



# 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-AS-2835HW-2C-S1-08-PCT-HR5**

<b>Report Type:</b> 6000 Hours Test Report		<b>Product Type:</b> LED Package	
<b>Test Engineer:</b>	Pote Wang	<i>Pote Wang</i>	
<b>Report Number:</b>	RSZ181027501-10-M1		
<b>Test Date:</b>	2018-10-27 to 2019-07-04		
<b>Report Date:</b>	2019-08-07		
<b>Reviewed By:</b>	Bill Xiong / EE Engineer	<i>Bill Xiong</i>	
<b>Revised Note:</b>	The previous report RSZ181027501-10 is replaced by this report on 2019-08-07		
<b>Test Facility:</b>	Test facility was located at No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China.		
<b>Prepared By:</b>	Bay Area Compliance Laboratories Corp. (Dongguan). No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax:+86-0769-86858588		
<b>Accreditation:</b>	The IAS Accreditation Number TL-460.		

**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 2018-10-27. The samples were numbered from 1 to 25 and 26 to 50.

Manufacturer:	Hongli Zhihui Group Co.,Ltd. Guangzhou Branch
Part Number:	HL-AS-2835HW-2C-S1-08-PCT-HR5
Part Type:	LED Package
Drive Level:	DC 150mA
Nominal CCT:	2700K
Power:	1 W
Average Current Density per LED die:	861.11 mA/mm <sup>2</sup>
Average Power Density per LED die:	2.768 W/mm <sup>2</sup>
CRI:	90
Die Spacing:	0.15 mm

#### 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 name	CRI	CCT	Series	Parallel	Power density (W/mm <sup>2</sup> )	Current density per LED die (mA/mm <sup>2</sup> )	Current per die (mA)	Distance between of dies	Current (mA)
HL-AS-2835HW-2C-S1-08-PCT-HR5	90	2700K	2	1	0.1021	861.11	150	0.15	150
HL-AS-2835HW-2C-S1-08-PCT-HR5(R9)	90	2700K	2	1	0.1021	861.11	150	0.15	150
HL-AS-2835HW-2C-S1-08L-PCT-HR5	90	2700K	2	1	0.1021	861.11	150	0.15	150
HL-AS-2835HW-2C-S1-08L-PCT-HR5(R9)	90	2700K	2	1	0.1021	861.11	150	0.15	150
HL-AS-2835DW-2C-S1-08-PCT-HR5	90	2700K	2	1	0.1021	861.11	150	0.15	150
HL-AS-2835DW-2C-S1-08-PCT-HR5(R9)	90	2700K	2	1	0.1021	861.11	150	0.15	150
HL-AS-2835DW-2C-S1-08L-PCT-HR5	90	2700K	2	1	0.1021	861.11	150	0.15	150
HL-AS-2835DW-2C-S1-08L-PCT-HR5(R9)	90	2700K	2	1	0.1021	861.11	150	0.15	150
HL-AS-2835HW-S1-08-PCT-HR5	90	2700K	1	1	0.0510	861.11	150	/	150
HL-AS-2835HW-S1-08-PCT-HR5(R9)	90	2700K	1	1	0.0510	861.11	150	/	150
HL-AS-2835HW-S1-08L-PCT-HR5	90	2700K	1	1	0.0510	861.11	150	/	150

HL-AS-2835HW-S1-08L-PCT-HR5(R9)	90	2700K	1	1	0.0510	861.11	150	/	150
HL-AS-2835DW-S1-08-PCT-HR5	90	2700K	1	1	0.0510	861.11	150	/	150
HL-AS-2835DW-S1-08-PCT-HR5(R9)	90	2700K	1	1	0.0510	861.11	150	/	150
HL-AS-2835DW-S1-08L-PCT-HR5	90	2700K	1	1	0.0510	861.11	150	/	150
HL-AS-2835DW-S1-08L-PCT-HR5(R9)	90	2700K	1	1	0.0510	861.11	150	/	150
HL-AS-2835D90W-2C-S1-08-PCT-HR5-CS-KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835D90W-2C-S1-08-PCT-HR5 -KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835D90W-2C-S1-08L-PCT-HR5-CS-KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835D90W-2C-S1-08L-PCT-HR5 -KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835DW-2C-S1-08-PCT-HR5-CS-KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835DW-2C-S1-08L-PCT-HR5-CS-KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835DW-2C-S1-08L-PCT-HR5 -KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
SL-*D2835FTA-21EA*	90	2700K	2	1	0.1021	861.11	150	0.15	150
SL-*D2835FTA-21EA*H	90	2700K	2	1	0.1021	861.11	150	0.15	150
SL-*D2835FTA-21EA*-*	90	2700K	2	1	0.1021	861.11	150	0.15	150
SL-*D2835FTA-21EA*-*	90	2700K	2	1	0.1021	861.11	150	0.15	150
SL-*D2835FTA-21EA*H*	90	2700K	2	1	0.1021	861.11	150	0.15	150
SL-*D2835FTA-21EA*H**	90	2700K	2	1	0.1021	861.11	150	0.15	150
SL-*D2835FTA-21EA*H***	90	2700K	2	1	0.1021	861.11	150	0.15	150
SL-*D2835FTA-21EA*/*	90	2700K	2	1	0.1021	861.11	150	0.15	150
SL-*D2835FTA-21EA*H/*	90	2700K	2	1	0.1021	861.11	150	0.15	150
SL-**D2835FTA-21EA****-APH***	90	2700K	2	1	0.1021	861.11	150	0.15	150
SL-*D2835FTA-11EA*	90	2700K	1	1	0.0510	861.11	150	/	150
SL-*D2835FTA-11EA*H	90	2700K	1	1	0.0510	861.11	150	/	150

Note:

1. The first \* is the letters I, N, W representing CCT. I means less than 3700K; N means 3700K-4700K; W For more than 4700K. The second \* is different product solutions (color coordination and application, special solutions, etc.), the third \* and the fourth \* and the fifth are different version numbers.
2. The first and second \* of SL-\*\*D2835FTA-31KA\*\*\*\*-APH\*\*\* is a numbers 27, 30,40,50,65, which stand for CCT. Number From three to six \* is a different product solution (Color coordinate and applications and special solution etc...), from seven to nine \* is Different version numbers.

## 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
0.3m integrating sphere	EVERFINE	Diameter 0.3m	1011119	2019-03-18	2020-03-17
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	2019-03-26	2020-03-25
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	2019-03-18	2020-03-17
Standard Light Source	EVERFINE	D062	G100278CJ7351206	2018-12-24	2019-12-24
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987CJ7321114	2019-03-26	2020-03-25
Multilayer aging machine	BACL	B2-270	20023	2019-03-13	2020-03-12
DC Power Supply	BACL	B12001-12	90023	2018-12-17	2019-12-17

## 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  $\pm 3\%$  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  $2^{\circ}C$  below the corresponding nominal case temperature. Surrounding air was maintained at a temperature that was greater than or equal to  $5^{\circ}C$  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  $25^{\circ}C \pm 2^{\circ}C$ , RH <65%.

## 1.6 Photometric Measurement Method and Uncertainty

Integrating sphere and spectroradiometer is used to measure luminous flux and chromaticity coordinate u'v'.  $2\pi$  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).

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## 1.8 Sample Set

### Data Set 1: 85°C, 150mA

Part Number: HL-AS-2835HW-2C-S1-08-PCT-HR5  
Number of Units: 25  
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-AS-2835HW-2C-S1-08-PCT-HR5  
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	$\alpha$	$\beta$	Reported TM-21 L <sub>70</sub> Lifetime
1	25	0	1000hrs	6000hrs	2.352E-06	1.003	>36000 hours
2	25	0	1000hrs	6000hrs	3.077E-06	1.003	>36000 hours

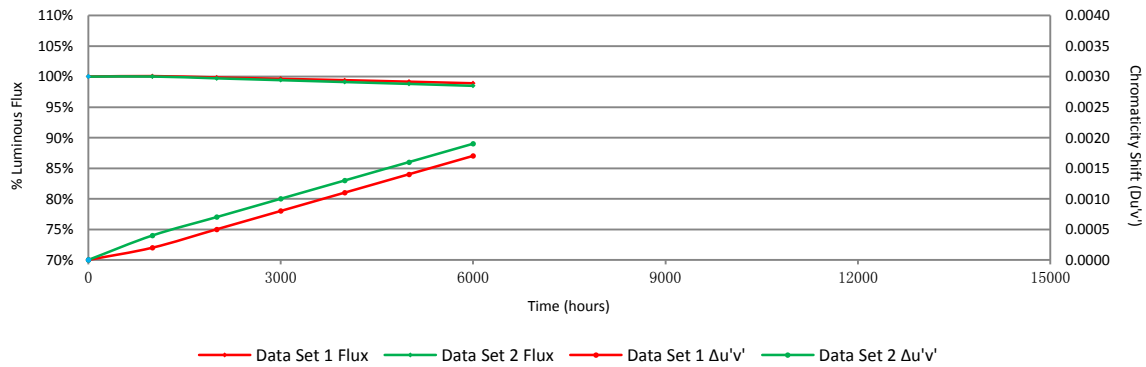
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	100.08%	99.85%	99.63%	99.41%	99.16%	98.90%
2	100.02%	99.72%	99.42%	99.11%	98.81%	98.49%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.0002	0.0005	0.0008	0.0011	0.0014	0.0017
2	0.0004	0.0007	0.001	0.0013	0.0016	0.0019

Average Lumen Maintenance and Chromaticity Shift VS. Time





### 3 - Test Data

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

No.	Φ(lm)	Lumen Maintenance (%)					
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	112.1	99.91	99.73	99.46	99.38	98.93	98.75
2	108.8	100.18	99.82	99.45	99.26	99.08	98.62
3	112.8	100.09	99.91	99.73	99.47	99.29	98.94
4	111.8	100.18	99.91	99.55	99.28	99.02	98.75
5	111.9	100.09	100.00	99.91	99.64	99.37	99.29
6	113.0	100.35	100.09	99.82	99.73	99.56	99.38
7	109.9	100.18	100.09	100.00	99.73	99.45	99.09
8	110.5	100.27	99.82	99.64	99.55	99.37	99.19
9	111.5	100.27	100.09	99.82	99.55	99.37	99.01
10	110.7	100.18	100.00	99.73	99.64	99.19	99.01
11	111.7	100.18	100.09	99.91	99.64	99.37	99.10
12	112.0	99.82	99.64	99.38	99.29	99.11	98.84
13	110.6	100.27	100.09	100.00	99.91	99.73	99.37
14	111.1	100.18	100.00	99.91	99.82	99.55	99.28
15	109.6	99.82	99.54	99.09	98.81	98.63	98.36
16	112.0	99.91	99.46	99.20	98.93	98.66	98.48
17	110.8	100.09	99.64	99.37	99.10	98.83	98.47
18	111.6	99.82	99.46	99.10	98.84	98.66	98.48
19	112.5	100.09	99.82	99.47	99.02	98.93	98.76
20	111.7	99.91	99.73	99.64	99.37	99.10	98.75
21	111.7	100.09	99.82	99.55	99.46	99.28	99.19
22	111.6	100.09	99.91	99.82	99.46	99.28	98.84
23	112.2	100.27	100.09	100.00	99.64	99.20	99.02
24	111.7	99.91	99.64	99.37	99.10	98.84	98.48
25	112.3	99.91	99.82	99.73	99.55	99.29	99.11
Avg.	111.4	100.08	99.85	99.63	99.41	99.16	98.90
Med.	111.7	100.09	99.82	99.64	99.46	99.20	98.94
st dev	1.0	0.16	0.20	0.28	0.30	0.30	0.31
Min.	108.8	99.82	99.46	99.09	98.81	98.63	98.36
Max.	113.0	100.35	100.09	100.00	99.91	99.73	99.38

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

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	6.380	6.378	6.368	6.381	6.371	6.380	6.374
2	6.392	6.371	6.384	6.386	6.384	6.390	6.405
3	6.369	6.360	6.356	6.354	6.352	6.356	6.358
4	6.312	6.288	6.296	6.293	6.294	6.291	6.291
5	6.309	6.306	6.311	6.311	6.308	6.309	6.309
6	6.294	6.299	6.302	6.298	6.301	6.298	6.303
7	6.376	6.385	6.392	6.391	6.389	6.383	6.388
8	6.304	6.313	6.316	6.316	6.313	6.318	6.316
9	6.373	6.373	6.372	6.375	6.372	6.371	6.375
10	6.308	6.322	6.329	6.320	6.321	6.321	6.319
11	6.385	6.398	6.412	6.399	6.396	6.395	6.395
12	6.368	6.380	6.395	6.384	6.383	6.380	6.381
13	6.368	6.371	6.380	6.369	6.370	6.369	6.368
14	6.292	6.299	6.326	6.299	6.304	6.300	6.295
15	6.323	6.336	6.352	6.334	6.337	6.335	6.331
16	6.322	6.335	6.350	6.332	6.337	6.331	6.330
17	6.315	6.328	6.353	6.326	6.327	6.326	6.322
18	6.454	6.450	6.455	6.449	6.455	6.451	6.448
19	6.312	6.329	6.332	6.326	6.329	6.329	6.322
20	6.395	6.424	6.424	6.419	6.417	6.419	6.412
21	6.334	6.355	6.371	6.352	6.350	6.358	6.349
22	6.357	6.362	6.378	6.365	6.361	6.364	6.360
23	6.416	6.435	6.443	6.437	6.437	6.434	6.443
24	6.403	6.426	6.428	6.426	6.431	6.428	6.420
25	6.361	6.379	6.382	6.382	6.380	6.377	6.378
Avg.	6.353	6.360	6.368	6.361	6.361	6.361	6.360
Med.	6.361	6.362	6.371	6.365	6.361	6.364	6.360
st dev	0.043	0.045	0.043	0.045	0.045	0.044	0.045
Min.	6.292	6.288	6.296	6.293	6.294	6.291	6.291
Max.	6.454	6.450	6.455	6.449	6.455	6.451	6.448

**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	6000hrs
1	0.2617	0.5315	2701	0.0001	0.0004	0.0009	0.0014	0.0017	0.0020
2	0.2610	0.5305	2719	0.0004	0.0006	0.0011	0.0015	0.0018	0.0021
3	0.2575	0.5284	2802	0.0003	0.0005	0.0010	0.0011	0.0017	0.0022
4	0.2601	0.5301	2738	0.0001	0.0003	0.0007	0.0011	0.0014	0.0019
5	0.2593	0.5314	2750	0.0003	0.0004	0.0007	0.0011	0.0014	0.0019
6	0.2599	0.5315	2738	0.0002	0.0004	0.0008	0.0009	0.0014	0.0018
7	0.2644	0.5310	2647	0.0002	0.0004	0.0005	0.0008	0.0013	0.0017
8	0.2653	0.5301	2633	0.0001	0.0006	0.0009	0.0012	0.0014	0.0015
9	0.2601	0.5288	2743	0.0001	0.0004	0.0010	0.0012	0.0013	0.0015
10	0.2634	0.5316	2664	0.0001	0.0002	0.0006	0.0010	0.0011	0.0014
11	0.2641	0.5318	2652	0.0002	0.0004	0.0009	0.0014	0.0017	0.0019
12	0.2626	0.5322	2680	0.0004	0.0006	0.0009	0.0012	0.0016	0.0019
13	0.2633	0.5316	2667	0.0002	0.0005	0.0009	0.0012	0.0014	0.0017
14	0.2594	0.5297	2756	0.0002	0.0005	0.0008	0.0010	0.0012	0.0016
15	0.2587	0.5278	2779	0.0002	0.0006	0.0009	0.0011	0.0013	0.0014
16	0.2604	0.5301	2732	0.0003	0.0005	0.0007	0.0008	0.0013	0.0016
17	0.2617	0.5309	2703	0.0001	0.0004	0.0009	0.0011	0.0014	0.0016
18	0.2634	0.5299	2671	0.0002	0.0006	0.0008	0.0009	0.0013	0.0017
19	0.2606	0.5299	2729	0.0001	0.0004	0.0005	0.0007	0.0009	0.0013
20	0.2623	0.5326	2683	0.0003	0.0004	0.0007	0.0010	0.0012	0.0015
21	0.2594	0.5295	2756	0.0003	0.0004	0.0008	0.0009	0.0011	0.0014
22	0.2602	0.5291	2740	0.0005	0.0009	0.0010	0.0013	0.0015	0.0018
23	0.2597	0.5319	2740	0.0001	0.0004	0.0009	0.0011	0.0015	0.0016
24	0.2590	0.5290	2766	0.0001	0.0002	0.0004	0.0008	0.0013	0.0017
25	0.2597	0.5295	2750	0.0002	0.0004	0.0007	0.0009	0.0012	0.0017
Avg.	0.2611	0.5304	2718	0.0002	0.0005	0.0008	0.0011	0.0014	0.0017
Med.	0.2604	0.5301	2732	0.0002	0.0004	0.0008	0.0011	0.0014	0.0017
st dev	0.0020	0.0013	45	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002
Min.	0.2575	0.5278	2633	0.0001	0.0002	0.0004	0.0007	0.0009	0.0013
Max.	0.2653	0.5326	2802	0.0005	0.0009	0.0011	0.0015	0.0018	0.0022

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

No.	Φ(lm)	Lumen Maintenance (%)					
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	110.9	99.91	99.64	99.37	99.19	99.01	98.74
27	110.9	99.91	99.64	99.19	99.10	98.74	98.38
28	111.8	100.00	99.64	99.37	98.93	98.57	98.03
29	111.4	100.18	99.82	99.37	99.01	98.65	98.20
30	110.8	100.18	99.91	99.46	99.10	98.74	98.29
31	111.5	99.91	99.55	99.37	99.10	99.01	98.65
32	110.7	99.82	99.55	99.28	98.92	98.64	98.28
33	109.6	100.27	99.82	99.45	99.18	98.91	98.54
34	111.7	99.91	99.55	99.10	98.66	98.48	98.39
35	110.2	100.00	99.64	99.27	98.91	98.55	98.19
36	111.3	99.91	99.73	99.46	99.01	98.56	98.29
37	109.9	100.09	99.64	99.55	99.18	98.91	98.54
38	108.3	99.91	99.72	99.26	98.98	98.71	98.34
39	111.1	100.18	99.91	99.73	99.46	99.19	99.01
40	108.3	100.18	100.00	99.91	99.82	99.54	99.26
41	111.2	99.73	99.37	99.01	98.65	98.38	98.02
42	111.9	99.82	99.55	99.11	98.84	98.57	98.30
43	110.5	100.09	99.73	99.64	99.28	98.73	98.46
44	110.2	100.09	99.73	99.36	99.09	98.82	98.46
45	112.0	100.09	99.82	99.38	98.93	98.75	98.39
46	112.0	99.91	99.73	99.46	99.20	98.84	98.66
47	111.0	99.91	99.64	99.55	99.28	98.92	98.83
48	108.9	100.28	100.00	99.54	99.36	98.99	98.62
49	111.4	100.09	99.73	99.64	99.46	99.28	98.92
50	111.3	100.09	99.82	99.55	99.19	98.83	98.56
Avg.	110.8	100.02	99.72	99.42	99.11	98.81	98.49
Med.	111.0	100.00	99.73	99.38	99.10	98.75	98.46
st dev	1.1	0.15	0.15	0.20	0.25	0.26	0.30
Min.	108.3	99.73	99.37	99.01	98.65	98.38	98.02
Max.	112.0	100.28	100.00	99.91	99.82	99.54	99.26

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

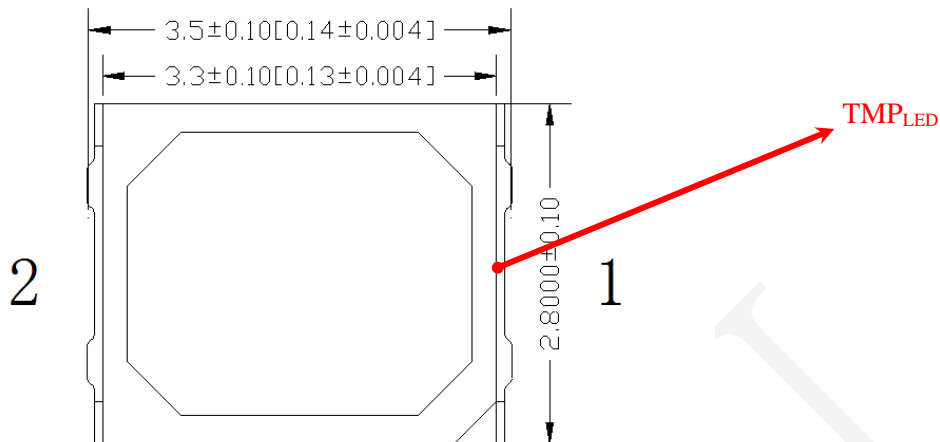
No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	6.431	6.430	6.428	6.424	6.420	6.422	6.416
27	6.368	6.410	6.389	6.386	6.380	6.385	6.385
28	6.352	6.370	6.369	6.369	6.367	6.367	6.361
29	6.359	6.372	6.365	6.367	6.365	6.373	6.361
30	6.369	6.313	6.311	6.315	6.319	6.311	6.307
31	6.297	6.319	6.319	6.314	6.314	6.314	6.308
32	6.345	6.374	6.372	6.362	6.376	6.377	6.363
33	6.275	6.293	6.289	6.293	6.293	6.293	6.284
34	6.293	6.311	6.313	6.306	6.316	6.315	6.301
35	6.302	6.318	6.316	6.314	6.316	6.322	6.309
36	6.405	6.436	6.427	6.430	6.427	6.443	6.413
37	6.273	6.285	6.287	6.298	6.287	6.289	6.283
38	6.307	6.313	6.319	6.313	6.309	6.319	6.307
39	6.298	6.312	6.321	6.317	6.314	6.332	6.305
40	6.262	6.284	6.291	6.290	6.288	6.298	6.283
41	6.384	6.410	6.408	6.413	6.407	6.413	6.396
42	6.378	6.391	6.401	6.397	6.393	6.400	6.387
43	6.290	6.306	6.306	6.314	6.299	6.306	6.294
44	6.321	6.336	6.331	6.343	6.332	6.348	6.326
45	6.348	6.364	6.362	6.369	6.364	6.379	6.361
46	6.345	6.356	6.356	6.356	6.355	6.432	6.355
47	6.284	6.294	6.300	6.294	6.297	6.307	6.295
48	6.328	6.338	6.341	6.355	6.337	6.340	6.334
49	6.354	6.365	6.359	6.380	6.372	6.389	6.359
50	6.357	6.371	6.378	6.380	6.367	6.372	6.365
Avg.	6.333	6.347	6.346	6.348	6.345	6.354	6.338
Med.	6.345	6.338	6.341	6.355	6.337	6.348	6.334
st dev	0.044	0.046	0.043	0.043	0.042	0.047	0.042
Min.	6.262	6.284	6.287	6.290	6.287	6.289	6.283
Max.	6.431	6.436	6.428	6.430	6.427	6.443	6.416

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

No.	u'	v'	CCT(K)	Chromaticity Shift ( $\Delta u'v'$ )					
	Ohr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	0.2624	0.5307	2689	0.0002	0.0004	0.0006	0.0009	0.0011	0.0014
27	0.2649	0.5301	2641	0.0004	0.0005	0.0006	0.0007	0.0011	0.0014
28	0.2633	0.5319	2667	0.0003	0.0007	0.0009	0.0011	0.0012	0.0013
29	0.2611	0.5288	2723	0.0004	0.0006	0.0008	0.0011	0.0013	0.0015
30	0.2605	0.5298	2731	0.0002	0.0005	0.0010	0.0011	0.0014	0.0016
31	0.2592	0.5295	2760	0.0005	0.0008	0.0010	0.0011	0.0013	0.0016
32	0.2651	0.5305	2636	0.0003	0.0007	0.0011	0.0014	0.0015	0.0017
33	0.2639	0.5328	2651	0.0006	0.0011	0.0014	0.0018	0.0019	0.0022
34	0.2579	0.5292	2789	0.0004	0.0009	0.0012	0.0016	0.0020	0.0023
35	0.2589	0.5289	2768	0.0003	0.0007	0.0011	0.0016	0.0019	0.0021
36	0.2633	0.5300	2674	0.0004	0.0009	0.0013	0.0017	0.0020	0.0026
37	0.2621	0.5303	2697	0.0001	0.0007	0.0011	0.0014	0.0017	0.0019
38	0.2650	0.5304	2638	0.0002	0.0007	0.0013	0.0015	0.0016	0.0017
39	0.2614	0.5304	2711	0.0002	0.0005	0.0011	0.0014	0.0018	0.0020
40	0.2617	0.5291	2709	0.0004	0.0005	0.0008	0.0011	0.0015	0.0020
41	0.2614	0.5306	2710	0.0004	0.0008	0.0011	0.0014	0.0019	0.0023
42	0.2618	0.5301	2704	0.0003	0.0007	0.0011	0.0014	0.0018	0.0022
43	0.2601	0.5296	2740	0.0006	0.0009	0.0012	0.0016	0.0018	0.0021
44	0.2621	0.5293	2700	0.0004	0.0006	0.0010	0.0015	0.0018	0.0021
45	0.2593	0.5300	2756	0.0004	0.0007	0.0008	0.0013	0.0016	0.0021
46	0.2604	0.5301	2733	0.0004	0.0007	0.0011	0.0013	0.0018	0.0021
47	0.2620	0.5309	2696	0.0005	0.0009	0.0009	0.0012	0.0014	0.0019
48	0.2619	0.5299	2702	0.0005	0.0011	0.0013	0.0014	0.0015	0.0016
49	0.2626	0.5297	2688	0.0004	0.0009	0.0010	0.0012	0.0013	0.0017
50	0.2617	0.5295	2707	0.0001	0.0007	0.0011	0.0015	0.0017	0.0018
Avg.	0.2618	0.5301	2705	0.0004	0.0007	0.0010	0.0013	0.0016	0.0019
Med.	0.2618	0.5300	2704	0.0004	0.0007	0.0011	0.0014	0.0016	0.0019
st dev	0.0019	0.0009	40	0.0001	0.0002	0.0002	0.0002	0.0003	0.0003
Min.	0.2579	0.5288	2636	0.0001	0.0004	0.0006	0.0007	0.0011	0.0013
Max.	0.2651	0.5328	2789	0.0006	0.0011	0.0014	0.0018	0.0020	0.0026

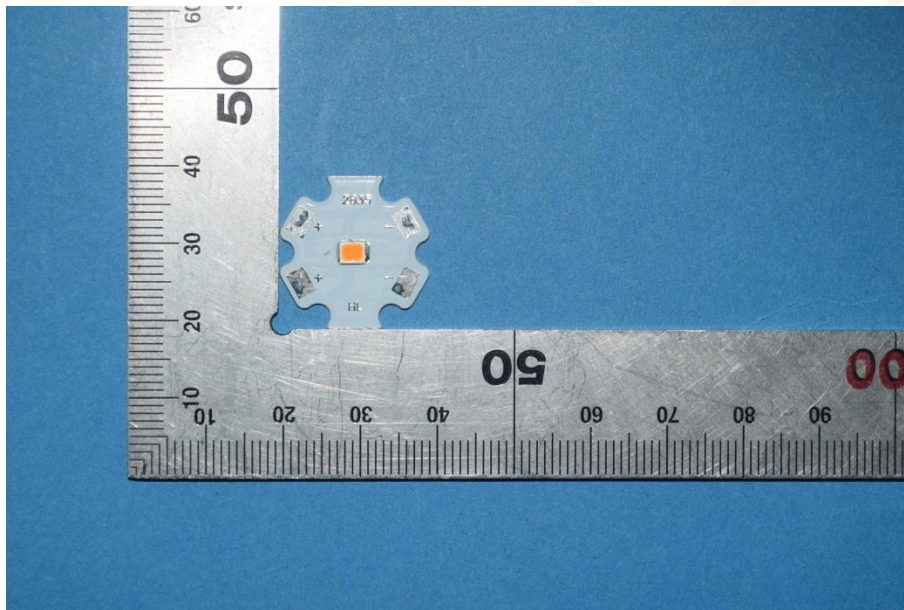
#### 4 - DUT Photo

##### 4.1 Mechanical Dimensions



All dimensions are in millimeter

##### 4.2 DUT Photo





**5 - Report Revision**

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Report Number	Report Date	Contents
RSZ181027501-10	2019-07-15	Original report.
RSZ181027501-10-M1	2019-08-07	Update the Family products on page 3

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

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