



TEST REPORT

ACCORDING TO IES LM-80-2015
For

Hongli Zhihui Group Co.,Ltd.

No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China

**Model: HL-AS-2835DW-3C-S1-08-PCT-
HR3(R9)**

Report Type: 6000 Hours Test Report		Product Type: LED Package	
Test Engineer:	Pote Wang <i>Pote Wang</i>		
Report Number:	RSZ160826505-10		
Test Date:	2016-08-26 to 2017-05-03		
Report Date:	2017-05-18		
Reviewed By:	Daniel Duan / EE Manager <i>Daniel Duan</i>		
Test Facility:	Test facility was located at No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China.		
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Note: The test data was only valid for the test sample(s). 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. (Dongguan).

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1 - General Information

1.1 Description of LED Light Sources

Sample Size:

60 PCS samples were received on 2016-08-26. The samples were numbered from 1 to 30 and 31 to 60.

Manufacturer: Hongli Zhihui Group Co.,Ltd.
Part Number: HL-AS-2835DW-3C-S1-08-PCT-HR3(R9)
Part Type: LED Package
Drive Level: DC 100mA
Nominal CCT: 2700K

Family products covered by this report:

According to ENERGY STAR® Program Guidance Regarding LED Package, LED Array and LED Module Lumen Maintenance Performance Data Supporting Qualification of Lighting Products, the following products can be covered by this report base on the declaration letter of manufacturer. The information of these models shows that the covered products meet all section 3 item 7 requirements of ENERGY STAR® Program Guidance Regarding LED Package, LED Array and LED Module Lumen Maintenance Performance Data Supporting Qualification of Lighting Products (September 9, 2011)

Test Model Number	Multiple Models	Details
HL-AS-2835DW-3C-S1-08-PCT-HR3(R9)	P2835W*H5-C03-8D1AA1	1. Only different Model name for different market. 2. "*" is a number from 1 to 9 which stand for CCT. 1 means 2600-2800K, 2 means 2800-3100K, 3 means 3800-4250K, 4 means 4750-5300K, 5 means 5700-6500K, 6 means 6000-7000K, 7 means 2100-2300K, 8 means 3200-3800K, 9 means 5050-5650K.
	P2835W*H5-C03-8D1AA2	
	P2835W*H5-C03-8D1AA3	
	P2835W*H5-C03-8D1AA4	
	P2835W*H5-C03-8D1AB1	
	P2835W*H5-C03-8D1AB2	
	P2835W*H5-C03-8D1AB3	
	P2835W*H5-C03-8D1AB4	
	P2835W*H5-C03-8D3AA1	
	P2835W*H5-C03-8D3AA2	
	P2835W*H5-C03-8D3AA3	
	P2835W*H5-C03-8D3AA4	
	P2835W*H5-C03-8D3AB1	
	P2835W*H5-C03-8D3AB2	
	P2835W*H5-C03-8D3AB3	
	P2835W*H5-C03-8D3AB4	
	HL-AS-PU2835DW-3C-S1-08-PCT-HR3	

	HL-AS-PU2835DW-3C-S1-08-PCT- HR3(R9)	
	HL-AS-2835DW-3C-S1-08-PCT-HR3	

Disclaimer:

The truthfulness and accuracy of all the technical information above for the covered LED products is ensured by manufacturer of LED light source. Bay Area Compliance Laboratories Corp. (Dongguan) isn't responsible or gives any guarantees for the truthfulness of the technical information.

1.2 Standards Used:

- IESNA LM-80-15: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.
- ENERGY STAR® Program Guidance Regarding LED Package, LED Array and LED Module Lumen Maintenance Performance Data Supporting Qualification of Lighting Products(This test method was not accredited by IAS)

1.3 Testing Equipment

Device	Manufacture	Model No	Serial No	Test Range	Calibration date	Calibration due date
Integral Sphere	EVERFINE	Diameter 0.3m	1011119	0.3m	2017-03-09	2018-03-08
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	15V/2000mA	2017-03-03	2018-03-02
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	380-780nm	2017-03-09	2018-03-08
Standard Light Source	EVERFINE	D062	1011093	3000K	2016-09-13	2017-09-12
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987C J7321114	300VA	2017-03-03	2018-03-02
Multilayer aging machine	BACL	B2-270	20005	25°C~130°C	2016-09-01	2017-09-01
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090009	(50/15A)	2016-12-15	2017-12-14
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090004	(50/15A)	2017-03-03	2018-03-02

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 Measurement Uncertainty

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.

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, 100mA

Part Number: HL-AS-2835DW-3C-S1-08-PCT-HR3(R9)
Number of Units: 30
Case Temperature: >53°C
Ambient Temperature: >50°C
Life Test Drive Current: 100mA
Measurement Current: 100mA

Data Set 2: 105°C, 100mA

Part Number: HL-AS-2835DW-3C-S1-08-PCT-HR3(R9)
Number of Units: 30
Case Temperature: >103°C
Ambient Temperature: >100°C
Life Test Drive Current: 100mA
Measurement Current: 100mA

2 - Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	Reported TM-21 L ₇₀ Lifetime
1	30	0	1000	6000	>36000 hours
2	30	0	1000	6000	>36000 hours

Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000	2000	3000	4000	5000	6000
1	100.23%	100.03%	99.82%	99.59%	99.34%	99.11%
2	99.85%	99.54%	99.23%	98.90%	98.58%	98.27%

Average Color Maintenance

Data Set:	1000	2000	3000	4000	5000	6000
1	0.0005	0.0009	0.0012	0.0017	0.0023	0.0027
2	0.0008	0.0011	0.0016	0.002	0.0026	0.0030

3 - Test Data

3.1 Data Set 1, 55°C, 100mA (Lumen Maintenance)

No.	Φ (lm)	Lumen Maintenance (%)					
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	116.1	100.34	100.17	100.09	99.83	99.57	99.40
2	124.9	100.16	99.92	99.68	99.28	98.88	98.64
3	120.7	100.17	100.08	99.83	99.59	99.25	98.92
4	120.8	100.25	99.92	99.75	99.50	99.25	98.84
5	124.8	100.08	99.76	99.44	99.36	99.12	98.88
6	124.2	100.16	99.84	99.60	99.28	99.11	98.95
7	119.5	100.33	100.17	99.92	99.83	99.58	99.41
8	121.4	100.16	99.92	99.84	99.59	99.26	99.09
9	124.4	100.08	99.76	99.68	99.36	99.20	98.87
10	124.4	100.32	100.24	99.92	99.60	99.36	99.12
11	120.3	100.33	100.17	99.92	99.67	99.42	99.09
12	121.3	100.41	100.33	100.08	99.92	99.59	99.34
13	126.2	100.24	100.08	99.84	99.76	99.29	99.13
14	121.2	100.17	99.92	99.83	99.75	99.34	99.09
15	122.5	100.16	99.84	99.76	99.43	99.18	99.10
16	124.1	100.32	100.16	99.92	99.52	99.11	98.95
17	123.2	100.24	100.08	99.84	99.59	99.27	99.03
18	124.5	100.08	99.84	99.76	99.44	99.12	98.96
19	123.0	100.16	99.92	99.67	99.59	99.51	99.27
20	125.2	100.32	100.24	100.16	99.84	99.52	99.20
21	125.0	100.24	100.08	99.92	99.68	99.60	99.28
22	118.2	100.42	100.17	99.92	99.75	99.58	99.49
23	118.9	100.25	99.83	99.66	99.50	99.33	99.16
24	122.4	100.33	100.08	99.75	99.43	99.18	98.86
25	122.5	100.16	99.92	99.84	99.59	99.35	99.18
26	124.8	100.24	100.16	99.92	99.68	99.36	99.04
27	128.0	100.08	99.84	99.53	99.22	99.06	98.91
28	124.5	100.32	100.16	99.92	99.76	99.68	99.44
29	122.3	100.16	100.08	99.75	99.67	99.51	99.35
30	124.0	100.32	100.16	99.92	99.76	99.52	99.27
Ave.	122.8	100.23	100.03	99.82	99.59	99.34	99.11
Med.	123.1	100.24	100.08	99.84	99.59	99.33	99.10
st dev	2.6	0.0995	0.1603	0.1585	0.1848	0.1973	0.2089
Min.	116.1	100.08	99.76	99.44	99.22	98.88	98.64
Max.	128.0	100.42	100.33	100.16	99.92	99.68	99.49

TM-21 Projection:

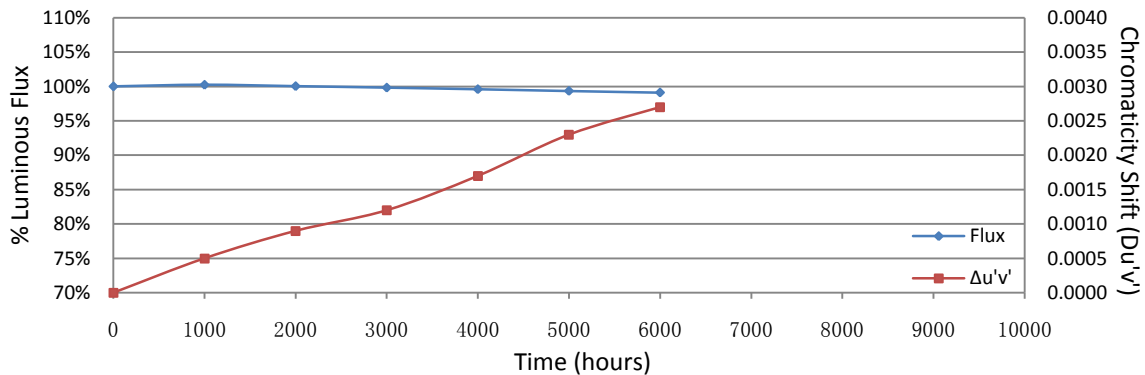
Test Duration: 6000 hours
Failures Observed: 0
 α : 2.265E-06
 β : 1.005
Reported L₇₀: >36000 hours

3.2 Data Set 1, 55°C, 100mA (Forward Voltage)

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	8.965	8.974	8.950	8.943	8.954	8.949	8.951
2	8.981	8.994	8.966	8.957	8.974	8.962	8.958
3	8.937	8.952	8.929	8.911	8.933	8.918	8.924
4	8.954	8.968	8.944	8.929	8.949	8.937	8.935
5	8.934	8.949	8.927	8.906	8.922	8.918	8.918
6	8.960	8.973	8.950	8.939	8.954	8.943	8.941
7	8.976	8.989	8.969	8.951	8.968	8.953	8.959
8	8.982	8.998	8.981	8.962	8.981	8.971	8.969
9	8.934	8.941	8.927	8.907	8.925	8.913	8.915
10	8.943	8.956	8.932	8.918	8.933	8.925	8.919
11	8.947	8.956	8.940	8.925	8.938	8.930	8.928
12	8.967	8.977	8.961	8.945	8.956	8.950	8.943
13	8.933	8.948	8.922	8.913	8.936	8.916	8.910
14	8.948	8.954	8.942	8.929	8.942	8.931	8.923
15	8.960	8.968	8.949	8.942	8.955	8.943	8.937
16	8.932	8.945	8.921	8.912	8.931	8.917	8.914
17	8.930	8.943	8.916	8.906	8.928	8.914	8.914
18	9.007	9.016	8.998	8.981	8.996	8.986	8.991
19	8.929	8.943	8.921	8.913	8.922	8.913	8.913
20	8.926	8.939	8.919	8.913	8.919	8.911	8.910
21	8.999	9.007	8.988	8.979	8.990	8.984	8.983
22	8.928	8.948	8.926	8.914	8.921	8.918	8.915
23	8.949	8.962	8.942	8.938	8.938	8.929	8.927
24	8.934	8.946	8.922	8.916	8.920	8.919	8.918
25	8.963	8.978	8.952	8.943	8.954	8.944	8.946
26	8.935	8.944	8.928	8.942	8.927	8.919	8.918
27	8.952	8.966	8.946	8.937	8.942	8.935	8.929
28	8.919	8.933	8.916	8.906	8.915	8.906	8.908
29	8.970	8.984	8.964	8.954	8.962	8.954	8.957
30	8.933	8.947	8.924	8.912	8.931	8.919	8.912
Ave.	8.951	8.963	8.942	8.931	8.944	8.934	8.933
Med.	8.948	8.956	8.941	8.929	8.938	8.930	8.926
st dev	0.022	0.022	0.022	0.022	0.022	0.022	0.023
Min.	8.919	8.933	8.916	8.906	8.915	8.906	8.908
Max.	9.007	9.016	8.998	8.981	8.996	8.986	8.991

3.3 Data Set 1, 55°C, 100mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
				Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs
1	0.2574	0.5292	2801	0.0004	0.0007	0.0012	0.0016	0.0019	0.0022
2	0.2558	0.5311	2826	0.0004	0.0009	0.0013	0.0018	0.0022	0.0025
3	0.2607	0.5321	2718	0.0004	0.0009	0.0012	0.0017	0.0021	0.0025
4	0.2599	0.5301	2743	0.0005	0.0009	0.0016	0.0019	0.0023	0.0027
5	0.2587	0.5328	2756	0.0004	0.0009	0.0016	0.0020	0.0024	0.0028
6	0.2591	0.5351	2738	0.0005	0.0010	0.0016	0.0020	0.0024	0.0027
7	0.2593	0.5301	2755	0.0003	0.0007	0.0013	0.0016	0.0020	0.0025
8	0.2564	0.5271	2833	0.0005	0.0009	0.0016	0.0020	0.0025	0.0028
9	0.2579	0.5323	2775	0.0005	0.0010	0.0016	0.0020	0.0024	0.0028
10	0.2583	0.5337	2762	0.0005	0.0009	0.0015	0.0020	0.0023	0.0028
11	0.2597	0.5305	2745	0.0005	0.0009	0.0013	0.0021	0.0025	0.0028
12	0.2582	0.5304	2778	0.0005	0.0007	0.0010	0.0019	0.0023	0.0027
13	0.2592	0.5337	2743	0.0004	0.0009	0.0010	0.0017	0.0022	0.0026
14	0.2568	0.5276	2820	0.0005	0.0009	0.0012	0.0017	0.0025	0.0029
15	0.2593	0.5322	2746	0.0004	0.0006	0.0009	0.0014	0.0022	0.0026
16	0.2596	0.5323	2740	0.0005	0.0009	0.0011	0.0016	0.0023	0.0027
17	0.2560	0.5289	2832	0.0005	0.0010	0.0012	0.0017	0.0025	0.0029
18	0.2591	0.5336	2746	0.0004	0.0008	0.0010	0.0015	0.0021	0.0025
19	0.2570	0.5317	2797	0.0004	0.0005	0.0008	0.0015	0.0023	0.0026
20	0.2598	0.5327	2733	0.0005	0.0009	0.0011	0.0016	0.0023	0.0027
21	0.2574	0.5304	2794	0.0004	0.0009	0.0011	0.0015	0.0022	0.0026
22	0.2589	0.5257	2784	0.0004	0.0009	0.0012	0.0017	0.0025	0.0029
23	0.2591	0.5287	2767	0.0005	0.0010	0.0013	0.0017	0.0025	0.0030
24	0.2591	0.5310	2756	0.0006	0.0010	0.0013	0.0017	0.0024	0.0028
25	0.2566	0.5289	2820	0.0005	0.0011	0.0013	0.0017	0.0025	0.0029
26	0.2564	0.5293	2821	0.0004	0.0009	0.0011	0.0016	0.0023	0.0028
27	0.2595	0.5344	2733	0.0005	0.0009	0.0011	0.0016	0.0023	0.0027
28	0.2585	0.5333	2758	0.0005	0.0009	0.0012	0.0017	0.0023	0.0028
29	0.2589	0.5316	2758	0.0004	0.0009	0.0011	0.0016	0.0023	0.0027
30	0.2599	0.5323	2733	0.0004	0.0010	0.0012	0.0017	0.0025	0.0028
Ave.	0.2584	0.5311	2770	0.0005	0.0009	0.0012	0.0017	0.0023	0.0027
Med.	0.2589	0.5314	2758	0.0005	0.0009	0.0012	0.0017	0.0023	0.0027
st dev	0.0013	0.0023	34	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002
Min.	0.2558	0.5257	2718	0.0003	0.0005	0.0008	0.0014	0.0019	0.0022
Max.	0.2607	0.5351	2833	0.0006	0.0011	0.0016	0.0021	0.0025	0.0030



3.4 Data Set 2, 105°C, 100mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
31	124.1	99.92	99.60	99.52	99.36	99.11	98.79
32	120.0	99.83	99.58	99.42	99.17	98.92	98.67
33	120.9	99.42	99.09	98.68	98.26	97.77	97.60
34	120.7	99.83	99.42	98.92	98.51	98.09	97.76
35	125.6	99.84	99.60	99.20	98.81	98.41	98.17
36	123.1	99.68	99.43	99.11	98.86	98.62	98.29
37	118.5	99.75	99.41	99.16	98.90	98.73	98.48
38	123.1	99.92	99.76	99.59	99.35	99.03	98.70
39	119.8	99.75	99.42	99.08	98.91	98.75	98.41
40	125.5	99.92	99.68	99.28	99.04	98.57	98.33
41	124.1	99.84	99.60	99.27	98.87	98.63	98.31
42	118.1	100.08	99.83	99.58	99.32	99.07	98.73
43	121.2	99.75	99.50	99.09	98.60	98.35	98.10
44	120.2	99.83	99.42	99.08	98.84	98.50	98.17
45	117.3	99.74	99.57	99.32	98.89	98.47	97.95
46	125.6	99.84	99.52	99.20	98.89	98.57	98.17
47	117.3	99.74	99.40	99.06	98.72	98.47	98.21
48	123.1	100.08	99.68	99.27	99.03	98.70	98.38
49	126.1	99.92	99.60	99.37	99.05	98.65	98.33
50	123.2	100.08	99.68	99.43	99.19	98.78	98.38
51	124.6	99.76	99.52	99.20	98.88	98.64	98.39
52	124.1	99.92	99.52	99.36	98.95	98.55	98.23
53	123.2	99.84	99.51	99.27	98.78	98.38	98.05
54	123.9	99.76	99.44	99.11	98.71	98.39	97.90
55	122.6	99.92	99.51	99.02	98.78	98.37	98.12
56	124.8	99.84	99.36	98.96	98.48	98.24	98.00
57	124.0	99.76	99.35	99.11	98.79	98.39	97.98
58	125.2	99.84	99.52	99.28	98.80	98.56	98.24
59	123.4	99.92	99.76	99.43	99.27	98.95	98.62
60	119.4	100.08	99.83	99.41	99.08	98.83	98.49
Ave.	122.4	99.85	99.54	99.23	98.90	98.58	98.27
Med.	123.2	99.84	99.52	99.24	98.88	98.57	98.27
st dev	2.6	0.1370	0.1570	0.2031	0.2585	0.2902	0.2842
Min.	117.3	99.42	99.09	98.68	98.26	97.77	97.60
Max.	126.1	100.08	99.83	99.59	99.36	99.11	98.79

TM-21 Projection:

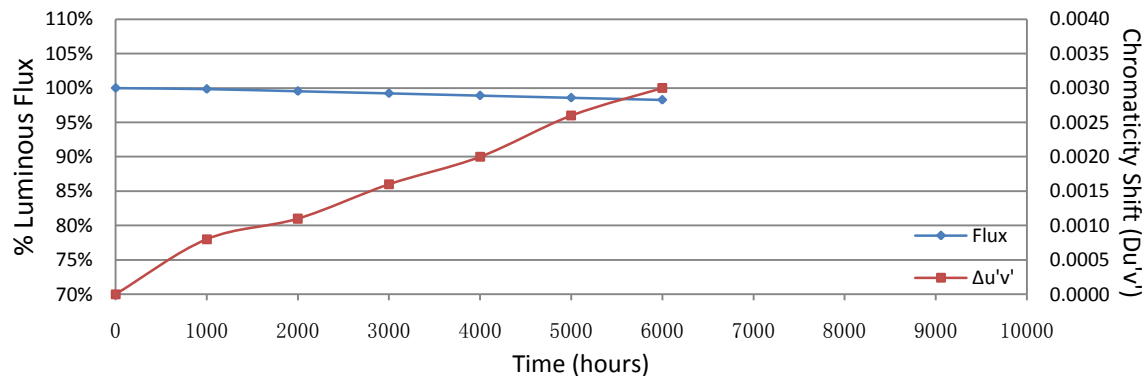
Test Duration: 6000 hours
Failures Observed: 0
 α : 3.204E-06
 β : 1.002
Reported L₇₀: >36000 hours

3.5 Data Set 2, 105°C, 100mA (Forward Voltage)

No.	Forward Voltage (V)						
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
31	8.959	8.977	8.953	8.955	8.956	8.944	8.944
32	8.982	9.000	8.978	8.970	8.979	8.971	8.968
33	8.944	8.962	8.940	8.946	8.937	8.931	8.926
34	8.915	8.930	8.912	8.904	8.907	8.905	8.906
35	8.944	8.961	8.935	8.931	8.938	8.926	8.925
36	8.922	8.945	8.923	8.912	8.919	8.918	8.912
37	8.931	8.949	8.936	8.919	8.926	8.925	8.917
38	8.909	8.926	8.907	8.902	8.908	8.898	8.895
39	8.979	8.997	8.981	8.978	8.980	8.968	8.972
40	8.942	8.951	8.935	8.937	8.936	8.923	8.928
41	8.978	8.992	8.976	8.968	8.972	8.966	8.962
42	8.992	9.010	8.992	8.990	8.986	8.986	8.980
43	8.934	8.948	8.922	8.930	8.922	8.919	8.915
44	8.996	8.988	8.967	8.955	8.963	8.964	8.957
45	8.984	8.969	8.956	8.945	8.947	8.942	8.940
46	8.942	8.942	8.927	8.919	8.921	8.922	8.910
47	8.968	8.973	8.956	8.952	8.951	8.954	8.942
48	8.927	8.931	8.917	8.906	8.911	8.905	8.898
49	9.000	8.997	8.990	8.981	8.982	8.983	8.977
50	8.935	8.942	8.931	8.920	8.925	8.923	8.919
51	8.965	8.964	8.954	8.940	8.949	8.948	8.935
52	8.941	8.944	8.927	8.923	8.922	8.928	8.915
53	8.965	8.972	8.951	8.983	8.946	8.946	8.941
54	8.974	8.980	8.962	8.960	8.962	8.956	8.956
55	8.925	8.937	8.919	8.910	8.909	8.914	8.902
56	8.925	8.934	8.917	8.918	8.917	8.918	8.911
57	8.988	8.997	8.976	8.973	8.974	8.970	8.971
58	8.916	8.924	8.904	8.903	8.900	8.900	8.900
59	8.932	8.941	8.921	8.917	8.918	8.915	8.914
60	8.963	8.972	8.951	8.950	8.942	8.942	8.944
Ave.	8.953	8.962	8.944	8.940	8.940	8.937	8.933
Med.	8.944	8.962	8.938	8.939	8.938	8.930	8.927
st dev	0.027	0.025	0.026	0.027	0.026	0.025	0.026
Min.	8.909	8.924	8.904	8.902	8.900	8.898	8.895
Max.	9.000	9.010	8.992	8.990	8.986	8.986	8.980

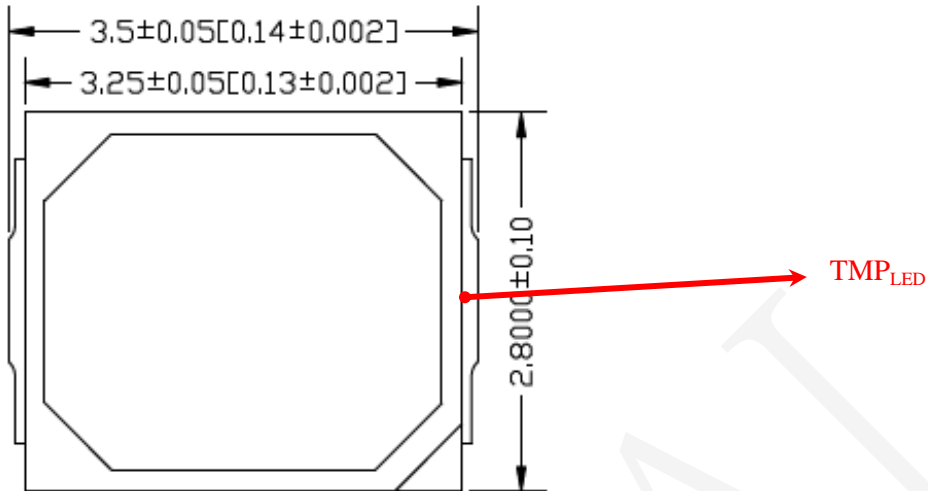
3.6 Data Set 2, 105°C, 100mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
				0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs
31	0.2568	0.5301	2808	0.0008	0.0012	0.0017	0.0019	0.0026	0.0031
32	0.2608	0.5300	2725	0.0007	0.0009	0.0013	0.0016	0.0023	0.0027
33	0.2569	0.5281	2815	0.0008	0.0011	0.0017	0.0022	0.0026	0.0031
34	0.2580	0.5296	2785	0.0008	0.0011	0.0016	0.0021	0.0026	0.0030
35	0.2577	0.5320	2780	0.0007	0.0010	0.0015	0.0019	0.0025	0.0030
36	0.2596	0.5325	2740	0.0011	0.0014	0.0019	0.0023	0.0027	0.0032
37	0.2618	0.5320	2697	0.0008	0.0011	0.0016	0.0020	0.0025	0.0029
38	0.2614	0.5322	2702	0.0009	0.0011	0.0016	0.0020	0.0025	0.0029
39	0.2591	0.5307	2757	0.0009	0.0012	0.0017	0.0020	0.0026	0.0030
40	0.2579	0.5321	2776	0.0009	0.0013	0.0017	0.0023	0.0028	0.0030
41	0.2573	0.5315	2793	0.0006	0.0011	0.0016	0.0021	0.0026	0.0030
42	0.2595	0.5276	2762	0.0008	0.0012	0.0017	0.0021	0.0026	0.0030
43	0.2592	0.5303	2757	0.0009	0.0013	0.0018	0.0022	0.0028	0.0031
44	0.2584	0.5281	2784	0.0008	0.0012	0.0016	0.0020	0.0025	0.0030
45	0.2606	0.5285	2734	0.0008	0.0011	0.0016	0.0020	0.0025	0.0029
46	0.2596	0.5340	2732	0.0008	0.0012	0.0016	0.0020	0.0025	0.0030
47	0.2569	0.5279	2818	0.0009	0.0013	0.0017	0.0022	0.0026	0.0030
48	0.2585	0.5318	2764	0.0007	0.0010	0.0015	0.0018	0.0024	0.0029
49	0.2573	0.5315	2793	0.0009	0.0012	0.0018	0.0021	0.0027	0.0030
50	0.2602	0.5328	2726	0.0008	0.0012	0.0016	0.0020	0.0025	0.0030
51	0.2557	0.5289	2839	0.0008	0.0011	0.0017	0.0020	0.0026	0.0030
52	0.2575	0.5315	2789	0.0009	0.0012	0.0016	0.0020	0.0025	0.0029
53	0.2565	0.5285	2822	0.0009	0.0011	0.0017	0.0022	0.0027	0.0030
54	0.2579	0.5307	2783	0.0009	0.0012	0.0018	0.0022	0.0026	0.0031
55	0.2598	0.5330	2733	0.0007	0.0009	0.0014	0.0019	0.0024	0.0028
56	0.2575	0.5313	2788	0.0007	0.0009	0.0014	0.0020	0.0023	0.0028
57	0.2580	0.5299	2783	0.0008	0.0011	0.0016	0.0020	0.0025	0.0029
58	0.2594	0.5327	2743	0.0008	0.0011	0.0016	0.0019	0.0024	0.0028
59	0.2565	0.5293	2818	0.0007	0.0011	0.0016	0.0020	0.0025	0.0030
60	0.2602	0.5298	2738	0.0008	0.0012	0.0018	0.0022	0.0028	0.0032
Ave.	0.2586	0.5306	2769	0.0008	0.0011	0.0016	0.0020	0.0026	0.0030
Med.	0.2582	0.5307	2778	0.0008	0.0011	0.0016	0.0020	0.0026	0.0030
st dev	0.0016	0.0017	37	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
Min.	0.2557	0.5276	2697	0.0006	0.0009	0.0013	0.0016	0.0023	0.0027
Max.	0.2618	0.5340	2839	0.0011	0.0014	0.0019	0.0023	0.0028	0.0032



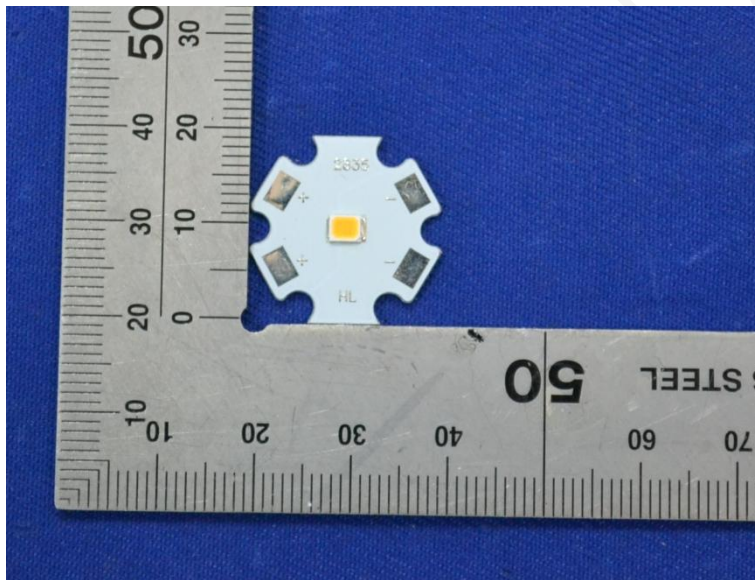
4 - EUT Photo

4.1 Mechanical Dimensions



All dimensions are in millimeter

4.2 EUT Photo



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