



TEST REPORT

According to ANSI/IES LM-80-15
For

XUYU OPTOELECTRONICS (SHENZHEN) CO.,LTD

8th Floor, Building A1, Sunshine Industrial Park, No.2-3 South Industrial area of Hezhou, Xixiang,
Bao'an District, Shenzhen

#Model: 9.2835W3V32F-S02

Report Type: 9000 Hours Test Report		Product Type: LED Package	
Test Engineer:	Pote Wang	<i>Pote Wang</i>	
Report Number:	RSZ180821507-10-M1		
Test Date:	2018-08-22 to 2019-09-03		
Report Date:	2019-12-24		
Reviewed By:	Blake Zhang / EE Engineer	<i>Blake Zhang</i>	
Revised Note:	The previous report RSZ180821507-10 is replaced by this report on 2019-12-24		
Test Facility:	Test facility was located at No.69,Pulongcun ,Puxihu Industrial Area, Tangxia , Dongguan, Guangdong, China.		
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Accreditation:	The IAS Accreditation Number TL-460.		

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1 - General Information

1.1 Description of LED Light Sources

Sample Size:

50 PCS test samples were in good condition and received on 2018-08-21. The samples were numbered from 1 to 25 and 26 to 50.

#Manufacturer:	XUYU OPTOELECTRONICS (SHENZHEN) CO.,LTD
#Part Number:	9.2835W3V32F-S02
#Part Type:	LED Package
#Drive Level:	DC 150mA
#Nominal CCT:	2700K
#Power:	1W
#Average Current Density per LED die:	775.001 mA/mm ²
#Average Power Density per LED die:	2.583 W/mm ²
#CRI:	80
#Die Spacing:	0.25mm

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	CCT (K)	Series	Parallel	Power Density (W/mm ²)	Current density per LED die (mA/mm ²)	Current per die (mA)	Die Spacing (mm)	Current (mA)
Master model	9.2835W3V32F-S02	2700	2	1	0.102	775.001	150	0.25	150
Multiple model	9.2835***V32F-***	2200-6500	2	1	0.102	775.001	150	0.25	150

Note: "****" means CCT, it can be Numbers or letters.

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	2019-03-08	2020-03-07
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	2019-03-08	2020-03-07

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	2019-03-08	2020-03-07
Standard Light Source	EVERFINE	D062	G100278CJ7351206	2018-12-24	2019-12-24
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987CJ7321114	2019-03-08	2020-03-07
Multilayer aging machine	BACL	B2-270	20023	2019-03-10	2020-03-09
DC Power Supply	BACL	B12001-12	90023	2019-01-07	2020-01-07

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 $u'v'$. 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 $25^{\circ}C \pm 2^{\circ}C$, 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 $U=0.8671^{\circ}C$ ($K=2$), 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: 9.2835W3V32F-S02
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: 9.2835W3V32F-S02
Number of Units: 25
Case Temperature: >103°C
Ambient Temperature: >100°C
Life Test Drive Current: 150mA
Measurement Current: 150mA

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2 - Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	α	β	Reported TM-21 L ₇₀ Lifetime	Reported TM-21 L ₉₀ Lifetime
1	25	0	1000hrs	9000hrs	2.886E-06	1.003	>54000 hours	38000 hours
2	25	0	1000hrs	9000hrs	3.132E-06	1.003	>54000 hours	35000 hours

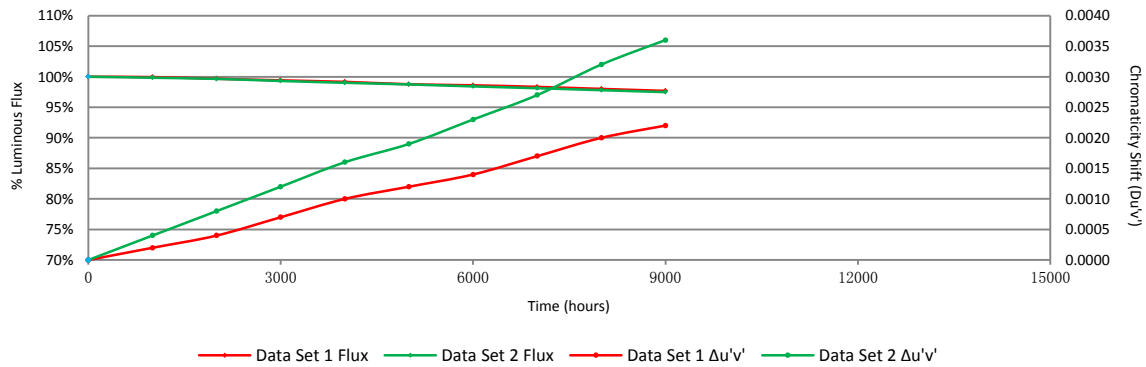
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	99.94%	99.67%	99.41%	99.16%	98.77%	98.60%	98.34%	98.01%	97.68%
2	99.84%	99.65%	99.31%	99.01%	98.74%	98.42%	98.12%	97.80%	97.48%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	0.0002	0.0004	0.0007	0.001	0.0012	0.0014	0.0017	0.002	0.0022
2	0.0004	0.0008	0.0012	0.0016	0.0019	0.0023	0.0027	0.0032	0.0036

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 (%)								
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	132.3	99.92	99.70	99.40	99.17	98.79	98.64	98.41	98.03	97.73
2	133.9	99.93	99.70	99.40	99.18	98.81	98.66	98.36	98.06	97.76
3	127.6	99.92	99.69	99.37	99.14	98.75	98.59	98.35	97.96	97.65
4	132.9	100.00	99.70	99.47	99.17	98.80	98.65	98.42	98.04	97.74
5	129.7	99.92	99.69	99.46	99.23	98.77	98.61	98.38	98.07	97.69
6	130.6	99.92	99.69	99.39	99.16	98.77	98.62	98.39	98.01	97.70
7	129.7	99.92	99.69	99.38	99.15	98.77	98.54	98.30	98.00	97.69
8	132.6	100.00	99.70	99.47	99.17	98.79	98.57	98.34	98.04	97.74
9	129.9	100.00	99.69	99.46	99.23	98.77	98.61	98.38	98.08	97.69
10	130.3	99.92	99.69	99.46	99.16	98.77	98.62	98.31	98.00	97.70
11	126.8	100.00	99.68	99.37	99.13	98.74	98.58	98.26	97.95	97.63
12	129.4	99.92	99.69	99.38	99.15	98.76	98.61	98.30	97.99	97.60
13	129.5	99.92	99.69	99.46	99.15	98.76	98.61	98.38	98.07	97.68
14	132.9	99.92	99.62	99.40	99.17	98.72	98.57	98.34	97.97	97.67
15	129.8	99.92	99.69	99.46	99.23	98.77	98.61	98.38	98.00	97.69
16	126.1	99.92	99.60	99.37	99.13	98.73	98.57	98.26	97.94	97.62
17	127.6	99.92	99.61	99.37	99.14	98.75	98.51	98.28	97.96	97.65
18	128.2	99.92	99.61	99.38	99.14	98.75	98.52	98.28	97.89	97.58
19	129.7	100.00	99.69	99.38	99.15	98.77	98.61	98.38	98.07	97.69
20	126.9	99.92	99.61	99.37	99.13	98.74	98.58	98.35	97.95	97.64
21	128.3	99.92	99.61	99.38	99.14	98.75	98.60	98.29	97.97	97.66
22	131.9	99.92	99.70	99.47	99.17	98.79	98.64	98.41	98.03	97.73
23	132.6	100.00	99.70	99.40	99.17	98.79	98.64	98.42	98.04	97.74
24	127.9	100.00	99.61	99.37	99.14	98.75	98.51	98.28	97.97	97.65
25	133.4	99.93	99.63	99.40	99.18	98.80	98.65	98.35	98.05	97.75
Avg.	130.0	99.94	99.67	99.41	99.16	98.77	98.60	98.34	98.01	97.68
Med.	129.7	99.92	99.69	99.40	99.16	98.77	98.61	98.35	98.00	97.69
st dev	2.3	0.04	0.04	0.04	0.03	0.02	0.04	0.05	0.05	0.05
Min.	126.1	99.92	99.60	99.37	99.13	98.72	98.51	98.26	97.89	97.58
Max.	133.9	100.00	99.70	99.47	99.23	98.81	98.66	98.42	98.08	97.76

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

No.	Forward Voltage (V)									
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	6.546	6.499	6.638	6.484	6.396	6.483	6.410	6.450	6.326	6.599
2	6.493	6.584	6.657	6.468	6.408	6.566	6.489	6.431	6.576	6.550
3	6.607	6.489	6.636	6.425	6.407	6.563	6.590	6.486	6.640	6.548
4	6.610	6.554	6.590	6.425	6.451	6.550	6.582	6.431	6.428	6.589
5	6.568	6.571	6.661	6.479	6.452	6.662	5.946	6.482	6.426	6.550
6	6.608	6.550	6.678	6.465	6.389	6.538	6.258	6.404	6.624	6.537
7	6.636	6.566	6.607	6.480	6.446	6.232	6.184	6.488	6.317	6.576
8	6.505	6.593	6.662	6.498	6.451	6.495	6.216	6.441	6.566	6.560
9	6.587	6.539	6.647	6.497	6.486	6.605	6.305	6.493	6.392	6.578
10	6.619	6.576	6.618	6.432	6.488	6.653	5.853	6.460	6.649	6.544
11	6.630	6.556	6.640	6.446	6.478	6.605	5.850	6.431	6.618	6.607
12	6.650	6.499	6.677	6.491	6.481	6.423	6.301	6.497	6.577	6.599
13	6.605	6.497	6.610	6.469	6.470	6.249	6.038	6.408	6.731	6.557
14	6.602	6.539	6.675	6.487	6.413	6.611	6.278	6.484	6.389	6.551
15	6.538	6.549	6.671	6.443	6.390	6.669	6.242	6.499	6.591	6.572
16	6.608	6.528	6.601	6.500	6.469	6.262	6.427	6.429	6.459	6.544
17	6.561	6.512	6.591	6.428	6.423	6.316	6.050	6.478	6.485	6.536
18	6.619	6.575	6.680	6.406	6.401	6.321	6.706	6.461	6.441	6.531
19	6.568	6.547	6.618	6.459	6.425	6.220	6.556	6.462	6.604	6.536
20	6.517	6.486	6.606	6.417	6.438	6.545	6.524	6.475	6.454	6.597
21	6.614	6.535	6.616	6.425	6.436	6.644	6.335	6.422	6.620	6.597
22	6.513	6.494	6.608	6.436	6.440	6.534	6.404	6.421	6.430	6.549
23	6.496	6.589	6.696	6.461	6.456	6.495	6.556	6.420	6.569	6.531
24	6.653	6.522	6.626	6.427	6.441	6.308	6.610	6.476	6.701	6.571
25	6.517	6.492	6.686	6.474	6.398	6.682	6.620	6.454	6.642	6.539
Avg.	6.579	6.538	6.640	6.457	6.437	6.489	6.333	6.455	6.530	6.562
Med.	6.602	6.539	6.638	6.461	6.440	6.538	6.335	6.460	6.569	6.551
st dev	0.050	0.034	0.033	0.029	0.031	0.152	0.245	0.030	0.117	0.025
Min.	6.493	6.486	6.590	6.406	6.389	6.220	5.850	6.404	6.317	6.531
Max.	6.653	6.593	6.696	6.500	6.488	6.682	6.706	6.499	6.731	6.607

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	7000hrs	8000hrs	9000hrs
1	0.2604	0.5316	2726	0.0001	0.0005	0.0009	0.0011	0.0013	0.0014	0.0018	0.0022	0.0024
2	0.2569	0.5298	2807	0.0002	0.0005	0.0007	0.0010	0.0014	0.0017	0.0019	0.0023	0.0026
3	0.2567	0.5311	2806	0.0002	0.0005	0.0010	0.0014	0.0017	0.0018	0.0021	0.0024	0.0026
4	0.2559	0.5285	2836	0.0001	0.0005	0.0006	0.0008	0.0012	0.0013	0.0014	0.0018	0.0022
5	0.2567	0.5272	2825	0.0002	0.0004	0.0006	0.0010	0.0012	0.0015	0.0016	0.0019	0.0021
6	0.2609	0.5318	2715	0.0001	0.0004	0.0008	0.0012	0.0012	0.0015	0.0018	0.0020	0.0022
7	0.2561	0.5284	2833	0.0002	0.0004	0.0007	0.0009	0.0011	0.0011	0.0014	0.0017	0.0019
8	0.2562	0.5283	2830	0.0001	0.0003	0.0004	0.0008	0.0012	0.0015	0.0019	0.0024	0.0027
9	0.2568	0.5295	2812	0.0001	0.0001	0.0004	0.0008	0.0010	0.0013	0.0015	0.0016	0.0019
10	0.2592	0.5298	2758	0.0001	0.0002	0.0005	0.0008	0.0012	0.0013	0.0015	0.0018	0.0018
11	0.2564	0.5278	2829	0.0002	0.0005	0.0009	0.0012	0.0014	0.0015	0.0016	0.0020	0.0022
12	0.2587	0.5288	2775	0.0002	0.0006	0.0008	0.0011	0.0012	0.0015	0.0019	0.0021	0.0025
13	0.2555	0.5288	2844	0.0002	0.0005	0.0008	0.0010	0.0011	0.0013	0.0015	0.0018	0.0021
14	0.2559	0.5303	2828	0.0002	0.0003	0.0005	0.0010	0.0012	0.0013	0.0018	0.0019	0.0022
15	0.2567	0.5276	2824	0.0001	0.0004	0.0006	0.0008	0.0011	0.0013	0.0014	0.0016	0.0016
16	0.2590	0.5277	2773	0.0002	0.0005	0.0008	0.0012	0.0014	0.0016	0.0020	0.0022	0.0025
17	0.2581	0.5275	2792	0.0002	0.0004	0.0008	0.0012	0.0013	0.0013	0.0017	0.0020	0.0023
18	0.2580	0.5286	2790	0.0002	0.0005	0.0009	0.0010	0.0012	0.0014	0.0017	0.0020	0.0024
19	0.2588	0.5311	2762	0.0000	0.0001	0.0006	0.0008	0.0010	0.0011	0.0014	0.0019	0.0020
20	0.2590	0.5300	2761	0.0001	0.0003	0.0005	0.0010	0.0013	0.0016	0.0018	0.0020	0.0022
21	0.2572	0.5277	2811	0.0002	0.0006	0.0009	0.0014	0.0015	0.0017	0.0021	0.0024	0.0028
22	0.2575	0.5295	2797	0.0002	0.0004	0.0006	0.0007	0.0010	0.0012	0.0015	0.0019	0.0022
23	0.2562	0.5292	2826	0.0001	0.0005	0.0007	0.0011	0.0014	0.0016	0.0018	0.0021	0.0022
24	0.2568	0.5268	2824	0.0002	0.0004	0.0008	0.0008	0.0012	0.0014	0.0017	0.0019	0.0021
25	0.2563	0.5291	2825	0.0002	0.0005	0.0008	0.0010	0.0013	0.0015	0.0018	0.0022	0.0024
Avg.	0.2574	0.5291	2800	0.0002	0.0004	0.0007	0.0010	0.0012	0.0014	0.0017	0.0020	0.0022
Med.	0.2568	0.5288	2811	0.0002	0.0004	0.0007	0.0010	0.0012	0.0014	0.0017	0.0020	0.0022
st dev	0.0015	0.0014	35	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003
Min.	0.2555	0.5268	2715	0.0000	0.0001	0.0004	0.0007	0.0010	0.0011	0.0014	0.0016	0.0016
Max.	0.2609	0.5318	2844	0.0002	0.0006	0.0010	0.0014	0.0017	0.0018	0.0021	0.0024	0.0028

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

No.	Φ(lm)	Lumen Maintenance (%)								
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	131.20	99.85	99.92	99.92	99.62	99.54	99.54	99.24	98.93	98.63
27	131.60	99.92	99.92	99.47	99.39	99.01	99.01	98.78	98.18	98.10
28	128.70	99.84	99.53	98.99	98.60	98.37	98.14	98.06	97.98	97.51
29	128.90	99.84	100.00	99.61	99.07	98.53	98.37	97.75	97.21	96.97
30	129.30	99.77	99.38	98.84	98.45	98.45	97.83	97.76	97.14	96.75
31	130.10	99.85	99.77	99.31	98.85	98.54	98.23	97.62	97.46	97.08
32	132.60	99.85	99.62	99.32	99.02	98.79	98.79	98.57	98.11	97.74
33	127.90	99.92	99.84	99.77	99.69	99.22	99.06	98.98	98.83	98.75
34	127.80	99.92	99.37	99.22	99.14	99.06	98.83	98.67	98.28	98.12
35	128.70	99.84	99.84	99.53	99.53	99.07	98.83	98.76	98.29	98.14
36	128.80	99.84	99.84	99.61	99.46	99.30	99.07	98.84	98.45	98.14
37	126.30	99.84	99.68	99.52	99.13	98.97	98.50	97.94	97.62	97.07
38	131.00	99.77	99.54	99.24	98.85	98.47	98.24	97.86	97.40	97.02
39	128.00	99.77	99.30	99.14	98.59	98.20	97.50	97.42	97.34	96.88
40	129.90	99.92	99.69	99.08	98.46	98.38	97.92	97.61	97.38	97.00
41	132.10	99.77	99.62	99.24	99.24	98.94	98.79	98.64	98.11	97.65
42	130.70	99.77	99.31	99.39	98.85	98.78	98.24	97.70	97.40	96.86
43	132.40	99.77	99.47	98.94	98.79	98.79	98.79	98.41	98.34	98.04
44	127.70	99.77	99.77	99.14	98.67	98.20	97.81	97.34	97.26	96.95
45	129.40	99.85	99.92	99.38	99.30	99.00	98.61	97.99	97.60	97.22
46	131.60	99.92	99.62	99.09	98.63	98.25	98.25	97.95	97.95	97.57
47	128.90	99.84	99.84	99.53	99.46	99.22	98.76	98.37	98.29	97.91
48	136.00	99.85	99.41	99.34	98.75	98.24	97.72	97.65	97.28	97.13
49	130.00	99.92	99.46	98.92	98.54	98.46	97.85	97.54	96.92	96.69
50	129.80	99.77	99.54	99.23	99.23	98.61	97.92	97.46	97.23	97.15
Avg.	129.98	99.84	99.65	99.31	99.01	98.74	98.42	98.12	97.80	97.48
Med.	129.80	99.84	99.62	99.31	99.02	98.78	98.37	97.95	97.62	97.22
st dev	2.05	0.0583	0.2122	0.2697	0.3817	0.3843	0.5181	0.5579	0.5584	0.6017
Min.	126.30	99.77	99.30	98.84	98.45	98.20	97.50	97.34	96.92	96.69
Max.	136.00	99.92	100.00	99.92	99.69	99.54	99.54	99.24	98.93	98.75

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

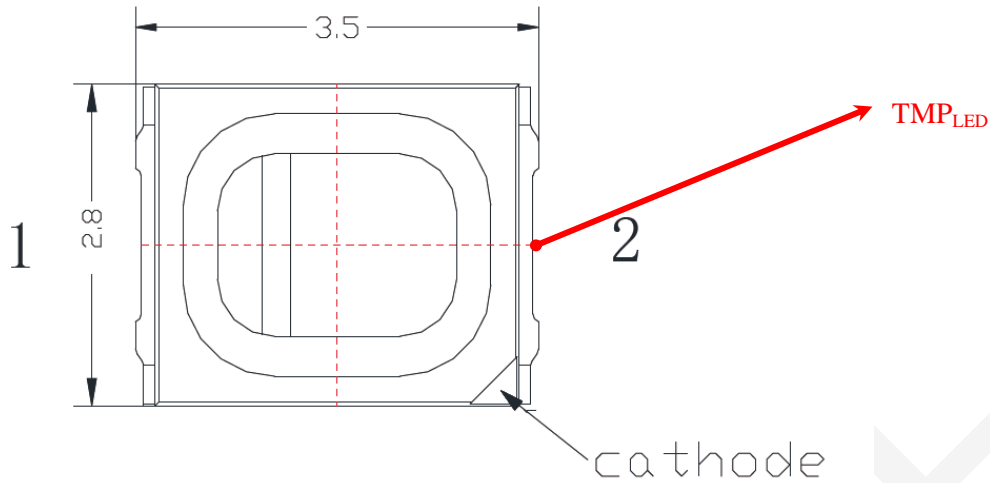
No.	Forward Voltage (V)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	6.495	6.511	6.448	6.443	6.613	6.575	6.925	6.857	6.786	6.993
27	6.577	6.413	6.470	6.747	6.756	6.632	6.956	6.569	6.346	6.624
28	6.630	6.750	6.729	6.914	6.957	6.713	6.611	6.599	6.580	6.647
29	6.564	6.196	6.558	6.560	6.577	6.464	6.659	6.634	6.477	6.528
30	6.634	6.527	6.554	6.576	6.487	6.523	6.579	6.533	6.526	6.542
31	6.604	6.600	6.608	6.606	6.614	6.618	6.610	6.612	6.619	6.612
32	6.631	6.694	6.663	6.697	6.635	6.626	6.625	6.619	6.873	6.888
33	6.598	6.482	6.512	6.523	6.526	6.511	6.497	6.543	6.521	6.540
34	6.542	6.656	6.468	6.594	6.735	6.686	6.613	6.669	6.570	6.666
35	6.612	6.604	6.588	6.602	6.615	6.642	6.611	6.593	6.524	6.496
36	6.570	6.560	6.585	6.899	6.606	6.574	6.601	6.602	6.725	6.608
37	6.468	6.525	6.443	6.686	6.840	6.647	6.695	6.600	6.452	6.494
38	6.535	6.571	6.514	6.753	6.794	6.512	6.815	6.601	6.546	6.589
39	6.638	6.609	6.482	6.707	6.794	6.780	6.862	6.472	6.287	6.332
40	6.572	6.649	6.496	6.559	6.573	6.569	6.565	6.546	6.513	6.309
41	6.579	6.590	6.561	6.400	6.429	6.400	6.966	6.675	6.591	6.777
42	6.617	6.650	6.614	6.538	6.677	6.409	6.677	6.716	6.352	6.651
43	6.620	6.593	6.478	6.593	6.450	6.617	6.515	6.474	6.533	6.427
44	6.576	6.568	6.616	6.614	6.609	6.620	6.607	6.615	6.602	6.613
45	6.644	6.571	6.525	6.593	6.764	6.585	6.968	6.727	6.497	6.635
46	6.578	6.512	6.561	6.609	6.706	6.470	6.522	6.532	6.528	6.544
47	6.537	6.495	6.208	6.488	6.548	6.425	6.698	6.650	6.587	6.626
48	6.566	6.486	6.365	6.351	6.523	6.302	6.843	6.698	6.601	6.901
49	6.633	6.447	6.323	6.575	6.544	6.559	6.540	6.583	6.586	6.596
50	6.571	6.432	6.611	6.770	6.850	6.780	6.856	6.786	6.506	6.680
Avg.	6.584	6.548	6.519	6.616	6.649	6.570	6.697	6.620	6.549	6.613
Med.	6.578	6.568	6.525	6.594	6.614	6.575	6.625	6.602	6.533	6.612
st dev	0.045	0.110	0.111	0.135	0.135	0.116	0.154	0.090	0.126	0.158
Min.	6.468	6.196	6.208	6.351	6.429	6.302	6.497	6.472	6.287	6.309
Max.	6.644	6.750	6.729	6.914	6.957	6.780	6.968	6.857	6.873	6.993

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	7000hrs	8000hrs	9000hrs
26	0.2574	0.5275	2808	0.0004	0.0004	0.0006	0.0009	0.0010	0.0014	0.0020	0.0024	0.0027
27	0.2591	0.5301	2759	0.0002	0.0006	0.0012	0.0016	0.0019	0.0020	0.0026	0.0029	0.0035
28	0.2567	0.5290	2816	0.0003	0.0007	0.0012	0.0014	0.0016	0.0019	0.0022	0.0028	0.0033
29	0.2567	0.5273	2825	0.0005	0.0011	0.0015	0.0021	0.0023	0.0030	0.0034	0.0037	0.0041
30	0.2562	0.5274	2836	0.0001	0.0006	0.0008	0.0011	0.0014	0.0019	0.0025	0.0030	0.0033
31	0.2599	0.5313	2739	0.0005	0.0010	0.0016	0.0018	0.0021	0.0024	0.0029	0.0033	0.0036
32	0.2606	0.5312	2724	0.0006	0.0011	0.0015	0.0021	0.0023	0.0030	0.0031	0.0037	0.0042
33	0.2606	0.5305	2726	0.0004	0.0007	0.0014	0.0018	0.0021	0.0023	0.0031	0.0036	0.0042
34	0.2608	0.5313	2719	0.0004	0.0008	0.0011	0.0014	0.0017	0.0021	0.0025	0.0030	0.0034
35	0.2559	0.5280	2839	0.0004	0.0004	0.0011	0.0015	0.0019	0.0022	0.0028	0.0034	0.0037
36	0.2571	0.5292	2806	0.0004	0.0010	0.0013	0.0017	0.0021	0.0028	0.0033	0.0039	0.0042
37	0.2568	0.5270	2823	0.0004	0.0005	0.0010	0.0012	0.0015	0.0017	0.0021	0.0027	0.0030
38	0.2587	0.5280	2778	0.0006	0.0010	0.0015	0.0018	0.0022	0.0027	0.0032	0.0036	0.0040
39	0.2595	0.5289	2757	0.0004	0.0005	0.0006	0.0008	0.0010	0.0015	0.0019	0.0023	0.0025
40	0.2566	0.5275	2827	0.0002	0.0006	0.0011	0.0015	0.0020	0.0023	0.0029	0.0033	0.0035
41	0.2613	0.5310	2710	0.0001	0.0008	0.0013	0.0019	0.0024	0.0030	0.0033	0.0036	0.0041
42	0.2564	0.5306	2816	0.0005	0.0009	0.0014	0.0017	0.0020	0.0028	0.0034	0.0036	0.0042
43	0.2576	0.5279	2802	0.0005	0.0006	0.0009	0.0013	0.0017	0.0020	0.0022	0.0025	0.0027
44	0.2562	0.5287	2830	0.0006	0.0010	0.0015	0.0017	0.0018	0.0020	0.0024	0.0027	0.0031
45	0.2608	0.5312	2719	0.0006	0.0009	0.0013	0.0018	0.0022	0.0028	0.0032	0.0035	0.0037
46	0.2581	0.5308	2778	0.0004	0.0010	0.0013	0.0017	0.0020	0.0022	0.0028	0.0030	0.0037
47	0.2550	0.5268	2864	0.0004	0.0007	0.0010	0.0017	0.0019	0.0021	0.0027	0.0031	0.0036
48	0.2577	0.5287	2796	0.0008	0.0012	0.0016	0.0019	0.0020	0.0022	0.0029	0.0034	0.0035
49	0.2604	0.5297	2734	0.0007	0.0012	0.0017	0.0022	0.0023	0.0027	0.0030	0.0034	0.0040
50	0.2605	0.5310	2728	0.0003	0.0009	0.0012	0.0013	0.0016	0.0019	0.0025	0.0027	0.0032
Avg.	0.2583	0.5292	2782	0.0004	0.0008	0.0012	0.0016	0.0019	0.0023	0.0027	0.0032	0.0036
Med.	0.2577	0.5290	2796	0.0004	0.0008	0.0013	0.0017	0.0020	0.0022	0.0028	0.0033	0.0036
st dev	0.0019	0.0016	47	0.0002	0.0002	0.0003	0.0004	0.0004	0.0005	0.0004	0.0004	0.0005
Min.	0.2550	0.5268	2710	0.0001	0.0004	0.0006	0.0008	0.0010	0.0014	0.0019	0.0023	0.0025
Max.	0.2613	0.5313	2864	0.0008	0.0012	0.0017	0.0022	0.0024	0.0030	0.0034	0.0039	0.0042

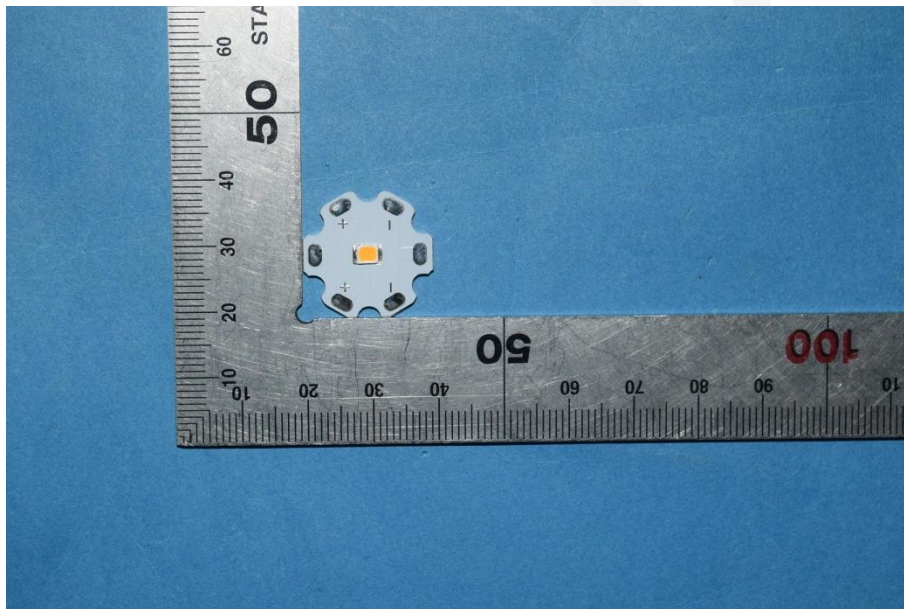
4 - DUT Photo

4.1 #Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



5 - Report Revision

Report Number	Report Date	Contents
RSZ180821507-10	2019-10-19	Original report.
RSZ180821507-10-M1	2019-12-24	Add the L90 Lifetime in page 6.

Directions

1. The information marked # 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*****