



ACCREDITED
Testing Laboratory

TL-1235

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Report No.: AOC250928002ER

Test Report

Client : Jiangsu Everstar Electronics Co., Ltd.
Address : Room 201, Building 13, No. 618, Matou West Street, Liyang City, Jiangsu Province

Description of the submitted sample(s):

Sample Name : 2835 SMD LED
Model/Type : ESS-2835XWC-X0K
Trademark : EVERSTAR
Ratings : Vf: 2.8-3.0Vdc; If:60mA, 6000K, 80Ra
Test Item : LM-80-21
State of Sample(s) : Normal
Sample Quantity : 75 PCS
Manufacturer : Jiangsu Everstar Electronics Co., Ltd.
Address : Room 201, Building 13, No. 618, Matou West Street, Liyang City,
Jiangsu Province
Sample Received Date : 2024-04-28
Sample tested Date : 2024-04-28
Test Standard : LM-80-21
Test Laboratory : Shenzhen AOCE Electronic Technology Service Co., Ltd
Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu
Testing location : Industrial Park, Fuhai Street, Baoan District, Shenzhen,
Guangdong, China
Remark : The tested sample(s) and the sample information are provided by
the client.

Compiled by:

Bill Hu

Approved by:

Robin Liu

Robin Liu
Lab Supervisor
2025-10-11

Date :

Tel: (86)755-85277785

Fax: (86)755-23705230

E-mail: postmaster@aoc-cert.com

Website: <http://www.aoc-cert.com>

General Information

Sampling Method:

LED samples for IESNA LM-80 testing consist of units built from 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)

Disclaimer:

The truthfulness and accuracy of all the technical information above for the covered LED products is ensured by manufacturer of LED light source. Shenzhen AOCE Electronic Technology Service Co., Ltd. isn't responsible or gives any guarantees for the truthfulness of the technical information.

Note:

ESS-2835XWC-X0K (2835: Package; X:W or N or T or C; W:3000K; N:4500K; T:6000K; C:8000K; X0K: Color Temperature center chromaticity coordinate)

1 Test Condition

1.1 Air Temperature

The ambient temperature in which measurements are being taken shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the SSL product and at the same height as the SSL product. The temperature sensor shall be shielded from direct optical radiation from the SSL product and optical radiation from any other source. If measurements are performed at other than this recommended temperature, this is a non-standard condition and shall be noted in the test report.

1.2 Thermal Conditions for Mounting SSL Products

The method of mounting can be the primary path for heat flow away from the device and can affect measurement results significantly. The SSL product under test shall be mounted to the measuring instrument so that heat conduction through supporting objects causes negligible cooling effects. If the SSL product under test is provided with a support structure that is designated to be used as a component of the luminaire thermal management system, the product shall be tested with the support structure attached. Any such support structure included in the measurement shall be reported.

1.3 Air Movement

The incidence of air movements on the surface of a SSL product under test may substantially affect electrical and photometric values. Air flow around the SSL product being tested should be such that normal convective air flow induced by device under test is not affected.

1.4 Waveshape of AC Power Supply

The AC power supply, while operating the SSL product, shall have a sinusoidal voltage waveshape at the prescribed frequency typically 50/60 Hz or 50 Hz) such that the RMS summation of the harmonic components does not exceed 3 percent of the fundamental during operation of the test item.

1.5 Voltage Regulation

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.

1.6 Seasoning

For the purpose of rating new SSL products, SSL products shall be tested with no seasoning.

1.7 Stabilization

Before measurements are taken, the SSL product under test shall be operated long enough to reach stabilization and temperature equilibrium. The time required for stabilization depends on the type of SSL products under test. The stabilization time typically ranges from 30 min to 2 or more hours for large SSL products.

1.8 Operating Orientation

The SSL product under test shall be evaluated in the operating orientation recommended by the manufacturer for an intended use of the SSL product. Stabilization and photometric measurements of SSL products shall be done in such operating orientation.

2 Test Method

2.1 Integrating Sphere Measurement

The integrating sphere system includes AC power source, digital power meter, DC power supply, spectrophotometer, and integrating sphere. The system is calibrated by standard lamp before measurement weekly. The standard lamp has been calibrated regularly and traced to the National Primary Standard.

The 4π geometry was used to measure total luminous, luminous efficacy, chromaticity coordinates, correlated color temperature, and color rendering index, the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm. The product was operated in its intended orientation and was recorded in the report.

2.2 Goniophotometer Measurement

The goniophotometer system is calibrated by standard lamp before measurement weekly. The standard lamp has been calibrated regularly and traced to National Primary Standards.

Type C goniophotometer was used for measuring total luminous flux, luminous efficacy, luminous intensity distribution, and color angular uniformity, which were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals. The product was operated in its intended orientation and was recorded in the report.

2.3 Electrical Measurement

According to ANSI C82.77-2002, the measurement was made using a digital power meter and power supply, the SSL product under test was operated at rated voltage and stabilized enough before measurement. The total harmonic distortion of current and power factor can be calculated from the digital power meter. The digital power meter was calibrated regularly and traced to National Primary Standards.

3 Test Result

3.1 Sample Set

Data Set 1:55°C,60mA	
Model:	ESS-2835XWC-X0K
Number of Units:	25
Case Temperature (T _S):	> 53°C
Ambient Temperature (T _A):	> 50°C
Life Test Drive Current:	60mA
Measurement Current:	60mA

Data Set 2:85°C,60mA	
Model:	ESS-2835XWC-X0K
Number of Units:	25
Case Temperature (T _S):	> 83°C
Ambient Temperature (T _A):	> 50°C
Life Test Drive Current:	60mA
Measurement Current:	60mA

Data Set 3:105°C,60mA	
Model:	ESS-2835XWC-X0K
Number of Units:	25
Case Temperature (T _S):	> 103°C
Ambient Temperature (T _A):	> 100°C
Life Test Drive Current:	60mA
Measurement Current:	60mA

SUMMARY OF TEST RESULT

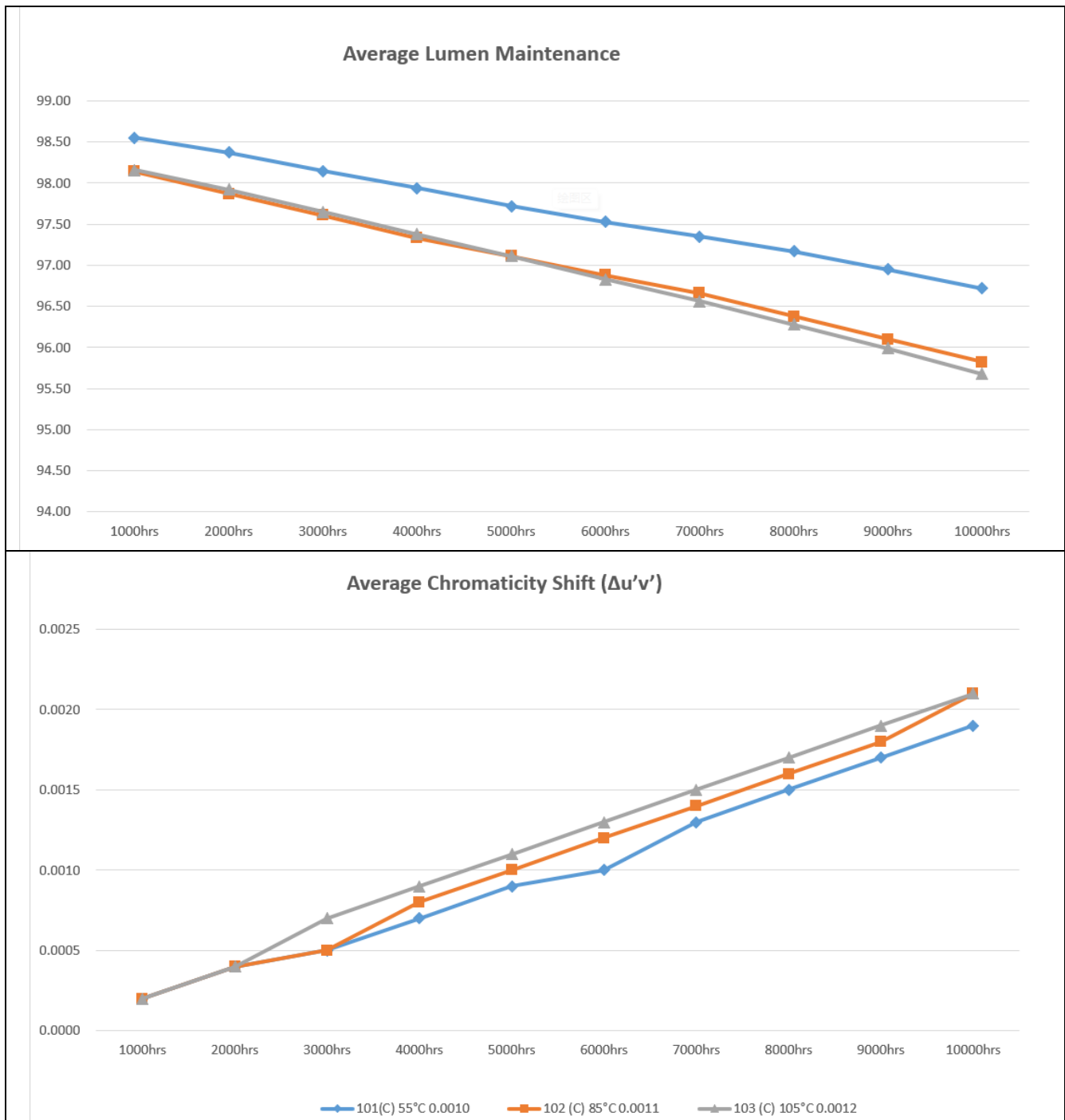
Data Set:	Sample Size	Failures Observed:	Test Interval (hrs)	Test Duration (hrs)	α	B	Reported TM-21 L70 Lifetime (hrs)	Reported TM-21 L90 Lifetime (hrs)
1	25	0	1000	10000	2.03E-06	0.9873	>60000	46000
2	25	0	1000	10000	2.07E-06	0.9845	>60000	33000
3	25	0	1000	10000	2.10E-06	0.9856	>60000	31000

Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	98.55	98.37	98.15	97.94	97.72	97.53	97.35	97.17	96.95	96.72
2	98.14	97.87	97.61	97.33	97.11	96.88	96.66	96.38	96.10	95.82
3	98.16	97.92	97.65	97.38	97.11	96.83	96.56	96.28	95.99	95.68

Average Chromaticity Shift ($\Delta u'v'$)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	0.0002	0.0004	0.0005	0.0007	0.0009	0.0010	0.0013	0.0015	0.0017	0.0019
2	0.0002	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0021
3	0.0002	0.0004	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019	0.0021



3.2. Test data**3.2.1 Data Set 1, 55°C,60mA (Lumen Maintenance)**

Sample Number	Φ (lm)	Lumen Maintenance (%)									
	0hr (Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	32.22	98.67	98.50	98.25	98.09	97.85	97.63	97.46	97.31	97.06	96.84
S02	31.09	98.51	98.29	98.13	97.88	97.64	97.43	97.28	97.11	96.88	96.68
S03	31.58	98.61	98.40	98.15	97.90	97.75	97.53	97.39	97.24	97.02	96.82
S04	33.92	98.56	98.39	98.23	97.99	97.74	97.57	97.39	97.25	97.05	96.80
S05	41.42	98.54	98.37	98.12	97.96	97.72	97.54	97.33	97.11	96.87	96.62
S06	34.23	98.68	98.51	98.26	98.02	97.77	97.59	97.45	97.31	97.06	96.81
S07	40.17	98.62	98.40	98.24	98.00	97.75	97.58	97.40	97.19	96.96	96.71
S08	43.03	98.60	98.43	98.19	98.03	97.87	97.70	97.48	97.27	97.04	96.81
S09	37.86	98.59	98.42	98.17	98.02	97.77	97.63	97.45	97.23	97.01	96.78
S10	37.95	98.67	98.45	98.21	98.05	97.80	97.59	97.41	97.23	97.01	96.81
S11	34.67	98.60	98.43	98.18	97.94	97.70	97.48	97.27	97.05	96.83	96.63
S12	30.07	98.61	98.39	98.15	97.90	97.65	97.48	97.30	97.12	96.87	96.68
S13	32.31	98.67	98.46	98.21	97.97	97.81	97.60	97.45	97.24	97.04	96.84
S14	36.39	98.65	98.48	98.32	98.08	97.83	97.69	97.55	97.37	97.14	96.89
S15	33.86	98.58	98.36	98.12	97.88	97.72	97.54	97.36	97.19	96.96	96.73
S16	32.91	98.52	98.30	98.06	97.81	97.57	97.35	97.14	96.96	96.76	96.51
S17	30.33	98.55	98.39	98.23	98.07	97.91	97.70	97.48	97.31	97.08	96.88
S18	30.25	98.61	98.43	98.27	98.03	97.78	97.57	97.39	97.25	97.02	96.79
S19	39.25	98.63	98.46	98.22	98.06	97.81	97.64	97.46	97.28	97.03	96.83
S20	33.81	98.57	98.41	98.25	98.01	97.76	97.55	97.37	97.19	96.96	96.71
S21	34.52	98.66	98.48	98.24	98.08	97.83	97.69	97.55	97.40	97.21	96.96
S22	32.11	98.62	98.41	98.16	97.92	97.76	97.62	97.40	97.23	97.03	96.83
S23	37.01	98.66	98.49	98.34	98.18	97.94	97.76	97.61	97.40	97.15	96.95
S24	34.37	98.59	98.41	98.16	97.92	97.68	97.46	97.25	97.04	96.84	96.59
S25	32.32	97.29	97.13	96.98	96.82	96.58	96.40	96.19	96.02	95.82	95.62
Average	34.71	98.55	98.37	98.15	97.94	97.72	97.53	97.35	97.17	96.95	96.72
Median	33.92	98.61	98.41	98.21	98.00	97.76	97.58	97.40	97.23	97.02	96.80
Std.dev	3.50	0.26	0.26	0.25	0.24	0.25	0.25	0.26	0.26	0.25	0.25
Max	43.03	98.68	98.51	98.34	98.18	97.94	97.76	97.61	97.40	97.21	96.96
Min	30.07	97.29	97.13	96.98	96.82	96.58	96.40	96.19	96.02	95.82	95.62

3.2.2 Data Set 1, 55°C,60mA (Forward Voltage)

Sample Number	Forward Voltage(V)										
	0hr (Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	2.88	2.86	2.88	2.89	2.90	2.90	2.88	2.89	2.89	2.88	2.90
S02	2.92	2.93	2.94	2.94	2.92	2.92	2.93	2.95	2.92	2.92	2.94
S03	2.91	2.93	2.93	2.90	2.91	2.94	2.92	2.91	2.93	2.92	2.93
S04	2.87	2.89	2.89	2.88	2.89	2.87	2.89	2.89	2.89	2.89	2.89
S05	2.89	2.91	2.92	2.91	2.91	2.90	2.89	2.91	2.91	2.91	2.89
S06	2.87	2.86	2.85	2.89	2.87	2.87	2.88	2.88	2.88	2.87	2.89
S07	2.95	2.97	2.97	2.97	2.96	2.95	2.98	2.95	2.97	2.97	2.98
S08	2.88	2.90	2.88	2.89	2.88	2.89	2.90	2.89	2.90	2.90	2.87
S09	2.95	2.97	2.97	2.97	2.94	2.97	2.96	2.95	2.97	2.94	2.96
S10	2.89	2.90	2.90	2.90	2.89	2.91	2.91	2.89	2.90	2.90	2.90
S11	2.91	2.92	2.92	2.90	2.92	2.90	2.91	2.91	2.92	2.92	2.92
S12	2.90	2.91	2.90	2.90	2.91	2.92	2.88	2.92	2.92	2.89	2.92
S13	2.91	2.91	2.93	2.93	2.94	2.92	2.92	2.91	2.93	2.93	2.90
S14	2.92	2.91	2.94	2.94	2.94	2.94	2.92	2.92	2.95	2.94	2.94
S15	2.92	2.93	2.92	2.91	2.92	2.94	2.92	2.92	2.92	2.94	2.91
S16	2.95	2.94	2.97	2.95	2.97	2.94	2.96	2.95	2.94	2.94	2.95
S17	2.93	2.93	2.94	2.95	2.94	2.95	2.95	2.94	2.95	2.93	2.92
S18	2.92	2.94	2.93	2.94	2.92	2.93	2.94	2.93	2.93	2.94	2.93
S19	2.95	2.96	2.96	2.95	2.95	2.97	2.95	2.95	2.96	2.95	2.97
S20	2.89	2.90	2.90	2.90	2.91	2.90	2.90	2.90	2.91	2.90	2.90
S21	2.94	2.95	2.96	2.94	2.96	2.94	2.94	2.97	2.94	2.95	2.96
S22	2.87	2.87	2.89	2.87	2.87	2.88	2.89	2.89	2.87	2.86	2.87
S23	2.88	2.89	2.87	2.89	2.90	2.90	2.86	2.88	2.88	2.89	2.88
S24	2.94	2.94	2.96	2.94	2.95	2.94	2.97	2.96	2.96	2.96	2.96
S25	2.86	2.86	2.84	2.86	2.86	2.85	2.84	2.86	2.86	2.87	2.86
Average	2.91	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92
Median	2.91	2.91	2.92	2.91	2.92	2.92	2.92	2.91	2.92	2.92	2.92
Std.dev	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Max	2.95	2.97	2.97	2.97	2.97	2.97	2.98	2.97	2.97	2.97	2.98
Min	2.86	2.86	2.84	2.86	2.86	2.85	2.84	2.86	2.86	2.86	2.86

3.2.3 Data Set 1, 55°C,60mA (Chromaticity Shift)

Sample Number	Chromaticity Shift ($\Delta u'v'$)												
	0hr CCT (Initial)	0hr (Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	5887	0.1962	0.4804	0.0002	0.0004	0.0006	0.0008	0.0009	0.0010	0.0013	0.0015	0.0018	0.0019
S02	5909	0.1962	0.4803	0.0002	0.0004	0.0006	0.0008	0.0009	0.0008	0.0010	0.0012	0.0014	0.0016
S03	6062	0.1959	0.4801	0.0001	0.0003	0.0005	0.0007	0.0009	0.0010	0.0013	0.0015	0.0018	0.0019
S04	5960	0.1961	0.4802	0.0001	0.0003	0.0005	0.0007	0.0008	0.0013	0.0016	0.0018	0.0021	0.0023
S05	5935	0.1958	0.4803	0.0002	0.0004	0.0006	0.0009	0.0010	0.0010	0.0013	0.0015	0.0018	0.0020
S06	5911	0.1962	0.4805	0.0002	0.0004	0.0005	0.0008	0.0009	0.0010	0.0013	0.0015	0.0017	0.0018
S07	5904	0.1964	0.4807	0.0002	0.0004	0.0005	0.0008	0.0009	0.0010	0.0013	0.0015	0.0018	0.0020
S08	5826	0.1962	0.4803	0.0002	0.0004	0.0005	0.0007	0.0009	0.0010	0.0012	0.0015	0.0017	0.0018
S09	6091	0.1967	0.4807	0.0001	0.0003	0.0005	0.0007	0.0009	0.0013	0.0015	0.0017	0.0019	0.0022
S10	6101	0.1957	0.4804	0.0002	0.0004	0.0006	0.0008	0.0009	0.0010	0.0013	0.0015	0.0017	0.0019
S11	5936	0.1946	0.4829	0.0001	0.0003	0.0005	0.0007	0.0008	0.0009	0.0011	0.0013	0.0016	0.0018
S12	5856	0.1944	0.4826	0.0002	0.0004	0.0006	0.0009	0.0010	0.0011	0.0013	0.0015	0.0018	0.0019
S13	5875	0.1942	0.4829	0.0002	0.0004	0.0006	0.0008	0.0010	0.0010	0.0012	0.0014	0.0016	0.0018
S14	5927	0.1948	0.4831	0.0001	0.0003	0.0005	0.0008	0.0009	0.0007	0.0010	0.0012	0.0014	0.0015
S15	5960	0.1951	0.4831	0.0002	0.0004	0.0006	0.0008	0.0009	0.0009	0.0011	0.0014	0.0016	0.0018
S16	5910	0.1945	0.4828	0.0002	0.0003	0.0004	0.0006	0.0008	0.0010	0.0012	0.0015	0.0017	0.0019
S17	5932	0.1945	0.4826	0.0002	0.0004	0.0005	0.0007	0.0008	0.0011	0.0014	0.0016	0.0018	0.0021
S18	6031	0.1947	0.4829	0.0002	0.0004	0.0005	0.0008	0.0009	0.0011	0.0014	0.0016	0.0018	0.0021
S19	5927	0.1945	0.4827	0.0002	0.0004	0.0005	0.0007	0.0008	0.0012	0.0014	0.0016	0.0019	0.0020
S20	6031	0.1941	0.4828	0.0001	0.0003	0.0004	0.0006	0.0007	0.0010	0.0012	0.0014	0.0017	0.0019
S21	5952	0.1960	0.4817	0.0002	0.0004	0.0006	0.0009	0.0010	0.0009	0.0011	0.0013	0.0016	0.0018
S22	5927	0.1966	0.4820	0.0002	0.0003	0.0004	0.0006	0.0008	0.0010	0.0013	0.0015	0.0017	0.0019
S23	5903	0.1960	0.4814	0.0002	0.0003	0.0004	0.0006	0.0008	0.0012	0.0014	0.0016	0.0019	0.0021
S24	5897	0.1963	0.4819	0.0001	0.0003	0.0004	0.0006	0.0008	0.0009	0.0011	0.0013	0.0015	0.0016
S25	5818	0.1955	0.4816	0.0002	0.0003	0.0005	0.0008	0.0009	0.0010	0.0012	0.0015	0.0017	0.0018
Average	5939	0.1955	0.4816	0.0002	0.0004	0.0005	0.0007	0.0009	0.0010	0.0013	0.0015	0.0017	0.0019
Median	5927	0.1958	0.4817	0.0002	0.0004	0.0005	0.0008	0.0009	0.0010	0.0013	0.0015	0.0017	0.0019
Std.dev	72	0.0008	0.0011	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002
Max	6101	0.1967	0.4831	0.0002	0.0004	0.0006	0.0009	0.0010	0.0013	0.0016	0.0018	0.0021	0.0023
Min	5818	0.1941	0.4801	0.0001	0.0003	0.0004	0.0006	0.0007	0.0007	0.0010	0.0012	0.0014	0.0015

3.2.4 Data Set 2, 85°C,60mA (Lumen Maintenance)

Sample Number	Φ(lm)	Lumen Maintenance (%)									
	0hr (Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	34.03	98.12	97.87	97.60	97.33	97.12	96.89	96.68	96.39	96.10	95.80
S02	37.16	98.15	97.88	97.62	97.36	97.12	96.88	96.67	96.43	96.14	95.89
S03	37.25	98.12	97.87	97.60	97.33	97.12	96.88	96.67	96.42	96.13	95.84
S04	33.58	98.22	97.96	97.70	97.42	97.18	96.94	96.70	96.41	96.12	95.83
S05	34.28	98.06	97.79	97.51	97.22	97.01	96.78	96.54	96.25	96.01	95.71
S06	41.61	98.08	97.82	97.55	97.28	97.04	96.83	96.60	96.36	96.11	95.82
S07	36.71	98.17	97.90	97.63	97.35	97.13	96.90	96.69	96.40	96.16	95.87
S08	36.16	98.09	97.83	97.55	97.29	97.08	96.87	96.64	96.35	96.06	95.77
S09	35.42	98.18	97.91	97.66	97.39	97.18	96.95	96.74	96.45	96.16	95.87
S10	31.78	98.18	97.90	97.61	97.33	97.09	96.85	96.62	96.33	96.04	95.75
S11	36.08	98.15	97.89	97.63	97.36	97.13	96.89	96.67	96.43	96.14	95.85
S12	32.42	98.14	97.86	97.59	97.31	97.07	96.84	96.61	96.32	96.03	95.74
S13	41.45	98.22	97.95	97.69	97.42	97.21	96.97	96.73	96.48	96.24	96.00
S14	33.74	98.13	97.84	97.55	97.27	97.03	96.82	96.61	96.31	96.03	95.74
S15	40.30	98.18	97.92	97.65	97.40	97.19	96.95	96.74	96.45	96.16	95.87
S16	32.48	98.13	97.86	97.61	97.32	97.09	96.88	96.67	96.38	96.09	95.84
S17	38.52	98.04	97.79	97.53	97.27	97.03	96.80	96.58	96.34	96.05	95.76
S18	34.49	98.10	97.82	97.55	97.29	97.07	96.84	96.61	96.32	96.03	95.78
S19	38.41	98.16	97.90	97.63	97.35	97.11	96.90	96.68	96.44	96.15	95.86
S20	30.50	98.26	97.99	97.73	97.48	97.25	97.01	96.77	96.48	96.19	95.90
S21	34.80	98.06	97.77	97.51	97.25	97.02	96.79	96.58	96.29	96.00	95.71
S22	34.61	98.26	97.97	97.71	97.42	97.21	96.97	96.76	96.51	96.27	95.98
S23	36.24	98.06	97.78	97.51	97.23	97.01	96.77	96.55	96.25	95.97	95.68
S24	41.21	98.15	97.90	97.63	97.36	97.14	96.90	96.67	96.38	96.13	95.84
S25	38.88	98.14	97.88	97.59	97.34	97.13	96.90	96.66	96.37	96.08	95.79
Average	36.08	98.14	97.87	97.61	97.33	97.11	96.88	96.66	96.38	96.10	95.82
Median	36.08	98.14	97.88	97.61	97.33	97.12	96.88	96.67	96.38	96.11	95.83
Std.dev	3.02	0.06	0.06	0.06	0.06	0.07	0.06	0.06	0.07	0.07	0.08
Max	41.61	98.26	97.99	97.73	97.48	97.25	97.01	96.77	96.51	96.27	96.00
Min	30.50	98.04	97.77	97.51	97.22	97.01	96.77	96.54	96.25	95.97	95.68

3.2.5 Data Set 2, 85°C,60mA (Forward Voltage)

Sample Number	Forward Voltage(V)										
	0hr (Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	2.87	2.88	2.83	2.85	2.84	2.87	2.88	2.85	2.84	2.88	2.85
S02	2.92	2.88	2.90	2.93	2.91	2.90	2.93	2.90	2.89	2.90	2.91
S03	2.89	2.89	2.87	2.89	2.90	2.91	2.90	2.87	2.89	2.87	2.89
S04	2.89	2.90	2.86	2.87	2.88	2.90	2.87	2.88	2.88	2.87	2.89
S05	2.85	2.82	2.82	2.83	2.87	2.82	2.82	2.86	2.86	2.86	2.82
S06	2.90	2.87	2.89	2.88	2.87	2.88	2.87	2.87	2.91	2.88	2.91
S07	2.86	2.83	2.85	2.84	2.84	2.84	2.87	2.87	2.83	2.86	2.84
S08	2.92	2.93	2.92	2.93	2.91	2.93	2.93	2.92	2.93	2.91	2.91
S09	2.90	2.89	2.90	2.89	2.91	2.92	2.89	2.88	2.87	2.91	2.91
S10	2.88	2.85	2.89	2.86	2.89	2.86	2.87	2.85	2.88	2.86	2.87
S11	2.91	2.90	2.90	2.88	2.89	2.92	2.89	2.89	2.90	2.89	2.92
S12	2.85	2.83	2.85	2.83	2.82	2.85	2.86	2.82	2.85	2.85	2.83
S13	2.87	2.88	2.85	2.86	2.89	2.87	2.88	2.86	2.87	2.88	2.87
S14	2.86	2.87	2.85	2.87	2.87	2.85	2.85	2.84	2.84	2.87	2.85
S15	2.88	2.85	2.85	2.89	2.86	2.89	2.89	2.85	2.86	2.87	2.86
S16	2.87	2.86	2.84	2.85	2.88	2.86	2.87	2.84	2.89	2.88	2.86
S17	2.92	2.89	2.93	2.92	2.89	2.93	2.93	2.89	2.93	2.90	2.91
S18	2.87	2.84	2.84	2.87	2.86	2.88	2.85	2.86	2.87	2.84	2.84
S19	2.92	2.93	2.89	2.93	2.89	2.89	2.90	2.90	2.90	2.93	2.93
S20	2.85	2.84	2.82	2.85	2.82	2.84	2.83	2.86	2.86	2.83	2.86
S21	2.87	2.88	2.88	2.86	2.86	2.86	2.84	2.88	2.85	2.88	2.88
S22	2.90	2.88	2.91	2.90	2.91	2.87	2.87	2.88	2.88	2.87	2.91
S23	2.85	2.86	2.86	2.83	2.83	2.84	2.85	2.83	2.82	2.84	2.85
S24	2.91	2.92	2.92	2.90	2.89	2.91	2.91	2.91	2.89	2.89	2.92
S25	2.91	2.91	2.92	2.92	2.92	2.89	2.92	2.92	2.91	2.89	2.89
Average	2.88	2.88	2.87	2.88	2.88	2.88	2.88	2.87	2.88	2.88	2.88
Median	2.88	2.88	2.87	2.87	2.88	2.88	2.87	2.87	2.88	2.88	2.88
Std.dev	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03
Max	2.92	2.93	2.93	2.93	2.92	2.93	2.93	2.92	2.93	2.93	2.93
Min	2.85	2.82	2.82	2.83	2.82	2.82	2.82	2.82	2.82	2.83	2.82

3.2.6 Data Set 2, 85°C,60mA (Chromaticity Shift)

Sample Number	Chromaticity Shift ($\Delta u'v'$)												
	0hr CCT (Initial)	0hr (Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	5953	0.1967	0.4802	0.0002	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0019
S02	5824	0.1965	0.4801	0.0002	0.0004	0.0005	0.0009	0.0011	0.0012	0.0014	0.0016	0.0018	0.0022
S03	6094	0.1976	0.4827	0.0002	0.0004	0.0006	0.0009	0.0011	0.0012	0.0014	0.0016	0.0018	0.0021
S04	5919	0.1963	0.4798	0.0002	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0020
S05	5879	0.1965	0.4799	0.0002	0.0004	0.0006	0.0009	0.0012	0.0012	0.0014	0.0016	0.0018	0.0022
S06	5944	0.1961	0.4801	0.0002	0.0004	0.0006	0.0008	0.0011	0.0010	0.0012	0.0014	0.0017	0.0021
S07	5937	0.1974	0.4824	0.0002	0.0003	0.0005	0.0008	0.0011	0.0012	0.0014	0.0016	0.0018	0.0021
S08	5768	0.1959	0.4795	0.0002	0.0004	0.0005	0.0007	0.0010	0.0012	0.0014	0.0016	0.0019	0.0019
S09	6100	0.1964	0.4796	0.0002	0.0003	0.0005	0.0008	0.0011	0.0013	0.0015	0.0017	0.0019	0.0020
S10	6092	0.1962	0.4792	0.0002	0.0003	0.0005	0.0007	0.0010	0.0013	0.0015	0.0017	0.0019	0.0020
S11	5939	0.1969	0.4799	0.0002	0.0003	0.0005	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0020
S12	5979	0.1964	0.4794	0.0002	0.0004	0.0005	0.0008	0.0010	0.0013	0.0016	0.0018	0.0019	0.0022
S13	5846	0.1964	0.4794	0.0002	0.0003	0.0005	0.0009	0.0011	0.0012	0.0014	0.0016	0.0018	0.0022
S14	5990	0.1974	0.4826	0.0002	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0016	0.0019	0.0020
S15	5939	0.1960	0.4795	0.0002	0.0004	0.0006	0.0009	0.0011	0.0011	0.0014	0.0015	0.0018	0.0021
S16	5937	0.1966	0.4796	0.0002	0.0003	0.0005	0.0008	0.0011	0.0013	0.0015	0.0017	0.0019	0.0022
S17	5967	0.1967	0.4798	0.0002	0.0004	0.0006	0.0008	0.0010	0.0011	0.0013	0.0015	0.0018	0.0021
S18	6064	0.1974	0.4826	0.0002	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016	0.0019	0.0022
S19	5972	0.1967	0.4798	0.0002	0.0003	0.0005	0.0007	0.0010	0.0013	0.0015	0.0017	0.0020	0.0020
S20	6040	0.1971	0.4823	0.0002	0.0004	0.0005	0.0008	0.0011	0.0013	0.0015	0.0017	0.0019	0.0023
S21	5787	0.1969	0.4826	0.0002	0.0003	0.0005	0.0008	0.0010	0.0013	0.0015	0.0017	0.0019	0.0021
S22	6119	0.1979	0.4830	0.0002	0.0004	0.0005	0.0008	0.0010	0.0010	0.0012	0.0014	0.0016	0.0019
S23	6111	0.1964	0.4796	0.0002	0.0004	0.0006	0.0008	0.0011	0.0013	0.0015	0.0017	0.0020	0.0021
S24	5957	0.1961	0.4801	0.0002	0.0003	0.0005	0.0007	0.0010	0.0012	0.0014	0.0016	0.0018	0.0019
S25	5998	0.1973	0.4824	0.0002	0.0004	0.0006	0.0008	0.0010	0.0013	0.0015	0.0017	0.0020	0.0022
Average	5966	0.1967	0.4806	0.0002	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0021
Median	5957	0.1966	0.4799	0.0002	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0021
Std.dev	96	0.0005	0.0013	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Max	6119	0.1979	0.4830	0.0002	0.0004	0.0006	0.0009	0.0012	0.0013	0.0016	0.0018	0.0020	0.0023
Min	5768	0.1959	0.4792	0.0002	0.0003	0.0005	0.0007	0.0009	0.0010	0.0012	0.0014	0.0016	0.0019

3.2.7 Data Set 3, 105°C,60mA (Lumen Maintenance)

Sample Number	Φ(lm)	Lumen Maintenance (%)									
	0hr (Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	32.07	98.29	98.05	97.78	97.51	97.23	96.95	96.67	96.40	96.16	95.83
S02	32.09	98.14	97.85	97.58	97.32	97.04	96.76	96.49	96.22	95.90	95.57
S03	30.98	98.00	97.81	97.54	97.26	96.99	96.71	96.44	96.16	95.84	95.59
S04	32.17	98.20	97.96	97.70	97.43	97.15	96.88	96.59	96.32	96.00	95.67
S05	34.02	98.20	98.01	97.74	97.48	97.20	96.93	96.65	96.38	96.05	95.80
S06	35.55	98.33	98.04	97.77	97.50	97.23	96.96	96.68	96.40	96.07	95.75
S07	33.89	98.11	97.82	97.55	97.28	97.01	96.74	96.47	96.20	95.95	95.70
S08	35.85	98.19	97.90	97.63	97.36	97.09	96.82	96.54	96.26	96.01	95.68
S09	31.50	98.16	97.87	97.59	97.32	97.04	96.76	96.48	96.21	95.88	95.56
S10	33.77	98.09	97.85	97.58	97.31	97.03	96.77	96.50	96.21	95.97	95.64
S11	33.00	98.06	97.87	97.61	97.34	97.08	96.80	96.52	96.25	96.01	95.68
S12	36.08	98.19	98.01	97.74	97.47	97.20	96.92	96.64	96.36	96.12	95.79
S13	30.02	98.13	97.89	97.62	97.35	97.08	96.81	96.54	96.27	96.02	95.69
S14	37.34	98.21	97.97	97.69	97.42	97.14	96.86	96.59	96.31	95.98	95.65
S15	37.31	98.21	97.92	97.64	97.37	97.10	96.83	96.56	96.29	96.04	95.80
S16	33.99	98.25	98.06	97.80	97.52	97.26	96.99	96.72	96.44	96.11	95.78
S17	36.75	98.13	97.89	97.62	97.36	97.09	96.81	96.53	96.25	96.01	95.68
S18	37.69	98.00	97.71	97.43	97.17	96.90	96.63	96.35	96.08	95.75	95.42
S19	33.27	98.15	97.86	97.60	97.33	97.06	96.79	96.51	96.23	95.98	95.65
S20	34.90	98.12	97.93	97.66	97.40	97.13	96.85	96.58	96.31	95.98	95.65
S21	34.14	98.22	97.93	97.67	97.39	97.13	96.86	96.58	96.30	95.97	95.72
S22	38.78	98.08	97.90	97.63	97.36	97.09	96.81	96.54	96.26	96.01	95.76
S23	34.66	98.24	98.05	97.78	97.51	97.24	96.97	96.69	96.41	96.08	95.75
S24	35.03	98.07	97.84	97.56	97.29	97.02	96.74	96.46	96.19	95.86	95.53
S25	31.37	98.16	97.98	97.70	97.43	97.16	96.88	96.61	96.33	96.00	95.75
Average	34.25	98.16	97.92	97.65	97.38	97.11	96.83	96.56	96.28	95.99	95.68
Median	34.02	98.16	97.90	97.63	97.36	97.09	96.82	96.54	96.27	96.00	95.68
Std.dev	2.26	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Max	38.78	98.33	98.06	97.80	97.52	97.26	96.99	96.72	96.44	96.16	95.83
Min	30.02	98.00	97.71	97.43	97.17	96.90	96.63	96.35	96.08	95.75	95.42

3.2.8 Data Set 3, 105°C,60mA (Forward Voltage)

Sample Number	Forward Voltage(V)										
	0hr (Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	2.89	2.83	2.86	2.89	2.86	2.85	2.89	2.86	2.88	2.89	2.84
S02	2.92	2.90	2.90	2.88	2.90	2.91	2.88	2.90	2.91	2.89	2.93
S03	2.86	2.83	2.87	2.87	2.82	2.82	2.85	2.81	2.82	2.82	2.83
S04	2.89	2.90	2.90	2.87	2.85	2.87	2.87	2.90	2.90	2.88	2.85
S05	2.90	2.86	2.91	2.91	2.86	2.91	2.87	2.86	2.91	2.85	2.86
S06	2.89	2.84	2.88	2.87	2.87	2.86	2.84	2.89	2.86	2.86	2.86
S07	2.91	2.89	2.89	2.88	2.92	2.88	2.86	2.92	2.90	2.92	2.89
S08	2.92	2.89	2.90	2.88	2.90	2.90	2.87	2.90	2.92	2.88	2.89
S09	2.92	2.89	2.88	2.92	2.89	2.87	2.87	2.91	2.87	2.89	2.87
S10	2.90	2.88	2.85	2.91	2.91	2.88	2.89	2.86	2.88	2.87	2.88
S11	2.88	2.87	2.84	2.87	2.85	2.88	2.83	2.84	2.84	2.83	2.83
S12	2.93	2.93	2.92	2.93	2.90	2.92	2.88	2.93	2.90	2.90	2.89
S13	2.90	2.89	2.86	2.85	2.86	2.86	2.88	2.84	2.89	2.87	2.86
S14	2.86	2.85	2.82	2.82	2.83	2.82	2.84	2.83	2.83	2.82	2.85
S15	2.98	2.99	2.99	2.99	2.94	2.96	2.96	2.97	2.98	2.94	2.94
S16	2.91	2.86	2.90	2.88	2.91	2.88	2.88	2.92	2.90	2.87	2.91
S17	2.94	2.91	2.91	2.94	2.91	2.90	2.90	2.89	2.90	2.95	2.94
S18	2.89	2.87	2.86	2.86	2.90	2.90	2.85	2.85	2.86	2.90	2.86
S19	2.86	2.82	2.84	2.87	2.87	2.87	2.83	2.82	2.87	2.84	2.83
S20	2.88	2.85	2.88	2.89	2.87	2.83	2.83	2.83	2.87	2.82	2.83
S21	2.91	2.90	2.90	2.86	2.89	2.86	2.87	2.86	2.92	2.92	2.92
S22	2.90	2.90	2.90	2.85	2.87	2.91	2.89	2.85	2.86	2.87	2.85
S23	2.87	2.88	2.85	2.85	2.88	2.88	2.88	2.88	2.84	2.88	2.86
S24	2.92	2.87	2.89	2.89	2.93	2.89	2.89	2.89	2.88	2.87	2.91
S25	2.89	2.90	2.90	2.87	2.88	2.85	2.87	2.86	2.88	2.88	2.86
Average	2.90	2.88	2.89	2.89	2.89	2.88	2.87	2.88	2.89	2.88	2.88
Median	2.90	2.88	2.89	2.88	2.88	2.88	2.87	2.86	2.88	2.88	2.86
Std.dev	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03
Max	2.98	2.99	2.99	2.99	2.94	2.96	2.96	2.97	2.98	2.95	2.94
Min	2.86	2.82	2.82	2.82	2.82	2.82	2.83	2.81	2.82	2.82	2.83

3.2.9 Data Set 3, 105°C,60mA (Chromaticity Shift)

Sample Number	Chromaticity Shift ($\Delta u'v'$)												
	0hr CCT (Initial)	0hr (Initial)		1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	6051	0.1972	0.4817	0.0003	0.0005	0.0008	0.0010	0.0012	0.0013	0.0015	0.0018	0.0020	0.0019
S02	5920	0.1967	0.4818	0.0003	0.0005	0.0008	0.0010	0.0012	0.0014	0.0016	0.0019	0.0021	0.0022
S03	6194	0.1972	0.4816	0.0001	0.0004	0.0007	0.0009	0.0011	0.0013	0.0014	0.0016	0.0019	0.0021
S04	6017	0.1984	0.4817	0.0003	0.0005	0.0007	0.0009	0.0010	0.0012	0.0014	0.0017	0.0018	0.0020
S05	5975	0.1975	0.4820	0.0003	0.0005	0.0006	0.0009	0.0011	0.0013	0.0014	0.0015	0.0018	0.0022
S06	6042	0.1969	0.4817	0.0003	0.0004	0.0007	0.0009	0.0011	0.0013	0.0016	0.0018	0.0019	0.0021
S07	6035	0.1972	0.4815	0.0003	0.0004	0.0007	0.0009	0.0012	0.0014	0.0016	0.0017	0.0018	0.0021
S08	5863	0.1980	0.4819	0.0003	0.0004	0.0006	0.0008	0.0011	0.0013	0.0016	0.0017	0.0018	0.0019
S09	6200	0.1982	0.4816	0.0003	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0018	0.0020	0.0020
S10	6192	0.1973	0.4818	0.0003	0.0004	0.0005	0.0008	0.0010	0.0012	0.0015	0.0018	0.0020	0.0020
S11	6036	0.1969	0.4805	0.0003	0.0005	0.0008	0.0010	0.0012	0.0014	0.0017	0.0018	0.0019	0.0020
S12	6078	0.1971	0.4806	0.0001	0.0003	0.0005	0.0007	0.0009	0.0011	0.0012	0.0013	0.0016	0.0022
S13	5942	0.1970	0.4806	0.0003	0.0004	0.0005	0.0007	0.0009	0.0011	0.0013	0.0016	0.0017	0.0022
S14	6088	0.1971	0.4807	0.0003	0.0005	0.0008	0.0010	0.0013	0.0015	0.0017	0.0020	0.0022	0.0020
S15	6037	0.1976	0.4811	0.0001	0.0003	0.0005	0.0007	0.0009	0.0011	0.0013	0.0014	0.0016	0.0021
S16	6035	0.1985	0.4819	0.0003	0.0006	0.0008	0.0011	0.0012	0.0015	0.0018	0.0021	0.0023	0.0022
S17	6065	0.1971	0.4815	0.0003	0.0004	0.0005	0.0007	0.0009	0.0011	0.0013	0.0015	0.0016	0.0021
S18	6164	0.1977	0.4821	0.0001	0.0004	0.0006	0.0008	0.0011	0.0013	0.0016	0.0017	0.0020	0.0022
S19	6070	0.1970	0.4814	0.0001	0.0003	0.0005	0.0007	0.0010	0.0011	0.0014	0.0015	0.0016	0.0020
S20	6139	0.1969	0.4806	0.0003	0.0006	0.0008	0.0010	0.0013	0.0015	0.0016	0.0019	0.0022	0.0023
S21	6062	0.1968	0.4806	0.0001	0.0003	0.0006	0.0007	0.0010	0.0012	0.0014	0.0017	0.0019	0.0021
S22	5927	0.1965	0.4806	0.0001	0.0004	0.0007	0.0009	0.0010	0.0013	0.0015	0.0016	0.0018	0.0019
S23	6072	0.1969	0.4804	0.0003	0.0004	0.0007	0.0009	0.0010	0.0012	0.0015	0.0016	0.0019	0.0021
S24	6021	0.1964	0.4806	0.0003	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0018	0.0021	0.0019
S25	6019	0.1970	0.4807	0.0003	0.0006	0.0008	0.0010	0.0012	0.0014	0.0016	0.0018	0.0021	0.0022
Average	6050	0.1972	0.4812	0.0002	0.0004	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019	0.0021
Median	6042	0.1971	0.4815	0.0003	0.0004	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019	0.0021
Std.dev	84	0.0005	0.0006	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001
Max	6200	0.1985	0.4821	0.0003	0.0006	0.0008	0.0011	0.0013	0.0015	0.0018	0.0021	0.0023	0.0023
Min	5863	0.1964	0.4804	0.0001	0.0003	0.0005	0.0007	0.0009	0.0011	0.0012	0.0013	0.0016	0.0019

4. Test Equipment

Equipment Name	Manufacturer	Model No.	Equipment No.	Calibration Due Date
2m Integrating Sphere	SENSING	SL-300	AOC-S-126	2026-04-13
Horizontal Distribution Photometer	SENSING	GMS1800D	AOC-S-124	2026-04-13
Standard Lamp	SENSING	220V/150W	AOC-S-156	2026-06-05
Digital power meter	HENGHE	WT310E	AOC-S-012	2026-04-13
Digital power meter	SENSING	UI2008	AOC-S-123	2026-04-13
Digital power meter	SENSING	UI2021	AOC-S-123	2026-04-13
DC source	OYHS	OYHS-Z120V-50A	AOC-S-062	2026-04-13
Variable frequency power supply	WOSEN	BP6005	AOC-S-129	2026-04-13
Variable frequency power supply	AIPUSI	KDF-500	AOC-S-130	2026-04-13
Oscilloscope	TEKTRONIX	MDO3012	AOC-S-028	2026-04-13

Photo Document

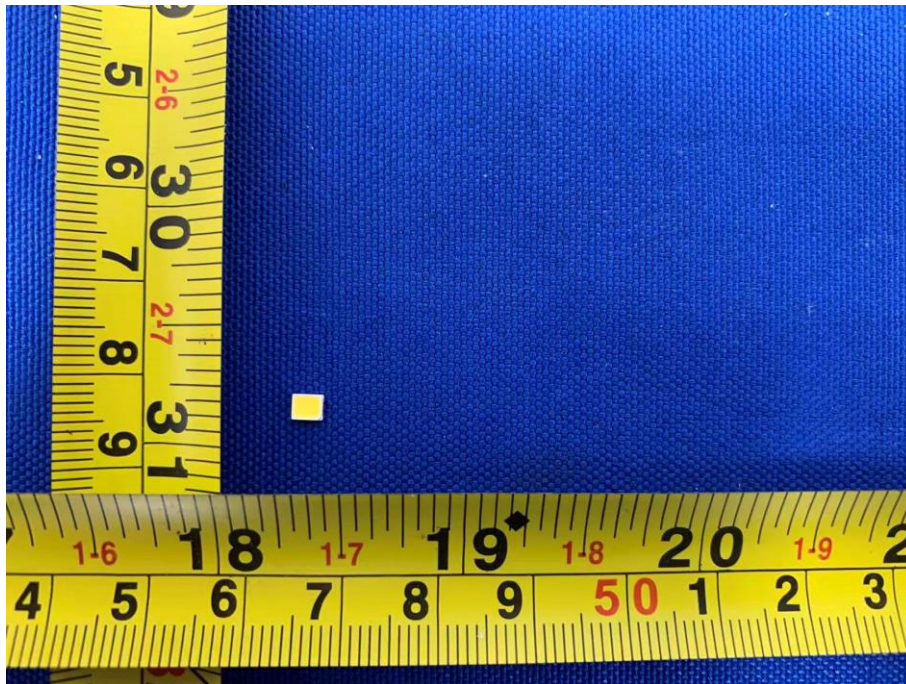


Fig.1

-- End of Report --

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