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-AM-2835H421W-S1-08HL-HR3

Report Type: 10000 Hours Test Report	**Product Type:** LED Package
Reviewed By:	Pote Wang
Report Number:	SZ2220119-02804E-10-10000
Test Date:	2022-01-26 to 2023-04-12
Report Date:	2023-04-20
Approved by:	Blake Zhang / EE Engineer
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 1st Road, Tangxia Town, Dongguan, Guangdong, China.

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1 - General Information

1.1 Description of LED Light Sources#

Sample Size:

50 PCS test samples were in good condition and received on 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-AM-2835H421W-S1-08HL-HR3
Part Type:	LED Package
Drive Level:	DC 150mA
Nominal CCT:	2700K
Power:	0.51 W
Average Current Density per LED die:	861.113 mA/mm^2
Average Power Density per LED die:	2.928 W/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:

Series Name	Model Name	CRI (typ.)	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)
Test model	HL-AM-2835H421W-S1-08HL-HR3	80	150	0.51	2700	1	150	861.113	0.0520	/
Multiple model	HL-AM-2835D***W-****-S1-08**-HR*-***	70-80	150	0.51	2700-6500	1	150	861.113	0.0520	/
	HL-AM-2835H***W-****-S1-08**-HR*-***	70-80	150	0.51	2700-6500	1	150	861.113	0.0520	/

Note: The model name begins with "HL", such as “HL-AM-2835D***W-****-S1-08**-HR*-***”, " *" is described in detail as follows:
1. The first “***” is the number from 1 to 999 which stands for the brightness level.
2. The second "****" which stands for the Zener chip code or None, no impact on product performances，Zener chip code refers to the electrostatic capacity.
3. The third “**” is the letter HL or None which stands for the bonding wire style.
4. The fourth “*” is the number 1 or 2 or 3 which stands for the CRI style
5. The fifth “***” 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	2022-11-18	2023-11-17
Standard Light Source	EVERFINE	D062	1011093	2021-10-15	2023-10-14
Multilayer aging machine	BACL	B2-270	20015	2022-11-18	2023-11-17
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090005	2022-11-18	2023-11-17

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 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, 150mA

Part Number:	HL-AM-2835H421W-S1-08HL-HR3
Number of Units:	25
Case Temperature:	>53°C
Ambient Temperature:	>50°C
Life Test Drive Current:	150mA
Measurement Current:	150mA

Data Set 2: 105°C, 150mA

Part Number:	HL-AM-2835H421W-S1-08HL-HR3
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	10000hrs	2.193E-06	1.003	>60000 hours
2	25	0	1000hrs	10000hrs	2.530E-06	1.001	>60000 hours

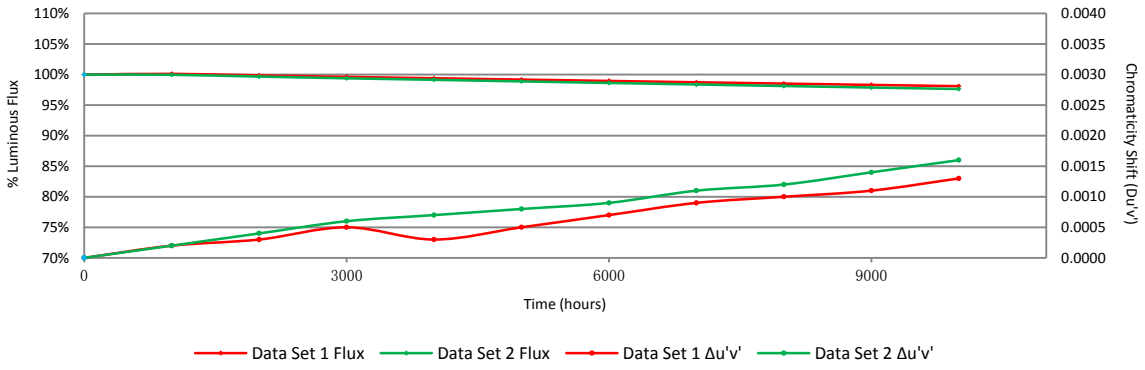
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	100.12%	99.86%	99.62%	99.40%	99.18%	98.96%	98.74%	98.52%	98.31%	98.10%
2	99.96%	99.67%	99.39%	99.14%	98.88%	98.63%	98.38%	98.13%	97.88%	97.64%

Average Chromaticity Shift

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

Average Lumen Maintenance and Chromaticity Shift VS. Time



3 - Test Data

3.1 Data Set 1, 55°C, 150mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	62.82	100.38	99.98	99.73	99.46	99.22	98.98	98.76	98.55	98.34	98.09
2	61.90	100.24	100.03	99.85	99.66	99.37	99.18	99.01	98.77	98.63	98.43
3	63.08	99.98	99.71	99.43	99.18	98.95	98.78	98.54	98.30	98.15	97.89
4	62.04	100.13	99.89	99.63	99.44	99.19	98.97	98.82	98.63	98.47	98.31
5	61.34	100.39	100.18	99.93	99.71	99.54	99.33	99.18	99.01	98.78	98.60
6	61.34	100.28	99.82	99.54	99.35	99.15	99.02	98.74	98.52	98.34	98.16
7	61.37	100.34	99.98	99.64	99.41	99.15	98.83	98.57	98.32	98.13	97.91
8	62.30	99.81	99.68	99.58	99.37	99.13	98.91	98.72	98.44	98.23	97.96
9	61.69	100.36	99.97	99.55	99.30	99.09	98.83	98.52	98.28	98.02	97.83
10	61.74	100.37	99.97	99.72	99.50	99.30	99.01	98.83	98.61	98.46	98.23
11	61.56	100.36	99.98	99.76	99.58	99.40	99.22	99.01	98.77	98.62	98.42
12	61.14	100.26	99.92	99.77	99.56	99.39	99.17	98.97	98.72	98.45	98.12
13	62.43	100.02	99.81	99.57	99.30	99.02	98.81	98.62	98.43	98.27	98.06
14	61.77	99.95	99.77	99.35	99.14	98.87	98.66	98.38	98.17	97.91	97.68
15	60.98	100.13	99.93	99.62	99.36	99.25	98.98	98.82	98.61	98.38	98.20
16	60.97	100.05	99.75	99.62	99.38	99.13	98.92	98.72	98.56	98.26	98.00
17	61.04	100.28	99.98	99.72	99.48	99.18	98.87	98.66	98.38	98.12	97.92
18	62.21	99.97	99.66	99.44	99.26	99.08	98.86	98.59	98.38	98.20	98.01
19	61.77	99.79	99.72	99.38	99.14	98.90	98.70	98.46	98.25	98.01	97.83
20	61.99	100.13	99.85	99.76	99.60	99.35	99.10	98.85	98.60	98.45	98.29
21	62.25	99.90	99.87	99.66	99.53	99.33	99.08	98.91	98.68	98.51	98.30
22	61.89	99.85	99.60	99.39	99.14	98.93	98.76	98.55	98.35	98.11	97.90
23	61.10	99.92	99.64	99.54	99.35	99.15	98.94	98.67	98.41	98.22	98.00
24	61.66	100.06	99.77	99.59	99.34	99.09	98.95	98.69	98.43	98.15	97.92
25	61.88	100.03	99.97	99.64	99.48	99.26	99.10	98.88	98.76	98.51	98.32
Avg.	61.77	100.12	99.86	99.62	99.40	99.18	98.96	98.74	98.52	98.31	98.10
Med.	61.77	100.13	99.87	99.62	99.38	99.15	98.95	98.72	98.52	98.27	98.06
st dev	0.55	0.1952	0.1440	0.1478	0.1587	0.1691	0.1665	0.1932	0.1998	0.2154	0.2246
Min.	60.97	99.79	99.60	99.35	99.14	98.87	98.66	98.38	98.17	97.91	97.68
Max.	63.08	100.39	100.18	99.93	99.71	99.54	99.33	99.18	99.01	98.78	98.60

3.2 Data Set 1, 55°C, 150mA (Forward Voltage)

No.	Forward Voltage (V)										
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	3.153	3.147	3.156	3.147	3.129	3.145	3.136	3.142	3.147	3.138	3.131
2	3.128	3.130	3.127	3.128	3.141	3.131	3.142	3.130	3.127	3.140	3.141
3	3.145	3.145	3.147	3.147	3.133	3.136	3.131	3.149	3.134	3.124	3.132
4	3.128	3.126	3.137	3.135	3.137	3.138	3.145	3.138	3.138	3.139	3.130
5	3.145	3.143	3.147	3.147	3.158	3.145	3.128	3.149	3.144	3.140	3.147
6	3.139	3.136	3.138	3.138	3.131	3.126	3.130	3.129	3.147	3.139	3.147
7	3.134	3.130	3.131	3.136	3.132	3.130	3.140	3.122	3.125	3.137	3.130
8	3.120	3.118	3.118	3.125	3.139	3.149	3.148	3.131	3.145	3.148	3.141
9	3.149	3.145	3.146	3.148	3.148	3.133	3.122	3.152	3.128	3.132	3.158
10	3.118	3.116	3.121	3.143	3.130	3.143	3.142	3.137	3.132	3.137	3.146
11	3.132	3.130	3.133	3.157	3.131	3.131	3.135	3.142	3.146	3.148	3.144
12	3.126	3.130	3.127	3.125	3.133	3.147	3.135	3.148	3.138	3.123	3.145
13	3.132	3.126	3.132	3.140	3.129	3.134	3.149	3.145	3.153	3.130	3.149
14	3.134	3.130	3.135	3.133	3.132	3.149	3.145	3.148	3.148	3.127	3.140
15	3.122	3.126	3.120	3.126	3.147	3.132	3.138	3.139	3.139	3.153	3.147
16	3.128	3.126	3.130	3.155	3.135	3.145	3.157	3.152	3.132	3.136	3.130
17	3.134	3.134	3.140	3.137	3.137	3.148	3.155	3.157	3.145	3.135	3.132
18	3.147	3.145	3.139	3.146	3.127	3.153	3.140	3.155	3.122	3.133	3.147
19	3.126	3.122	3.133	3.137	3.145	3.133	3.124	3.148	3.137	3.136	3.139
20	3.141	3.136	3.130	3.136	3.143	3.151	3.130	3.132	3.146	3.144	3.131
21	3.122	3.122	3.127	3.149	3.133	3.147	3.134	3.136	3.133	3.157	3.150
22	3.153	3.149	3.148	3.142	3.146	3.130	3.138	3.146	3.135	3.134	3.133
23	3.136	3.132	3.129	3.127	3.135	3.124	3.131	3.131	3.129	3.136	3.123
24	3.145	3.143	3.148	3.126	3.144	3.140	3.145	3.141	3.141	3.142	3.141
25	3.134	3.130	3.131	3.158	3.135	3.137	3.138	3.133	3.150	3.151	3.135
Avg.	3.135	3.133	3.135	3.140	3.137	3.139	3.138	3.141	3.138	3.138	3.140
Med.	3.134	3.130	3.133	3.138	3.135	3.138	3.138	3.142	3.138	3.137	3.141
st dev	0.010	0.009	0.010	0.010	0.008	0.008	0.009	0.009	0.009	0.008	0.008
Min.	3.118	3.116	3.118	3.125	3.127	3.124	3.122	3.122	3.122	3.123	3.123
Max.	3.153	3.149	3.156	3.158	3.158	3.153	3.157	3.157	3.153	3.157	3.158

3.3 Data Set 1, 55°C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')									
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	0.2595	0.5293	2753	0.0004	0.0002	0.0006	0.0001	0.0004	0.0005	0.0007	0.0008	0.0010	0.0012
2	0.2627	0.5304	2684	0.0001	0.0001	0.0001	0.0002	0.0004	0.0005	0.0007	0.0007	0.0009	0.0009
3	0.2610	0.5303	2720	0.0004	0.0001	0.0003	0.0002	0.0003	0.0005	0.0007	0.0010	0.0010	0.0012
4	0.2599	0.5293	2746	0.0001	0.0003	0.0004	0.0001	0.0003	0.0006	0.0008	0.0011	0.0013	0.0015
5	0.2605	0.5292	2734	0.0001	0.0002	0.0005	0.0001	0.0004	0.0005	0.0008	0.0008	0.0010	0.0013
6	0.2604	0.5289	2736	0.0000	0.0002	0.0004	0.0001	0.0002	0.0005	0.0006	0.0007	0.0008	0.0011
7	0.2590	0.5294	2765	0.0001	0.0000	0.0008	0.0004	0.0005	0.0007	0.0009	0.0009	0.0011	0.0012
8	0.2602	0.5291	2741	0.0002	0.0003	0.0008	0.0006	0.0008	0.0008	0.0010	0.0011	0.0014	0.0017
9	0.2619	0.5297	2703	0.0003	0.0002	0.0004	0.0002	0.0004	0.0006	0.0009	0.0011	0.0011	0.0013
10	0.2616	0.5297	2710	0.0004	0.0003	0.0009	0.0009	0.0010	0.0012	0.0015	0.0017	0.0017	0.0018
11	0.2636	0.5305	2665	0.0001	0.0002	0.0005	0.0002	0.0004	0.0004	0.0005	0.0006	0.0008	0.0010
12	0.2617	0.5288	2711	0.0004	0.0008	0.0007	0.0007	0.0009	0.0010	0.0013	0.0014	0.0015	0.0017
13	0.2604	0.5315	2726	0.0001	0.0005	0.0007	0.0006	0.0008	0.0010	0.0011	0.0013	0.0014	0.0014
14	0.2601	0.5305	2737	0.0002	0.0004	0.0004	0.0001	0.0003	0.0005	0.0008	0.0008	0.0009	0.0012
15	0.2600	0.5300	2741	0.0001	0.0001	0.0007	0.0004	0.0005	0.0005	0.0009	0.0009	0.0011	0.0012
16	0.2620	0.5279	2708	0.0002	0.0003	0.0006	0.0001	0.0003	0.0006	0.0006	0.0009	0.0010	0.0011
17	0.2642	0.5299	2656	0.0003	0.0003	0.0003	0.0002	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013
18	0.2629	0.5301	2682	0.0002	0.0003	0.0003	0.0001	0.0002	0.0005	0.0006	0.0009	0.0011	0.0014
19	0.2636	0.5306	2666	0.0002	0.0002	0.0005	0.0001	0.0003	0.0007	0.0008	0.0009	0.0010	0.0012
20	0.2607	0.5287	2732	0.0001	0.0004	0.0003	0.0001	0.0004	0.0008	0.0008	0.0010	0.0011	0.0014
21	0.2605	0.5298	2732	0.0002	0.0002	0.0005	0.0004	0.0006	0.0009	0.0012	0.0012	0.0013	0.0014
22	0.2620	0.5303	2698	0.0004	0.0004	0.0003	0.0004	0.0006	0.0009	0.0011	0.0012	0.0013	0.0013
23	0.2622	0.5295	2697	0.0001	0.0003	0.0003	0.0003	0.0006	0.0008	0.0009	0.0011	0.0012	0.0013
24	0.2643	0.5287	2659	0.0004	0.0004	0.0005	0.0002	0.0004	0.0007	0.0007	0.0008	0.0009	0.0009
25	0.2611	0.5305	2716	0.0002	0.0003	0.0003	0.0002	0.0003	0.0004	0.0007	0.0008	0.0010	0.0012
Avg.	0.2614	0.5297	2713	0.0002	0.0003	0.0005	0.0003	0.0005	0.0007	0.0009	0.0010	0.0011	0.0013
Med.	0.2611	0.5297	2716	0.0002	0.0003	0.0005	0.0002	0.0004	0.0006	0.0008	0.0009	0.0011	0.0013
st dev	0.0015	0.0008	31	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Min.	0.2590	0.5279	2656	0.0000	0.0000	0.0001	0.0001	0.0002	0.0004	0.0005	0.0006	0.0008	0.0009
Max.	0.2643	0.5315	2765	0.0004	0.0008	0.0009	0.0009	0.0010	0.0012	0.0015	0.0017	0.0017	0.0018

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	10000hrs
26	60.55	100.07	99.85	99.64	99.32	99.04	98.78	98.51	98.22	97.90	97.65
27	61.01	100.02	99.95	99.66	99.44	99.25	99.02	98.79	98.54	98.31	98.10
28	60.74	99.70	99.31	98.96	98.75	98.50	98.32	98.02	97.76	97.56	97.28
29	60.73	100.03	99.82	99.59	99.37	99.09	98.81	98.55	98.30	98.06	97.79
30	61.81	99.87	99.71	99.34	99.05	98.79	98.56	98.29	98.06	97.85	97.54
31	61.13	100.26	99.97	99.59	99.36	99.10	98.81	98.56	98.33	98.12	97.87
32	61.94	99.98	99.84	99.39	99.16	98.93	98.66	98.43	98.16	97.92	97.66
33	62.54	99.89	99.55	99.31	99.06	98.74	98.53	98.31	98.08	97.79	97.55
34	61.97	99.85	99.35	98.97	98.74	98.52	98.22	98.00	97.72	97.43	97.16
35	60.91	100.16	99.95	99.62	99.41	99.08	98.82	98.57	98.31	98.10	97.78
36	61.18	100.16	99.95	99.79	99.56	99.31	99.02	98.74	98.51	98.20	98.02
37	62.01	99.98	99.65	99.47	99.24	98.95	98.61	98.39	98.15	97.94	97.68
38	61.49	99.77	99.25	98.88	98.50	98.31	98.06	97.77	97.58	97.27	96.98
39	61.05	99.77	99.41	99.10	98.89	98.64	98.31	97.99	97.76	97.54	97.36
40	62.31	99.92	99.79	99.65	99.36	99.12	98.86	98.59	98.33	98.11	97.90
41	61.11	100.23	99.98	99.82	99.56	99.28	98.95	98.69	98.49	98.18	97.95
42	62.46	99.82	99.52	99.23	99.02	98.82	98.61	98.33	98.11	97.85	97.58
43	61.03	99.90	99.49	99.10	98.84	98.62	98.39	98.16	97.90	97.61	97.41
44	61.18	100.05	99.61	99.44	99.20	98.94	98.69	98.46	98.22	97.97	97.73
45	61.70	99.84	99.59	99.50	99.25	99.03	98.80	98.61	98.33	98.09	97.88
46	61.02	99.95	99.75	99.67	99.41	99.16	98.95	98.66	98.41	98.16	97.95
47	60.97	100.07	99.79	99.62	99.33	99.11	98.87	98.66	98.41	98.13	97.87
48	60.02	99.83	99.43	99.15	98.95	98.68	98.47	98.17	97.97	97.73	97.53
49	61.55	100.03	99.71	99.38	99.11	98.80	98.51	98.28	98.05	97.87	97.63
50	61.86	99.73	99.47	98.79	98.55	98.29	98.08	97.90	97.64	97.41	97.17
Avg.	61.37	99.96	99.67	99.39	99.14	98.88	98.63	98.38	98.13	97.88	97.64
Med.	61.18	99.95	99.71	99.44	99.20	98.94	98.66	98.43	98.16	97.92	97.66
st dev	0.63	0.1530	0.2230	0.2941	0.2978	0.2904	0.2794	0.2823	0.2801	0.2797	0.2898
Min.	60.02	99.70	99.25	98.79	98.50	98.29	98.06	97.77	97.58	97.27	96.98
Max.	62.54	100.26	99.98	99.82	99.56	99.31	99.02	98.79	98.54	98.31	98.10

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

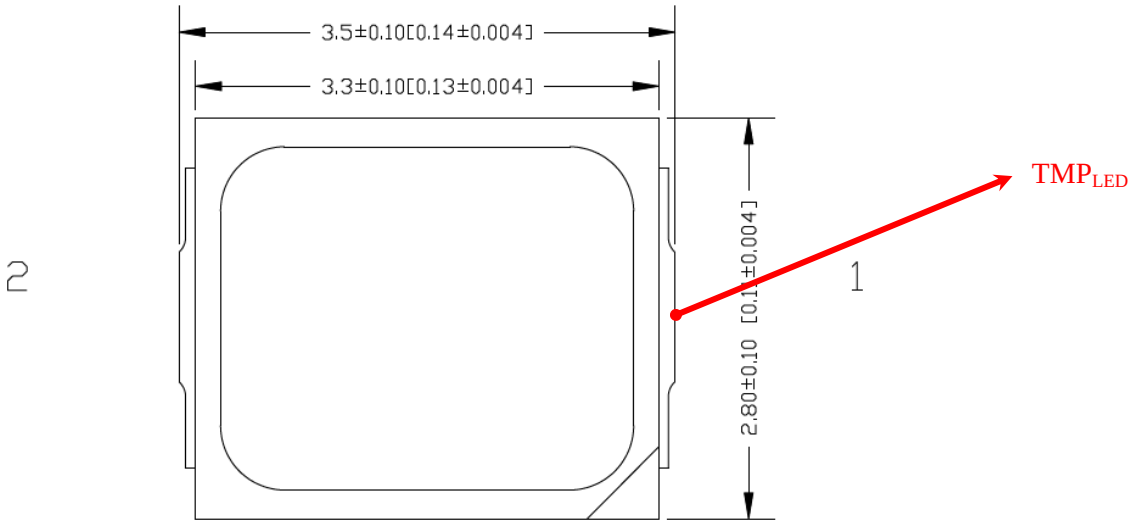
No.	Forward Voltage (V)										
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
26	3.134	3.132	3.132	3.131	3.123	3.131	3.145	3.130	3.138	3.135	3.132
27	3.139	3.132	3.141	3.142	3.116	3.147	3.132	3.135	3.134	3.134	3.115
28	3.147	3.143	3.141	3.148	3.144	3.142	3.148	3.137	3.130	3.141	3.140
29	3.128	3.128	3.125	3.124	3.145	3.130	3.140	3.136	3.145	3.137	3.128
30	3.124	3.118	3.126	3.122	3.127	3.121	3.121	3.129	3.137	3.128	3.137
31	3.134	3.128	3.125	3.135	3.154	3.136	3.128	3.135	3.133	3.126	3.139
32	3.124	3.124	3.121	3.130	3.125	3.128	3.127	3.122	3.142	3.143	3.126
33	3.139	3.134	3.138	3.129	3.141	3.138	3.138	3.142	3.142	3.144	3.117
34	3.145	3.139	3.127	3.133	3.148	3.130	3.134	3.143	3.137	3.131	3.148
35	3.141	3.132	3.128	3.138	3.149	3.141	3.131	3.136	3.141	3.141	3.138
36	3.132	3.124	3.126	3.121	3.148	3.124	3.114	3.148	3.122	3.146	3.133
37	3.147	3.141	3.149	3.141	3.113	3.149	3.143	3.140	3.134	3.134	3.167
38	3.126	3.122	3.139	3.136	3.153	3.132	3.146	3.142	3.139	3.128	3.135
39	3.113	3.111	3.118	3.115	3.128	3.126	3.128	3.131	3.117	3.111	3.134
40	3.143	3.139	3.128	3.125	3.133	3.125	3.140	3.132	3.136	3.133	3.127
41	3.120	3.120	3.127	3.134	3.133	3.151	3.123	3.137	3.140	3.139	3.140
42	3.126	3.126	3.132	3.137	3.133	3.147	3.121	3.134	3.139	3.135	3.131
43	3.130	3.132	3.134	3.135	3.138	3.125	3.154	3.142	3.124	3.138	3.135
44	3.109	3.111	3.113	3.116	3.124	3.130	3.125	3.118	3.121	3.128	3.127
45	3.139	3.139	3.137	3.136	3.135	3.145	3.136	3.136	3.142	3.131	3.140
46	3.128	3.130	3.138	3.130	3.130	3.145	3.136	3.138	3.134	3.135	3.135
47	3.134	3.130	3.137	3.136	3.121	3.154	3.146	3.136	3.122	3.135	3.156
48	3.113	3.118	3.116	3.124	3.135	3.135	3.134	3.145	3.164	3.160	3.138
49	3.132	3.130	3.132	3.129	3.149	3.133	3.155	3.135	3.132	3.151	3.131
50	3.126	3.124	3.122	3.133	3.111	3.133	3.143	3.166	3.162	3.132	3.143
Avg.	3.131	3.128	3.130	3.131	3.134	3.136	3.136	3.137	3.136	3.136	3.136
Med.	3.132	3.130	3.128	3.133	3.133	3.133	3.136	3.136	3.137	3.135	3.135
st dev	0.010	0.009	0.009	0.008	0.013	0.009	0.011	0.009	0.011	0.009	0.011
Min.	3.109	3.111	3.113	3.115	3.111	3.121	3.114	3.118	3.117	3.111	3.115
Max.	3.147	3.143	3.149	3.148	3.154	3.154	3.155	3.166	3.164	3.160	3.167

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

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')									
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
26	0.2620	0.5293	2703	0.0001	0.0005	0.0006	0.0007	0.0008	0.0010	0.0011	0.0013	0.0013	0.0015
27	0.2619	0.5288	2706	0.0001	0.0007	0.0010	0.0013	0.0013	0.0014	0.0016	0.0016	0.0019	0.0020
28	0.2625	0.5307	2686	0.0001	0.0004	0.0005	0.0006	0.0008	0.0011	0.0014	0.0016	0.0017	0.0020
29	0.2632	0.5281	2682	0.0002	0.0002	0.0003	0.0004	0.0005	0.0007	0.0008	0.0010	0.0011	0.0013
30	0.2610	0.5288	2726	0.0004	0.0005	0.0006	0.0007	0.0008	0.0008	0.0010	0.0012	0.0013	0.0014
31	0.2623	0.5286	2700	0.0003	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0014	0.0014	0.0016
32	0.2592	0.5280	2767	0.0004	0.0002	0.0002	0.0002	0.0005	0.0008	0.0011	0.0012	0.0013	0.0014
33	0.2619	0.5293	2704	0.0002	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0013	0.0015	0.0016
34	0.2601	0.5285	2745	0.0001	0.0005	0.0006	0.0009	0.0010	0.0012	0.0013	0.0014	0.0015	0.0017
35	0.2583	0.5251	2798	0.0001	0.0002	0.0005	0.0006	0.0009	0.0010	0.0013	0.0015	0.0016	0.0020
36	0.2625	0.5300	2690	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0010	0.0012	0.0013	0.0016
37	0.2599	0.5291	2746	0.0001	0.0003	0.0006	0.0008	0.0009	0.0010	0.0013	0.0014	0.0015	0.0017
38	0.2603	0.5289	2739	0.0002	0.0005	0.0006	0.0008	0.0009	0.0009	0.0010	0.0012	0.0014	0.0018
39	0.2649	0.5275	2651	0.0005	0.0006	0.0008	0.0009	0.0009	0.0010	0.0012	0.0013	0.0014	0.0016
40	0.2613	0.5301	2714	0.0002	0.0005	0.0006	0.0009	0.0010	0.0011	0.0012	0.0013	0.0015	0.0017
41	0.2611	0.5306	2716	0.0002	0.0004	0.0004	0.0005	0.0007	0.0009	0.0010	0.0011	0.0012	0.0014
42	0.2609	0.5280	2732	0.0004	0.0003	0.0005	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012
43	0.2624	0.5298	2693	0.0003	0.0004	0.0007	0.0009	0.0009	0.0011	0.0013	0.0014	0.0015	0.0017
44	0.2636	0.5314	2663	0.0002	0.0005	0.0006	0.0006	0.0008	0.0009	0.0011	0.0013	0.0016	0.0017
45	0.2610	0.5285	2725	0.0001	0.0003	0.0004	0.0006	0.0008	0.0008	0.0008	0.0009	0.0011	0.0013
46	0.2625	0.5305	2688	0.0001	0.0006	0.0008	0.0008	0.0009	0.0011	0.0013	0.0013	0.0016	0.0018
47	0.2606	0.5302	2728	0.0000	0.0005	0.0007	0.0008	0.0011	0.0013	0.0014	0.0014	0.0016	0.0018
48	0.2651	0.5289	2641	0.0000	0.0004	0.0006	0.0007	0.0009	0.0009	0.0009	0.0011	0.0011	0.0012
49	0.2631	0.5298	2677	0.0001	0.0007	0.0007	0.0006	0.0006	0.0004	0.0005	0.0004	0.0005	0.0007
50	0.2610	0.5288	2724	0.0001	0.0002	0.0003	0.0004	0.0005	0.0007	0.0008	0.0011	0.0011	0.0013
Avg.	0.2617	0.5291	2710	0.0002	0.0004	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012	0.0014	0.0016
Med.	0.2619	0.5289	2706	0.0002	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0013	0.0014	0.0016
st dev	0.0016	0.0013	35	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003
Min.	0.2583	0.5251	2641	0.0000	0.0002	0.0002	0.0002	0.0005	0.0004	0.0005	0.0004	0.0005	0.0007
Max.	0.2651	0.5314	2798	0.0005	0.0007	0.0010	0.0013	0.0013	0.0014	0.0016	0.0016	0.0019	0.0020

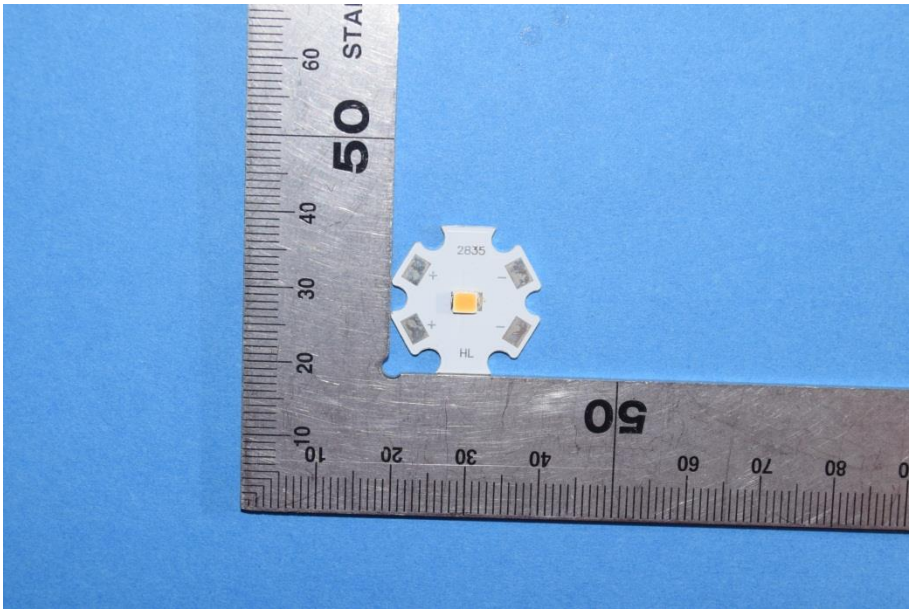
4 - DUT Photo

4.1 Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



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**********END OF REPORT**********