



TEST REPORT

According to ANSI/IES LM-80-15
For

Hongli Zhihui Group Co.,Ltd. Guangzhou Branch

Room 316, Building 2, No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China

Model: HL-A-4014H489W-S1-HR3-DM-HL

Report Type: 6000 Hours Test Report		Product Type: LED Package	
Reviewed By:	Pote Wang	<i>Pote Wang</i>	
Report Number:	SZ2220119-02803E-10-6000		
Test Date:	2022-01-26 to 2022-10-13		
Report Date:	2022-10-31		
Approved by:	Blake Zhang / EE Engineer	<i>Blake Zhang</i>	
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 5/F(B-West) -7/F, the 3rd Phase of Wan Li Industrial Building D, Shihua Road, Futian Free Trade Zone Shenzhen, Guangdong, China. Tel: +86-755-33320018 Fax: +86-755-33320008		
Test Facility:	Test facility was located at No.12, Pulong East 1 st Road, Tangxia Town, Dongguan, Guangdong, China.		

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.(Shenzhen). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, or any agency of the U.S. Government.

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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 2022-01-19. The samples were numbered from 1 to 25 and 26 to 50.

Manufacturer:	Hongli Zhihui Group Co.,Ltd. Guangzhou Branch
Part Number:	HL-A-4014H489W-S1-HR3-DM-HL
Part Type:	LED Package
Drive Level:	DC 60mA
Nominal CCT:	2700K
Power:	0.204 W
Average Current Density per LED die:	738.096 mA/mm ²
Average Power Density per LED die:	2.510W/mm ²
CRI:	80
Die Spacing:	/

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 type	Model name of private label	CRI (typ.)	CCT (K)	Series	Parallel	Power density (W/mm ²)	Current density per LED die (mA/mm ²)	Current per die (mA)	Distance between of dies (mm)	Current (mA)
Test model	HL-A-4014H489W-S1-HR3-DM-HL	80	2700	1	1	0.0365	738.096	60	/	60
Multiple model	HL-A-4014H***W-S1-HR3-DM-**-***	80	2700-6500	1	1	0.0365	738.096	60	/	60
	HL-A-4014H***W-S1-HR3(R9)-DM-**-***	80	2700-6500	1	1	0.0365	738.096	60	/	60
	HL-A-4014D***W-S1-HR3-DM-**-***	80	2700-6500	1	1	0.0365	738.096	60	/	60
	HL-A-4014D***W-S1-HR3(R9)-DM-**-***	80	2700-6500	1	1	0.0365	738.096	60	/	60

Note:

The model name begins with "HL", such as " A-4014H***W-S1-HR3-DM-**-***", "***" is described in detail as follows :

1. The first "****" is a number from 1 to 999 which stands for the brightness level.
2. The second "***" is a letter HL or L, None which stands for the bonding wire style.
3. The third "****" is the letter, which stands for the customer code.

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 (This standard was not accredited by NVLAP)

- *ENERGY STAR® Requirements for the Use of LM-80 Data (This standard was not accredited by NVLAP)

1.3 Testing Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
High Accuracy Array Spectroradiometer	EVERFINE	HAAS 2000	P600674CM5391140	2022-09-27	2023-09-26
0.5M Integrating Sphere	EVERFINE	0.5m	NA	2022-09-27	2023-09-26
LED Test Source	EVERFINE	LTS-300	P185616CJ1391143	2022-01-05	2023-01-04
Standard Light Source	EVERFINE	D062	1011093	2021-10-15	2023-10-14
Multilayer aging machine	BACL	B2-270	20015	2022-01-04	2023-01-03
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090009	2022-01-05	2023-01-04

1.4 Drive Level

Samples are driven with a constant direct current (DC) during maintenance test, photometric and electrical measurement. The current value was regulated to within $\pm 3\%$ of the specified value of the manufacturer during maintenance test, and was within $\pm 0.5\%$ during photometric and electrical measurement test.

1.5 Ambient Conditions for Maintenance Test

For lumen maintenance test, samples within one data set, were installed on cooling boards in thermal chambers with minimal ambient airflow. The case temperature and ambient temperature was monitored by thermocouples which one was soldered to the coldest DUTs' case (TMP_{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 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. (Shenzhen) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

1.8 Sample Set

Data Set 1: 55°C, 60mA



Bay Area Compliance Laboratories Corp. (Shenzhen)

5/F(B-West) -7/F, the 3rd Phase of Wan Li Industrial
Building D, Shihua Road, Futian Free Trade Zone Shenzhen, Guangdong, China.
The NVLAP Lab Code is 200707-0

Part Number: HL-A-4014H489W-S1-HR3-DM-HL

Number of Units: 25

Case Temperature: >53°C

Ambient Temperature: >50°C

Life Test Drive Current: 60mA

Measurement Current: 60mA

Data Set 2: 105°C, 60mA

Part Number: HL-A-4014H489W-S1-HR3-DM-HL

Number of Units: 25

Case 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	β	Reported TM-21 L ₇₀ Lifetime
1	25	0	1000hrs	6000hrs	2.311E-06	1.003	>36000 hours
2	25	0	1000hrs	6000hrs	2.682E-06	1.002	>36000 hours

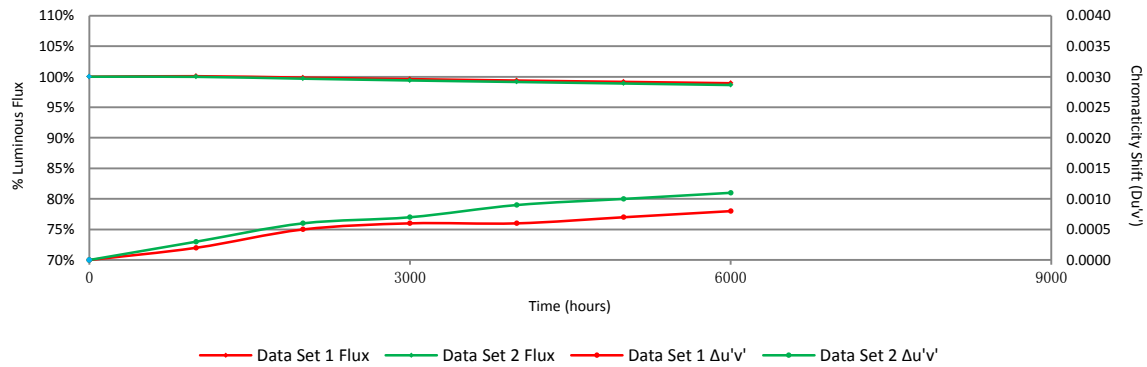
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	100.09%	99.85%	99.61%	99.38%	99.16%	98.94%
2	99.98%	99.68%	99.39%	99.14%	98.89%	98.64%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.0002	0.0005	0.0006	0.0006	0.0007	0.0008
2	0.0003	0.0006	0.0007	0.0009	0.0010	0.0011

Average Lumen Maintenance and Chromaticity Shift VS. Time



3 - Test Data

3.1 Data Set 1, 55°C, 60mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	24.60	100.28	99.88	99.76	99.47	99.27	99.07
2	24.68	100.20	99.92	99.80	99.64	99.43	99.31
3	25.25	100.12	99.92	99.72	99.56	99.37	99.09
4	25.25	100.08	99.88	99.72	99.56	99.29	99.05
5	24.93	100.24	100.16	99.84	99.68	99.56	99.28
6	25.55	100.20	99.96	99.57	99.22	99.02	98.79
7	24.89	100.00	99.76	99.48	99.16	98.92	98.71
8	25.13	100.28	99.96	99.72	99.40	99.12	98.85
9	24.84	100.36	100.20	99.88	99.60	99.44	99.15
10	25.20	99.88	99.60	99.29	99.05	98.85	98.65
11	24.84	100.24	99.96	99.68	99.44	99.19	98.95
12	25.56	100.04	99.88	99.53	99.30	99.02	98.83
13	24.92	100.12	99.96	99.68	99.48	99.32	99.16
14	25.01	99.84	99.44	99.16	98.92	98.64	98.44
15	25.65	100.16	99.92	99.73	99.45	99.30	99.10
16	25.00	99.88	99.56	99.20	98.92	98.64	98.52
17	25.06	100.20	99.88	99.76	99.56	99.40	99.24
18	25.13	100.32	99.92	99.68	99.40	99.20	99.01
19	25.05	99.88	99.72	99.48	99.32	99.08	98.88
20	24.90	100.20	99.96	99.76	99.60	99.36	99.20
21	24.98	100.08	99.92	99.60	99.40	99.20	98.88
22	25.27	99.96	99.84	99.53	99.33	99.09	98.85
23	25.54	99.84	99.65	99.45	99.26	99.10	98.86
24	25.45	99.92	99.72	99.61	99.41	99.14	98.86
25	25.04	99.92	99.56	99.52	99.28	99.04	98.84
Avg.	25.11	100.09	99.85	99.61	99.38	99.16	98.94
Med.	25.05	100.12	99.88	99.68	99.40	99.19	98.88
st dev	0.28	0.16	0.18	0.19	0.21	0.23	0.23
Min.	24.60	99.84	99.44	99.16	98.92	98.64	98.44
Max.	25.65	100.36	100.20	99.88	99.68	99.56	99.31

3.2 Data Set 1, 55°C, 60mA (Forward Voltage)

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3.074	3.091	3.092	3.090	3.100	3.097	3.084
2	3.093	3.082	3.091	3.087	3.077	3.082	3.096
3	3.084	3.074	3.086	3.102	3.101	3.071	3.082
4	3.109	3.091	3.102	3.097	3.088	3.097	3.105
5	3.076	3.078	3.109	3.106	3.087	3.105	3.100
6	3.082	3.105	3.101	3.078	3.101	3.091	3.092
7	3.091	3.080	3.086	3.074	3.089	3.094	3.077
8	3.086	3.072	3.073	3.065	3.092	3.082	3.106
9	3.105	3.091	3.094	3.093	3.094	3.091	3.091
10	3.097	3.084	3.097	3.114	3.083	3.104	3.096
11	3.102	3.103	3.101	3.102	3.094	3.109	3.095
12	3.082	3.074	3.087	3.083	3.091	3.104	3.102
13	3.088	3.084	3.084	3.079	3.077	3.108	3.098
14	3.107	3.088	3.087	3.084	3.103	3.101	3.092
15	3.093	3.084	3.106	3.106	3.079	3.092	3.106
16	3.095	3.095	3.123	3.119	3.099	3.083	3.092
17	3.080	3.078	3.089	3.094	3.081	3.109	3.095
18	3.070	3.072	3.079	3.090	3.109	3.079	3.077
19	3.082	3.078	3.097	3.092	3.099	3.094	3.076
20	3.084	3.078	3.102	3.098	3.095	3.093	3.095
21	3.088	3.091	3.094	3.112	3.090	3.101	3.096
22	3.099	3.097	3.103	3.101	3.106	3.088	3.095
23	3.082	3.074	3.070	3.067	3.101	3.088	3.084
24	3.086	3.086	3.092	3.102	3.106	3.097	3.097
25	3.097	3.095	3.105	3.100	3.090	3.086	3.098
Avg.	3.089	3.085	3.094	3.093	3.093	3.094	3.093
Med.	3.088	3.084	3.094	3.094	3.094	3.094	3.095
st dev	0.010	0.009	0.012	0.014	0.009	0.010	0.009
Min.	3.070	3.072	3.070	3.065	3.077	3.071	3.076
Max.	3.109	3.105	3.123	3.119	3.109	3.109	3.106

3.3 Data Set 1, 55°C, 60mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.2628	0.5304	2682	0.0002	0.0004	0.0004	0.0002	0.0003	0.0004
2	0.2632	0.5290	2678	0.0001	0.0007	0.0008	0.0005	0.0002	0.0004
3	0.2594	0.5294	2756	0.0001	0.0002	0.0002	0.0005	0.0006	0.0008
4	0.2621	0.5320	2689	0.0002	0.0005	0.0006	0.0009	0.0012	0.0013
5	0.2597	0.5305	2744	0.0001	0.0006	0.0009	0.0004	0.0005	0.0006
6	0.2625	0.5309	2686	0.0003	0.0011	0.0008	0.0004	0.0006	0.0009
7	0.2597	0.5272	2760	0.0003	0.0001	0.0002	0.0003	0.0004	0.0006
8	0.2603	0.5285	2741	0.0001	0.0006	0.0007	0.0003	0.0004	0.0005
9	0.2587	0.5273	2781	0.0001	0.0003	0.0005	0.0003	0.0004	0.0007
10	0.2602	0.5285	2744	0.0002	0.0008	0.0006	0.0007	0.0008	0.0010
11	0.2587	0.5274	2780	0.0005	0.0003	0.0005	0.0006	0.0008	0.0009
12	0.2624	0.5310	2687	0.0001	0.0006	0.0008	0.0010	0.0012	0.0013
13	0.2607	0.5310	2723	0.0004	0.0009	0.0009	0.0005	0.0008	0.0008
14	0.2594	0.5290	2759	0.0001	0.0006	0.0007	0.0003	0.0004	0.0005
15	0.2592	0.5302	2757	0.0003	0.0004	0.0004	0.0004	0.0004	0.0007
16	0.2619	0.5326	2691	0.0002	0.0006	0.0004	0.0001	0.0003	0.0003
17	0.2589	0.5264	2780	0.0005	0.0007	0.0009	0.0006	0.0007	0.0008
18	0.2606	0.5283	2736	0.0005	0.0003	0.0007	0.0007	0.0007	0.0008
19	0.2571	0.5278	2813	0.0004	0.0003	0.0005	0.0005	0.0006	0.0008
20	0.2635	0.5304	2668	0.0002	0.0003	0.0007	0.0009	0.0010	0.0012
21	0.2575	0.5282	2802	0.0003	0.0009	0.0008	0.0010	0.0013	0.0014
22	0.2620	0.5315	2694	0.0001	0.0004	0.0008	0.0004	0.0006	0.0007
23	0.2590	0.5300	2762	0.0003	0.0004	0.0005	0.0007	0.0009	0.0011
24	0.2571	0.5277	2813	0.0000	0.0008	0.0010	0.0012	0.0013	0.0016
25	0.2589	0.5266	2780	0.0002	0.0003	0.0004	0.0006	0.0007	0.0008
Avg.	0.2602	0.5293	2740	0.0002	0.0005	0.0006	0.0006	0.0007	0.0008
Med.	0.2597	0.5290	2744	0.0002	0.0005	0.0007	0.0005	0.0006	0.0008
st dev	0.0019	0.0017	45	0.0001	0.0003	0.0002	0.0003	0.0003	0.0003
Min.	0.2571	0.5264	2668	0.0000	0.0001	0.0002	0.0001	0.0002	0.0003
Max.	0.2635	0.5326	2813	0.0005	0.0011	0.0010	0.0012	0.0013	0.0016

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

No.	Φ(lm)	Lumen Maintenance (%)					
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	25.66	99.96	99.53	99.38	99.06	98.79	98.56
27	24.89	100.08	99.56	99.32	99.08	98.83	98.59
28	25.64	100.08	99.84	99.45	99.18	98.95	98.75
29	25.25	100.20	99.96	99.80	99.60	99.37	99.05
30	25.66	100.16	99.96	99.57	99.30	99.06	98.87
31	25.40	99.76	99.61	99.21	98.98	98.78	98.54
32	24.37	100.12	99.88	99.59	99.38	99.14	98.93
33	25.85	100.19	99.85	99.54	99.30	99.07	98.80
34	25.20	100.08	99.88	99.52	99.29	99.01	98.73
35	25.66	100.19	99.81	99.45	99.18	98.91	98.64
36	24.86	100.12	99.92	99.56	99.28	99.07	98.75
37	25.43	99.96	99.76	99.45	99.21	99.02	98.74
38	25.60	99.92	99.73	99.38	99.18	98.98	98.79
39	25.71	99.84	99.46	99.07	98.83	98.60	98.33
40	25.71	99.73	99.57	99.49	99.30	98.99	98.72
41	25.27	99.88	99.53	99.25	99.01	98.77	98.54
42	24.80	99.84	99.52	99.31	99.07	98.83	98.59
43	25.19	99.84	99.52	99.33	99.05	98.73	98.53
44	25.62	99.84	99.41	99.22	98.95	98.75	98.52
45	25.51	100.20	99.96	99.69	99.41	99.14	98.86
46	25.36	99.88	99.72	99.37	99.05	98.70	98.46
47	25.08	100.16	99.88	99.68	99.40	99.12	98.88
48	26.04	99.81	99.35	98.96	98.66	98.39	98.12
49	25.54	99.69	99.41	99.02	98.71	98.39	98.12
50	25.58	99.84	99.49	99.22	99.02	98.83	98.67
Avg.	25.40	99.98	99.68	99.39	99.14	98.89	98.64
Med.	25.51	99.96	99.72	99.38	99.18	98.91	98.67
st dev	0.38	0.17	0.20	0.21	0.22	0.23	0.23
Min.	24.37	99.69	99.35	98.96	98.66	98.39	98.12
Max.	26.04	100.20	99.96	99.80	99.60	99.37	99.05

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

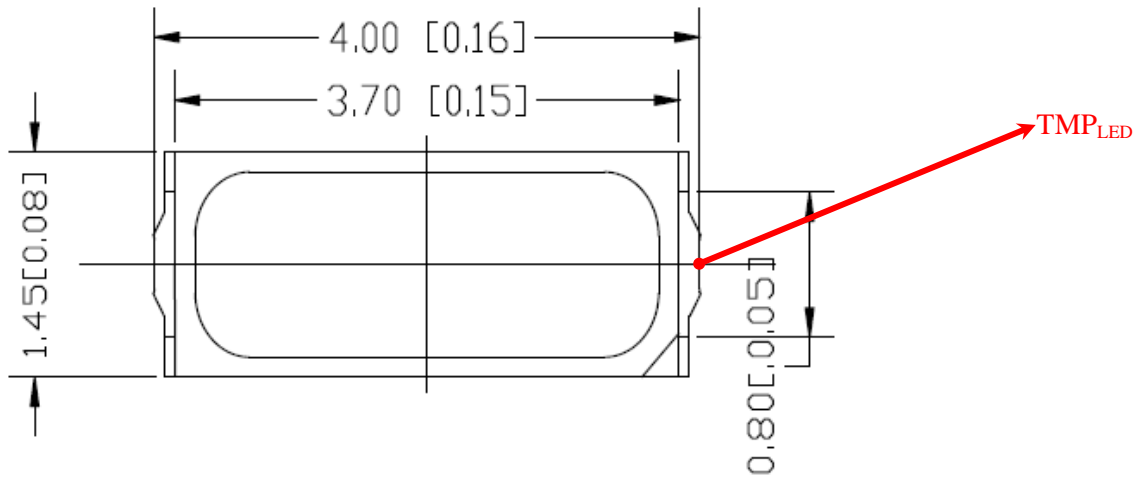
No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	3.084	3.082	3.086	3.084	3.084	3.093	3.094
27	3.088	3.086	3.087	3.103	3.091	3.105	3.092
28	3.108	3.118	3.117	3.109	3.099	3.106	3.095
29	3.091	3.093	3.073	3.080	3.088	3.093	3.095
30	3.074	3.072	3.075	3.092	3.084	3.100	3.097
31	3.095	3.091	3.102	3.106	3.099	3.095	3.105
32	3.086	3.084	3.091	3.115	3.100	3.102	3.109
33	3.070	3.070	3.079	3.077	3.086	3.089	3.086
34	3.103	3.099	3.103	3.103	3.096	3.092	3.099
35	3.105	3.105	3.103	3.101	3.091	3.107	3.084
36	3.097	3.097	3.101	3.101	3.100	3.108	3.099
37	3.097	3.095	3.096	3.095	3.096	3.101	3.099
38	3.088	3.091	3.091	3.103	3.090	3.081	3.097
39	3.082	3.082	3.091	3.108	3.096	3.092	3.081
40	3.101	3.101	3.105	3.106	3.093	3.104	3.098
41	3.088	3.091	3.098	3.095	3.090	3.110	3.098
42	3.074	3.076	3.082	3.098	3.098	3.093	3.098
43	3.084	3.084	3.089	3.083	3.087	3.090	3.097
44	3.084	3.082	3.092	3.103	3.108	3.095	3.091
45	3.063	3.065	3.075	3.087	3.110	3.107	3.107
46	3.109	3.118	3.106	3.102	3.099	3.093	3.090
47	3.063	3.065	3.074	3.086	3.086	3.107	3.085
48	3.086	3.086	3.099	3.103	3.096	3.100	3.096
49	3.099	3.099	3.102	3.098	3.097	3.082	3.097
50	3.084	3.084	3.087	3.091	3.087	3.080	3.092
Avg.	3.088	3.089	3.092	3.097	3.094	3.097	3.095
Med.	3.088	3.086	3.091	3.101	3.096	3.095	3.097
st dev	0.013	0.014	0.012	0.010	0.007	0.009	0.007
Min.	3.063	3.065	3.073	3.077	3.084	3.080	3.081
Max.	3.109	3.118	3.117	3.115	3.110	3.110	3.109

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
26	0.2591	0.5318	2753	0.0003	0.0001	0.0007	0.0008	0.0009	0.0011
27	0.2619	0.5302	2701	0.0004	0.0005	0.0009	0.0010	0.0011	0.0014
28	0.2563	0.5302	2821	0.0001	0.0004	0.0009	0.0011	0.0012	0.0014
29	0.2610	0.5306	2718	0.0004	0.0008	0.0006	0.0008	0.0009	0.0011
30	0.2607	0.5289	2732	0.0004	0.0006	0.0004	0.0007	0.0008	0.0009
31	0.2577	0.5286	2796	0.0002	0.0004	0.0005	0.0007	0.0009	0.0012
32	0.2648	0.5291	2646	0.0002	0.0006	0.0007	0.0009	0.0010	0.0012
33	0.2598	0.5309	2741	0.0005	0.0004	0.0007	0.0008	0.0010	0.0011
34	0.2592	0.5272	2770	0.0002	0.0006	0.0011	0.0012	0.0013	0.0016
35	0.2574	0.5317	2790	0.0003	0.0009	0.0003	0.0004	0.0004	0.0006
36	0.2609	0.5294	2724	0.0005	0.0003	0.0002	0.0002	0.0004	0.0005
37	0.2621	0.5312	2694	0.0003	0.0003	0.0006	0.0008	0.0009	0.0010
38	0.2595	0.5302	2750	0.0003	0.0006	0.0004	0.0004	0.0005	0.0005
39	0.2607	0.5289	2732	0.0004	0.0008	0.0008	0.0009	0.0011	0.0012
40	0.2574	0.5312	2792	0.0003	0.0008	0.0011	0.0013	0.0013	0.0014
41	0.2598	0.5282	2752	0.0004	0.0009	0.0009	0.0012	0.0013	0.0015
42	0.2619	0.5302	2702	0.0004	0.0002	0.0012	0.0015	0.0017	0.0020
43	0.2625	0.5290	2694	0.0003	0.0009	0.0010	0.0011	0.0013	0.0014
44	0.2588	0.5308	2763	0.0004	0.0005	0.0005	0.0007	0.0009	0.0010
45	0.2634	0.5308	2668	0.0006	0.0010	0.0011	0.0013	0.0014	0.0015
46	0.2626	0.5309	2684	0.0001	0.0006	0.0006	0.0009	0.0009	0.0011
47	0.2611	0.5328	2706	0.0001	0.0001	0.0005	0.0006	0.0008	0.0010
48	0.2581	0.5323	2772	0.0002	0.0002	0.0004	0.0006	0.0007	0.0009
49	0.2584	0.5302	2774	0.0002	0.0004	0.0001	0.0002	0.0003	0.0004
50	0.2588	0.5287	2772	0.0002	0.0010	0.0011	0.0012	0.0014	0.0016
Avg.	0.2602	0.5302	2738	0.0003	0.0006	0.0007	0.0009	0.0010	0.0011
Med.	0.2598	0.5302	2741	0.0003	0.0006	0.0007	0.0008	0.0009	0.0011
st dev	0.0021	0.0014	44	0.0001	0.0003	0.0003	0.0003	0.0003	0.0004
Min.	0.2563	0.5272	2646	0.0001	0.0001	0.0001	0.0002	0.0003	0.0004
Max.	0.2648	0.5328	2821	0.0006	0.0010	0.0012	0.0015	0.0017	0.0020

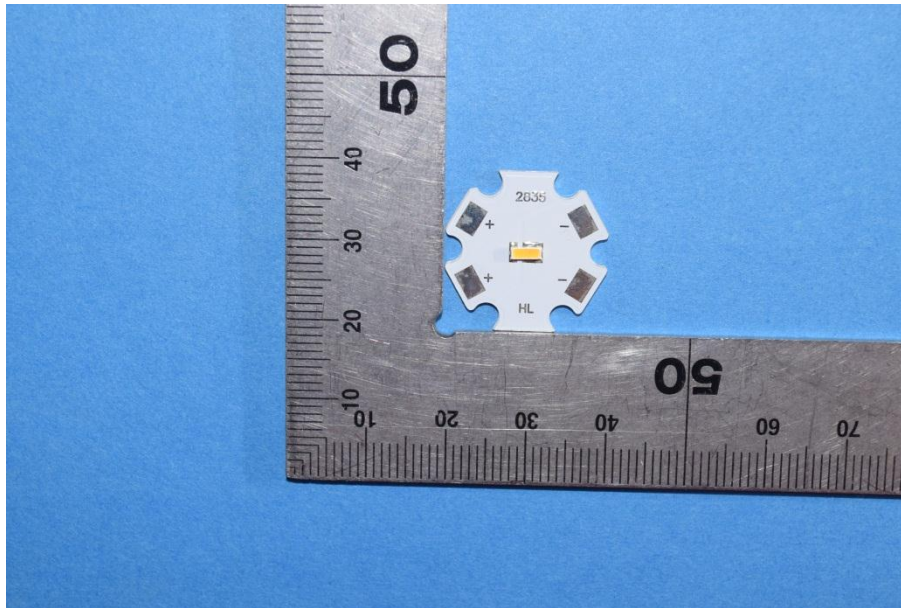
4 - DUT Photo

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. This report includes some test methods are not in NVLAP accreditation scope marked *.
3. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
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*****END OF REPORT*****