72
30	871.70	100.08	99.86	99.71	99.48	99.35	99.12	98.85	98.68	98.45	98.33	98.15	97.87
31	856.70	100.08	99.87	99.66	99.47	99.35	99.08	98.84	98.76	98.49	98.34	98.17	98.03
32	870.70	100.11	99.93	99.75	99.53	99.33	99.14	98.97	98.75	98.50	98.33	98.10	97.93
33	863.00	100.09	99.87	99.70	99.54	99.35	99.13	98.92	98.69	98.59	98.37	98.20	97.82
34	862.30	100.13	99.93	99.74	99.54	99.32	99.17	98.93	98.85	98.56	98.36	98.06	97.91
35	861.80	100.16	99.93	99.77	99.59	99.36	99.18	99.00	98.87	98.53	98.39	98.14	97.71
36	870.30	100.10	100.03	99.86	99.76	99.74	99.64	99.30	99.21	98.95	98.84	98.31	97.93
37	865.50	99.86	99.66	99.51	99.31	99.05	98.93	98.61	98.42	98.30	98.15	97.91	97.65
38	867.00	100.10	99.87	99.71	99.46	99.32	99.12	98.92	98.77	98.50	98.34	98.12	97.95
39	872.70	99.99	99.79	99.54	99.43	99.26	99.04	98.85	98.59	98.40	98.22	98.09	97.79
40	863.30	99.99	99.79	99.62	99.41	99.24	98.93	98.81	98.70	98.41	98.25	98.08	97.86
41	873.30	99.98	99.77	99.59	99.40	99.14	98.95	98.83	98.68	98.42	98.20	97.94	97.82
42	872.00	100.09	99.91	99.74	99.43	99.32	99.08	98.88	98.72	98.51	98.31	98.15	97.95
43	866.10	99.99	99.82	99.56	99.39	99.23	99.03	98.94	98.58	98.18	97.97	97.78	97.64
44	861.30	99.97	99.78	99.52	99.35	99.18	99.00	98.72	98.58	98.46	98.26	97.89	97.74
45	869.30	99.97	99.78	99.62	99.38	99.11	99.07	98.78	98.49	98.46	98.21	97.93	97.80
46	864.30	99.97	99.76	99.56	99.42	99.13	98.97	98.85	98.61	98.30	98.20	97.99	97.82
47	863.50	99.98	99.79	99.64	99.43	99.22	98.99	98.84	98.55	98.44	98.17	97.90	97.71
48	869.10	99.97	99.76	99.60	99.32	99.13	99.08	98.84	98.69	98.45	98.10	97.88	97.46
49	869.90	99.98	99.77	99.57	99.37	99.23	98.92	98.74	98.54	98.51	98.14	98.00	97.71
50	862.90	99.97	99.80	99.52	99.44	99.25	99.03	98.74	98.51	98.35	98.18	97.93	97.72
Avg.	866.26	100.03	99.84	99.65	99.46	99.27	99.08	98.88	98.69	98.47	98.28	98.04	97.81
Med.	865.50	99.99	99.82	99.64	99.43	99.26	99.08	98.85	98.69	98.46	98.26	98.06	97.82
st dev	4.33	0.09	0.09	0.10	0.11	0.14	0.15	0.14	0.17	0.14	0.16	0.13	0.13
Min.	856.70	99.86	99.66	99.51	99.28	99.05	98.86	98.61	98.42	98.18	97.97	97.78	97.46
Max.	873.30	100.17	100.03	99.86	99.76	99.74	99.64	99.30	99.21	98.95	98.84	98.31	98.03

3.5 Data Set 2, 105°C, 60mA (Forward Voltage)

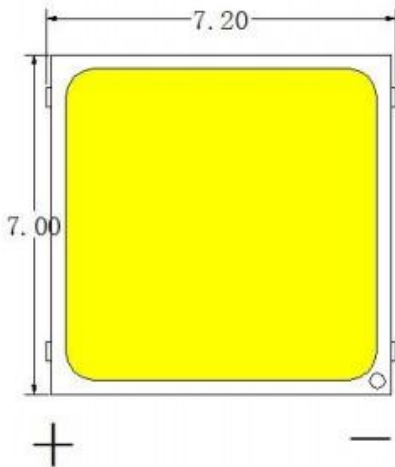
No.	Forward Voltage (V)												
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
26	66.49	66.61	66.58	66.58	66.59	66.64	66.60	66.62	66.59	66.59	66.64	66.54	66.57
27	66.31	66.49	66.48	66.43	66.49	66.51	66.50	66.52	66.51	66.51	66.51	66.40	66.49
28	66.36	66.52	66.50	66.48	66.50	66.53	66.53	66.53	66.53	66.50	66.51	66.43	66.49
29	66.22	66.34	66.33	66.29	66.34	66.37	66.35	66.37	66.36	66.53	66.37	66.24	66.34
30	66.41	66.51	66.50	66.48	66.49	66.53	66.52	66.53	66.52	66.41	66.55	66.45	66.51
31	66.23	66.37	66.40	66.37	66.38	66.41	66.40	66.42	66.42	66.41	66.39	66.34	66.38
32	66.37	66.52	66.50	66.51	66.52	66.55	66.52	66.53	66.52	66.55	66.54	66.43	66.50
33	66.27	66.45	66.41	66.41	66.46	66.46	66.46	66.43	66.46	66.45	66.44	66.34	66.41
34	66.36	66.49	66.48	66.47	66.47	66.51	66.50	66.52	66.50	66.49	66.50	66.39	66.45
35	66.36	66.51	66.51	66.48	66.51	66.52	66.53	66.53	66.54	66.55	66.53	66.44	66.51
36	66.40	66.56	66.54	66.54	66.56	66.56	66.55	66.56	66.57	66.59	66.57	66.49	66.52
37	66.36	66.51	66.48	66.51	66.52	66.53	66.54	66.52	66.54	66.52	66.54	66.46	66.49
38	66.45	66.59	66.60	66.59	66.60	66.59	66.61	66.64	66.63	66.62	66.62	66.53	66.59
39	66.31	66.44	66.42	66.44	66.45	66.45	66.44	66.46	66.46	66.48	66.46	66.38	66.40
40	66.23	66.36	66.35	66.35	66.34	66.37	66.38	66.39	66.39	66.37	66.39	66.29	66.32
41	66.44	66.60	66.57	66.60	66.58	66.60	66.62	66.58	66.60	66.61	66.61	66.51	66.52
42	66.58	66.67	66.66	66.68	66.69	66.69	66.70	66.70	66.69	66.69	66.71	66.60	66.64
43	66.28	66.40	66.39	66.41	66.42	66.44	66.42	66.46	66.43	66.43	66.41	66.34	66.38
44	66.39	66.55	66.55	66.54	66.53	66.56	66.58	66.59	66.56	66.57	66.56	66.51	66.51
45	66.39	66.51	66.51	66.52	66.55	66.51	66.55	66.55	66.56	66.54	66.53	66.46	66.48
46	66.31	66.45	66.46	66.45	66.46	66.46	66.49	66.48	66.45	66.46	66.49	66.39	66.40
47	66.30	66.40	66.41	66.44	66.45	66.41	66.47	66.46	66.43	66.41	66.45	66.36	66.37
48	66.50	66.64	66.64	66.64	66.67	66.66	66.66	66.65	66.64	66.65	66.68	66.58	66.60
49	66.36	66.47	66.46	66.48	66.47	66.49	66.48	66.48	66.45	66.48	66.49	66.45	66.41
50	66.22	66.30	66.34	66.35	66.36	66.36	66.38	66.37	66.37	66.34	66.37	66.31	66.28
Avg.	66.36	66.49	66.48	66.48	66.50	66.51	66.51	66.52	66.51	66.51	66.51	66.43	66.46
Med.	66.36	66.51	66.48	66.48	66.49	66.51	66.52	66.52	66.52	66.51	66.51	66.43	66.49
st dev	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Min.	66.22	66.30	66.33	66.29	66.34	66.36	66.35	66.37	66.36	66.34	66.37	66.24	66.28
Max.	66.58	66.67	66.66	66.68	66.69	66.69	66.70	66.70	66.69	66.69	66.71	66.60	66.64

3.6 Data Set 2, 105°C, 60mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)											
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	11000hrs	12000hrs
26	0.2566	0.5261	2832	0.0002	0.0003	0.0004	0.0007	0.0009	0.0009	0.0011	0.0013	0.0015	0.0016	0.0018	0.0021
27	0.2563	0.5255	2843	0.0003	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016	0.0017	0.0019	0.0021
28	0.2571	0.5260	2821	0.0002	0.0004	0.0006	0.0008	0.0010	0.0011	0.0012	0.0014	0.0016	0.0018	0.0020	0.0022
29	0.2568	0.5268	2824	0.0002	0.0005	0.0007	0.0009	0.0011	0.0012	0.0013	0.0015	0.0017	0.0018	0.0021	0.0025
30	0.2564	0.5256	2839	0.0003	0.0004	0.0004	0.0006	0.0008	0.0009	0.0010	0.0012	0.0014	0.0016	0.0018	0.0020
31	0.2562	0.5251	2845	0.0002	0.0002	0.0003	0.0005	0.0007	0.0008	0.0009	0.0011	0.0013	0.0015	0.0017	0.0022
32	0.2566	0.5262	2831	0.0002	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016	0.0017	0.0019	0.0021
33	0.2566	0.5262	2832	0.0004	0.0005	0.0006	0.0008	0.0010	0.0011	0.0012	0.0014	0.0016	0.0018	0.0020	0.0021
34	0.2565	0.5248	2840	0.0002	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016	0.0017	0.0019	0.0018
35	0.2566	0.5259	2834	0.0003	0.0004	0.0006	0.0008	0.0010	0.0011	0.0012	0.0014	0.0016	0.0018	0.0020	0.0021
36	0.2568	0.5264	2826	0.0002	0.0005	0.0005	0.0007	0.0008	0.0009	0.0011	0.0012	0.0015	0.0016	0.0017	0.0018
37	0.2565	0.5257	2836	0.0002	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016	0.0017	0.0019	0.0021
38	0.2571	0.5267	2819	0.0004	0.0006	0.0007	0.0009	0.0011	0.0012	0.0013	0.0015	0.0017	0.0018	0.0021	0.0021
39	0.2564	0.5254	2840	0.0002	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016	0.0017	0.0019	0.0020
40	0.2562	0.5263	2840	0.0004	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016	0.0017	0.0019	0.0022
41	0.2567	0.5269	2826	0.0002	0.0006	0.0007	0.0009	0.0011	0.0012	0.0013	0.0015	0.0017	0.0018	0.0021	0.0023
42	0.2569	0.5264	2824	0.0003	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016	0.0017	0.0019	0.0021
43	0.2563	0.5248	2846	0.0002	0.0005	0.0005	0.0006	0.0007	0.0009	0.0010	0.0013	0.0015	0.0016	0.0018	0.0021
44	0.2572	0.5265	2816	0.0004	0.0004	0.0007	0.0009	0.0011	0.0012	0.0013	0.0015	0.0017	0.0018	0.0021	0.0024
45	0.2569	0.5261	2825	0.0002	0.0004	0.0006	0.0008	0.0010	0.0011	0.0012	0.0014	0.0016	0.0018	0.0020	0.0022
46	0.2565	0.5264	2834	0.0002	0.0005	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016	0.0017	0.0019	0.0022
47	0.2566	0.5254	2836	0.0004	0.0004	0.0006	0.0008	0.0010	0.0011	0.0012	0.0014	0.0016	0.0018	0.0020	0.0022
48	0.2573	0.5259	2818	0.0002	0.0003	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016	0.0017	0.0019	0.0023
49	0.2565	0.5266	2833	0.0003	0.0003	0.0004	0.0006	0.0009	0.0009	0.0010	0.0011	0.0011	0.0013	0.0014	0.0017
50	0.2567	0.5261	2831	0.0002	0.0002	0.0004	0.0006	0.0006	0.0008	0.0009	0.0011	0.0014	0.0015	0.0016	0.0019
Avg.	0.2567	0.5260	2832	0.0003	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0015	0.0017	0.0019	0.0021
Med.	0.2566	0.5261	2832	0.0002	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016	0.0017	0.0019	0.0021
st dev	0.0003	0.0006	9	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
Min.	0.2562	0.5248	2816	0.0002	0.0002	0.0003	0.0005	0.0006	0.0008	0.0009	0.0011	0.0011	0.0013	0.0014	0.0017
Max.	0.2573	0.5269	2846	0.0004	0.0006	0.0007	0.0009	0.0011	0.0012	0.0013	0.0015	0.0017	0.0018	0.0021	0.0025

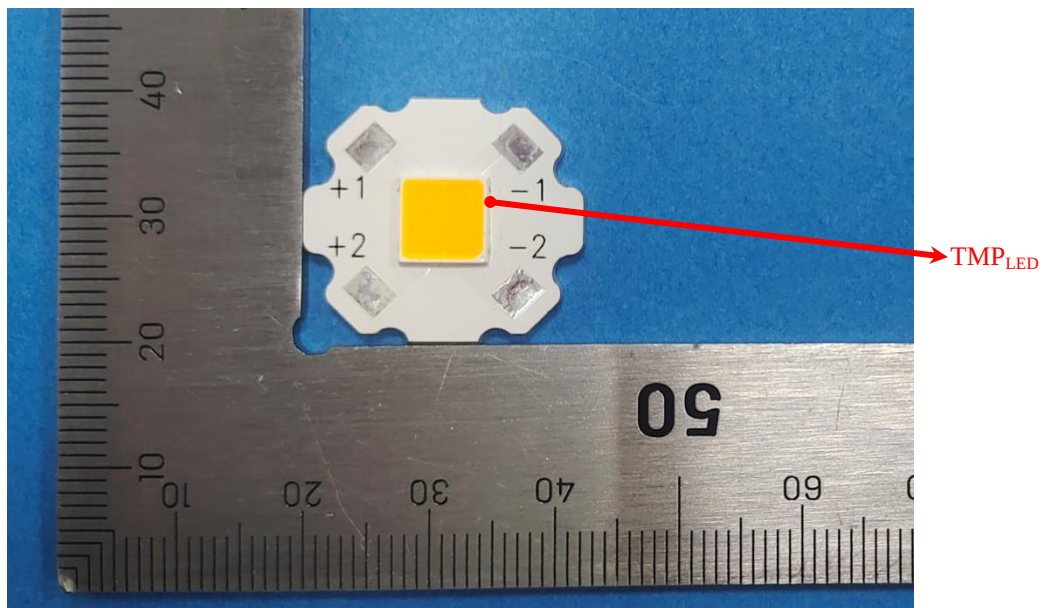
4 - DUT Photo

4.1 Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



Statement

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 $K=2$ with the 95% confidence interval.
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*****END OF REPORT*****