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: 9.2835W3V21F-S10

Report Type: 9000 Hours Test Report	**Product Type:** LED Package
Test Engineer:	Pote Wang
Report Number:	RSZ180821505-10-M1
Test Date:	2018-08-22 to 2019-10-23
Report Date:	2019-12-24
Reviewed By:	Blake Zhang / EE Engineer
Revised Note:	The previous report RSZ180821505-10 is replaced by this report on 2019-12-24
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.

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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:	9.2835W3V21F-S10
#Part Type:	LED Package
#Drive Level:	DC 60mA
#Nominal CCT:	3000K
#Power:	0.2W
#Average Current Density per LED die:	645.834mA/mm^2
#Average Power Density per LED die:	2.153W/mm^2
#CRI:	80
#Die Spacing:	0mm

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	Total Input Current (mA)	CCT (K)	Series	Parallel	Driver current per die (mA)	Current Density per Die (mA/mm^2)	Power Density per PCB (W/mm^2)	Die Spacing (mm)
9.2835W3V21F-S10 (Test model)	60	2700	1	1	60	645.834	0.020	0
9.2835**V21F-***	60	2200-6500	1	1	60	645.834	0.020	0

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
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	2019-03-08	2020-03-07

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
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 ±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 luminous flux and chromaticity coordinate u'v'. 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.

The uncertainty of the light output (luminous flux) measurements is U=2.5% (K=2), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is U=20K (K=2), at the 95% confidence level.

The uncertainty of the CRI is U=2.5 (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, 60mA

Part Number:	9.2835W3V21F-S10
Number of Units:	25
Case Temperature:	>83°C
Ambient Temperature:	>80°C
Life Test Drive Current:	60mA
Measurement Current:	60mA

Data Set 2: 105°C, 60mA

Part Number:	9.2835W3V21F-S10
Number of Units:	25
Case Temperature:	>103°C
Ambient Temperature:	>100°C
Life Test Drive Current:	60mA
Measurement Current:	60mA

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	2.378E-06	1.004	>54000hrs	46000hrs
2	25	0	1000hrs	9000hrs	3.109E-06	1.004	>54000hrs	35000hrs

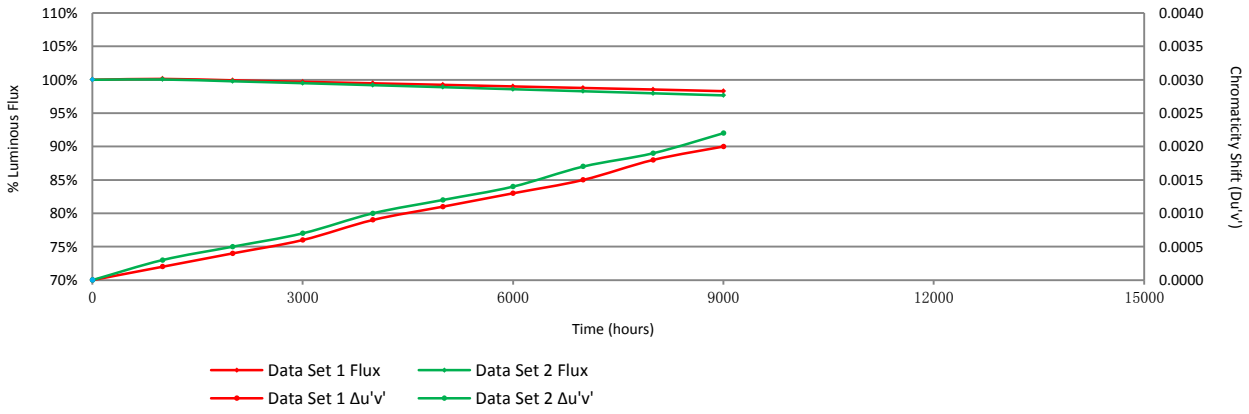
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	100.13%	99.91%	99.69%	99.47%	99.24%	99.00%	98.77%	98.54%	98.29%
2	100.04%	99.77%	99.49%	99.19%	98.89%	98.58%	98.28%	97.97%	97.66%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	0.0002	0.0004	0.0006	0.0009	0.0011	0.0013	0.0015	0.0018	0.0020
2	0.0003	0.0005	0.0007	0.0010	0.0012	0.0014	0.0017	0.0019	0.0022

Average Lumen Maintenance and Chromaticity Shift VS. Time



3 - Test Data

3.1 Data Set 1, 85°C, 60mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)								
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	31.44	100.22	99.84	99.49	99.30	98.89	98.73	98.44	98.31	97.96
2	31.84	100.09	99.81	99.56	99.18	99.06	98.87	98.71	98.49	98.30
3	31.38	100.06	99.97	99.81	99.46	99.11	98.82	98.50	98.25	97.90
4	32.02	100.16	100.06	99.72	99.50	99.28	99.03	98.84	98.66	98.47
5	31.67	100.22	100.00	99.81	99.62	99.53	99.27	99.05	98.77	98.55
6	31.76	100.16	99.94	99.69	99.50	99.46	99.28	98.99	98.65	98.27
7	31.87	100.09	99.97	99.75	99.47	99.22	99.12	98.81	98.59	98.27
8	31.88	100.16	100.00	99.81	99.65	99.31	99.06	98.90	98.71	98.53
9	31.78	100.09	100.03	99.72	99.50	99.31	99.09	98.74	98.46	98.24
10	31.85	100.03	99.75	99.50	99.37	99.09	98.81	98.56	98.37	98.15
11	31.54	100.16	100.10	99.90	99.62	99.43	99.11	98.89	98.67	98.35
12	31.76	100.06	99.84	99.65	99.62	99.40	99.15	98.90	98.68	98.46
13	31.52	99.94	99.81	99.59	99.33	99.05	98.86	98.67	98.35	98.06
14	31.70	100.09	99.84	99.62	99.37	98.99	98.74	98.61	98.26	98.08
15	31.83	100.09	99.75	99.50	99.31	99.18	98.96	98.65	98.46	98.24
16	32.05	100.16	100.09	99.91	99.72	99.47	99.16	98.91	98.75	98.53
17	31.69	100.09	99.78	99.62	99.50	99.43	99.24	98.96	98.67	98.45
18	32.00	100.19	99.88	99.66	99.34	99.19	98.94	98.88	98.59	98.41
19	31.53	100.06	99.90	99.62	99.49	99.11	98.95	98.73	98.60	98.26
20	31.53	100.06	99.87	99.78	99.62	99.37	98.99	98.79	98.51	98.35
21	31.82	100.19	100.03	99.81	99.56	99.28	99.03	98.81	98.59	98.37
22	31.44	100.32	100.10	99.90	99.78	99.65	99.55	99.27	99.11	98.85
23	32.17	99.97	99.60	99.35	99.10	98.91	98.69	98.48	98.29	97.98
24	31.38	100.25	100.00	99.68	99.39	99.11	98.82	98.47	98.25	98.09
25	31.86	100.25	99.87	99.75	99.40	99.18	98.84	98.59	98.34	98.02
Avg.	31.73	100.13	99.91	99.69	99.47	99.24	99.00	98.77	98.54	98.29
Med.	31.76	100.09	99.90	99.69	99.49	99.22	98.99	98.79	98.59	98.27
st dev	0.22	0.09	0.13	0.14	0.16	0.20	0.21	0.20	0.21	0.22
Min.	31.38	99.94	99.60	99.35	99.10	98.89	98.69	98.44	98.25	97.90
Max.	32.17	100.32	100.10	99.91	99.78	99.65	99.55	99.27	99.11	98.85

3.2 Data Set 1, 85°C, 60mA (Forward Voltage)

No.	Forward Voltage (V)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	2.923	2.876	2.878	2.880	2.882	2.886	2.880	2.880	2.881	2.883
2	2.925	2.873	2.874	2.877	2.877	2.882	2.879	2.882	2.882	2.885
3	2.919	2.873	2.875	2.879	2.877	2.882	2.881	2.876	2.876	2.878
4	2.925	2.877	2.881	2.884	2.884	2.887	2.885	2.880	2.885	2.883
5	2.928	2.876	2.876	2.878	2.877	2.881	2.882	2.876	2.879	2.877
6	2.929	2.878	2.879	2.884	2.878	2.885	2.883	2.880	2.880	2.880
7	2.929	2.881	2.884	2.885	2.885	2.889	2.889	2.883	2.885	2.886
8	2.934	2.893	2.895	2.895	2.895	2.899	2.896	2.891	2.896	2.895
9	2.932	2.884	2.885	2.888	2.888	2.891	2.889	2.887	2.887	2.888
10	2.942	2.875	2.878	2.879	2.878	2.882	2.880	2.876	2.878	2.878
11	2.956	2.876	2.879	2.879	2.877	2.884	2.879	2.876	2.879	2.879
12	2.960	2.884	2.886	2.888	2.888	2.892	2.890	2.887	2.887	2.887
13	2.931	2.869	2.869	2.873	2.873	2.876	2.875	2.872	2.872	2.872
14	2.936	2.877	2.882	2.883	2.884	2.888	2.887	2.883	2.884	2.885
15	2.946	2.868	2.868	2.873	2.872	2.877	2.876	2.872	2.872	2.873
16	2.942	2.887	2.888	2.891	2.892	2.894	2.892	2.893	2.892	2.895
17	2.947	2.888	2.891	2.893	2.894	2.897	2.895	2.892	2.894	2.895
18	2.957	2.880	2.884	2.886	2.887	2.891	2.888	2.872	2.873	2.892
19	2.943	2.882	2.882	2.886	2.888	2.891	2.890	2.874	2.873	2.883
20	2.935	2.899	2.898	2.900	2.903	2.906	2.904	2.872	2.873	2.886
21	2.952	2.868	2.869	2.874	2.875	2.877	2.876	2.873	2.873	2.875
22	2.956	2.883	2.888	2.892	2.891	2.892	2.894	2.891	2.890	2.893
23	2.936	2.878	2.879	2.885	2.883	2.888	2.888	2.884	2.883	2.886
24	2.920	2.872	2.874	2.878	2.878	2.880	2.881	2.876	2.877	2.878
25	2.950	2.888	2.892	2.896	2.895	2.897	2.898	2.895	2.893	2.896
Avg.	2.938	2.879	2.881	2.884	2.884	2.888	2.886	2.881	2.882	2.884
Med.	2.936	2.878	2.881	2.884	2.884	2.888	2.887	2.880	2.881	2.885
st dev	0.012	0.008	0.008	0.007	0.008	0.007	0.008	0.007	0.007	0.007
Min.	2.919	2.868	2.868	2.873	2.872	2.876	2.875	2.872	2.872	2.872
Max.	2.960	2.899	2.898	2.900	2.903	2.906	2.904	2.895	2.896	2.896

3.3 Data Set 1, 85°C, 60mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')								
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	0.2611	0.5276	2728	0.0002	0.0004	0.0007	0.0008	0.0010	0.0011	0.0012	0.0013	0.0016
2	0.2588	0.5286	2774	0.0002	0.0003	0.0006	0.0008	0.0011	0.0013	0.0014	0.0015	0.0016
3	0.2622	0.5288	2701	0.0002	0.0006	0.0007	0.0010	0.0011	0.0015	0.0019	0.0024	0.0026
4	0.2591	0.5289	2765	0.0001	0.0003	0.0006	0.0009	0.0011	0.0014	0.0015	0.0016	0.0017
5	0.2604	0.5293	2736	0.0001	0.0004	0.0007	0.0011	0.0013	0.0014	0.0015	0.0017	0.0018
6	0.2609	0.5298	2723	0.0002	0.0004	0.0006	0.0009	0.0011	0.0013	0.0014	0.0016	0.0018
7	0.2612	0.5301	2716	0.0001	0.0003	0.0004	0.0006	0.0009	0.0012	0.0013	0.0015	0.0016
8	0.2587	0.5277	2778	0.0002	0.0003	0.0004	0.0005	0.0008	0.0010	0.0013	0.0014	0.0016
9	0.2601	0.5274	2750	0.0003	0.0006	0.0008	0.0010	0.0011	0.0014	0.0016	0.0018	0.0019
10	0.2581	0.5289	2787	0.0001	0.0004	0.0006	0.0009	0.0012	0.0013	0.0016	0.0019	0.0021
11	0.2608	0.5278	2734	0.0003	0.0005	0.0007	0.0008	0.0011	0.0015	0.0018	0.0023	0.0024
12	0.2604	0.5295	2734	0.0001	0.0004	0.0006	0.0008	0.0010	0.0013	0.0016	0.0020	0.0024
13	0.2599	0.5281	2752	0.0001	0.0002	0.0005	0.0008	0.0011	0.0013	0.0015	0.0018	0.0021
14	0.2618	0.5296	2705	0.0001	0.0004	0.0005	0.0006	0.0008	0.0010	0.0011	0.0014	0.0017
15	0.2580	0.5277	2794	0.0003	0.0004	0.0007	0.0009	0.0011	0.0013	0.0016	0.0018	0.0020
16	0.2587	0.5294	2771	0.0003	0.0005	0.0007	0.0011	0.0012	0.0013	0.0017	0.0022	0.0027
17	0.2621	0.5294	2700	0.0001	0.0004	0.0006	0.0009	0.0011	0.0013	0.0014	0.0015	0.0017
18	0.2578	0.5280	2798	0.0003	0.0005	0.0007	0.0009	0.0011	0.0013	0.0016	0.0016	0.0019
19	0.2602	0.5278	2747	0.0001	0.0005	0.0008	0.0010	0.0011	0.0013	0.0015	0.0016	0.0018
20	0.2625	0.5289	2694	0.0002	0.0004	0.0006	0.0008	0.0011	0.0013	0.0016	0.0018	0.0021
21	0.2581	0.5272	2794	0.0001	0.0004	0.0007	0.0009	0.0012	0.0015	0.0019	0.0024	0.0025
22	0.2580	0.5274	2794	0.0002	0.0004	0.0005	0.0008	0.0010	0.0013	0.0016	0.0018	0.0021
23	0.2600	0.5308	2737	0.0002	0.0004	0.0005	0.0006	0.0009	0.0012	0.0014	0.0017	0.0018
24	0.2605	0.5277	2740	0.0002	0.0004	0.0006	0.0007	0.0008	0.0009	0.0013	0.0016	0.0019
25	0.2590	0.5287	2768	0.0002	0.0005	0.0008	0.0011	0.0013	0.0014	0.0017	0.0019	0.0022
Avg.	0.2599	0.5286	2749	0.0002	0.0004	0.0006	0.0009	0.0011	0.0013	0.0015	0.0018	0.0020
Med.	0.2601	0.5287	2747	0.0002	0.0004	0.0006	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019
st dev	0.0014	0.0010	32	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003
Min.	0.2578	0.5272	2694	0.0001	0.0002	0.0004	0.0005	0.0008	0.0009	0.0011	0.0013	0.0016
Max.	0.2625	0.5308	2798	0.0003	0.0006	0.0008	0.0011	0.0013	0.0015	0.0019	0.0024	0.0027

3.4 Data Set 2, 105°C, 60mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)								
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	31.68	100.16	100.09	99.78	99.34	99.12	98.77	98.42	98.23	97.98
27	31.41	99.97	99.65	99.46	99.24	98.85	98.57	98.34	98.03	97.64
28	31.91	99.91	99.59	99.53	99.31	98.97	98.59	98.28	97.96	97.65
29	32.04	100.03	99.63	99.34	99.19	98.94	98.50	98.16	97.75	97.60
30	31.80	100.13	99.91	99.62	99.25	98.90	98.58	98.36	98.05	97.61
31	31.57	100.25	99.90	99.62	99.40	99.27	98.89	98.67	98.45	98.13
32	31.58	100.09	99.87	99.81	99.49	99.18	98.92	98.80	98.48	98.16
33	31.74	100.03	99.81	99.43	99.31	98.93	98.61	98.30	98.14	97.83
34	31.84	100.09	99.69	99.40	99.09	98.99	98.68	98.34	98.02	97.68
35	31.49	99.87	99.59	99.36	99.08	98.76	98.38	98.16	97.84	97.59
36	31.07	99.94	99.61	99.36	99.00	98.62	98.33	98.00	97.68	97.30
37	31.68	99.97	99.78	99.37	99.05	98.80	98.48	98.11	97.76	97.57
38	31.64	100.03	99.81	99.43	99.12	98.77	98.51	98.26	97.88	97.63
39	31.91	100.19	100.00	99.69	99.37	98.97	98.62	98.28	98.09	97.81
40	31.64	100.03	99.87	99.49	99.15	98.80	98.51	98.20	97.79	97.35
41	31.55	100.06	99.59	99.30	98.89	98.61	98.38	98.03	97.69	97.34
42	31.91	99.91	99.62	99.31	99.00	98.62	98.25	97.99	97.65	97.27
43	31.45	99.97	99.65	99.43	99.21	99.01	98.82	98.44	98.12	97.74
44	31.64	99.97	99.84	99.40	99.15	98.77	98.45	98.20	97.91	97.72
45	31.54	100.10	99.94	99.65	99.37	98.99	98.54	98.22	98.03	97.78
46	31.94	100.16	100.00	99.81	99.53	99.31	99.06	98.65	98.18	97.81
47	31.45	100.16	99.78	99.62	99.33	99.11	98.86	98.66	98.44	98.12
48	31.55	100.03	99.62	99.18	98.73	98.57	98.32	97.97	97.65	97.46
49	31.39	100.10	99.75	99.43	99.17	98.79	98.50	98.15	97.87	97.61
50	31.61	99.91	99.72	99.30	98.96	98.54	98.29	97.91	97.53	97.22
Avg.	31.64	100.04	99.77	99.49	99.19	98.89	98.58	98.28	97.97	97.66
Med.	31.64	100.03	99.78	99.43	99.19	98.90	98.54	98.26	97.96	97.64
st dev	0.22	0.10	0.15	0.17	0.19	0.21	0.21	0.23	0.26	0.26
Min.	31.07	99.87	99.59	99.18	98.73	98.54	98.25	97.91	97.53	97.22
Max.	32.04	100.25	100.09	99.81	99.53	99.31	99.06	98.80	98.48	98.16

3.5 Data Set 2, 105°C, 60mA (Forward Voltage)

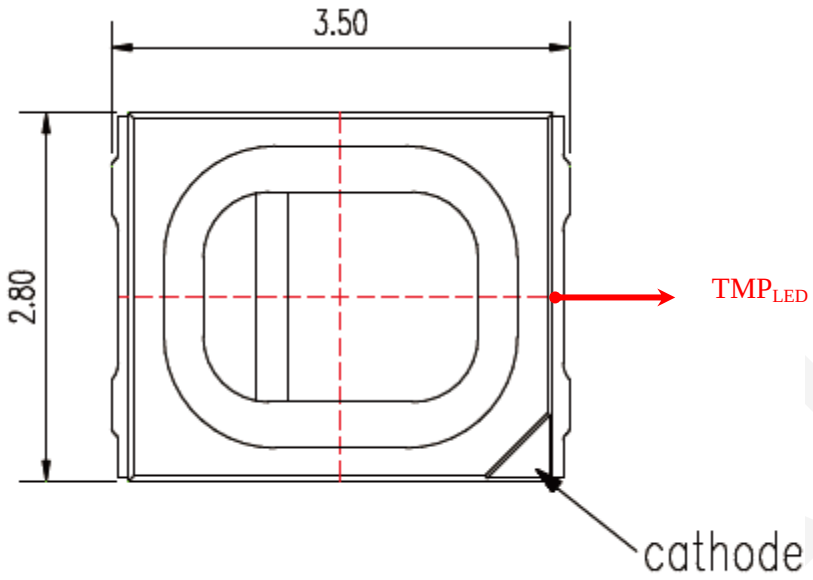
No.	Forward Voltage (V)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	2.920	2.871	2.871	2.874	2.877	2.876	2.875	2.874	2.878	2.877
27	2.928	2.871	2.869	2.873	2.876	2.876	2.875	2.873	2.874	2.869
28	2.943	2.891	2.889	2.892	2.899	2.893	2.896	2.893	2.896	2.895
29	2.937	2.882	2.881	2.883	2.889	2.887	2.887	2.884	2.886	2.885
30	2.928	2.885	2.881	2.885	2.888	2.888	2.888	2.884	2.887	2.884
31	2.924	2.880	2.876	2.882	2.888	2.884	2.884	2.884	2.885	2.886
32	2.915	2.872	2.873	2.873	2.880	2.877	2.876	2.872	2.876	2.872
33	2.936	2.883	2.884	2.884	2.892	2.887	2.885	2.886	2.886	2.888
34	2.939	2.888	2.888	2.890	2.897	2.892	2.891	2.892	2.894	2.893
35	2.931	2.883	2.883	2.888	2.892	2.890	2.887	2.888	2.889	2.887
36	2.919	2.867	2.869	2.873	2.876	2.874	2.875	2.872	2.872	2.868
37	2.915	2.873	2.874	2.877	2.880	2.878	2.889	2.890	2.894	2.889
38	2.931	2.890	2.891	2.891	2.897	2.891	2.893	2.891	2.893	2.889
39	2.927	2.883	2.883	2.886	2.890	2.887	2.889	2.884	2.885	2.883
40	2.929	2.873	2.875	2.877	2.883	2.878	2.882	2.879	2.878	2.879
41	2.914	2.873	2.870	2.873	2.878	2.876	2.875	2.874	2.875	2.872
42	2.919	2.875	2.870	2.875	2.880	2.877	2.875	2.874	2.875	2.878
43	2.925	2.872	2.876	2.876	2.880	2.877	2.873	2.876	2.877	2.878
44	2.937	2.881	2.881	2.884	2.888	2.885	2.886	2.884	2.885	2.882
45	2.931	2.873	2.873	2.875	2.880	2.876	2.873	2.874	2.876	2.872
46	2.923	2.877	2.876	2.879	2.883	2.878	2.879	2.877	2.880	2.877
47	2.933	2.886	2.885	2.889	2.893	2.889	2.888	2.886	2.888	2.886
48	2.950	2.876	2.873	2.876	2.882	2.879	2.878	2.875	2.878	2.873
49	2.915	2.870	2.866	2.873	2.875	2.876	2.870	2.872	2.872	2.870
50	2.921	2.876	2.876	2.880	2.885	2.882	2.883	2.880	2.883	2.878
Avg.	2.928	2.878	2.877	2.880	2.885	2.882	2.882	2.881	2.882	2.880
Med.	2.928	2.876	2.876	2.879	2.883	2.879	2.883	2.880	2.883	2.879
st dev	0.009	0.007	0.007	0.006	0.007	0.006	0.007	0.007	0.007	0.008
Min.	2.914	2.867	2.866	2.873	2.875	2.874	2.870	2.872	2.872	2.868
Max.	2.950	2.891	2.891	2.892	2.899	2.893	2.896	2.893	2.896	2.895

3.6 Data Set 2, 105°C, 60mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')								
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	0.2592	0.5283	2766	0.0003	0.0006	0.0009	0.0012	0.0015	0.0016	0.0017	0.0020	0.0021
27	0.2594	0.5275	2765	0.0002	0.0005	0.0008	0.0011	0.0013	0.0016	0.0020	0.0024	0.0027
28	0.2596	0.5296	2752	0.0005	0.0006	0.0008	0.0010	0.0011	0.0014	0.0016	0.0017	0.0021
29	0.2586	0.5296	2773	0.0001	0.0004	0.0006	0.0009	0.0010	0.0013	0.0015	0.0018	0.0021
30	0.2583	0.5278	2787	0.0001	0.0004	0.0006	0.0009	0.0011	0.0013	0.0015	0.0018	0.0021
31	0.2601	0.5294	2742	0.0004	0.0006	0.0007	0.0009	0.0012	0.0014	0.0016	0.0018	0.0020
32	0.2592	0.5292	2761	0.0001	0.0006	0.0009	0.0011	0.0012	0.0013	0.0015	0.0018	0.0020
33	0.2589	0.5294	2767	0.0003	0.0004	0.0007	0.0008	0.0011	0.0012	0.0015	0.0018	0.0020
34	0.2586	0.5294	2773	0.0002	0.0004	0.0006	0.0009	0.0012	0.0014	0.0017	0.0019	0.0021
35	0.2590	0.5282	2770	0.0004	0.0008	0.0011	0.0013	0.0015	0.0016	0.0018	0.0019	0.0021
36	0.2626	0.5281	2695	0.0001	0.0003	0.0006	0.0009	0.0014	0.0018	0.0019	0.0020	0.0023
37	0.2596	0.5273	2761	0.0001	0.0002	0.0004	0.0006	0.0008	0.0011	0.0015	0.0016	0.0018
38	0.2593	0.5278	2767	0.0003	0.0005	0.0006	0.0007	0.0009	0.0015	0.0017	0.0019	0.0020
39	0.2614	0.5308	2710	0.0004	0.0007	0.0008	0.0009	0.0011	0.0014	0.0018	0.0022	0.0025
40	0.2581	0.5269	2796	0.0004	0.0005	0.0006	0.0008	0.0009	0.0012	0.0014	0.0017	0.0021
41	0.2605	0.5288	2735	0.0005	0.0008	0.0009	0.0011	0.0012	0.0013	0.0016	0.0019	0.0021
42	0.2586	0.5284	2779	0.0003	0.0006	0.0008	0.0011	0.0014	0.0015	0.0016	0.0018	0.0021
43	0.2594	0.5284	2761	0.0004	0.0008	0.0011	0.0013	0.0015	0.0016	0.0018	0.0019	0.0021
44	0.2616	0.5280	2717	0.0003	0.0006	0.0009	0.0013	0.0015	0.0018	0.0019	0.0021	0.0022
45	0.2603	0.5294	2738	0.0004	0.0006	0.0008	0.0012	0.0016	0.0018	0.0021	0.0022	0.0023
46	0.2596	0.5285	2756	0.0002	0.0005	0.0008	0.0011	0.0015	0.0019	0.0022	0.0023	0.0025
47	0.2591	0.5281	2768	0.0001	0.0004	0.0006	0.0008	0.0012	0.0014	0.0016	0.0018	0.0025
48	0.2603	0.5279	2744	0.0005	0.0008	0.0009	0.0010	0.0012	0.0014	0.0018	0.0021	0.0026
49	0.2601	0.5268	2753	0.0002	0.0004	0.0005	0.0006	0.0007	0.0009	0.0012	0.0014	0.0016
50	0.2605	0.5282	2739	0.0002	0.0004	0.0007	0.0008	0.0009	0.0011	0.0014	0.0016	0.0018
Avg.	0.2597	0.5285	2755	0.0003	0.0005	0.0007	0.0010	0.0012	0.0014	0.0017	0.0019	0.0022
Med.	0.2594	0.5283	2761	0.0003	0.0005	0.0008	0.0009	0.0012	0.0014	0.0016	0.0019	0.0021
st dev	0.0011	0.0009	24	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003
Min.	0.2581	0.5268	2695	0.0001	0.0002	0.0004	0.0006	0.0007	0.0009	0.0012	0.0014	0.0016
Max.	0.2626	0.5308	2796	0.0005	0.0008	0.0011	0.0013	0.0016	0.0019	0.0022	0.0024	0.0027

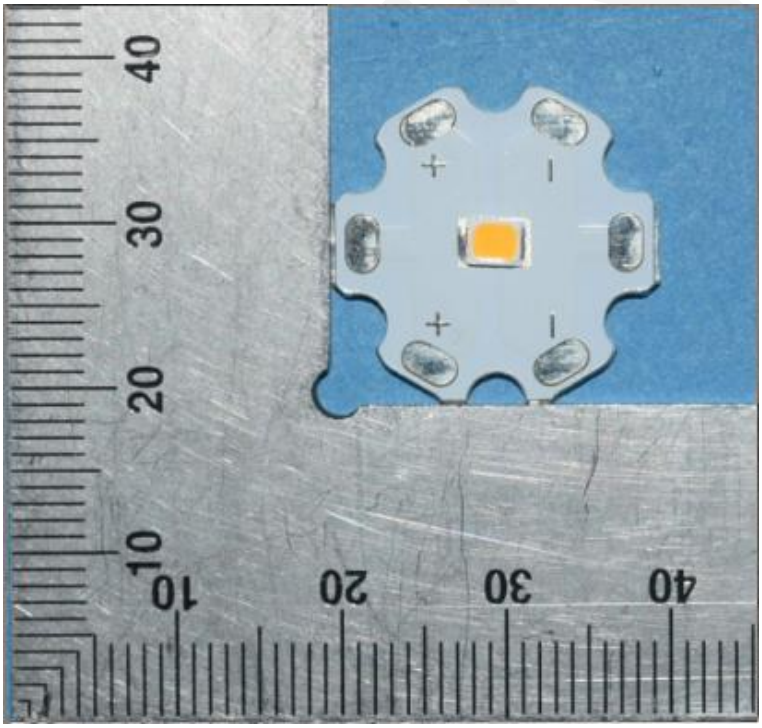
4 - DUT Photo

4.1 #Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



5 - Report Revision

Report Number	Report Date	Contents
RSZ180821505-10	2019-11-05	Original report.
RSZ180821505-10-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**********