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-2835D15FC-S1-08

Report Type: 6000 Hours Test Report	**Product Type:** LED Package
Reviewed By:	Pote Wang
Report Number:	RSZ190428532-10-6000
Test Date:	2020-01-04 to 2020-10-16
Report Date:	2020-10-23
Approved 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.

TABLE OF CONTENTS

1. General Information 3
1.1 Description of LED Light Sources 3
1.2 Standards and Reference Documentations 3
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 4
1.8 Sample Set 5
2. Summary of Test Result 6
3. Test Data 7
3.1 Data Set 1, 85°C, 150mA (400-700nm Photon Flux Maintenance) 7
3.2 Data Set 1, 85°C, 150mA (Forward Voltage) 8
3.3 Data Set 1, 85°C, 150mA (Wavelength) 9
3.4 Data Set 2, 105°C, 150mA (400-700nm Photon Flux Maintenance) 10
3.5 Data Set 2, 105°C, 150mA (Forward Voltage) 11
3.6 Data Set 2, 105°C, 150mA (Wavelength) 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:

60 PCS test samples were in good condition and received on 2019-04-28. The samples were numbered from 1 to 30 and 31 to 60.

#Manufacturer:	Hongli Zhihui Group Co.,Ltd. Guangzhou Branch
#Part Number:	HL-A-2835D15FC-S1-08
#Part Type:	LED Package
#Drive Level:	DC 150mA
#Wavelength:	665nm
#Power:	0.315W
#Average Current Density per LED die:	600.000mA/mm^2
#Average Power Density per LED die:	1.260W/mm^2
#CRI:	NA
#Die Spacing:	NA

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:

Test Model Number	Multiple Models	Details
HL-A-2835D15FC-S1-08	HL-A-2835D**FC-S1-08	1. Different Model name for different market. 2. "**" is a number from 1 to 99 which stand for the brightness level.
	HL-A-2835D**FC-S1-08L	
	HL-A-2835D**FC-S1-08HL	
	HL-A-2835D**FC-S1-08-PCT	
	HL-A-2835D**FC-S1-08L-PCT	
	HL-AS-2835D**FC-S1-08-PCT	
	HL-AS-2835D**FC-S1-08L-PCT	

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
- ANSI/ASABE S640 JUL2017 Quantities and Units of Electromagnetic Radiation for Plants (Photosynthetic Organisms) (This standard was not accredited by IAS)
- ANSI/ASABE S642 SEP2018: Recommended Methods for Measurement and Testing of LED Products for Plant Growth and Development (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	2019-10-22	2020-10-21
0.5M Integrating Sphere	EVERFINE	0.5m	NA	2019-10-22	2020-10-21
LED Test Source	EVERFINE	LTS-300	P185616CJ1391143	2019-11-05	2020-11-04
Standard Light Source	EVERFINE	D062	1011093	2019-11-19	2020-11-18
Multilayer aging machine	BACL	N/A	N/A	2019-11-05	2020-11-04
Program-controlled D.C. Stabilized Voltage Supply	Hanshenpuyuan	HSPY-60-03	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 ±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 spectral power distribution and photon flux. 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.

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, 150mA

Part Number:	HL-A-2835D15FC-S1-08
Number of Units:	30
Case Temperature:	>83°C
Ambient Temperature:	>80°C
Life Test Drive Current:	150mA
Measurement Current:	150mA

Data Set 2: 105°C, 150mA

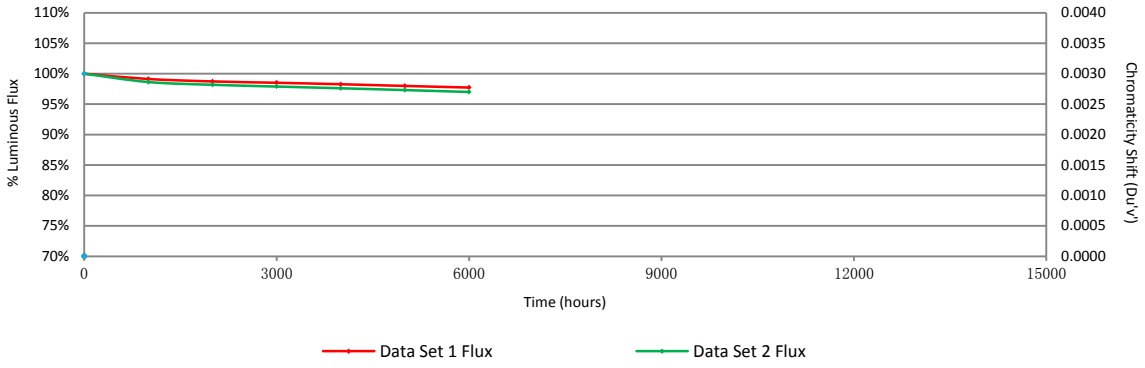
Part Number:	HL-A-2835D15FC-S1-08
Number of Units:	30
Case Temperature:	>103°C
Ambient Temperature:	>100°C
Life Test Drive Current:	150mA
Measurement Current:	150mA

2. Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	α	β	Reported TM-21 Q_{70} Lifetime	Reported TM-21 Q_{90} Lifetime
1	30	0	1000hrs	6000hrs	2.746E-06	0.993	>36000 hours	>36000 hours
2	30	0	1000hrs	6000hrs	3.225E-06	0.989	>36000 hours	29000 hours

Average Photon Flux Maintenance, Photosynthetic 400-700nm (PFM_P) (Percentage of Initial)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	99.13%	98.73%	98.51%	98.27%	97.99%	97.73%
2	98.63%	98.18%	97.89%	97.61%	97.31%	97.00%



3. Test Data

3.1 Data Set 1, 85°C, 150mA (400-700nm Photon Flux Maintenance)

No.	Φ_p (μmol × s^{-1})	400-700nm Photon Flux Maintenance (%)					
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.6991	99.84	99.40	99.08	98.86	98.24	97.87
2	0.7144	98.96	98.59	98.35	98.14	97.83	97.59
3	0.6865	99.07	98.73	98.67	98.28	98.25	98.05
4	0.6861	99.11	98.83	98.25	97.99	97.43	97.17
5	0.7119	99.16	98.53	98.22	98.08	97.96	97.71
6	0.6818	99.38	99.00	98.77	98.55	97.86	97.65
7	0.6965	99.71	99.41	99.04	98.81	98.39	98.12
8	0.7103	99.06	98.58	98.23	97.99	97.44	97.17
9	0.7051	99.16	98.61	98.47	98.18	98.14	97.87
10	0.7134	98.96	98.75	98.47	98.23	98.15	97.79
11	0.6877	98.87	98.53	98.26	98.02	98.01	97.80
12	0.6961	99.15	98.79	98.76	98.42	98.10	97.76
13	0.7014	99.36	98.93	98.35	98.12	98.06	97.86
14	0.7094	99.00	98.58	98.41	98.13	98.10	97.89
15	0.7080	99.49	98.95	98.63	98.45	98.09	97.71
16	0.7086	98.52	98.21	98.00	97.77	97.76	97.56
17	0.6923	98.56	98.27	97.75	97.40	97.21	97.05
18	0.6861	98.86	98.24	98.03	97.90	97.51	97.19
19	0.7027	98.75	98.33	98.18	98.01	97.87	97.55
20	0.6940	98.56	98.14	98.13	97.97	97.49	97.19
21	0.6879	99.10	98.65	98.53	98.36	98.28	98.10
22	0.6974	98.95	98.57	98.41	98.19	97.62	97.40
23	0.6892	99.43	98.97	98.85	98.56	98.46	98.10
24	0.6801	98.76	98.25	98.13	97.94	97.71	97.43
25	0.6896	98.36	97.93	97.84	97.61	97.56	97.27
26	0.6927	99.93	99.54	99.29	99.02	98.46	98.24
27	0.6997	99.40	99.10	98.86	98.61	97.98	97.84
28	0.6976	99.23	98.94	98.91	98.65	98.62	98.44
29	0.6986	99.99	99.76	99.57	99.38	98.84	98.61
30	0.7019	99.23	98.76	98.75	98.40	98.28	97.89
Avg.	0.6975	99.13	98.73	98.51	98.27	97.99	97.73
Med.	0.6975	99.10	98.69	98.44	98.19	98.03	97.77
st dev	0.0097	0.41	0.43	0.43	0.42	0.39	0.39
Min.	0.6801	98.36	97.93	97.75	97.40	97.21	97.05
Max.	0.7144	99.99	99.76	99.57	99.38	98.84	98.61

3.2 Data Set 1, 85°C, 150mA (Forward Voltage)

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	2.485	2.528	2.512	2.523	2.521	2.516	2.523
2	2.488	2.528	2.507	2.520	2.514	2.512	2.519
3	2.494	2.539	2.522	2.532	2.525	2.526	2.537
4	2.474	2.519	2.497	2.503	2.501	2.499	2.507
5	2.447	2.487	2.471	2.485	2.483	2.477	2.485
6	2.453	2.492	2.472	2.474	2.479	2.478	2.483
7	2.496	2.531	2.515	2.523	2.522	2.523	2.525
8	2.484	2.522	2.511	2.511	2.559	2.560	2.522
9	2.530	2.571	2.553	2.555	2.518	2.521	2.563
10	2.572	2.619	2.606	2.609	2.616	2.617	2.619
11	2.509	2.549	2.535	2.533	2.546	2.547	2.549
12	2.547	2.591	2.576	2.576	2.585	2.589	2.615
13	2.555	2.599	2.584	2.584	2.593	2.596	2.599
14	2.632	2.684	2.667	2.666	2.683	2.682	2.683
15	2.530	2.568	2.554	2.549	2.557	2.560	2.564
16	2.627	2.673	2.661	2.656	2.668	2.667	2.675
17	2.475	2.519	2.507	2.504	2.514	2.516	2.521
18	2.581	2.623	2.611	2.604	2.620	2.616	2.623
19	2.507	2.550	2.538	2.531	2.542	2.540	2.546
20	2.548	2.591	2.578	2.573	2.583	2.581	2.588
21	2.470	2.509	2.497	2.492	2.503	2.501	2.509
22	2.598	2.640	2.630	2.624	2.637	2.634	2.668
23	2.489	2.526	2.513	2.508	2.517	2.518	2.520
24	2.576	2.620	2.607	2.603	2.611	2.614	2.620
25	2.433	2.469	2.459	2.457	2.463	2.467	2.464
26	2.566	2.610	2.603	2.600	2.608	2.608	2.605
27	2.630	2.677	2.669	2.666	2.676	2.674	2.673
28	2.498	2.533	2.526	2.521	2.528	2.527	2.526
29	2.586	2.631	2.625	2.624	2.630	2.629	2.631
30	2.476	2.515	2.506	2.504	2.511	2.512	2.512
Avg.	2.525	2.567	2.554	2.554	2.560	2.560	2.566
Med.	2.508	2.550	2.537	2.533	2.544	2.544	2.548
st dev	0.057	0.059	0.061	0.058	0.061	0.061	0.063
Min.	2.433	2.469	2.459	2.457	2.463	2.467	2.464
Max.	2.632	2.684	2.669	2.666	2.683	2.682	2.683

3.3 Data Set 1, 85°C, 150mA (Wavelength)

No.	Wavelength (nm)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	657.8	657.3	657.5	657.7	657.6	657.8	657.9
2	659.8	658.7	659.8	659.8	659.8	659.7	659.4
3	657.9	657.3	657.8	657.9	657.8	657.5	657.5
4	658.4	657.9	658.3	658.5	658.3	658.3	658.3
5	658.1	657.7	658.0	657.9	657.9	658.1	658.0
6	658.8	658.0	658.6	658.3	658.3	658.4	658.4
7	659.6	658.7	659.5	659.8	659.3	659.8	659.5
8	658.0	657.2	657.8	657.9	658.6	658.3	657.8
9	658.3	658.2	658.8	659.0	657.9	657.6	658.7
10	658.0	657.3	657.9	657.9	657.6	657.9	657.9
11	657.9	657.3	657.9	657.9	657.8	657.8	657.6
12	657.7	657.1	657.9	657.6	657.7	657.5	657.6
13	657.6	657.4	657.8	657.6	657.9	657.6	657.8
14	657.9	657.5	657.9	657.9	657.9	657.7	657.9
15	657.9	657.6	657.9	658.2	657.9	658.1	658.0
16	657.6	657.1	657.8	657.8	657.5	657.6	657.6
17	658.3	658.0	657.9	658.4	658.0	657.9	658.1
18	657.8	657.3	657.6	657.9	657.5	657.9	657.6
19	658.0	657.6	658.0	658.0	658.0	657.6	658.0
20	657.9	657.5	657.9	658.0	657.8	657.8	657.8
21	658.1	657.8	658.0	658.2	658.0	658.0	658.0
22	658.0	657.2	657.6	657.9	657.5	657.6	657.6
23	658.8	658.0	658.3	658.4	658.5	658.5	658.3
24	657.9	657.3	657.6	657.8	657.8	657.8	657.6
25	658.5	658.0	658.3	658.6	658.3	658.6	658.2
26	657.6	657.6	657.9	657.6	657.7	657.8	657.6
27	657.8	657.3	657.6	657.9	657.8	657.5	657.9
28	659.8	658.8	659.8	659.8	659.3	659.3	659.1
29	657.9	657.6	657.6	657.9	657.6	657.8	657.6
30	657.8	657.7	657.9	657.7	657.6	657.6	657.9
Avg.	658.2	657.7	658.1	658.2	658.0	658.0	658.0
Med.	658.0	657.6	657.9	657.9	657.9	657.8	657.9
st dev	0.6	0.5	0.6	0.6	0.6	0.6	0.5
Min.	657.6	657.1	657.5	657.6	657.5	657.5	657.5
Max.	659.8	658.8	659.8	659.8	659.8	659.8	659.5

3.4 Data Set 2, 105°C, 150mA (400-700nm Photon Flux Maintenance)

No.	Φ_p (μmol × s^{-1})	400-700nm Photon Flux Maintenance (%)					
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
31	0.6933	99.11	98.62	98.24	97.98	97.27	96.97
32	0.6842	98.77	98.26	97.76	97.52	97.44	96.99
33	0.6966	98.59	98.08	97.69	97.36	96.87	96.60
34	0.6824	98.86	98.42	98.31	97.92	97.83	97.45
35	0.6972	98.81	98.28	98.08	97.81	97.43	97.03
36	0.6978	98.72	98.24	98.17	97.86	97.22	96.92
37	0.7003	97.84	97.36	97.29	97.00	96.72	96.47
38	0.6990	98.34	98.03	97.73	97.48	97.27	97.00
39	0.7014	98.53	98.13	97.88	97.56	97.55	97.23
40	0.6906	98.42	97.90	97.70	97.34	97.25	97.00
41	0.6869	98.59	98.24	98.11	97.86	96.97	96.68
42	0.6914	98.48	98.05	97.50	97.28	96.93	96.64
43	0.6928	98.44	97.75	97.58	97.37	97.19	96.85
44	0.7083	98.52	98.04	97.87	97.60	97.54	97.28
45	0.7079	98.12	97.78	97.63	97.36	97.32	97.06
46	0.7055	98.11	97.75	97.35	97.08	96.64	96.31
47	0.6986	98.25	97.87	97.67	97.29	96.89	96.56
48	0.6816	99.82	99.28	99.11	98.86	98.75	98.44
49	0.6971	98.57	98.08	97.65	97.30	96.79	96.54
50	0.6960	98.25	97.77	97.43	97.04	96.28	95.98
51	0.6993	98.10	97.71	97.41	97.21	97.20	96.85
52	0.6910	98.91	98.47	97.86	97.51	97.32	97.00
53	0.6936	98.20	97.90	97.84	97.65	97.59	97.33
51	0.6891	99.36	99.01	98.71	98.30	98.24	98.00
55	0.7170	98.66	98.21	97.78	97.50	97.06	96.78
56	0.6981	99.50	98.84	98.45	98.11	98.02	97.65
57	0.6964	98.79	98.33	97.90	97.67	96.93	96.60
58	0.6951	98.83	98.43	98.23	97.93	97.81	97.45
59	0.6890	98.80	98.42	97.91	97.68	97.61	97.33
60	0.7097	98.61	98.25	98.00	97.75	97.49	97.06
Avg.	0.6962	98.63	98.18	97.89	97.61	97.31	97.00
Med.	0.6965	98.59	98.17	97.85	97.54	97.27	96.99
st dev	0.0081	0.43	0.41	0.40	0.40	0.50	0.50
Min.	0.6816	97.84	97.36	97.29	97.00	96.28	95.98
Max.	0.7170	99.82	99.28	99.11	98.86	98.75	98.44

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

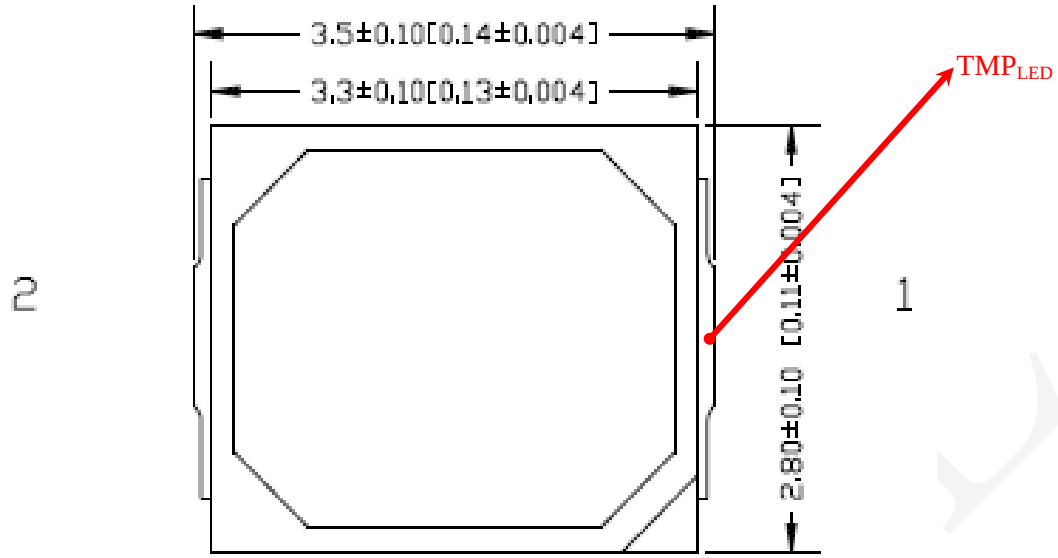
No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
31	2.549	2.597	2.589	2.588	2.592	2.592	2.601
32	2.441	2.484	2.477	2.483	2.480	2.480	2.485
33	2.506	2.550	2.542	2.538	2.543	2.545	2.550
34	2.612	2.666	2.656	2.668	2.659	2.659	2.671
35	2.621	2.678	2.670	2.664	2.672	2.670	2.682
36	2.490	2.528	2.520	2.518	2.523	2.521	2.528
37	2.451	2.494	2.490	2.486	2.490	2.487	2.494
38	2.501	2.538	2.533	2.534	2.535	2.532	2.538
39	2.454	2.498	2.491	2.522	2.494	2.490	2.500
40	2.461	2.504	2.501	2.493	2.501	2.500	2.508
41	2.569	2.617	2.614	2.609	2.613	2.614	2.625
42	2.613	2.660	2.655	2.647	2.656	2.655	2.669
43	2.554	2.600	2.598	2.587	2.595	2.595	2.601
44	2.469	2.506	2.502	2.496	2.501	2.501	2.508
45	2.552	2.601	2.597	2.588	2.597	2.598	2.610
46	2.545	2.593	2.590	2.579	2.588	2.588	2.602
47	2.459	2.503	2.496	2.489	2.498	2.498	2.507
48	2.504	2.549	2.542	2.534	2.545	2.543	2.554
49	2.471	2.510	2.504	2.501	2.507	2.504	2.511
50	2.487	2.531	2.525	2.518	2.529	2.527	2.536
51	2.478	2.518	2.513	2.504	2.516	2.513	2.522
52	2.479	2.563	2.571	2.563	2.572	2.573	2.582
53	2.550	2.594	2.591	2.584	2.595	2.595	2.600
51	2.508	2.552	2.548	2.540	2.551	2.551	2.561
55	2.564	2.609	2.607	2.607	2.609	2.607	2.607
56	2.467	2.507	2.503	2.497	2.507	2.506	2.506
57	2.617	2.666	2.664	2.655	2.664	2.664	2.665
58	2.462	2.502	2.495	2.488	2.495	2.494	2.495
59	2.601	2.652	2.647	2.640	2.649	2.649	2.647
60	2.491	2.525	2.521	2.513	2.524	2.521	2.521
Avg.	2.518	2.563	2.558	2.554	2.560	2.559	2.566
Med.	2.503	2.550	2.542	2.536	2.544	2.544	2.552
st dev	0.057	0.060	0.060	0.059	0.060	0.061	0.061
Min.	2.441	2.484	2.477	2.483	2.480	2.480	2.485
Max.	2.621	2.678	2.670	2.668	2.672	2.670	2.682

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

No.	Wavelength (nm)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
31	658.0	657.5	657.6	658.0	657.8	657.7	657.9
32	658.3	657.9	658.0	658.3	658.3	658.0	658.0
33	658.0	657.7	657.7	657.9	657.8	657.9	657.9
34	657.9	657.5	657.9	658.0	657.6	657.9	657.7
35	658.0	657.6	657.9	657.9	657.8	657.9	657.9
36	659.5	659.1	659.1	659.3	659.2	659.3	659.1
37	658.2	657.8	657.9	658.1	657.9	658.0	658.0
38	659.8	658.8	659.3	659.8	659.4	659.7	659.8
39	658.0	657.5	657.9	658.2	658.1	657.9	657.9
40	658.0	657.8	657.9	658.2	658.0	658.2	657.9
41	658.0	657.5	657.6	657.5	657.7	657.7	657.6
42	658.0	657.5	657.6	657.9	657.8	657.9	657.8
43	658.0	657.6	657.5	658.0	657.9	657.9	658.0
44	659.8	658.6	659.4	659.5	659.5	658.7	659.4
45	657.8	657.5	657.7	657.6	657.6	657.9	657.8
46	657.8	657.5	657.7	657.6	657.8	657.8	657.7
47	658.0	657.5	657.8	657.8	657.8	658.0	657.6
48	658.0	657.6	657.9	657.9	657.9	657.9	657.9
49	659.3	658.7	658.8	659.5	659.0	658.8	659.3
50	658.1	657.6	657.7	658.1	657.9	657.8	657.9
51	658.2	657.8	657.9	658.1	657.9	657.9	658.0
52	658.8	658.0	658.3	658.8	658.0	658.2	658.4
53	657.9	657.5	657.8	657.9	657.8	657.5	657.9
51	658.0	657.6	657.8	657.9	657.9	657.5	657.6
55	657.6	657.3	657.6	658.0	657.5	657.3	657.6
56	657.9	657.3	657.7	658.0	657.5	657.9	657.8
57	657.9	657.7	657.6	658.0	657.8	657.7	657.7
58	658.7	658.1	658.3	658.6	658.0	658.5	658.4
59	658.0	657.8	657.8	658.0	657.6	657.9	657.9
60	659.6	659.4	659.7	659.8	659.1	659.4	659.6
Avg.	658.3	657.8	658.0	658.3	658.1	658.1	658.1
Med.	658.0	657.6	657.9	658.0	657.9	657.9	657.9
st dev	0.6	0.5	0.6	0.7	0.6	0.6	0.6
Min.	657.6	657.3	657.5	657.5	657.5	657.3	657.6
Max.	659.8	659.4	659.7	659.8	659.5	659.7	659.8

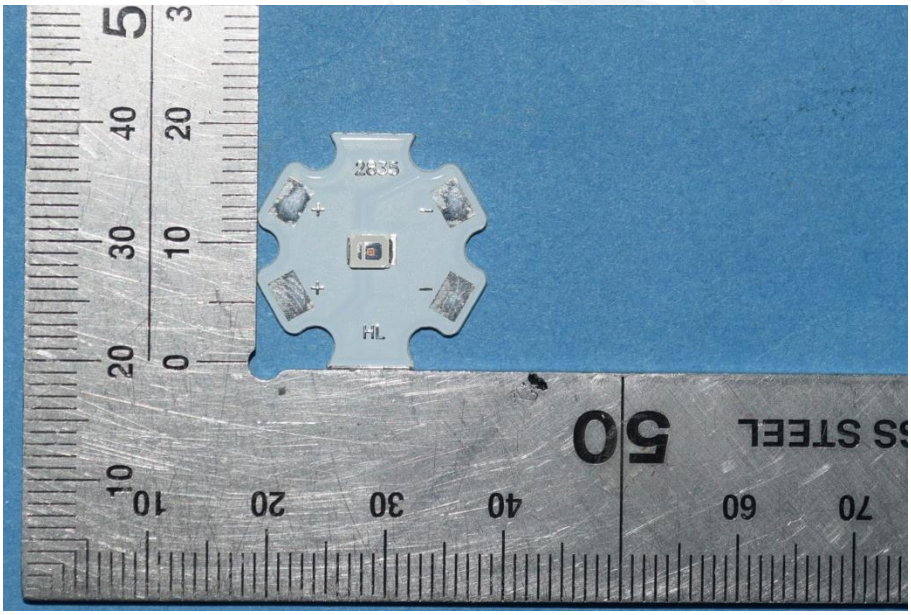
4. DUT Photo

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**********