



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: PU2835DW-S1-08-PCT-HR3

Report Type: 6000 Hours Test Report		Product Type: LED Package	
Test Engineer:	Pote Wang	<i>Pote Wang</i>	
Report Number:	RSZ160221508-10-M4		
Test Date:	2016-02-15 to 2016-10-22		
Report Date:	2018-04-25		
Reviewed By:	Daniel Duan / EE Manager	<i>Daniel Duan</i>	
Revised Note:	The previous report RSZ160221508-10-M3 is replaced by this report on 2018-04-23		
Test Facility:	Test facility was located at No.69, Pulongcun, Puxinhu Industry 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:

50 PCS samples were received on 2016-02-15. The samples were numbered from 1 to 50.

Manufacturer:	Hongli Zhihui Group Co.,Ltd.
Part Number:	PU2835DW-S1-08-PCT-HR3
Part Type:	LED Package
Drive Level:	DC 150 mA
Nominal CCT:	3000 K
Power:	0.5 W
Current Density per LED die:	402.25 mA/mm ²
Power Density per LED die:	1.34 W/mm ²
CRI:	80
Die Spacing:	N/A

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:

Tested Model Number	Multiple listed Model Number	Difference
PU2835DW-S1-08-PCT-HR3	2835DW-S1-08-PCT-HR3	<p>Multiple Model- have the same or similar appearance, structure, PCB, Material and function to the testing products, and only are different for little parameters.</p> <p>The first symbol “*” is an arabic numeral which stand for color temperature, 1 means 2600-2800K, 2 means 2800-3100K, 3 means 3800-4250K, 4 means 4750-5300K, 5 means 5700-6500K, 6 means 6000-7000K, 8 means 3200-3800K, 9 means 5050-5650K.</p> <p>The second symbol “**” is an arabic numeral which stand for different color center point etc.</p>
	P2835W*F4-D01-8D3A01	
	P2835W*F5-D01-8D3A01	
	P2835W*F6-D01-8D3A01	
	P2835W*F4-D01-8D3A02	
	P2835W*F5-D01-8D3A02	
	P2835W*F6-D01-8D3A02	
	P2835W*F4-D01-8D3A03	
	P2835W*F5-D01-8D3A03	
	P2835W*F6-D01-8D3A03	
	P2835W*F4-D01-8D3A04	
	P2835W*F5-D01-8D3A04	
P2835W*F6-D01-8D3A04		

	P2835W*F4-D01-8D3A05	
	P2835W*F5-D01-8D3A05	
	P2835W*F6-D01-8D3A05	
	P2835W*F4-D01-8D3A06	
	P2835W*F5-D01-8D3A06	
	P2835W*F6-D01-8D3A06	
	P2835W*F5-D01-8D2AC*	

1.2 Standards Used:

- IESNA 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 IAS)
- 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
Integral Sphere	EVERFINE	Diameter 0.3m	1011119	2016-03-10	2017-03-09
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	2016-03-04	2017-03-03
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	2016-03-10	2017-03-09
Standard Light Source	EVERFINE	D062	1011093	2016-09-13	2017-09-12
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987CJ7321114	2016-03-04	2017-03-03
Multilayer aging machine	BACL	B2-270	20022	2015-11-23	2016-11-22
Adjustable constant-current DC switching power supply	GUTE	WYG-5V40A	2#	2016-03-04	2017-03-03
DC Power Supply	GUTE	MYG-5V40A	N/A	2016-10-27	2017-10-26

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 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 $\pm 0.5\%$ of the nominal value. The test system was calibrated by halogen reference lamp. The ambient temperature during test was set to $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$, 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 $U=21\text{K}$ ($K=2$), 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: 85°C, 150mA

Part Number: PU2835DW-S1-08-PCT-HR3
Number of Units: 25
Case Temperature: >84°C
Ambient Temperature: >80°C
Life Test Drive Current: 150mA
Measurement Current: 150mA

Data Set 2: 115°C,150mA

Part Number: PU2835DW-S1-08-PCT-HR3
Number of Units: 25
Case Temperature: >113°C
Ambient Temperature: >110°C
Life Test Drive Current: 150mA
Measurement Current: 150mA

2 - Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	Reported TM-21 L ₇₀ Lifetime	Reported TM-21 L ₉₀ Lifetime
1	25	0	1000	6000	>36000 hours	>36000 hours
2	25	0	1000	6000	>36000 hours	>36000 hours

Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000	2000	3000	4000	5000	6000
1	100.15%	99.98%	99.80%	99.64%	99.49%	99.31%
2	100.07%	99.74%	99.53%	99.32%	99.07%	98.78%

Average Color Maintenance

Data Set:	1000	2000	3000	4000	5000	6000
1	0.0002	0.0005	0.0007	0.0008	0.0011	0.0013
2	0.0005	0.0008	0.0008	0.0009	0.001	0.0012

3 - Test Data

3.1 Data Set 1, 85°C, 150mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	64.95	100.11	99.97	99.86	99.62	99.45	99.34
2	64.66	100.06	99.89	99.78	99.57	99.35	99.32
3	65.98	100.05	99.86	99.76	99.56	99.24	99.20
4	65.32	100.02	99.97	99.68	99.49	99.30	99.02
5	65.94	100.24	100.08	99.71	99.62	99.44	99.21
6	65.63	100.21	99.95	99.85	99.68	99.65	99.41
7	65.79	100.03	99.86	99.62	99.50	99.36	99.15
8	66.06	100.14	99.98	99.76	99.67	99.47	99.18
9	64.88	100.18	100.05	99.83	99.71	99.63	99.24
10	65.55	100.12	99.98	99.82	99.71	99.57	99.25
11	66.11	100.15	99.94	99.83	99.73	99.59	99.32
12	65.15	100.17	99.97	99.88	99.74	99.59	99.39
13	65.87	100.27	99.98	99.76	99.68	99.54	99.45
14	66.44	100.12	100.02	99.80	99.64	99.55	99.32
15	65.27	100.17	100.03	99.71	99.63	99.46	99.37
16	65.21	100.23	100.03	99.82	99.63	99.62	99.48
17	64.98	100.20	100.18	99.88	99.72	99.71	99.66
18	64.69	100.11	100.06	99.98	99.83	99.68	99.63
19	65.44	100.15	99.91	99.85	99.59	99.42	99.24
20	65.96	100.23	100.02	99.86	99.55	99.18	99.17
21	65.57	100.15	100.09	99.83	99.77	99.66	99.51
22	65.13	100.18	99.89	99.77	99.74	99.69	99.48
23	65.86	100.18	99.89	99.59	99.54	99.32	99.07
24	65.94	100.20	100.12	99.91	99.56	99.42	99.21
25	66.52	100.17	99.83	99.82	99.43	99.37	99.04
Ave.	65.56	100.15	99.98	99.80	99.64	99.49	99.31
Med.	65.57	100.17	99.98	99.82	99.63	99.47	99.32
st dev	0.5199	0.0663	0.0868	0.0885	0.0971	0.1496	0.1689
Min.	64.66	100.02	99.83	99.59	99.43	99.18	99.02
Max.	66.52	100.27	100.18	99.98	99.83	99.71	99.66

TM-21 Projection:

Test Duration: 6000 hours

Failures Observed: 0

α: 1.670E-06

β: 1.003

Reported L₇₀: >36000 hours

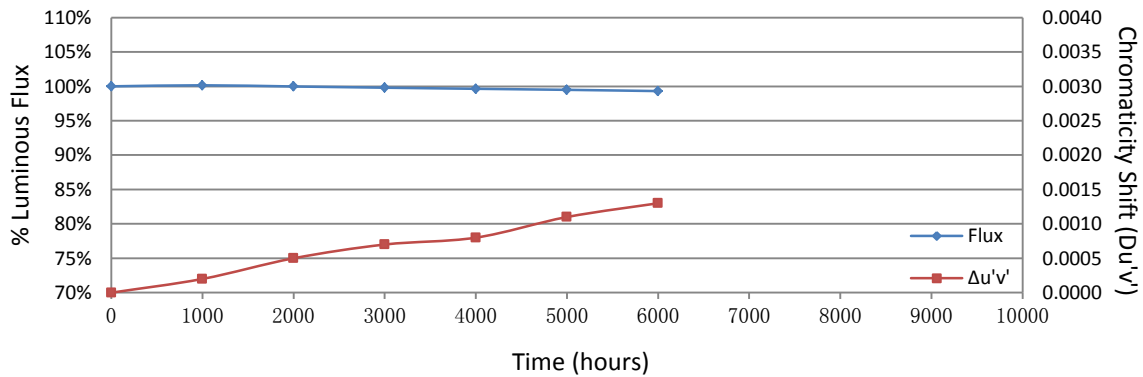
Reported L₉₀: >36000 hours

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

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3.106	3.106	3.108	3.106	3.115	3.110	3.112
2	3.102	3.103	3.103	3.103	3.113	3.109	3.108
3	3.115	3.112	3.114	3.113	3.120	3.117	3.124
4	3.106	3.107	3.109	3.105	3.124	3.110	3.111
5	3.086	3.090	3.093	3.089	3.094	3.093	3.094
6	3.111	3.114	3.119	3.111	3.118	3.116	3.117
7	3.089	3.089	3.092	3.086	3.094	3.091	3.092
8	3.101	3.103	3.102	3.099	3.108	3.104	3.110
9	3.083	3.082	3.087	3.080	3.091	3.086	3.097
10	3.123	3.126	3.125	3.123	3.127	3.127	3.141
11	3.093	3.092	3.093	3.090	3.093	3.094	3.098
12	3.077	3.079	3.083	3.079	3.081	3.082	3.082
13	3.122	3.122	3.124	3.124	3.124	3.959	3.126
14	3.090	3.091	3.090	3.088	3.096	3.098	3.094
15	3.101	3.100	3.102	3.101	3.987	3.106	3.105
16	3.112	3.116	3.118	3.115	3.123	3.122	3.122
17	3.148	3.149	3.150	3.149	3.155	3.171	3.158
18	3.106	3.108	3.109	3.111	3.117	3.120	3.120
19	3.133	3.114	3.113	3.117	3.124	3.123	3.118
20	3.087	3.085	3.086	3.089	3.091	3.091	3.095
21	3.153	3.138	3.142	3.142	3.172	3.151	3.144
22	3.095	3.094	3.096	3.096	3.122	3.106	3.100
23	3.106	3.100	3.103	3.102	3.117	3.120	3.107
24	3.127	3.123	3.125	3.125	3.125	3.132	3.127
25	3.128	3.129	3.130	3.153	3.129	3.140	3.135
Ave.	3.108	3.107	3.109	3.108	3.150	3.147	3.113
Med.	3.106	3.106	3.108	3.105	3.118	3.110	3.111
st dev	0.0196	0.0177	0.0175	0.0201	0.1755	0.1704	0.0184
Min.	3.077	3.079	3.083	3.079	3.081	3.082	3.082
Max.	3.153	3.149	3.150	3.153	3.987	3.959	3.158

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

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
				0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs
1	0.2506	0.5204	3006	0.0002	0.0005	0.0009	0.0009	0.0011	0.0012
2	0.2509	0.5194	3004	0.0001	0.0006	0.0008	0.0009	0.0012	0.0012
3	0.2510	0.5194	3003	0.0002	0.0006	0.0009	0.0010	0.0012	0.0013
4	0.2506	0.5209	3003	0.0001	0.0005	0.0008	0.0009	0.0011	0.0013
5	0.2523	0.5186	2976	0.0002	0.0005	0.0007	0.0009	0.0011	0.0013
6	0.2514	0.5210	2982	0.0003	0.0006	0.0006	0.0008	0.0012	0.0013
7	0.2518	0.5191	2984	0.0002	0.0005	0.0008	0.0010	0.0011	0.0014
8	0.2508	0.5206	2999	0.0001	0.0005	0.0007	0.0010	0.0011	0.0013
9	0.2492	0.5209	3038	0.0002	0.0005	0.0007	0.0009	0.0012	0.0014
10	0.2536	0.5190	2940	0.0002	0.0006	0.0007	0.0009	0.0012	0.0014
11	0.2521	0.5186	2981	0.0002	0.0006	0.0007	0.0009	0.0011	0.0013
12	0.2496	0.5209	3027	0.0002	0.0004	0.0006	0.0009	0.0012	0.0013
13	0.2485	0.5229	3043	0.0002	0.0006	0.0005	0.0007	0.0011	0.0014
14	0.2494	0.5196	3041	0.0002	0.0005	0.0006	0.0007	0.0012	0.0014
15	0.2503	0.5200	3016	0.0002	0.0005	0.0006	0.0009	0.0012	0.0014
16	0.2509	0.5206	2997	0.0002	0.0005	0.0006	0.0007	0.0012	0.0014
17	0.2522	0.5202	2969	0.0003	0.0006	0.0007	0.0008	0.0011	0.0014
18	0.2520	0.5208	2969	0.0002	0.0005	0.0005	0.0007	0.0010	0.0013
19	0.2513	0.5190	2998	0.0002	0.0005	0.0006	0.0007	0.0010	0.0014
20	0.2512	0.5198	2993	0.0001	0.0004	0.0006	0.0007	0.0009	0.0013
21	0.2521	0.5212	2964	0.0001	0.0004	0.0006	0.0007	0.0009	0.0014
22	0.2517	0.5203	2980	0.0001	0.0004	0.0006	0.0008	0.0009	0.0013
23	0.2517	0.5200	2980	0.0000	0.0004	0.0005	0.0005	0.0008	0.0011
24	0.2499	0.5214	3017	0.0002	0.0004	0.0006	0.0007	0.0009	0.0013
25	0.2505	0.5247	2982	0.0001	0.0004	0.0006	0.0007	0.0010	0.0014
Ave.	0.2510	0.5204	2996	0.0002	0.0005	0.0007	0.0008	0.0011	0.0013
Med.	0.2510	0.5203	2997	0.0002	0.0005	0.0006	0.0008	0.0011	0.0013
st dev	0.0011	0.0013	25.3093	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Min.	0.2485	0.5186	2940	0.0000	0.0004	0.0005	0.0005	0.0008	0.0011
Max.	0.2536	0.5247	3043	0.0003	0.0006	0.0009	0.0010	0.0012	0.0014



3.4 Data Set 2, 115°C, 150mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)					
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	65.26	100.09	99.83	99.65	99.57	99.33	99.17
27	64.97	100.08	99.66	99.43	99.22	99.14	98.97
28	63.91	100.09	99.83	99.55	99.33	99.22	99.11
29	63.62	100.06	99.76	99.54	99.37	99.28	99.10
30	64.50	100.05	99.60	99.35	99.15	98.90	98.51
31	63.32	100.02	99.67	99.34	99.26	99.07	98.69
32	65.06	99.95	99.68	99.46	99.00	98.66	98.37
33	65.14	100.18	99.88	99.52	99.25	98.88	98.56
34	64.01	100.03	99.95	99.59	99.27	98.84	98.58
35	63.46	100.13	99.75	99.67	99.35	98.94	98.66
36	63.93	99.94	99.67	99.55	99.34	99.11	98.81
37	64.41	99.98	99.64	99.58	99.30	99.07	98.73
38	64.24	100.03	99.74	99.56	99.38	99.10	98.77
39	63.41	100.11	99.84	99.67	99.53	99.20	98.97
40	63.20	100.22	99.91	99.70	99.59	99.30	99.07
41	63.72	100.14	99.87	99.69	99.45	99.25	98.93
42	64.01	100.05	99.73	99.50	99.36	99.11	98.91
43	63.90	100.09	99.70	99.58	99.41	99.25	98.92
44	64.50	100.05	99.67	99.50	99.30	99.04	98.78
45	64.12	100.12	99.70	99.53	99.28	98.97	98.58
46	64.89	100.08	99.78	99.58	99.45	99.06	98.75
47	64.77	100.06	99.75	99.48	99.29	99.12	98.75
48	65.03	100.15	99.74	99.43	99.22	98.95	98.60
49	64.44	99.94	99.55	99.30	99.01	98.81	98.37
50	64.54	99.98	99.71	99.50	99.35	99.09	98.87
Ave.	64.25	100.07	99.74	99.53	99.32	99.07	98.78
Med.	64.24	100.06	99.74	99.54	99.33	99.09	98.77
st dev	0.6121	0.0730	0.0984	0.1063	0.1436	0.1668	0.2224
Min.	63.20	99.94	99.55	99.30	99.00	98.66	98.37
Max.	65.26	100.22	99.95	99.70	99.59	99.33	99.17

TM-21 Projection:

Test Duration: 6000 hours

Failures Observed: 0

α: 2.492E-06

β: 1.003

Reported L₇₀: >36000 hours

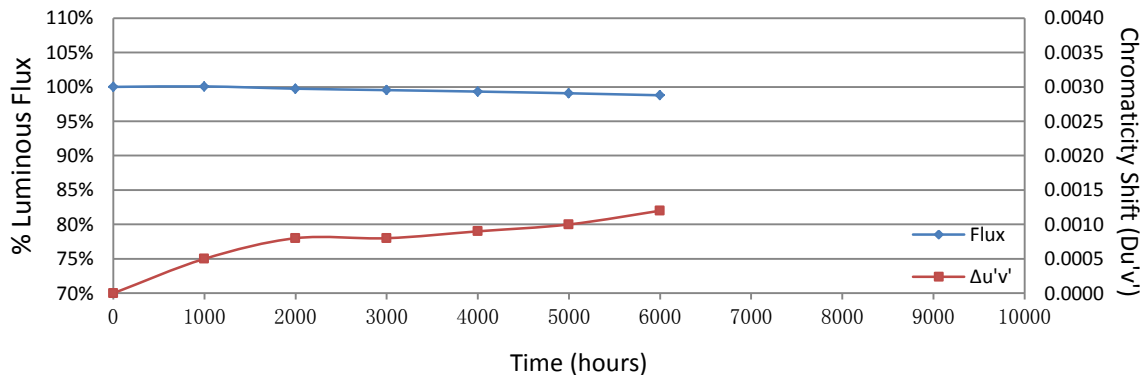
Reported L₉₀: >36000 hours

3.5 Data Set 2, 115°C, 150mA (Forward Voltage)

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	3.089	3.093	3.094	3.095	3.095	3.096	3.098
27	3.091	3.093	3.093	3.093	3.094	3.103	3.096
28	3.074	3.075	3.076	3.104	3.077	3.084	3.080
29	3.105	3.108	3.110	3.119	3.107	3.117	3.115
30	3.107	3.112	3.112	3.121	3.113	3.112	3.117
31	3.060	3.062	3.063	3.067	3.065	3.746	3.070
32	3.094	3.096	3.098	3.097	3.099	3.097	3.101
33	3.110	3.118	3.113	3.112	3.112	3.113	3.121
34	3.098	3.102	3.102	3.099	3.104	3.100	3.106
35	3.123	3.124	3.124	3.127	3.124	3.123	3.128
36	3.105	3.108	3.108	3.104	3.109	3.108	3.114
37	3.115	3.120	3.118	3.115	3.121	3.122	3.124
38	3.091	3.094	3.095	3.092	3.095	3.096	3.098
39	3.130	3.132	3.129	3.130	3.136	3.134	3.136
40	3.069	3.068	3.069	3.068	3.071	3.071	3.075
41	3.126	3.129	3.130	3.128	3.131	3.130	3.133
42	3.086	3.089	3.089	3.091	3.092	3.089	3.097
43	3.082	3.086	3.086	3.086	3.091	3.087	3.089
44	3.088	3.092	3.092	3.093	3.885	3.096	3.095
45	3.107	3.106	3.106	3.108	3.110	3.113	3.112
46	3.088	3.096	3.093	3.092	3.094	3.105	3.094
47	3.062	3.067	3.064	3.062	3.066	3.068	3.067
48	3.095	3.098	3.100	3.099	3.103	3.102	3.102
49	3.098	3.098	3.099	3.096	3.103	3.101	3.103
50	3.087	3.096	3.091	3.089	3.093	3.093	3.095
Ave.	3.095	3.098	3.098	3.099	3.132	3.128	3.103
Med.	3.094	3.096	3.098	3.097	3.103	3.102	3.101
st dev	0.0183	0.0185	0.0181	0.0182	0.1580	0.1297	0.0185
Min.	3.060	3.062	3.063	3.062	3.065	3.068	3.067
Max.	3.130	3.132	3.130	3.130	3.885	3.746	3.136

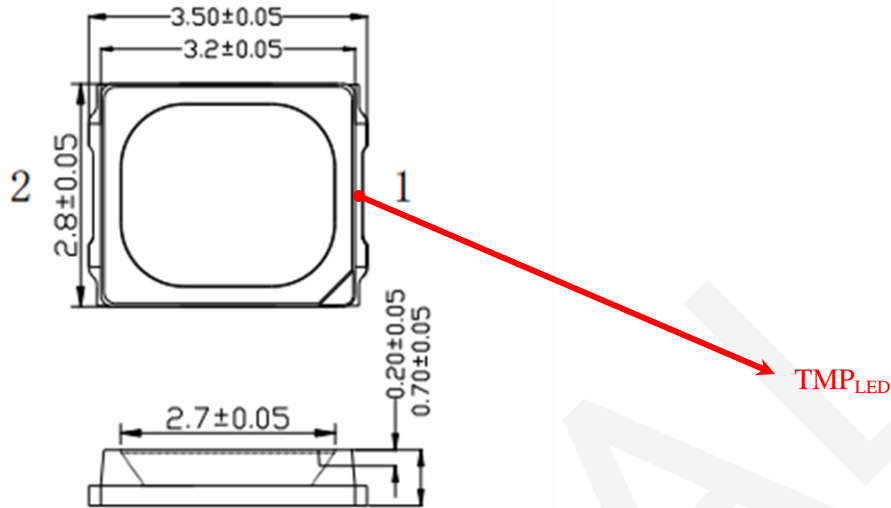
3.6 Data Set 2, 115°C, 150mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift ($\Delta u'v'$)					
				0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs
26	0.2508	0.5193	3007	0.0004	0.0007	0.0006	0.0005	0.0008	0.0011
27	0.2492	0.5185	3053	0.0004	0.0008	0.0009	0.0007	0.0009	0.0010
28	0.2526	0.5202	2958	0.0004	0.0008	0.0009	0.0008	0.0010	0.0011
29	0.2507	0.5186	3014	0.0003	0.0007	0.0007	0.0006	0.0009	0.0012
30	0.2502	0.5204	3014	0.0003	0.0006	0.0007	0.0007	0.0008	0.0010
31	0.2520	0.5188	2981	0.0005	0.0008	0.0009	0.0009	0.0010	0.0011
32	0.2507	0.5190	3012	0.0005	0.0008	0.0008	0.0010	0.0009	0.0012
33	0.2501	0.5188	3027	0.0004	0.0006	0.0008	0.0009	0.0009	0.0012
34	0.2490	0.5194	3052	0.0004	0.0007	0.0008	0.0009	0.0009	0.0011
35	0.2506	0.5177	3024	0.0004	0.0008	0.0009	0.0010	0.0010	0.0012
36	0.2506	0.5168	3029	0.0005	0.0008	0.0009	0.0010	0.0009	0.0011
37	0.2511	0.5194	2999	0.0004	0.0008	0.0009	0.0010	0.0010	0.0011
38	0.2490	0.5179	3063	0.0004	0.0007	0.0008	0.0009	0.0008	0.0010
39	0.2492	0.5188	3051	0.0004	0.0008	0.0008	0.0010	0.0010	0.0010
40	0.2515	0.5184	2995	0.0006	0.0009	0.0010	0.0012	0.0011	0.0012
41	0.2539	0.5188	2935	0.0006	0.0009	0.0010	0.0012	0.0012	0.0013
42	0.2492	0.5186	3051	0.0004	0.0008	0.0009	0.0010	0.0010	0.0011
43	0.2529	0.5182	2961	0.0004	0.0007	0.0008	0.0010	0.0010	0.0010
44	0.2515	0.5190	2991	0.0005	0.0008	0.0009	0.0011	0.0013	0.0013
45	0.2500	0.5192	3029	0.0004	0.0008	0.0009	0.0010	0.0011	0.0011
46	0.2516	0.5227	2967	0.0005	0.0008	0.0009	0.0011	0.0013	0.0013
47	0.2526	0.5186	2966	0.0005	0.0008	0.0009	0.0010	0.0012	0.0013
48	0.2498	0.5185	3038	0.0004	0.0008	0.0009	0.0010	0.0011	0.0013
49	0.2501	0.5191	3026	0.0004	0.0008	0.0009	0.0010	0.0013	0.0014
50	0.2510	0.5214	2990	0.0005	0.0008	0.0009	0.0010	0.0013	0.0013
Ave.	0.2508	0.5190	3009	0.0005	0.0008	0.0008	0.0009	0.0010	0.0012
Med.	0.2507	0.5188	3014	0.0004	0.0008	0.0009	0.0010	0.0010	0.0011
st dev	0.0013	0.0012	34.4767	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
Min.	0.2490	0.5168	2935	0.0003	0.0006	0.0006	0.0005	0.0008	0.0010
Max.	0.2539	0.5227	3063	0.0006	0.0009	0.0010	0.0012	0.0013	0.0014



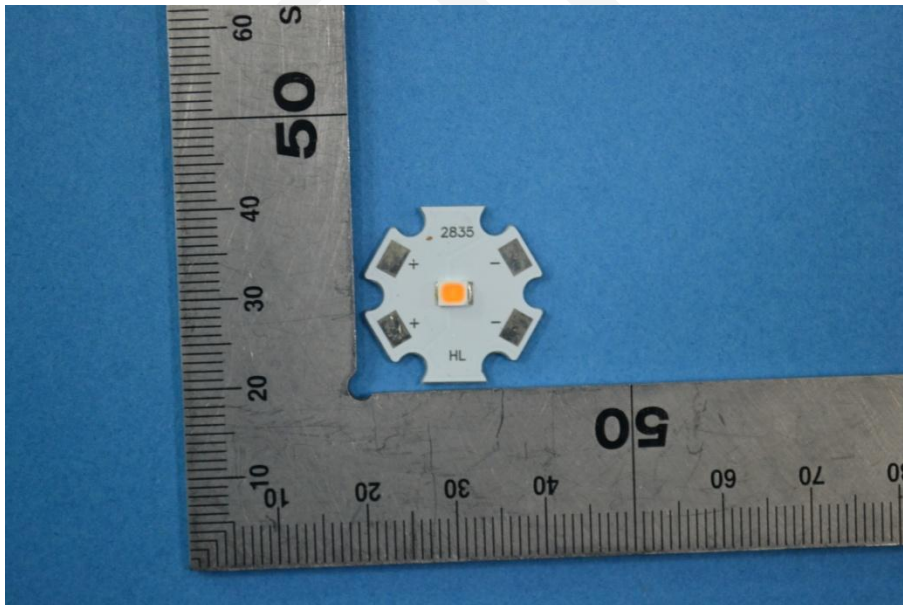
4 - EUT Photo

4.1 Mechanical Dimensions



All dimensions are in millimeter

4.2 EUT Photo



Report Revision

Report Number	Report Date	Contents
RSZ160221508-10	2016-11-08	Original report.
RSZ160221508-10-M1	2017-05-09	Add the multiple model numbers in the Family Declaration in page 3.
RSZ160221508-10-M2	2018-01-09	Add the Power, Current Density per LED die, Power Density per LED die, CRI and Die Spacing in page 3. Update the Family Declaration in page 3 to 4 and update the standard used in page 4.
RSZ160221508-10-M3	2018-01-31	Update the Initial Luminous Flux and Lumen Maintenance in page 7 to 13.
RSZ160221508-10-M4	2018-04-23	Add the multiple model number in the Family Declaration in page 3 to 4.

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