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-2835H466W-3C-S1-08L-PCT-HR3(R9)

Report Type: 17000 Hours Test Report	**Product Type:** LED Package
Reviewed By:	Bruce Lu
Report Number:	SZ2230728-43912E-EE-17000
Test Date:	2023-06-20 to 2025-08-24
Report Date:	2025-09-05
Approved by:	Blake Zhang / EE Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax:+86-0769-86858588
Test Facility:	Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

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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 2023-06-20. The samples were numbered from 1 to 25 and 26 to 50.

Manufacturer:	Hongli Zhihui Group Co., Ltd. Guangzhou Branch
Part Number:	HL-AS-2835H466W-3C-S1-08L-PCT-HR3(R9)
Part Type:	LED Package
Drive Level:	DC 100mA
Nominal CCT:	2700K
Power:	0.96W
Average Current Density per LED die:	688.890mA/mm^2
Average Power Density per LED die:	2.204W/mm^2
CRI:	80
Die Spacing:	0.15mm

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.

Note:

Except for 6000hrs to 17000hrs test data, the test facility of the data of other test was located at No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.

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	CRI (typ.)	CCT (typ.)	Series	Parallel	Power density per PCB (W/mm^2)	Current density per LED die (mA/mm^2)	Current per die (mA)	Distance between of dies (mm)	Current (mA)
Test model	HL-AS-2835H466W-3C-S1-08L-PCT-HR3(R9)	80	2700K	3	1	0.098	688.890	100	0.15	100
Multiple models	HL-**-2835H***W-3C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	3	1	0.098	688.890	100	0.15	100
Multiple models	HL-**-2835HV***W-3C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	3	1	0.098	465.001	45	0.15	45
Multiple models	HL-**-2835D***W-3C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	3	1	0.098	688.890	100	0.15	100
Multiple models	HL-**-2835DV***W-3C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	3	1	0.098	465.001	45	0.15	45
Multiple models	HL-**-2835F***W-3C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	3	1	0.098	561.600	100	0.15	100

Model type	Model name	CRI (typ.)	CCT (typ.)	Series	Parallel	Power density per PCB (W/mm^2)	Current density per LED die (mA/mm^2)	Current per die (mA)	Distance between of dies (mm)	Current (mA)
Multiple models	HL-**-2835D***CBW-3C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	3	1	0.098	688.890	100	0.15	100
Multiple models	HL-**-2835H***W-3-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	3	0.098	688.890	100	0.15	300
Multiple models	HL-**-2835HV***W-3-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	3	0.098	413.334	40	0.15	120
Multiple models	HL-**-2835D***W-3-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	3	0.098	688.890	100	0.15	300
Multiple models	HL-**-2835DV***W-3-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	3	0.098	413.334	40	0.15	120
Multiple models	HL-**-2835F***W-3-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	3	0.098	561.600	100	0.15	300
Multiple models	HL-**-2835D***CBW-3-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	3	0.098	688.890	100	0.15	300
Multiple models	HL-**-2835H***W-2C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	2	1	0.098	688.890	150	0.15	150
Multiple models	HL-**-2835HV***W-2C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	2	1	0.098	620.001	60	0.15	60
Multiple models	HL-**-2835D***W-2C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	2	1	0.098	688.890	150	0.15	150
Multiple models	HL-**-2835DV***W-2C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	2	1	0.098	620.001	60	0.15	60
Multiple models	HL-**-2835F***W-2C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	2	1	0.098	561.600	150	0.15	150
Multiple models	HL-**-2835H466WD***VW-2C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	2	1	0.098	688.890	150	0.15	150
Multiple models	HL-**-2835H421WD***VW-2C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	2	1	0.098	688.890	150	0.15	150
Multiple models	HL-**-2835D4WD***VW-2C-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	2	1	0.098	688.890	150	0.15	150
Multiple models	HL-**-2835H***W-2-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	2	0.098	688.890	150	0.15	300
Multiple models	HL-**-2835HV***W-2-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	2	0.098	620.001	60	0.15	120
Multiple models	HL-**-2835D***W-2-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	2	0.098	688.890	150	0.15	300
Multiple models	HL-**-2835DV***W-2-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	2	0.098	620.001	60	0.15	120

Model type	Model name	CRI (typ.)	CCT (typ.)	Series	Parallel	Power density per PCB (W/mm^2)	Current density per LED die (mA/mm^2)	Current per die (mA)	Distance between of dies (mm)	Current (mA)
Multiple models	HL-**-2835F***W-2-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	2	0.098	561.600	150	0.15	300
Multiple models	HL-**-2835H466D***W-2-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	2	0.098	688.890	150	0.15	300
Multiple models	HL-**-2835H421D***W-2-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	2	0.098	688.890	150	0.15	300
Multiple models	HL-**-2835D4WD***VW-2-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	2	0.098	688.890	150	0.15	300
Multiple models	HL-**-2835H***W-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	1	0.098	688.890	300	/	300
Multiple models	HL-**-2835HV***W-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	1	0.098	688.890	120	/	120
Multiple models	HL-**-2835D***W-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	1	0.098	688.890	300	/	300
Multiple models	HL-**-2835DV***W-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	1	0.098	688.890	120	/	120
Multiple models	HL-**-2835F***W-S1-08*-PCT-HR*-**-***-**	70-80	2200K-6500K	1	1	0.098	561.600	300	/	300

Note:

The model name begins with "HL", such as “HL-**-2835H***W-3C-S1-08*-PCT-HR*-**-***-**”, "*" is described in detail as follows:

1. The first “**” is a letter A or AS which stands for the process type.
2. The second “***” is a number from 1 to 999 which stands for the brightness level.
3. The third “*” is a letter L or None which stands for the bonding wire style.
4. The fourth “*” is the number 1 or 2 or 3 or 4 which stands for the CRI style.
5. The fifth “**” is a letter T6 or K3 or K0 or L1 or K6 or None, which stands for the frame type.
6. The sixth “***” is a letter SPHO or P5 or P6 or None, which stands for the phosphor solution.
7. The seventh “**” is the letter, which stands for the customer code.

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
High Accuracy Array Spectroradiometer	EVERFINE	HAAS 2000	P600674CM5391140	2025-07-25	2026-07-24
0.5M Integrating Sphere	EVERFINE	0.5m	NA	2025-07-25	2026-07-24
LED Test Source	EVERFINE	LTS-300	P185616CJ1391143	2025-07-25	2026-07-24
Standard Light Source	EVERFINE	D062	M133799CM1381112	2023-05-12	2026-05-11
Multilayer aging machine	BACL	B2-270	20022	2025-07-26	2026-07-25
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11090003	2025-07-26	2026-07-25

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 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°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-2835H466W-3C-S1-08L-PCT-HR3(R9)
Number of Units:	25
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-2835H466W-3C-S1-08L-PCT-HR3(R9)
Number of Units:	25
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	α	B	Reported TM-21 L_{70} Lifetime	Reported TM-21 L_{90} Lifetime
1	25	0	1000hrs	17000hrs	2.061E-06	1.002	>102000 hours	52,000 hours
2	25	0	1000hrs	17000hrs	2.590E-06	0.997	>102000 hours	40,000 hours

Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	100.20%	99.99%	99.73%	99.48%	99.22%	98.97%	98.73%	98.52%	98.32%	98.11%
2	99.98%	99.71%	99.37%	99.03%	98.70%	98.37%	98.07%	97.78%	97.48%	97.18%

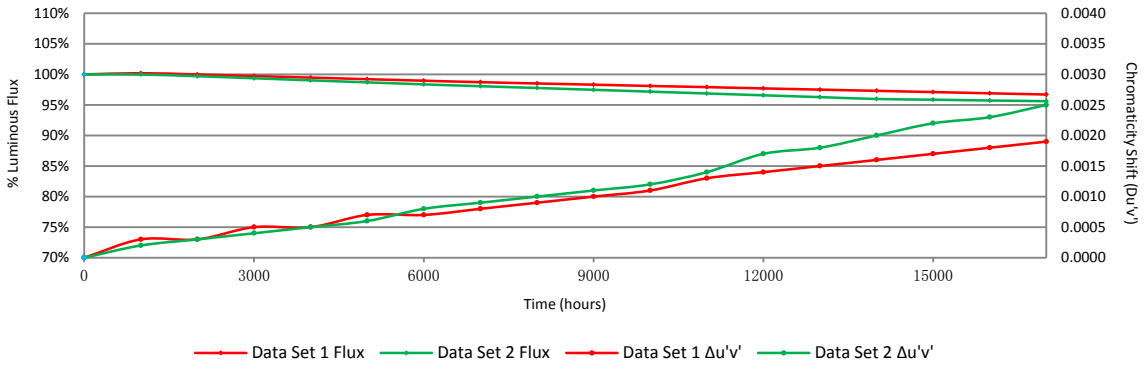
11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
97.92%	97.71%	97.51%	97.31%	97.11%	96.91%	96.71%
96.88%	96.58%	96.28%	95.98%	95.86%	95.73%	95.62%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	0.0003	0.0003	0.0005	0.0005	0.0007	0.0007	0.0008	0.0009	0.0010	0.0011
2	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0011	0.0012

11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
0.0013	0.0014	0.0015	0.0016	0.0017	0.0018	0.0019
0.0014	0.0017	0.0018	0.0020	0.0022	0.0023	0.0025

Average Lumen Maintenance and Chromaticity Shift VS. Time



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	7000hrs	8000hrs	9000hrs	10000hrs
1	121.40	100.25	100.08	99.84	99.59	99.34	99.09	98.85	98.68	98.52	98.35
2	115.30	100.26	100.09	99.83	99.57	99.31	99.13	98.87	98.61	98.44	98.27
3	121.80	100.25	100.08	99.84	99.59	99.34	99.10	98.85	98.69	98.44	98.28
4	116.80	100.26	100.09	99.83	99.57	99.32	99.14	98.89	98.63	98.46	98.20
5	121.20	100.17	99.92	99.67	99.42	99.17	99.01	98.76	98.60	98.43	98.18
6	115.40	100.17	99.91	99.65	99.39	99.13	98.96	98.70	98.53	98.35	98.09
7	114.70	100.17	99.91	99.65	99.39	99.13	98.87	98.61	98.43	98.17	97.91
8	120.90	100.17	99.92	99.67	99.42	99.17	98.92	98.68	98.51	98.26	98.10
9	116.70	100.17	99.91	99.66	99.40	99.14	98.89	98.71	98.54	98.29	98.11
10	120.10	100.08	99.92	99.67	99.42	99.17	99.00	98.75	98.58	98.42	98.25
11	114.80	100.17	99.91	99.65	99.39	99.13	98.87	98.69	98.43	98.26	98.08
12	116.60	100.17	99.91	99.66	99.40	99.14	98.89	98.63	98.46	98.28	98.03
13	114.70	100.26	100.09	99.83	99.56	99.30	99.04	98.78	98.52	98.34	98.17
14	118.60	100.25	100.08	99.83	99.58	99.33	99.07	98.82	98.57	98.40	98.23
15	114.50	100.17	99.91	99.65	99.39	99.13	98.86	98.60	98.43	98.25	97.99
16	113.60	100.18	99.91	99.65	99.38	99.12	98.86	98.59	98.33	98.06	97.80
17	114.80	100.26	100.17	99.91	99.65	99.39	99.13	98.87	98.61	98.34	98.08
18	118.40	100.25	100.08	99.83	99.58	99.32	99.07	98.90	98.73	98.48	98.31
19	112.90	100.18	99.82	99.56	99.29	99.03	98.67	98.49	98.32	98.14	97.96
20	119.40	100.25	100.08	99.83	99.58	99.33	99.08	98.83	98.66	98.41	98.24
21	114.80	100.26	100.09	99.83	99.56	99.30	99.04	98.78	98.52	98.26	98.08
22	121.00	100.25	100.17	99.92	99.67	99.42	99.17	98.93	98.68	98.51	98.26
23	114.60	100.17	99.91	99.65	99.39	99.13	98.87	98.60	98.43	98.25	98.08
24	118.90	100.17	99.83	99.58	99.33	99.07	98.82	98.57	98.32	98.15	97.98
25	114.00	100.18	99.91	99.65	99.39	99.12	98.77	98.51	98.25	97.98	97.81
Avg.	117.04	100.20	99.99	99.73	99.48	99.22	98.97	98.73	98.52	98.32	98.11
Med.	116.60	100.18	99.92	99.67	99.42	99.17	99.00	98.75	98.53	98.34	98.10
st dev	2.85	0.05	0.11	0.11	0.11	0.11	0.13	0.13	0.13	0.14	0.15
Min.	112.90	100.08	99.82	99.56	99.29	99.03	98.67	98.49	98.25	97.98	97.80
Max.	121.80	100.26	100.17	99.92	99.67	99.42	99.17	98.93	98.73	98.52	98.35

No.	Lumen Maintenance (%)						
	11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
1	98.19	98.02	97.86	97.61	97.45	97.28	97.12
2	98.01	97.75	97.57	97.40	97.14	96.96	96.79
3	98.11	97.95	97.78	97.62	97.45	97.29	97.13
4	98.03	97.86	97.69	97.52	97.26	97.00	96.83
5	97.94	97.77	97.61	97.44	97.28	97.03	96.86
6	97.83	97.66	97.40	97.23	96.97	96.71	96.53
7	97.65	97.38	97.12	96.86	96.69	96.51	96.34
8	97.85	97.60	97.44	97.27	97.02	96.77	96.53
9	97.94	97.77	97.51	97.34	97.17	97.00	96.83
10	98.08	97.84	97.59	97.34	97.17	97.00	96.84
11	97.82	97.56	97.30	97.04	96.78	96.60	96.43
12	97.86	97.68	97.43	97.17	97.00	96.83	96.66
13	97.99	97.82	97.65	97.47	97.21	97.04	96.86
14	97.98	97.81	97.64	97.47	97.30	97.13	96.96
15	97.82	97.64	97.47	97.21	97.03	96.86	96.68
16	97.62	97.45	97.18	97.01	96.74	96.48	96.30
17	97.91	97.65	97.47	97.30	97.13	96.95	96.78
18	98.06	97.80	97.64	97.38	97.21	96.96	96.71
19	97.79	97.61	97.34	97.08	96.90	96.72	96.46
20	98.07	97.91	97.74	97.57	97.32	97.15	96.90
21	97.91	97.65	97.39	97.21	97.04	96.78	96.52
22	98.10	97.85	97.69	97.52	97.27	97.11	96.86
23	97.91	97.73	97.56	97.38	97.21	97.03	96.77
24	97.81	97.65	97.48	97.22	97.06	96.80	96.55
25	97.63	97.46	97.28	97.11	96.93	96.67	96.40
Avg.	97.92	97.71	97.51	97.31	97.11	96.91	96.71
Med.	97.91	97.73	97.51	97.34	97.14	96.96	96.77
st dev	0.15	0.16	0.18	0.20	0.20	0.22	0.23
Min.	97.62	97.38	97.12	96.86	96.69	96.48	96.30
Max.	98.19	98.02	97.86	97.62	97.45	97.29	97.13

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

No.	Forward Voltage (V)										
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	8.852	8.866	8.845	8.869	8.887	8.863	8.859	8.860	8.862	8.884	8.866
2	8.878	8.891	8.872	8.903	8.884	8.913	8.889	8.881	8.888	8.905	8.889
3	8.874	8.886	8.861	8.886	8.882	8.885	8.887	8.875	8.884	8.899	8.886
4	8.929	8.942	8.919	8.943	8.943	8.957	8.936	8.932	8.940	8.947	8.934
5	8.863	8.878	8.857	8.890	8.875	8.884	8.870	8.865	8.874	8.868	8.862
6	8.888	8.902	8.880	8.924	8.903	8.900	8.896	8.890	8.892	8.895	8.890
7	8.880	8.892	8.874	8.923	8.905	8.899	8.888	8.892	8.892	8.885	8.875
8	8.860	8.869	8.848	8.903	8.883	8.893	8.867	8.864	8.866	8.864	8.860
9	8.878	8.887	8.866	8.905	8.899	8.898	8.888	8.890	8.891	8.883	8.906
10	8.861	8.869	8.851	8.892	8.877	8.877	8.873	8.871	8.872	8.876	8.931
11	8.856	8.864	8.843	8.877	8.876	8.876	8.869	8.868	8.876	8.869	8.894
12	8.902	8.912	8.894	8.924	8.924	8.916	8.925	8.921	8.931	8.916	8.932
13	8.873	8.881	8.861	8.891	8.888	8.886	8.877	8.882	8.891	8.889	8.922
14	8.853	8.859	8.841	8.881	8.870	8.864	8.858	8.858	8.865	8.865	8.938
15	8.895	8.901	8.882	8.910	8.913	8.906	8.907	8.900	8.902	8.903	8.949
16	8.875	8.881	8.867	8.899	8.892	8.886	8.905	8.883	8.892	8.887	8.892
17	8.854	8.860	8.845	8.871	8.864	8.863	8.863	8.865	8.866	8.876	8.868
18	8.849	8.856	8.839	8.888	8.868	8.855	8.863	8.859	8.859	8.871	8.864
19	8.888	8.893	8.876	8.908	8.923	8.895	8.894	8.896	8.898	8.908	8.901
20	8.959	8.965	8.943	8.944	8.948	8.973	8.965	8.969	8.969	8.962	8.973
21	8.880	8.884	8.865	8.908	8.916	8.890	8.885	8.889	8.894	8.897	8.892
22	8.846	8.852	8.836	8.867	8.906	8.859	8.851	8.857	8.860	8.862	8.861
23	8.886	8.893	8.874	8.911	8.922	8.906	8.893	8.899	8.903	8.908	8.898
24	8.808	8.819	8.795	8.830	8.827	8.825	8.815	8.812	8.815	8.841	8.820
25	8.850	8.861	8.841	8.870	8.863	8.879	8.860	8.864	8.872	8.865	8.861
Avg.	8.873	8.883	8.863	8.897	8.894	8.890	8.883	8.882	8.886	8.889	8.895
Med.	8.874	8.881	8.861	8.899	8.888	8.886	8.885	8.881	8.888	8.885	8.892
st dev	0.029	0.029	0.029	0.026	0.027	0.031	0.030	0.030	0.030	0.027	0.035
Min.	8.808	8.819	8.795	8.830	8.827	8.825	8.815	8.812	8.815	8.841	8.820
Max.	8.959	8.965	8.943	8.944	8.948	8.973	8.965	8.969	8.969	8.962	8.973

No.	Forward Voltage (V)						
	11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
1	8.863	8.866	8.844	8.859	8.853	8.858	8.858
2	8.885	8.892	8.872	8.878	8.879	8.878	8.884
3	8.905	8.911	8.869	8.875	8.874	8.874	8.875
4	8.946	8.948	8.922	8.932	8.930	8.934	8.935
5	8.898	8.901	8.861	8.867	8.867	8.865	8.868
6	8.900	8.901	8.883	8.889	8.889	8.891	8.891
7	8.895	8.899	8.874	8.885	8.882	8.886	8.887
8	8.878	8.887	8.855	8.861	8.861	8.863	8.863
9	8.895	8.904	8.871	8.878	8.877	8.881	8.883
10	8.872	8.879	8.855	8.865	8.864	8.865	8.868
11	8.898	8.905	8.852	8.859	8.858	8.861	8.860
12	8.913	8.922	8.900	8.909	8.903	8.909	8.908
13	8.889	8.892	8.866	8.874	8.874	8.878	8.881
14	8.875	8.879	8.849	8.859	8.853	8.858	8.859
15	8.917	8.925	8.894	8.897	8.898	8.898	8.899
16	8.900	8.907	8.871	8.878	8.878	8.879	8.882
17	8.864	8.872	8.852	8.860	8.857	8.859	8.862
18	8.860	8.861	8.848	8.854	8.855	8.853	8.857
19	8.866	8.867	8.873	8.881	8.885	8.885	8.887
20	8.955	8.965	8.952	8.962	8.965	8.966	8.969
21	8.877	8.882	8.878	8.883	8.884	8.886	8.887
22	8.852	8.853	8.848	8.849	8.852	8.852	8.854
23	8.892	8.894	8.883	8.888	8.888	8.891	8.890
24	8.817	8.818	8.810	8.810	8.813	8.812	8.817
25	8.877	8.878	8.848	8.851	8.852	8.854	8.857
Avg.	8.888	8.892	8.869	8.876	8.876	8.877	8.879
Med.	8.889	8.892	8.869	8.875	8.874	8.878	8.881
st dev	0.029	0.030	0.028	0.029	0.029	0.030	0.029
Min.	8.817	8.818	8.810	8.810	8.813	8.812	8.817
Max.	8.955	8.965	8.952	8.962	8.965	8.966	8.969

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

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')									
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	0.2573	0.5313	2792	0.0001	0.0001	0.0002	0.0004	0.0005	0.0006	0.0006	0.0008	0.0010	0.0011
2	0.2606	0.5313	2723	0.0003	0.0003	0.0003	0.0004	0.0004	0.0006	0.0006	0.0008	0.0010	0.0012
3	0.2589	0.5331	2752	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012
4	0.2578	0.5318	2780	0.0002	0.0002	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0011
5	0.2577	0.5321	2780	0.0001	0.0002	0.0002	0.0004	0.0004	0.0005	0.0006	0.0008	0.0009	0.0011
6	0.2585	0.5299	2774	0.0003	0.0004	0.0005	0.0006	0.0007	0.0007	0.0008	0.0009	0.0011	0.0012
7	0.2599	0.5324	2733	0.0003	0.0004	0.0004	0.0005	0.0006	0.0006	0.0007	0.0009	0.0009	0.0010
8	0.2597	0.5317	2741	0.0001	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0008	0.0008	0.0009
9	0.2611	0.5313	2712	0.0004	0.0004	0.0005	0.0006	0.0007	0.0007	0.0008	0.0010	0.0010	0.0011
10	0.2576	0.5318	2784	0.0004	0.0004	0.0005	0.0005	0.0006	0.0006	0.0007	0.0007	0.0010	0.0011
11	0.2579	0.5317	2778	0.0004	0.0004	0.0005	0.0005	0.0007	0.0007	0.0008	0.0009	0.0010	0.0012
12	0.2603	0.5325	2725	0.0004	0.0005	0.0006	0.0007	0.0007	0.0008	0.0009	0.0009	0.0009	0.0010
13	0.2597	0.5313	2742	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0010	0.0012	0.0013	0.0014
14	0.2571	0.5305	2801	0.0004	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0011	0.0012
15	0.2593	0.5308	2753	0.0003	0.0004	0.0005	0.0005	0.0006	0.0006	0.0007	0.0007	0.0009	0.0009
16	0.2611	0.5305	2716	0.0002	0.0004	0.0005	0.0005	0.0007	0.0008	0.0009	0.0009	0.0009	0.0010
17	0.2604	0.5318	2725	0.0002	0.0004	0.0005	0.0006	0.0008	0.0008	0.0009	0.0011	0.0013	0.0013
18	0.2616	0.5325	2699	0.0003	0.0003	0.0004	0.0004	0.0006	0.0006	0.0007	0.0010	0.0011	0.0012
19	0.2631	0.5340	2663	0.0002	0.0003	0.0004	0.0006	0.0007	0.0008	0.0009	0.0010	0.0012	0.0013
20	0.2589	0.5318	2756	0.0004	0.0004	0.0006	0.0007	0.0008	0.0008	0.0009	0.0009	0.0009	0.0011
21	0.2581	0.5311	2776	0.0002	0.0003	0.0005	0.0006	0.0007	0.0008	0.0009	0.0009	0.0009	0.0010
22	0.2583	0.5325	2765	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0012
23	0.2584	0.5311	2769	0.0001	0.0002	0.0004	0.0004	0.0005	0.0006	0.0007	0.0010	0.0012	0.0013
24	0.2588	0.5307	2764	0.0004	0.0004	0.0005	0.0006	0.0006	0.0007	0.0009	0.0010	0.0012	0.0013
25	0.2589	0.5331	2751	0.0003	0.0004	0.0005	0.0007	0.0008	0.0008	0.0009	0.0011	0.0011	0.0012
Avg.	0.2592	0.5317	2750	0.0003	0.0003	0.0005	0.0005	0.0007	0.0007	0.0008	0.0009	0.0010	0.0011
Med.	0.2589	0.5317	2753	0.0003	0.0004	0.0005	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0012
st dev	0.0015	0.0009	33	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Min.	0.2571	0.5299	2663	0.0001	0.0001	0.0002	0.0004	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009
Max.	0.2631	0.5340	2801	0.0004	0.0005	0.0006	0.0007	0.0008	0.0008	0.0010	0.0012	0.0013	0.0014

No.	Chromaticity Shift (Δu'v')						
	11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
1	0.0012	0.0013	0.0014	0.0015	0.0016	0.0016	0.0017
2	0.0013	0.0014	0.0015	0.0016	0.0016	0.0017	0.0018
3	0.0013	0.0014	0.0014	0.0015	0.0018	0.0018	0.0019
4	0.0012	0.0013	0.0014	0.0015	0.0016	0.0017	0.0018
5	0.0012	0.0012	0.0013	0.0014	0.0015	0.0017	0.0018
6	0.0012	0.0013	0.0014	0.0015	0.0016	0.0017	0.0018
7	0.0011	0.0012	0.0014	0.0015	0.0016	0.0018	0.0019
8	0.0009	0.0011	0.0012	0.0014	0.0015	0.0016	0.0017
9	0.0012	0.0013	0.0014	0.0016	0.0016	0.0017	0.0018
10	0.0012	0.0013	0.0015	0.0015	0.0017	0.0017	0.0018
11	0.0013	0.0014	0.0015	0.0017	0.0018	0.0019	0.0020
12	0.0011	0.0012	0.0013	0.0015	0.0017	0.0017	0.0018
13	0.0014	0.0015	0.0016	0.0018	0.0018	0.0019	0.0020
14	0.0013	0.0014	0.0014	0.0015	0.0016	0.0017	0.0018
15	0.0011	0.0012	0.0014	0.0014	0.0015	0.0016	0.0017
16	0.0011	0.0011	0.0013	0.0015	0.0016	0.0017	0.0018
17	0.0014	0.0015	0.0016	0.0017	0.0018	0.0019	0.0020
18	0.0013	0.0014	0.0016	0.0016	0.0017	0.0018	0.0019
19	0.0015	0.0016	0.0017	0.0018	0.0019	0.0019	0.0020
20	0.0013	0.0015	0.0016	0.0017	0.0018	0.0019	0.0020
21	0.0011	0.0012	0.0013	0.0014	0.0015	0.0017	0.0018
22	0.0013	0.0014	0.0014	0.0015	0.0016	0.0017	0.0018
23	0.0014	0.0016	0.0017	0.0018	0.0019	0.0020	0.0021
24	0.0015	0.0016	0.0017	0.0018	0.0019	0.0020	0.0021
25	0.0014	0.0015	0.0016	0.0017	0.0018	0.0019	0.0020
Avg.	0.0013	0.0014	0.0015	0.0016	0.0017	0.0018	0.0019
Med.	0.0013	0.0014	0.0014	0.0015	0.0016	0.0017	0.0018
st dev	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Min.	0.0009	0.0011	0.0012	0.0014	0.0015	0.0016	0.0017
Max.	0.0015	0.0016	0.0017	0.0018	0.0019	0.0020	0.0021

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

No.	Φ(lm)	Lumen Maintenance (%)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
26	120.40	100.08	99.92	99.58	99.25	99.00	98.67	98.42	98.09	97.84	97.51
27	118.20	100.08	99.83	99.49	99.15	98.82	98.48	98.14	97.88	97.55	97.21
28	118.90	100.08	99.75	99.41	99.07	98.74	98.40	98.07	97.73	97.48	97.22
29	114.30	99.91	99.56	99.21	98.86	98.51	98.16	97.81	97.55	97.29	96.94
30	115.30	99.91	99.65	99.31	98.96	98.61	98.27	98.01	97.75	97.48	97.22
31	116.10	99.91	99.66	99.31	98.97	98.62	98.28	98.02	97.76	97.42	97.16
32	118.20	99.92	99.66	99.32	98.98	98.73	98.39	98.14	97.88	97.55	97.29
33	115.30	99.91	99.65	99.31	98.96	98.70	98.35	98.09	97.83	97.48	97.14
34	115.20	100.09	99.83	99.48	99.13	98.70	98.35	98.09	97.83	97.57	97.31
35	115.40	99.22	98.96	98.61	98.27	98.01	97.66	97.40	97.14	96.88	96.62
36	122.30	100.08	99.84	99.51	99.18	98.86	98.53	98.28	98.04	97.71	97.38
37	112.60	100.09	99.73	99.38	99.02	98.67	98.31	98.05	97.78	97.42	97.16
38	113.30	100.09	99.82	99.47	99.12	98.76	98.41	98.06	97.71	97.35	97.09
39	120.80	99.92	99.67	99.34	99.01	98.76	98.43	98.18	97.93	97.68	97.43
40	113.30	99.91	99.74	99.38	99.03	98.68	98.32	98.06	97.79	97.53	97.18
41	120.80	99.92	99.67	99.34	99.01	98.68	98.34	98.10	97.85	97.60	97.35
42	115.90	100.09	99.83	99.48	99.14	98.88	98.53	98.19	97.84	97.58	97.33
43	119.00	100.08	99.83	99.50	99.16	98.82	98.57	98.24	97.90	97.56	97.23
44	113.90	99.91	99.56	99.21	98.86	98.60	98.33	97.98	97.63	97.28	96.93
45	118.90	100.08	99.83	99.50	99.16	98.82	98.49	98.15	97.81	97.48	97.14
46	115.00	99.91	99.65	99.30	98.96	98.70	98.43	98.09	97.83	97.57	97.22
47	114.40	100.09	99.74	99.39	99.04	98.69	98.34	97.99	97.64	97.38	97.12
48	119.60	100.08	99.92	99.58	99.25	98.91	98.58	98.24	97.91	97.58	97.32
49	114.60	99.91	99.65	99.30	98.95	98.60	98.25	97.99	97.64	97.29	96.95
50	117.10	100.09	99.83	99.49	99.15	98.72	98.38	98.04	97.78	97.52	97.18
Avg.	116.75	99.98	99.71	99.37	99.03	98.70	98.37	98.07	97.78	97.48	97.18
Med.	115.90	100.08	99.74	99.38	99.03	98.70	98.38	98.09	97.81	97.52	97.21
st dev	2.75	0.18	0.19	0.19	0.19	0.18	0.19	0.18	0.18	0.18	0.19
Min.	112.60	99.22	98.96	98.61	98.27	98.01	97.66	97.40	97.14	96.88	96.62
Max.	122.30	100.09	99.92	99.58	99.25	99.00	98.67	98.42	98.09	97.84	97.51

No.	Lumen Maintenance (%)						
	11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
26	97.18	96.93	96.59	96.35	96.26	96.18	96.10
27	96.87	96.53	96.19	95.85	95.60	95.52	95.43
28	96.89	96.64	96.38	96.13	95.96	95.88	95.79
29	96.59	96.33	96.06	95.80	95.71	95.63	95.54
30	96.96	96.62	96.36	96.01	95.92	95.84	95.66
31	96.90	96.64	96.38	96.12	96.04	95.87	95.78
32	97.04	96.70	96.45	96.19	96.02	95.94	95.77
33	96.88	96.53	96.18	95.92	95.84	95.66	95.58
34	97.05	96.70	96.35	96.09	96.01	95.92	95.83
35	96.36	96.10	95.84	95.49	95.32	95.15	95.06
36	97.06	96.81	96.57	96.24	96.16	95.99	95.91
37	96.89	96.54	96.18	95.91	95.83	95.74	95.56
38	96.73	96.38	96.03	95.68	95.59	95.50	95.32
39	97.10	96.85	96.52	96.19	96.03	95.86	95.70
40	96.82	96.56	96.20	95.94	95.76	95.50	95.32
41	97.02	96.69	96.44	96.11	96.03	95.94	95.78
42	96.98	96.72	96.46	96.12	95.94	95.77	95.69
43	96.89	96.55	96.30	95.97	95.88	95.80	95.63
44	96.66	96.31	95.96	95.70	95.61	95.43	95.35
45	96.80	96.55	96.22	95.88	95.79	95.71	95.63
46	96.87	96.52	96.17	95.83	95.74	95.65	95.57
47	96.85	96.59	96.33	95.98	95.89	95.80	95.63
48	97.07	96.74	96.49	96.24	96.07	95.99	95.90
49	96.60	96.34	95.99	95.72	95.55	95.46	95.38
50	96.93	96.58	96.24	95.99	95.90	95.64	95.56
Avg.	96.88	96.58	96.28	95.98	95.86	95.73	95.62
Med.	96.89	96.58	96.30	95.98	95.89	95.77	95.63
st dev	0.18	0.18	0.20	0.21	0.21	0.23	0.23
Min.	96.36	96.10	95.84	95.49	95.32	95.15	95.06
Max.	97.18	96.93	96.59	96.35	96.26	96.18	96.10

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

No.	Forward Voltage (V)										
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
26	8.968	8.862	8.864	8.862	8.868	8.868	8.865	8.862	8.869	8.962	8.865
27	8.844	8.851	8.839	8.868	8.901	8.903	8.855	8.852	8.861	8.867	8.871
28	8.840	8.846	8.831	8.867	8.865	8.872	8.844	8.845	8.852	8.876	8.869
29	8.870	8.890	8.866	8.891	8.892	8.899	8.874	8.872	8.876	8.911	8.889
30	8.877	8.903	8.866	8.911	8.896	8.903	8.886	8.862	8.869	8.897	8.899
31	8.871	8.893	8.860	8.910	8.886	8.896	8.884	8.885	8.892	8.893	8.886
32	8.867	8.892	8.852	8.932	8.884	8.888	8.876	8.887	8.891	8.911	8.882
33	8.863	8.889	8.852	8.903	8.881	8.882	8.868	8.882	8.892	8.900	8.881
34	8.840	8.862	8.829	8.873	8.910	8.920	8.852	8.859	8.862	8.858	8.866
35	8.886	8.904	8.873	8.906	8.935	8.942	8.892	8.905	8.909	8.909	8.923
36	8.828	8.849	8.817	8.863	8.849	8.854	8.838	8.845	8.847	8.845	8.849
37	8.887	8.910	8.878	8.920	8.898	8.901	8.895	8.892	8.897	8.909	8.931
38	8.841	8.867	8.831	8.870	8.853	8.858	8.849	8.947	8.948	8.877	8.852
39	8.832	8.855	8.824	8.861	8.842	8.846	8.842	8.917	8.925	8.844	8.847
40	8.855	8.873	8.846	8.887	8.867	8.870	8.866	8.913	8.914	8.870	8.872
41	8.861	8.871	8.851	8.897	8.869	8.877	8.872	8.906	8.915	8.889	8.875
42	8.870	8.880	8.856	8.916	8.883	8.891	8.873	8.890	8.893	8.889	8.883
43	8.819	8.833	8.810	8.835	8.828	8.831	8.827	8.837	8.841	8.886	8.839
44	8.894	8.911	8.887	8.917	8.913	8.923	8.902	8.912	8.921	8.914	8.918
45	8.857	8.873	8.849	8.879	8.877	8.878	8.868	8.881	8.883	8.874	8.883
46	8.878	8.897	8.868	8.932	8.893	8.902	8.885	8.901	8.901	8.891	8.915
47	8.876	8.891	8.865	8.898	8.911	8.917	8.888	8.900	8.901	8.892	8.924
48	8.860	8.873	8.853	8.898	8.894	8.900	8.866	8.891	8.899	8.873	8.927
49	8.885	8.903	8.875	8.931	8.895	8.898	8.890	8.915	8.923	8.897	8.899
50	8.854	8.871	8.846	8.892	8.867	8.873	8.862	8.875	8.876	8.871	8.867
Avg.	8.865	8.878	8.852	8.893	8.882	8.888	8.869	8.885	8.890	8.888	8.884
Med.	8.863	8.873	8.852	8.897	8.884	8.891	8.868	8.887	8.892	8.889	8.882
st dev	0.029	0.022	0.020	0.026	0.024	0.026	0.019	0.027	0.027	0.025	0.027
Min.	8.819	8.833	8.810	8.835	8.828	8.831	8.827	8.837	8.841	8.844	8.839
Max.	8.968	8.911	8.887	8.932	8.935	8.942	8.902	8.947	8.948	8.962	8.931

No.	Forward Voltage (V)						
	11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
26	8.862	8.870	8.865	8.868	8.875	8.878	8.885
27	8.865	8.872	8.851	8.851	8.848	8.858	8.857
28	8.871	8.880	8.845	8.847	8.844	8.850	8.850
29	8.882	8.891	8.875	8.875	8.874	8.877	8.881
30	8.892	8.894	8.882	8.879	8.879	8.883	8.887
31	8.896	8.905	8.877	8.874	8.874	8.879	8.882
32	8.899	8.908	8.873	8.874	8.873	8.876	8.878
33	8.875	8.878	8.867	8.866	8.865	8.870	8.872
34	8.889	8.891	8.844	8.846	8.843	8.848	8.849
35	8.915	8.924	8.891	8.892	8.890	8.892	8.895
36	8.845	8.852	8.837	8.833	8.834	8.835	8.838
37	8.892	8.901	8.894	8.891	8.889	8.894	8.895
38	8.845	8.850	8.848	8.846	8.844	8.849	8.849
39	8.845	8.851	8.843	8.838	8.836	8.843	8.843
40	8.865	8.867	8.864	8.862	8.861	8.865	8.864
41	8.867	8.867	8.876	8.867	8.867	8.870	8.872
42	8.875	8.884	8.882	8.875	8.875	8.875	8.881
43	8.845	8.846	8.830	8.826	8.823	8.827	8.829
44	8.915	8.920	8.905	8.903	8.900	8.908	8.908
45	8.882	8.883	8.867	8.862	8.863	8.867	8.868
46	8.910	8.919	8.886	8.882	8.878	8.886	8.888
47	8.912	8.914	8.885	8.884	8.879	8.885	8.886
48	8.905	8.913	8.868	8.867	8.864	8.867	8.871
49	8.892	8.901	8.891	8.891	8.886	8.893	8.894
50	8.862	8.870	8.862	8.860	8.858	8.864	8.866
Avg.	8.880	8.886	8.868	8.866	8.865	8.870	8.872
Med.	8.882	8.884	8.868	8.867	8.867	8.870	8.872
st dev	0.023	0.024	0.020	0.020	0.020	0.020	0.020
Min.	8.845	8.846	8.830	8.826	8.823	8.827	8.829
Max.	8.915	8.924	8.905	8.903	8.900	8.908	8.908

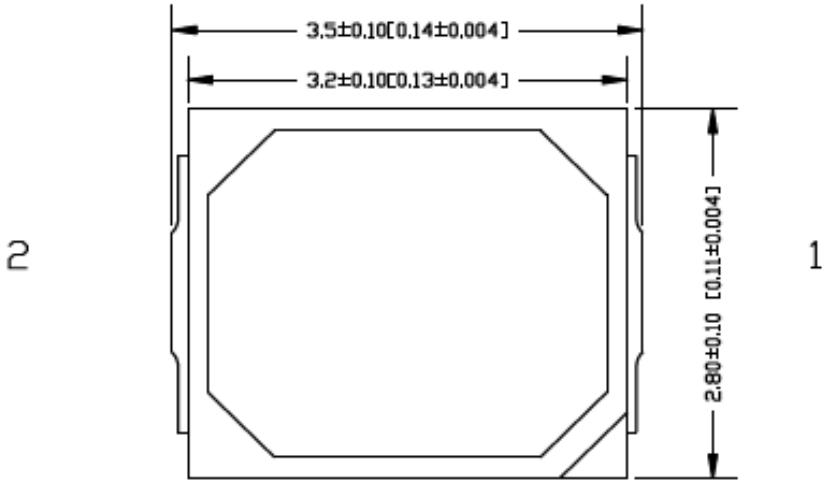
3.6 Data Set 2, 105°C, 100mA (Chromaticity Shift)

No.	u'	v'	CCT(K)	Chromaticity Shift (Δu'v')									
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
26	0.2604	0.5309	2729	0.0002	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0012
27	0.2592	0.5320	2750	0.0003	0.0003	0.0004	0.0006	0.0008	0.0009	0.0009	0.0009	0.0011	0.0012
28	0.2587	0.5324	2758	0.0003	0.0004	0.0004	0.0006	0.0006	0.0008	0.0009	0.0009	0.0010	0.0012
29	0.2589	0.5309	2761	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0012	0.0014	0.0014
30	0.2583	0.5321	2767	0.0003	0.0004	0.0005	0.0006	0.0006	0.0008	0.0010	0.0011	0.0012	0.0014
31	0.2597	0.5323	2738	0.0002	0.0003	0.0003	0.0005	0.0006	0.0007	0.0007	0.0009	0.0012	0.0013
32	0.2596	0.5302	2750	0.0001	0.0003	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0010	0.0012
33	0.2582	0.5315	2772	0.0002	0.0003	0.0004	0.0005	0.0007	0.0008	0.0010	0.0010	0.0012	0.0013
34	0.2600	0.5329	2729	0.0003	0.0003	0.0004	0.0005	0.0005	0.0007	0.0009	0.0009	0.0009	0.0010
35	0.2603	0.5354	2714	0.0003	0.0004	0.0005	0.0007	0.0008	0.0009	0.0010	0.0011	0.0011	0.0012
36	0.2574	0.5320	2788	0.0003	0.0004	0.0005	0.0006	0.0006	0.0008	0.0009	0.0009	0.0010	0.0011
37	0.2623	0.5328	2682	0.0001	0.0003	0.0004	0.0005	0.0007	0.0009	0.0009	0.0012	0.0013	0.0013
38	0.2578	0.5297	2788	0.0002	0.0003	0.0004	0.0006	0.0007	0.0008	0.0008	0.0009	0.0012	0.0013
39	0.2583	0.5310	2772	0.0002	0.0003	0.0004	0.0005	0.0005	0.0006	0.0009	0.0010	0.0012	0.0013
40	0.2604	0.5300	2732	0.0003	0.0003	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011	0.0014	0.0015
41	0.2589	0.5336	2748	0.0003	0.0004	0.0005	0.0006	0.0008	0.0009	0.0011	0.0011	0.0012	0.0013
42	0.2593	0.5314	2751	0.0002	0.0003	0.0003	0.0004	0.0006	0.0007	0.0009	0.0010	0.0011	0.0012
43	0.2581	0.5298	2782	0.0000	0.0001	0.0003	0.0004	0.0005	0.0006	0.0007	0.0007	0.0008	0.0009
44	0.2604	0.5314	2728	0.0003	0.0004	0.0005	0.0005	0.0007	0.0008	0.0010	0.0011	0.0012	0.0013
45	0.2575	0.5308	2792	0.0002	0.0002	0.0004	0.0005	0.0005	0.0008	0.0009	0.0011	0.0011	0.0012
46	0.2592	0.5308	2754	0.0002	0.0002	0.0003	0.0004	0.0006	0.0007	0.0008	0.0010	0.0010	0.0012
47	0.2614	0.5323	2702	0.0001	0.0001	0.0002	0.0003	0.0005	0.0006	0.0007	0.0011	0.0011	0.0012
48	0.2589	0.5324	2755	0.0003	0.0004	0.0005	0.0006	0.0007	0.0009	0.0009	0.0009	0.0010	0.0011
49	0.2612	0.5341	2699	0.0002	0.0003	0.0004	0.0005	0.0007	0.0008	0.0009	0.0011	0.0013	0.0013
50	0.2595	0.5305	2750	0.0002	0.0002	0.0003	0.0003	0.0006	0.0009	0.0009	0.0009	0.0010	0.0011
Avg.	0.2594	0.5317	2748	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0011	0.0012
Med.	0.2592	0.5315	2750	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0011	0.0012
st dev	0.0012	0.0014	29	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Min.	0.2574	0.5297	2682	0.0000	0.0001	0.0002	0.0003	0.0005	0.0006	0.0007	0.0007	0.0008	0.0009
Max.	0.2623	0.5354	2792	0.0003	0.0004	0.0005	0.0007	0.0008	0.0009	0.0011	0.0012	0.0014	0.0015

No.	Chromaticity Shift (Δu'v')						
	11000hrs	12000hrs	13000hrs	14000hrs	15000hrs	16000hrs	17000hrs
26	0.0013	0.0015	0.0017	0.0018	0.0020	0.0021	0.0022
27	0.0014	0.0017	0.0018	0.0019	0.0021	0.0022	0.0023
28	0.0013	0.0015	0.0016	0.0017	0.0019	0.0020	0.0021
29	0.0015	0.0017	0.0021	0.0022	0.0024	0.0025	0.0026
30	0.0015	0.0017	0.0019	0.0021	0.0022	0.0024	0.0026
31	0.0013	0.0015	0.0020	0.0022	0.0024	0.0026	0.0029
32	0.0013	0.0015	0.0017	0.0018	0.0019	0.0021	0.0022
33	0.0017	0.0023	0.0023	0.0024	0.0026	0.0027	0.0029
34	0.0014	0.0018	0.0018	0.0019	0.0021	0.0022	0.0023
35	0.0012	0.0014	0.0014	0.0016	0.0017	0.0018	0.0020
36	0.0012	0.0015	0.0015	0.0017	0.0020	0.0023	0.0026
37	0.0015	0.0019	0.0019	0.0020	0.0022	0.0023	0.0024
38	0.0014	0.0020	0.0020	0.0021	0.0022	0.0024	0.0025
39	0.0013	0.0016	0.0015	0.0017	0.0020	0.0022	0.0024
40	0.0016	0.0021	0.0022	0.0024	0.0025	0.0027	0.0028
41	0.0014	0.0018	0.0019	0.0021	0.0022	0.0023	0.0025
42	0.0013	0.0017	0.0018	0.0020	0.0022	0.0024	0.0026
43	0.0010	0.0013	0.0015	0.0016	0.0017	0.0019	0.0020
44	0.0013	0.0017	0.0020	0.0021	0.0023	0.0025	0.0027
45	0.0013	0.0017	0.0018	0.0020	0.0022	0.0025	0.0027
46	0.0013	0.0016	0.0018	0.0019	0.0021	0.0022	0.0023
47	0.0014	0.0023	0.0024	0.0026	0.0027	0.0029	0.0031
48	0.0013	0.0017	0.0020	0.0022	0.0024	0.0027	0.0029
49	0.0014	0.0016	0.0018	0.0020	0.0021	0.0023	0.0024
50	0.0014	0.0016	0.0018	0.0020	0.0022	0.0024	0.0027
Avg.	0.0014	0.0017	0.0018	0.0020	0.0022	0.0023	0.0025
Med.	0.0013	0.0017	0.0018	0.0020	0.0022	0.0023	0.0025
st dev	0.0001	0.0002	0.0003	0.0002	0.0003	0.0003	0.0003
Min.	0.0010	0.0013	0.0014	0.0016	0.0017	0.0018	0.0020
Max.	0.0017	0.0023	0.0024	0.0026	0.0027	0.0029	0.0031

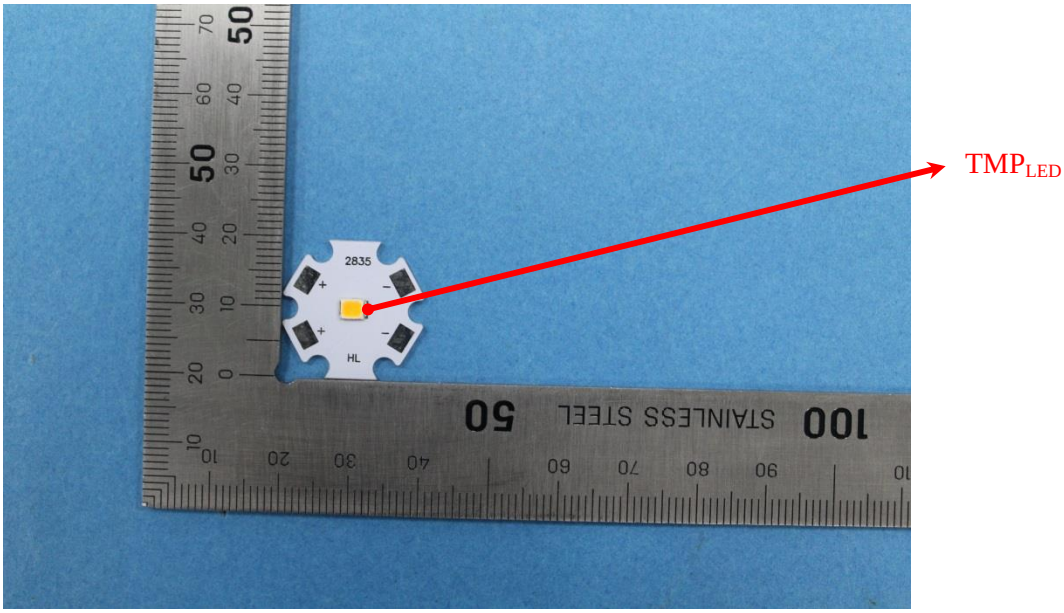
4 - DUT Photo

4.1 Mechanical Dimensions



All dimensions are in millimeter

4.2 DUT Photo



Directions

1. The information marked “superscript #” 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=2 with the 95% confidence interval.
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**********END OF REPORT**********