



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-2835HW-2C-S1-08L-PCT-HR6

Report Type: 6000 Hours Test Report		Product Type: LED Package	
Reviewed By:	Pote Wang	<i>Pote Wang</i>	
Report Number:	RSZ200925501-10-6000		
Test Date:	2020-09-30 to 2021-06-22		
Report Date:	2021-07-09		
Approved by:	Blake Zhang / EE Engineer		
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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	5
1.6 Photometric Measurement Method and Uncertainty.....	5
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, 55°C, 150mA (Lumen Maintenance)	7
3.2 Data Set 1, 55°C, 150mA (Forward Voltage).....	8
3.3 Data Set 1, 55°C, 150mA (Chromaticity Shift)	9
3.4 Data Set 2, 105°C, 150mA (Lumen Maintenance)	10
3.5 Data Set 2, 105°C, 150mA (Forward Voltage).....	11
3.6 Data Set 2, 105°C, 150mA (Chromaticity Shift).....	12
4 - DUT Photo	13
4.1 Mechanical Dimensions	13
4.2 DUT Photo.....	13
Directions	14

1 - General Information

1.1 Description of LED Light Sources

Sample Size:

50 PCS test samples were in good condition and received on 2020-09-25. The samples were numbered from 1 to 25 and 26 to 50.

Manufacturer:	Hongli Zhihui Group Co.,Ltd. Guangzhou Branch
Part Number:	HL-A-2835HW-2C-S1-08L-PCT-HR6
Part Type:	LED Package
#Drive Level:	DC 150mA
#Nominal CCT:	2700K
#Power:	0.99W
#Average Current Density per LED die:	1033.343 mA/mm ²
#Average Power Density per LED die:	3.410 W/mm ²
#CRI:	95
#Die Spacing:	0.15mm

Sampling Method:

LED samples for IESNA LM-80 testing consist of units built from a minimum of three manufacturing lots with each manufacturing lot built from different wafer lots built on non-consecutive days.

These manufacturing lots are picked to represent a wide parametric distribution.

Family products covered by this report:

According to *ENERGY STAR® Requirements for the Use of LM-80 Data*, the following products can be covered by this report base on the information and declaration provided by manufacturer. The information of these models shows that the covered products meet all section 4 requirements of *ENERGY STAR® Requirements for the Use of LM-80 Data* (September 28, 2017)

This report covers the following models:

Model type	Model name	CRI	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	Current (mA)
Master model	HL-A-2835HW-2C-S1-08L-PCT-HR6	95	2700	2	1	0.1010	1033.343	150	0.15	150
multiple model	HL-**-2835H***W-2C-S1-08*-PCT-HR6-***	95	2200-6500	2	1	0.1010	1033.343	150	0.15	150
	HL-**-2835D***W-2C-S1-08*-PCT-HR6-***	95	2200-6500	2	1	0.1010	861.11	150	0.15	150
	HL-**-2835D***W-2-S1-08*-PCT-HR6-***	95	2200-6500	1	2	0.0521	430.55	75	0.15	150
	HL-**-2835D***W-2-S1-08*-PCT-HR6-***	95	2200-6500	1	2	0.1010	861.11	150	0.15	300
	HL-**-2835D***W-2-S1-08*-PCT-HR6-***	95	2200-6500	1	2	0.0204	172.22	30	0.15	60
	HL-**-2835H***W-2-S1-08*-PCT-HR6-***	95	2200-6500	1	2	0.0521	516.67	75	0.15	150

multiple model	HL-**-2835H***W-2-S1-08*-PCT-HR6-***	95	2200-6500	1	2	0.1010	1033.343	150	0.15	300
	HL-**-2835H***W-2-S1-08*-PCT-HR6-***	95	2200-6500	1	2	0.0204	206.67	30	0.15	60
	HL-**-2835H***W-S1-08*-PCT-HR6-***	95	2200-6500	1	1	0.0521	1033.343	150	/	150
	HL-**-2835H***W-S1-08*-PCT-HR6-***	95	2200-6500	1	1	0.0204	413.34	60	/	60
	HL-**-2835D***W-S1-08*-PCT-HR6-***	95	2200-6500	1	1	0.0521	861.11	150	/	150
	HL-**-2835D***W-S1-08*-PCT-HR6-***	95	2200-6500	1	1	0.0204	344.45	60	/	60

Note:

The model name begins with "HL", such as "HL-**-2835H***W-2C-S1-08*-PCT-HR6-***", "*" is described in detail as follows :

1. The first "*" is a letter A or AS which stands for the Market demand .
2. The second "****" is a number from 1 to 999 which stands for the brightness level.
3. The third "*" is a letter L or None which stands for the bonding wire style.
4. The fourth "****" 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
- 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
High Accuracy Array Spectroradiometer	EVERFINE	HAAS 2000	P600674CM5391140	2020-10-22	2021-10-21
0.5M Integrating Sphere	EVERFINE	0.5m	NA	2020-10-22	2021-10-21
LED Test Source	EVERFINE	LTS-300	P185616CJ1391143	2020-10-21	2021-10-20
Standard Light Source	EVERFINE	D062	1011093	2020-10-20	2021-10-19
Multilayer aging machine	BACL	B2-270	20023	2021-02-24	2022-02-23
Program-controlled D.C. Stabilized Voltage Supply	Hanshenpu yuan	HSPY-200-01	N/A	2020-07-01	2021-06-30

1.4 Drive Level

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

1.5 Ambient Conditions for Maintenance Test

For lumen maintenance test, samples within one data set, were installed on cooling boards in thermal chambers with minimal ambient airflow. The case temperature and ambient temperature was monitored by thermocouples which one was soldered to the coldest DUTs' case (TMP_{LED}) location, while the other is mounted at a distance of 5 mm above the TMP location.

During life testing, TMP_{LED} of the coldest LEDs were maintained at a temperature that was greater than or equal to 2°C below the corresponding nominal case temperature. Surrounding air was maintained at a temperature that was greater than or equal to 5°C below the corresponding nominal case temperature. Thermocouples were shielded from direct DUT optical radiation and comply with ASTM E230 Table 1 "Special Limits".

Samples were connected to DC power supply in series circuits with a constant current. The forward current was regulated to within ±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 driven 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. (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: 55°C, 150mA

Part Number: HL-A-2835HW-2C-S1-08L-PCT-HR6
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-A-2835HW-2C-S1-08L-PCT-HR6
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	6000hrs	2.414E-06	1.006	>36000 hours
2	25	0	1000hrs	6000hrs	2.957E-06	1.006	>36000 hours

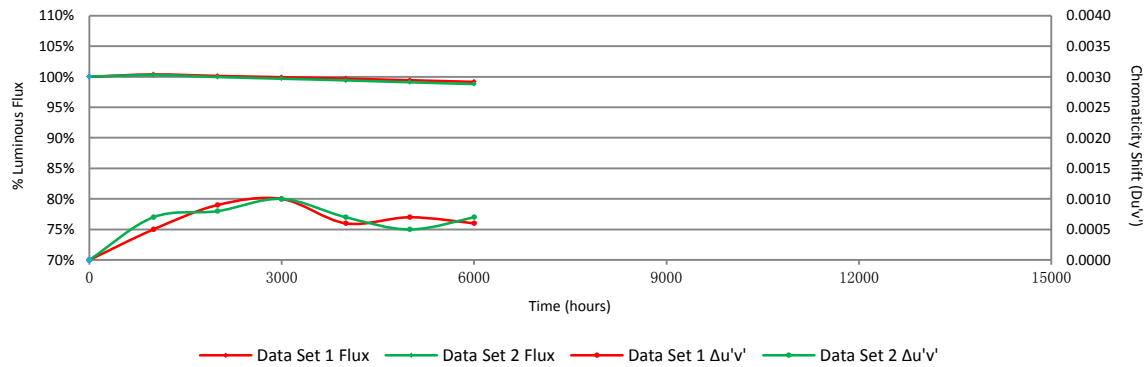
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	100.38%	100.13%	99.92%	99.69%	99.43%	99.16%
2	100.29%	99.95%	99.67%	99.40%	99.09%	98.80%

Average Chromaticity Shift

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

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 (%)					
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	83.76	100.45	100.35	100.20	99.88	99.56	99.31
2	85.05	100.22	99.93	99.80	99.45	99.27	99.08
3	85.29	100.32	100.09	99.89	99.53	99.21	98.98
4	84.87	100.42	100.16	100.05	99.72	99.18	98.95
5	85.35	100.50	100.22	100.00	99.74	99.48	99.09
6	84.26	100.11	100.06	99.98	99.93	99.87	99.49
7	85.03	100.53	100.18	99.80	99.58	99.22	98.91
8	85.16	100.55	100.38	99.96	99.92	99.48	99.28
9	82.61	100.57	100.52	100.13	99.85	99.67	99.31
10	84.32	100.51	100.33	100.06	99.88	99.74	99.45
11	84.95	100.58	100.45	100.41	99.94	99.74	99.39
12	83.90	100.55	100.31	100.25	100.17	100.08	99.69
13	83.34	100.26	99.93	99.75	99.70	99.66	99.52
14	83.34	100.42	99.86	99.75	99.29	98.97	98.81
15	84.35	100.34	99.98	99.81	99.62	99.41	99.09
16	83.77	100.19	99.65	99.63	99.34	99.18	99.06
17	84.33	100.38	100.08	99.88	99.60	99.47	99.17
18	83.47	100.50	100.37	99.84	99.76	99.53	99.16
19	84.58	100.56	100.24	99.88	99.81	99.63	99.28
20	84.36	100.09	99.85	99.60	99.42	99.09	98.84
21	84.11	100.08	99.92	99.75	99.61	99.05	98.88
22	85.14	100.43	100.16	100.06	99.77	99.28	99.06
23	85.25	100.38	100.13	99.89	99.52	99.37	99.17
24	84.80	100.35	100.20	100.01	99.83	99.23	99.12
25	85.53	100.29	99.93	99.67	99.40	99.28	99.03
Avg.	84.44	100.38	100.13	99.92	99.69	99.43	99.16
Med.	84.36	100.42	100.16	99.89	99.72	99.41	99.12
st dev	0.76	0.15	0.21	0.20	0.22	0.27	0.23
Min.	82.61	100.08	99.65	99.60	99.29	98.97	98.81
Max.	85.53	100.58	100.52	100.41	100.17	100.08	99.69

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

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	6.247	6.252	6.238	6.232	6.271	6.248	6.249
2	6.282	6.296	6.284	6.278	6.305	6.296	6.291
3	6.299	6.309	6.297	6.292	6.333	6.309	6.306
4	6.253	6.267	6.251	6.253	6.278	6.264	6.266
5	6.257	6.267	6.255	6.255	6.280	6.265	6.264
6	6.280	6.300	6.280	6.276	6.311	6.298	6.296
7	6.253	6.266	6.251	6.247	6.276	6.266	6.267
8	6.280	6.299	6.278	6.274	6.299	6.293	6.288
9	6.232	6.249	6.234	6.226	6.253	6.247	6.246
10	6.251	6.262	6.255	6.244	6.271	6.263	6.263
11	6.244	6.260	6.249	6.249	6.274	6.266	6.259
12	6.299	6.315	6.297	6.299	6.320	6.312	6.308
13	6.230	6.239	6.228	6.226	6.253	6.243	6.238
14	6.255	6.267	6.255	6.255	6.274	6.262	6.267
15	6.238	6.259	6.238	6.242	6.258	6.254	6.250
16	6.247	6.257	6.240	6.240	6.267	6.256	6.254
17	6.267	6.283	6.265	6.267	6.293	6.277	6.280
18	6.255	6.268	6.253	6.257	6.276	6.264	6.266
19	6.251	6.260	6.244	6.242	6.267	6.259	6.263
20	6.269	6.283	6.267	6.265	6.287	6.283	6.279
21	6.280	6.292	6.280	6.288	6.301	6.297	6.286
22	6.338	6.349	6.336	6.343	6.360	6.348	6.345
23	6.290	6.296	6.288	6.288	6.309	6.297	6.294
24	6.272	6.285	6.269	6.261	6.289	6.282	6.275
25	6.315	6.331	6.309	6.313	6.337	6.322	6.324
Avg.	6.267	6.280	6.266	6.264	6.290	6.279	6.277
Med.	6.257	6.268	6.255	6.257	6.280	6.266	6.267
st dev	0.026	0.027	0.026	0.028	0.027	0.026	0.025
Min.	6.230	6.239	6.228	6.226	6.253	6.243	6.238
Max.	6.338	6.349	6.336	6.343	6.360	6.348	6.345

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

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.2588	0.5307	2764	0.0006	0.0010	0.0011	0.0012	0.0011	0.0008
2	0.2596	0.5330	2738	0.0004	0.0009	0.0010	0.0008	0.0010	0.0008
3	0.2590	0.5323	2752	0.0006	0.0009	0.0009	0.0006	0.0013	0.0006
4	0.2594	0.5326	2743	0.0006	0.0008	0.0011	0.0005	0.0010	0.0005
5	0.2592	0.5340	2741	0.0004	0.0007	0.0010	0.0006	0.0007	0.0006
6	0.2586	0.5327	2759	0.0005	0.0008	0.0010	0.0006	0.0009	0.0006
7	0.2595	0.5323	2743	0.0004	0.0008	0.0009	0.0006	0.0007	0.0008
8	0.2594	0.5309	2750	0.0006	0.0009	0.0011	0.0006	0.0005	0.0004
9	0.2616	0.5317	2701	0.0006	0.0009	0.0009	0.0006	0.0007	0.0005
10	0.2598	0.5315	2740	0.0005	0.0008	0.0010	0.0005	0.0004	0.0005
11	0.2580	0.5325	2773	0.0005	0.0009	0.0010	0.0004	0.0006	0.0006
12	0.2599	0.5316	2737	0.0005	0.0011	0.0012	0.0008	0.0005	0.0006
13	0.2584	0.5306	2772	0.0006	0.0009	0.0012	0.0009	0.0005	0.0005
14	0.2615	0.5318	2702	0.0006	0.0009	0.0010	0.0004	0.0005	0.0005
15	0.2589	0.5307	2762	0.0005	0.0009	0.0010	0.0005	0.0007	0.0007
16	0.2599	0.5330	2731	0.0005	0.0007	0.0010	0.0005	0.0004	0.0005
17	0.2592	0.5312	2753	0.0006	0.0008	0.0011	0.0006	0.0006	0.0004
18	0.2597	0.5308	2744	0.0005	0.0010	0.0011	0.0007	0.0005	0.0006
19	0.2578	0.5305	2785	0.0007	0.0009	0.0012	0.0007	0.0007	0.0005
20	0.2596	0.5305	2748	0.0004	0.0007	0.0009	0.0004	0.0006	0.0007
21	0.2582	0.5310	2774	0.0005	0.0009	0.0010	0.0006	0.0008	0.0008
22	0.2603	0.5335	2721	0.0005	0.0009	0.0011	0.0005	0.0006	0.0006
23	0.2573	0.5321	2789	0.0005	0.0009	0.0009	0.0005	0.0005	0.0006
24	0.2590	0.5314	2755	0.0006	0.0009	0.0011	0.0006	0.0006	0.0004
25	0.2601	0.5332	2727	0.0004	0.0008	0.0009	0.0006	0.0005	0.0006
Avg.	0.2593	0.5318	2748	0.0005	0.0009	0.0010	0.0006	0.0007	0.0006
Med.	0.2594	0.5317	2748	0.0005	0.0009	0.0010	0.0006	0.0006	0.0006
st dev	0.0010	0.0010	22	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001
Min.	0.2573	0.5305	2701	0.0004	0.0007	0.0009	0.0004	0.0004	0.0004
Max.	0.2616	0.5340	2789	0.0007	0.0011	0.0012	0.0012	0.0013	0.0008

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

No.	Φ(lm)	Lumen Maintenance (%)					
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	84.72	100.07	100.02	99.54	99.28	99.03	98.91
27	83.57	100.17	99.90	99.64	99.46	98.96	98.80
28	83.99	100.26	99.98	99.70	99.62	99.24	99.10
29	84.20	100.20	99.88	99.52	99.19	99.16	98.86
30	84.02	100.36	100.02	99.73	99.62	99.18	99.00
31	84.50	100.36	100.00	99.78	99.50	99.37	99.16
32	83.68	100.33	99.96	99.50	99.38	99.02	98.86
33	84.80	100.32	100.17	99.80	99.66	99.42	98.96
34	84.80	100.33	100.20	99.91	99.49	99.22	99.08
35	84.52	100.46	100.25	99.79	99.42	98.85	98.53
36	83.67	100.48	99.94	99.37	98.98	98.72	98.34
37	84.92	100.25	99.60	99.08	98.66	98.40	97.88
38	83.87	100.24	100.04	100.02	99.75	99.58	99.05
39	84.40	100.47	99.91	99.75	99.41	99.02	98.66
40	82.45	100.49	100.04	99.96	99.83	99.58	99.39
41	84.95	100.26	99.86	99.72	99.38	99.03	98.91
42	84.19	100.23	100.05	99.87	99.64	99.29	99.03
43	84.16	100.18	99.94	99.73	99.48	98.91	98.65
44	84.62	100.30	99.98	99.72	99.52	99.41	99.15
45	84.64	100.38	100.06	99.93	99.85	99.41	99.26
46	83.82	100.35	99.95	99.81	99.37	99.02	98.77
47	84.40	100.28	99.79	99.57	99.41	98.92	98.68
48	85.13	100.07	99.48	99.42	99.13	98.80	98.38
49	85.66	100.29	99.78	99.47	98.96	98.91	98.46
50	85.55	100.16	100.05	99.52	99.01	98.84	98.23
Avg.	84.37	100.29	99.95	99.67	99.40	99.09	98.80
Med.	84.40	100.29	99.98	99.72	99.42	99.03	98.86
st dev	0.68	0.12	0.17	0.21	0.29	0.28	0.35
Min.	82.45	100.07	99.48	99.08	98.66	98.40	97.88
Max.	85.66	100.49	100.25	100.02	99.85	99.58	99.39

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

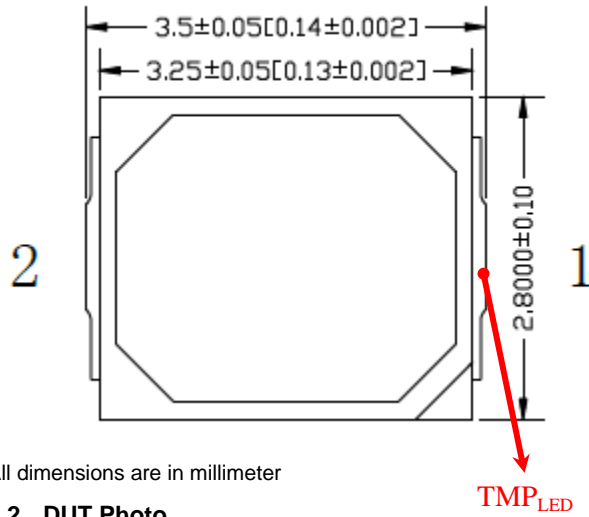
No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	6.299	6.318	6.303	6.301	6.319	6.311	6.314
27	6.234	6.245	6.230	6.232	6.253	6.245	6.245
28	6.259	6.271	6.253	6.253	6.276	6.267	6.269
29	6.274	6.283	6.263	6.265	6.282	6.278	6.279
30	6.259	6.270	6.255	6.253	6.270	6.262	6.267
31	6.274	6.288	6.274	6.269	6.290	6.275	6.282
32	6.255	6.262	6.244	6.242	6.262	6.254	6.256
33	6.253	6.271	6.253	6.251	6.271	6.263	6.264
34	6.278	6.301	6.282	6.282	6.308	6.294	6.292
35	6.238	6.260	6.238	6.236	6.260	6.250	6.249
36	6.261	6.277	6.267	6.267	6.284	6.275	6.274
37	6.284	6.300	6.282	6.286	6.307	6.291	6.295
38	6.228	6.248	6.232	6.230	6.250	6.242	6.247
39	6.259	6.279	6.259	6.261	6.279	6.268	6.272
40	6.244	6.256	6.244	6.240	6.266	6.252	6.255
41	6.249	6.259	6.244	6.251	6.268	6.254	6.260
42	6.280	6.295	6.278	6.278	6.296	6.289	6.288
43	6.257	6.269	6.253	6.249	6.273	6.262	6.267
44	6.251	6.266	6.253	6.253	6.273	6.265	6.263
45	6.267	6.278	6.263	6.259	6.281	6.276	6.272
46	6.238	6.248	6.236	6.234	6.256	6.242	6.249
47	6.253	6.265	6.247	6.249	6.265	6.260	6.265
48	6.309	6.320	6.305	6.303	6.317	6.310	6.314
49	6.267	6.275	6.259	6.263	6.279	6.269	6.271
50	6.251	6.263	6.249	6.251	6.260	6.260	6.261
Avg.	6.261	6.275	6.259	6.258	6.278	6.269	6.271
Med.	6.259	6.271	6.253	6.253	6.273	6.265	6.267
st dev	0.019	0.020	0.020	0.020	0.019	0.019	0.019
Min.	6.228	6.245	6.230	6.230	6.250	6.242	6.245
Max.	6.309	6.320	6.305	6.303	6.319	6.311	6.314

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

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	0.2597	0.5331	2734	0.0007	0.0007	0.0009	0.0008	0.0005	0.0006
27	0.2573	0.5294	2801	0.0006	0.0009	0.0011	0.0007	0.0008	0.0010
28	0.2574	0.5299	2796	0.0007	0.0009	0.0011	0.0006	0.0004	0.0006
29	0.2596	0.5321	2740	0.0006	0.0008	0.0009	0.0006	0.0007	0.0006
30	0.2598	0.5304	2743	0.0006	0.0008	0.0009	0.0006	0.0008	0.0008
31	0.2587	0.5319	2761	0.0007	0.0009	0.0010	0.0007	0.0007	0.0006
32	0.2592	0.5323	2748	0.0006	0.0008	0.0009	0.0007	0.0005	0.0006
33	0.2594	0.5342	2737	0.0007	0.0008	0.0010	0.0008	0.0004	0.0008
34	0.2577	0.5313	2785	0.0005	0.0008	0.0009	0.0007	0.0005	0.0008
35	0.2563	0.5304	2818	0.0006	0.0010	0.0010	0.0009	0.0005	0.0007
36	0.2609	0.5332	2709	0.0006	0.0006	0.0009	0.0005	0.0004	0.0006
37	0.2600	0.5325	2732	0.0006	0.0007	0.0009	0.0007	0.0006	0.0008
38	0.2583	0.5311	2772	0.0007	0.0010	0.0009	0.0006	0.0005	0.0007
39	0.2592	0.5315	2751	0.0006	0.0009	0.0010	0.0006	0.0006	0.0006
40	0.2604	0.5325	2722	0.0006	0.0008	0.0010	0.0009	0.0007	0.0008
41	0.2592	0.5307	2755	0.0007	0.0008	0.0010	0.0006	0.0006	0.0006
42	0.2601	0.5309	2735	0.0007	0.0010	0.0011	0.0006	0.0004	0.0006
43	0.2598	0.5317	2738	0.0007	0.0009	0.0011	0.0008	0.0005	0.0007
44	0.2589	0.5307	2762	0.0007	0.0009	0.0010	0.0006	0.0005	0.0006
45	0.2569	0.5314	2801	0.0008	0.0009	0.0010	0.0005	0.0004	0.0007
46	0.2593	0.5314	2750	0.0006	0.0009	0.0011	0.0005	0.0004	0.0006
47	0.2573	0.5303	2798	0.0008	0.0009	0.0011	0.0007	0.0004	0.0006
48	0.2593	0.5334	2741	0.0007	0.0007	0.0010	0.0008	0.0002	0.0004
49	0.2584	0.5307	2772	0.0006	0.0007	0.0010	0.0004	0.0004	0.0007
50	0.2594	0.5335	2740	0.0004	0.0007	0.0009	0.0007	0.0009	0.0007
Avg.	0.2589	0.5316	2758	0.0007	0.0008	0.0010	0.0007	0.0005	0.0007
Med.	0.2592	0.5314	2750	0.0006	0.0008	0.0010	0.0007	0.0005	0.0006
st dev	0.0012	0.0012	28	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001
Min.	0.2563	0.5294	2709	0.0004	0.0006	0.0009	0.0004	0.0002	0.0004
Max.	0.2609	0.5342	2818	0.0008	0.0010	0.0011	0.0009	0.0009	0.0010

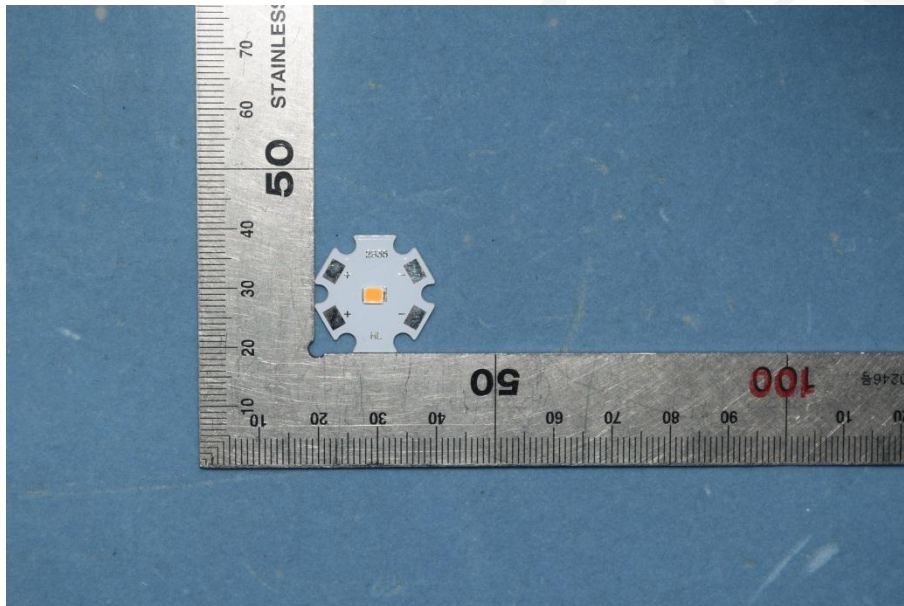
4 - DUT Photo

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