



ACCREDITED
Testing Laboratory

TL-1235

Report No.: AOC250815003ER

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Test Report

Client : SHANGHAI NVC LAMPS CO., LTD
Address : RM 4-809B, NO.500 JIANYUN ROAD, SHANGHAI, CHINA

Description of the submitted sample(s):

Sample Name : LED bulb
Model/Type : LS-G9 3.5W DIM
Trademark : N/A
Ratings : 120V~, 50Hz, 4.5W, 3000K, 80Ra
Test Item : LM-80-21
State of Sample(s) : Normal
Sample Quantity : 75 PCS
Manufacturer : SHANGHAI NVC LAMPS CO., LTD
Address : RM 4-809B, NO.500 JIANYUN ROAD, SHANGHAI, CHINA
Sample Received Date : 2023-11-21
Sample tested Date : 2023-11-21
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: *Bruce Lin*

Approved by:

Robin Liu

Robin Liu
Lab Supervisor
2025-08-27

Date :

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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.

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:	LS-G9 3.5W DIM
Number of Units:	25
Case Temperature (T _S):	> 53°C
Ambient Temperature (T _A):	> 50°C
Life Test Drive Current:	35mA
Measurement Current:	35mA

Data Set 2:85°C,60mA	
Model:	LS-G9 3.5W DIM
Number of Units:	25
Case Temperature (T _S):	> 83°C
Ambient Temperature (T _A):	> 50°C
Life Test Drive Current:	35mA
Measurement Current:	35mA

Data Set 3:105°C,60mA	
Model:	LS-G9 3.5W DIM
Number of Units:	25
Case Temperature (T _S):	> 103°C
Ambient Temperature (T _A):	> 100°C
Life Test Drive Current:	35mA
Measurement Current:	35mA

SUMMARY OF TEST RESULT

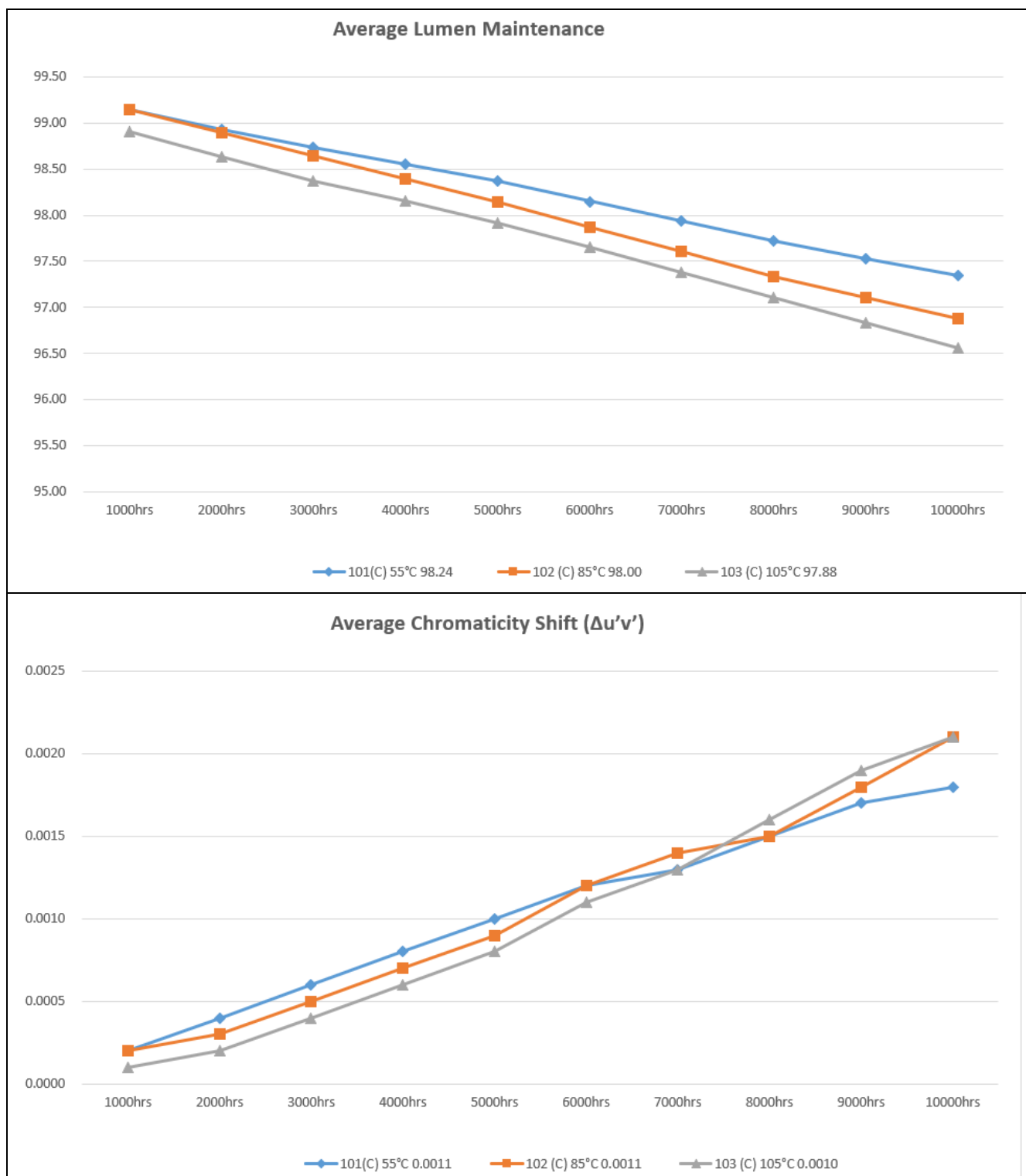
Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	α	B	Reported TM-21 L70 Lifetime	Reported TM-21 L90 Lifetime
1	25	0	1000	10000	2.10E-06	0.9939	>60000	47000
2	25	0	1000	10000	2.60E-06	0.9941	>60000	38000
3	25	0	1000	10000	2.80E-06	0.9930	>60000	35000

Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	99.15	98.93	98.74	98.55	98.37	98.15	97.94	97.72	97.53	97.35
2	99.15	98.90	98.65	98.39	98.14	97.87	97.61	97.33	97.11	96.88
3	98.91	98.63	98.37	98.16	97.92	97.65	97.38	97.11	96.83	96.56

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

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
1	0.0002	0.0004	0.0006	0.0008	0.0010	0.0012	0.0013	0.0015	0.0017	0.0018
2	0.0002	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0015	0.0018	0.0021
3	0.0001	0.0002	0.0004	0.0006	0.0008	0.0011	0.0013	0.0016	0.0019	0.0021



3.2. Test data**3.2.1 Data Set 1, 55°C,35mA (Lumen Maintenance)**

Sample Number	Φ(lm)	Lumen Maintenance (%)									
	0hr (Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	482.43	99.21	99.01	98.84	98.67	98.5	98.25	98.09	97.85	97.63	97.46
S02	485.56	99.14	98.89	98.72	98.51	98.29	98.13	97.88	97.64	97.43	97.28
S03	485.65	99.23	99.01	98.79	98.61	98.4	98.15	97.9	97.75	97.53	97.39
S04	481.98	99.13	98.9	98.73	98.56	98.39	98.23	97.99	97.74	97.57	97.39
S05	482.68	99.17	98.97	98.75	98.54	98.37	98.12	97.96	97.72	97.54	97.33
S06	490.01	99.22	99.02	98.85	98.68	98.51	98.26	98.02	97.77	97.59	97.45
S07	485.11	99.16	98.96	98.79	98.62	98.4	98.24	98	97.75	97.58	97.4
S08	484.56	99.2	99	98.82	98.6	98.43	98.19	98.03	97.87	97.7	97.48
S09	483.82	99.23	99.03	98.81	98.59	98.42	98.17	98.02	97.77	97.63	97.45
S10	480.18	99.27	99.01	98.83	98.67	98.45	98.21	98.05	97.8	97.59	97.41
S11	484.48	99.2	98.98	98.76	98.6	98.43	98.18	97.94	97.7	97.48	97.27
S12	480.82	99.18	98.95	98.78	98.61	98.39	98.15	97.9	97.65	97.48	97.3
S13	489.85	99.23	99.03	98.85	98.67	98.46	98.21	97.97	97.81	97.6	97.45
S14	482.14	99.24	99.04	98.87	98.65	98.48	98.32	98.08	97.83	97.69	97.55
S15	488.70	99.17	98.97	98.8	98.58	98.36	98.12	97.88	97.72	97.54	97.36
S16	480.88	99.17	98.92	98.7	98.52	98.3	98.06	97.81	97.57	97.35	97.14
S17	486.92	99.19	98.94	98.77	98.55	98.39	98.23	98.07	97.91	97.7	97.48
S18	482.89	99.18	98.95	98.78	98.61	98.43	98.27	98.03	97.78	97.57	97.39
S19	486.81	99.25	99.02	98.81	98.63	98.46	98.22	98.06	97.81	97.64	97.46
S20	478.90	99.17	98.92	98.75	98.57	98.41	98.25	98.01	97.76	97.55	97.37
S21	483.20	99.24	99.04	98.88	98.66	98.48	98.24	98.08	97.83	97.69	97.55
S22	483.01	99.22	99.02	98.84	98.62	98.41	98.16	97.92	97.76	97.62	97.4
S23	484.64	99.25	99.05	98.88	98.66	98.49	98.34	98.18	97.94	97.76	97.61
S24	489.61	99.18	98.98	98.76	98.59	98.41	98.16	97.92	97.68	97.46	97.25
S25	487.28	97.89	97.68	97.46	97.29	97.13	96.98	96.82	96.58	96.40	96.19
Average	484.48	99.15	98.93	98.74	98.55	98.37	98.15	97.94	97.72	97.53	97.35
Median	484.48	99.20	98.98	98.79	98.61	98.41	98.21	98.00	97.76	97.58	97.40
Std.dev	3.02	0.26	0.26	0.27	0.26	0.26	0.25	0.24	0.25	0.25	0.26
Max	490.01	99.27	99.05	98.88	98.68	98.51	98.34	98.18	97.94	97.76	97.61
Min	478.90	97.89	97.68	97.46	97.29	97.13	96.98	96.82	96.58	96.40	96.19

3.2.2 Data Set 1, 55°C,35mA (Forward Voltage)

Sample Number	Forward Voltage(V)										
	0hr (Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S02	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S03	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S04	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S05	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S06	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S07	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S08	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S09	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S10	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S11	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S12	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S13	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S14	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S15	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S16	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S17	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S18	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S19	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S20	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S21	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S22	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S23	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S24	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S25	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Average	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Median	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Std.dev	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Min	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0

3.2.3 Data Set 1, 55°C,35mA (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	2996	0.2502	0.5224	0.0001	0.0004	0.0006	0.0009	0.0010	0.0012	0.0015	0.0013	0.0015	0.0016
S02	3011	0.2502	0.5223	0.0001	0.0001	0.0003	0.0005	0.0007	0.0010	0.0012	0.0014	0.0016	0.0018
S03	3115	0.2499	0.5221	0.0001	0.0004	0.0006	0.0009	0.0010	0.0012	0.0013	0.0015	0.0017	0.0018
S04	3046	0.2501	0.5222	0.0004	0.0007	0.0009	0.0012	0.0014	0.0015	0.0016	0.0015	0.0017	0.0018
S05	3029	0.2498	0.5223	0.0001	0.0004	0.0006	0.0009	0.0011	0.0013	0.0016	0.0019	0.0021	0.0023
S06	3013	0.2502	0.5225	0.0001	0.0004	0.0006	0.0008	0.0009	0.0010	0.0012	0.0016	0.0017	0.0019
S07	3008	0.2504	0.5227	0.0001	0.0004	0.0006	0.0009	0.0011	0.0012	0.0013	0.0013	0.0015	0.0017
S08	2955	0.2502	0.5223	0.0001	0.0003	0.0006	0.0008	0.0009	0.0010	0.0013	0.0015	0.0017	0.0018
S09	3135	0.2507	0.5227	0.0004	0.0006	0.0008	0.0010	0.0013	0.0014	0.0016	0.0015	0.0017	0.0019
S10	3142	0.2497	0.5224	0.0001	0.0004	0.0006	0.0008	0.0010	0.0012	0.0013	0.0015	0.0016	0.0018
S11	3029	0.2486	0.5249	0.0001	0.0002	0.0004	0.0007	0.0009	0.0010	0.0012	0.0015	0.0017	0.0018
S12	2975	0.2484	0.5246	0.0002	0.0004	0.0006	0.0009	0.0010	0.0012	0.0014	0.0018	0.0019	0.0020
S13	2988	0.2482	0.5249	0.0001	0.0003	0.0005	0.0007	0.0009	0.0010	0.0011	0.0016	0.0018	0.0020
S14	3023	0.2488	0.5251	0.0001	0.0001	0.0003	0.0005	0.0006	0.0008	0.0010	0.0016	0.0018	0.0020
S15	3046	0.2491	0.5251	0.0001	0.0002	0.0005	0.0007	0.0009	0.0011	0.0013	0.0016	0.0018	0.0019
S16	3012	0.2485	0.5248	0.0001	0.0003	0.0006	0.0008	0.0010	0.0013	0.0015	0.0014	0.0016	0.0017
S17	3027	0.2485	0.5246	0.0002	0.0005	0.0007	0.0009	0.0012	0.0014	0.0016	0.0017	0.0019	0.0021
S18	3094	0.2487	0.5249	0.0002	0.0005	0.0007	0.0009	0.0012	0.0014	0.0015	0.0016	0.0018	0.0020
S19	3024	0.2485	0.5247	0.0003	0.0005	0.0007	0.0010	0.0011	0.0012	0.0014	0.0015	0.0017	0.0018
S20	3094	0.2481	0.5248	0.0001	0.0003	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	0.0018
S21	2983	0.2500	0.5237	0.0001	0.0002	0.0004	0.0007	0.0009	0.0011	0.0013	0.0016	0.0018	0.0019
S22	2967	0.2506	0.5240	0.0001	0.0004	0.0006	0.0008	0.0010	0.0011	0.0012	0.0015	0.0017	0.0018
S23	2951	0.2500	0.5234	0.0003	0.0005	0.0007	0.0010	0.0012	0.0013	0.0015	0.0014	0.0016	0.0017
S24	2946	0.2503	0.5239	0.0001	0.0002	0.0004	0.0006	0.0007	0.0010	0.0011	0.0012	0.0013	0.0015
S25	2894	0.2495	0.5236	0.0001	0.0003	0.0006	0.0008	0.0009	0.0011	0.0013	0.0015	0.0016	0.0018
Average	3020	0.2495	0.5236	0.0002	0.0004	0.0006	0.0008	0.0010	0.0012	0.0013	0.0015	0.0017	0.0018
Median	3013	0.2498	0.5237	0.0001	0.0004	0.0006	0.0008	0.0010	0.0012	0.0013	0.0015	0.0017	0.0018
Std.dev	59	0.0008	0.0011	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0002	0.0002
Max	3142	0.2507	0.5251	0.0004	0.0007	0.0009	0.0012	0.0014	0.0015	0.0016	0.0019	0.0021	0.0023
Min	2894	0.2481	0.5221	0.0001	0.0001	0.0003	0.0005	0.0006	0.0008	0.0010	0.0012	0.0013	0.0015

3.2.4 Data Set 2, 85°C,35mA (Lumen Maintenance)

Sample Number	Φ(lm)	Lumen Maintenance (%)									
	0hr (Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	478.68	99.10	98.88	98.61	98.38	98.12	97.87	97.60	97.33	97.12	96.89
S02	481.81	99.15	98.93	98.71	98.43	98.15	97.88	97.62	97.36	97.12	96.88
S03	481.90	99.17	98.91	98.64	98.38	98.12	97.87	97.60	97.33	97.12	96.88
S04	478.23	99.21	98.99	98.76	98.50	98.22	97.96	97.70	97.42	97.18	96.94
S05	478.93	99.11	98.83	98.58	98.32	98.06	97.79	97.51	97.22	97.01	96.78
S06	486.26	99.12	98.84	98.62	98.36	98.08	97.82	97.55	97.28	97.04	96.83
S07	481.36	99.15	98.90	98.62	98.39	98.17	97.90	97.63	97.35	97.13	96.90
S08	480.81	99.14	98.86	98.60	98.35	98.09	97.83	97.55	97.29	97.08	96.87
S09	480.07	99.17	98.89	98.67	98.44	98.18	97.91	97.66	97.39	97.18	96.95
S10	476.43	99.20	98.94	98.72	98.46	98.18	97.90	97.61	97.33	97.09	96.85
S11	480.73	99.14	98.92	98.64	98.38	98.15	97.89	97.63	97.36	97.13	96.89
S12	477.07	99.11	98.86	98.63	98.40	98.14	97.86	97.59	97.31	97.07	96.84
S13	486.10	99.21	98.93	98.70	98.45	98.22	97.95	97.69	97.42	97.21	96.97
S14	478.39	99.09	98.84	98.58	98.35	98.13	97.84	97.55	97.27	97.03	96.82
S15	484.95	99.13	98.91	98.68	98.40	98.18	97.92	97.65	97.40	97.19	96.95
S16	477.13	99.16	98.90	98.65	98.39	98.13	97.86	97.61	97.32	97.09	96.88
S17	483.17	99.13	98.87	98.60	98.32	98.04	97.79	97.53	97.27	97.03	96.80
S18	479.14	99.14	98.87	98.59	98.33	98.10	97.82	97.55	97.29	97.07	96.84
S19	483.06	99.14	98.87	98.64	98.41	98.16	97.90	97.63	97.35	97.11	96.90
S20	475.15	99.21	98.99	98.76	98.48	98.26	97.99	97.73	97.48	97.25	97.01
S21	479.45	99.12	98.84	98.56	98.29	98.06	97.77	97.51	97.25	97.02	96.79
S22	479.26	99.25	98.97	98.74	98.52	98.26	97.97	97.71	97.42	97.21	96.97
S23	480.89	99.11	98.86	98.58	98.32	98.06	97.78	97.51	97.23	97.01	96.77
S24	485.86	99.18	98.93	98.67	98.41	98.15	97.90	97.63	97.36	97.14	96.90
S25	483.53	99.14	98.87	98.64	98.36	98.14	97.88	97.59	97.34	97.13	96.90
Average	480.73	99.15	98.90	98.65	98.39	98.14	97.87	97.61	97.33	97.11	96.88
Median	480.73	99.14	98.89	98.64	98.39	98.14	97.88	97.61	97.33	97.12	96.88
Std.dev	3.02	0.04	0.04	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.06
Max	486.26	99.25	98.99	98.76	98.52	98.26	97.99	97.73	97.48	97.25	97.01
Min	475.15	99.09	98.83	98.56	98.29	98.04	97.77	97.51	97.22	97.01	96.77

3.2.5 Data Set 2, 85°C,35mA (Forward Voltage)

Sample Number	Forward Voltage(V)										
	0hr (Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S02	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S03	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S04	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S05	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S06	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S07	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S08	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S09	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S10	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S11	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S12	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S13	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S14	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S15	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S16	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S17	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S18	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S19	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S20	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S21	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S22	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S23	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S24	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S25	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Average	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Median	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Std.dev	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Min	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0

3.2.6 Data Set 2, 85°C,35mA (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	2925	0.2502	0.5224	0.0001	0.0003	0.0005	0.0007	0.0009	0.0010	0.0012	0.0013	0.0017	0.0019
S02	3103	0.2502	0.5223	0.0002	0.0003	0.0005	0.0007	0.0009	0.0013	0.0014	0.0016	0.0019	0.0021
S03	3110	0.2499	0.5221	0.0002	0.0003	0.0005	0.0007	0.0009	0.0012	0.0013	0.0015	0.0019	0.0021
S04	2999	0.2501	0.5222	0.0001	0.0003	0.0005	0.0007	0.0009	0.0011	0.0013	0.0015	0.0017	0.0019
S05	2945	0.2498	0.5223	0.0003	0.0003	0.0005	0.0007	0.0009	0.0013	0.0015	0.0016	0.0020	0.0023
S06	2974	0.2502	0.5225	0.0002	0.0001	0.0003	0.0005	0.0008	0.0012	0.0014	0.0015	0.0019	0.0021
S07	2989	0.2504	0.5227	0.0002	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0015	0.0017	0.0020
S08	3092	0.2502	0.5223	0.0001	0.0003	0.0005	0.0007	0.0010	0.0010	0.0012	0.0014	0.0016	0.0020
S09	3023	0.2507	0.5227	0.0002	0.0004	0.0006	0.0008	0.0010	0.0011	0.0012	0.0014	0.0017	0.0020
S10	3006	0.2497	0.5224	0.0001	0.0004	0.0006	0.0008	0.0010	0.0011	0.0012	0.0014	0.0016	0.0018
S11	2990	0.2486	0.5249	0.0001	0.0003	0.0005	0.0007	0.0009	0.0011	0.0013	0.0014	0.0017	0.0019
S12	2986	0.2484	0.5246	0.0001	0.0004	0.0007	0.0009	0.0010	0.0013	0.0014	0.0016	0.0018	0.0022
S13	2933	0.2482	0.5249	0.0002	0.0003	0.0005	0.0007	0.0009	0.0013	0.0015	0.0016	0.0020	0.0024
S14	3112	0.2488	0.5251	0.0002	0.0003	0.0005	0.0007	0.0010	0.0011	0.0013	0.0014	0.0017	0.0019
S15	3118	0.2491	0.5251	0.0002	0.0002	0.0005	0.0006	0.0009	0.0012	0.0013	0.0015	0.0017	0.0021
S16	3007	0.2485	0.5248	0.0002	0.0004	0.0006	0.0008	0.0010	0.0013	0.0015	0.0016	0.0020	0.0024
S17	2953	0.2485	0.5246	0.0001	0.0002	0.0004	0.0006	0.0009	0.0012	0.0014	0.0015	0.0019	0.0022
S18	2966	0.2487	0.5249	0.0001	0.0003	0.0005	0.0007	0.0010	0.0013	0.0015	0.0016	0.0019	0.0021
S19	3001	0.2485	0.5247	0.0001	0.0004	0.0006	0.0008	0.0011	0.0011	0.0013	0.0014	0.0018	0.0022
S20	3023	0.2481	0.5248	0.0002	0.0004	0.0006	0.0008	0.0010	0.0014	0.0016	0.0017	0.0021	0.0025
S21	2990	0.2500	0.5237	0.0001	0.0004	0.0006	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	0.0021
S22	3004	0.2506	0.5240	0.0001	0.0001	0.0003	0.0005	0.0007	0.0010	0.0012	0.0013	0.0016	0.0018
S23	3071	0.2500	0.5234	0.0002	0.0004	0.0006	0.0008	0.0011	0.0012	0.0014	0.0015	0.0018	0.0020
S24	3001	0.2503	0.5239	0.0001	0.0003	0.0005	0.0007	0.0009	0.0010	0.0012	0.0013	0.0016	0.0019
S25	3071	0.2495	0.5236	0.0001	0.0004	0.0006	0.0008	0.0011	0.0013	0.0015	0.0016	0.0018	0.0020
Average	3016	0.2495	0.5236	0.0002	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0015	0.0018	0.0021
Median	3001	0.2498	0.5237	0.0001	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0015	0.0018	0.0021
Std.dev	57	0.0008	0.0011	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
Max	3118	0.2507	0.5251	0.0003	0.0004	0.0007	0.0009	0.0011	0.0014	0.0016	0.0017	0.0021	0.0025
Min	2925	0.2481	0.5221	0.0001	0.0001	0.0003	0.0005	0.0007	0.0010	0.0012	0.0013	0.0016	0.0018

3.2.7 Data Set 3, 105°C, 35mA (Lumen Maintenance)

Sample Number	Φ (lm)	Lumen Maintenance (%)									
	0hr (Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	483.31	99.02	98.72	98.48	98.29	98.05	97.78	97.51	97.23	96.95	96.67
S02	483.33	98.87	98.56	98.32	98.14	97.85	97.58	97.32	97.04	96.76	96.49
S03	482.22	98.83	98.53	98.29	98.00	97.81	97.54	97.26	96.99	96.71	96.44
S04	483.41	98.89	98.63	98.39	98.20	97.96	97.70	97.43	97.15	96.88	96.59
S05	485.26	98.95	98.67	98.38	98.20	98.01	97.74	97.48	97.20	96.93	96.65
S06	486.79	99.00	98.70	98.51	98.33	98.04	97.77	97.50	97.23	96.96	96.68
S07	485.13	98.94	98.63	98.40	98.11	97.82	97.55	97.28	97.01	96.74	96.47
S08	487.09	98.84	98.56	98.37	98.19	97.90	97.63	97.36	97.09	96.82	96.54
S09	482.74	98.88	98.58	98.39	98.16	97.87	97.59	97.32	97.04	96.76	96.48
S10	485.01	98.87	98.62	98.33	98.09	97.85	97.58	97.31	97.03	96.77	96.50
S11	484.24	98.84	98.53	98.25	98.06	97.87	97.61	97.34	97.08	96.80	96.52
S12	487.32	98.95	98.67	98.38	98.19	98.01	97.74	97.47	97.20	96.92	96.64
S13	481.26	98.88	98.60	98.36	98.13	97.89	97.62	97.35	97.08	96.81	96.54
S14	488.58	98.86	98.58	98.39	98.21	97.97	97.69	97.42	97.14	96.86	96.59
S15	488.55	98.96	98.68	98.39	98.21	97.92	97.64	97.37	97.10	96.83	96.56
S16	485.23	98.98	98.72	98.49	98.25	98.06	97.80	97.52	97.26	96.99	96.72
S17	487.99	98.99	98.71	98.42	98.13	97.89	97.62	97.36	97.09	96.81	96.53
S18	488.93	98.78	98.47	98.18	98.00	97.71	97.43	97.17	96.90	96.63	96.35
S19	484.51	98.98	98.68	98.39	98.15	97.86	97.60	97.33	97.06	96.79	96.51
S20	486.14	98.84	98.54	98.30	98.12	97.93	97.66	97.40	97.13	96.85	96.58
S21	485.38	98.98	98.70	98.41	98.22	97.93	97.67	97.39	97.13	96.86	96.58
S22	490.02	98.92	98.61	98.32	98.08	97.90	97.63	97.36	97.09	96.81	96.54
S23	485.90	98.92	98.66	98.42	98.24	98.05	97.78	97.51	97.24	96.97	96.69
S24	486.27	98.91	98.65	98.36	98.07	97.84	97.56	97.29	97.02	96.74	96.46
S25	482.61	98.94	98.64	98.45	98.16	97.98	97.70	97.43	97.16	96.88	96.61
Average	485.49	98.91	98.63	98.37	98.16	97.92	97.65	97.38	97.11	96.83	96.56
Median	485.26	98.92	98.63	98.39	98.16	97.90	97.63	97.36	97.09	96.82	96.54
Std.dev	2.26	0.06	0.07	0.07	0.08	0.09	0.09	0.09	0.09	0.09	0.09
Max	490.02	99.02	98.72	98.51	98.33	98.06	97.80	97.52	97.26	96.99	96.72
Min	481.26	98.78	98.47	98.18	98.00	97.71	97.43	97.17	96.90	96.63	96.35

3.2.8 Data Set 3, 105°C,35mA (Forward Voltage)

Sample Number	Forward Voltage(V)										
	0hr (Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
S01	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S02	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S03	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S04	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S05	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S06	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S07	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S08	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S09	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S10	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S11	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S12	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S13	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S14	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S15	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S16	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S17	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S18	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S19	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S20	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S21	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S22	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S23	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S24	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
S25	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Average	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Median	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Std.dev	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Min	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0

3.2.9 Data Set 3, 105°C,35mA (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	3037	0.2500	0.5145	0.0001	0.0002	0.0004	0.0007	0.0009	0.0012	0.0015	0.0017	0.0019	0.0020
S02	2950	0.2500	0.5144	0.0001	0.0003	0.0005	0.0008	0.0010	0.0012	0.0015	0.0018	0.0019	0.0020
S03	3133	0.2497	0.5142	0.0000	0.0002	0.0003	0.0005	0.0008	0.0011	0.0014	0.0016	0.0018	0.0020
S04	3014	0.2499	0.5143	0.0001	0.0001	0.0003	0.0006	0.0007	0.0010	0.0013	0.0015	0.0019	0.0021
S05	2987	0.2496	0.5144	0.0001	0.0002	0.0003	0.0004	0.0007	0.0009	0.0012	0.0015	0.0018	0.0022
S06	3031	0.2500	0.5146	0.0001	0.0002	0.0005	0.0007	0.0008	0.0011	0.0013	0.0016	0.0018	0.0020
S07	3027	0.2502	0.5148	0.0002	0.0003	0.0005	0.0006	0.0007	0.0010	0.0013	0.0015	0.0019	0.0022
S08	2912	0.2500	0.5144	0.0003	0.0002	0.0005	0.0006	0.0007	0.0009	0.0012	0.0015	0.0019	0.0020
S09	3137	0.2505	0.5148	0.0001	0.0003	0.0004	0.0007	0.0009	0.0012	0.0015	0.0017	0.0021	0.0022
S10	3131	0.2495	0.5145	0.0001	0.0001	0.0004	0.0007	0.0009	0.0012	0.0014	0.0017	0.0019	0.0020
S11	3028	0.2484	0.5170	0.0001	0.0003	0.0006	0.0007	0.0008	0.0011	0.0014	0.0017	0.0018	0.0020
S12	3055	0.2482	0.5167	0.0001	0.0000	0.0001	0.0002	0.0005	0.0008	0.0010	0.0013	0.0015	0.0019
S13	2965	0.2480	0.5170	0.0002	0.0000	0.0002	0.0005	0.0006	0.0009	0.0011	0.0014	0.0015	0.0016
S14	3062	0.2486	0.5172	0.0003	0.0004	0.0006	0.0009	0.0011	0.0014	0.0017	0.0019	0.0023	0.0026
S15	3028	0.2489	0.5172	0.0001	0.0000	0.0002	0.0003	0.0005	0.0007	0.0010	0.0013	0.0015	0.0016
S16	3027	0.2483	0.5169	0.0001	0.0004	0.0007	0.0010	0.0012	0.0014	0.0017	0.0020	0.0022	0.0023
S17	3046	0.2483	0.5167	0.0001	0.0000	0.0002	0.0004	0.0005	0.0008	0.0010	0.0013	0.0017	0.0018
S18	3113	0.2485	0.5170	0.0001	0.0002	0.0005	0.0006	0.0009	0.0011	0.0014	0.0017	0.0020	0.0024
S19	3050	0.2483	0.5168	0.0001	0.0000	0.0003	0.0004	0.0005	0.0008	0.0010	0.0013	0.0014	0.0018
S20	3096	0.2479	0.5169	0.0001	0.0004	0.0005	0.0008	0.0011	0.0013	0.0016	0.0018	0.0022	0.0026
S21	2992	0.2498	0.5158	0.0001	0.0001	0.0003	0.0006	0.0008	0.0011	0.0013	0.0016	0.0020	0.0022
S22	2964	0.2504	0.5161	0.0001	0.0002	0.0004	0.0005	0.0007	0.0010	0.0012	0.0015	0.0016	0.0018
S23	3009	0.2498	0.5155	0.0001	0.0001	0.0004	0.0005	0.0008	0.0010	0.0013	0.0015	0.0017	0.0020
S24	3004	0.2501	0.5160	0.0001	0.0003	0.0004	0.0007	0.0010	0.0012	0.0015	0.0018	0.0019	0.0020
S25	2890	0.2493	0.5157	0.0001	0.0003	0.0005	0.0007	0.0010	0.0013	0.0015	0.0018	0.0021	0.0024
Average	3028	0.2493	0.5157	0.0001	0.0002	0.0004	0.0006	0.0008	0.0011	0.0013	0.0016	0.0019	0.0021
Median	3028	0.2496	0.5158	0.0001	0.0002	0.0004	0.0006	0.0008	0.0011	0.0013	0.0016	0.0019	0.0020
Std.dev	63	0.0008	0.0011	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003
Max	3137	0.2505	0.5172	0.0003	0.0004	0.0007	0.0010	0.0012	0.0014	0.0017	0.0020	0.0023	0.0026
Min	2890	0.2479	0.5142	0.0000	0.0000	0.0001	0.0002	0.0005	0.0007	0.0010	0.0013	0.0014	0.0016

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

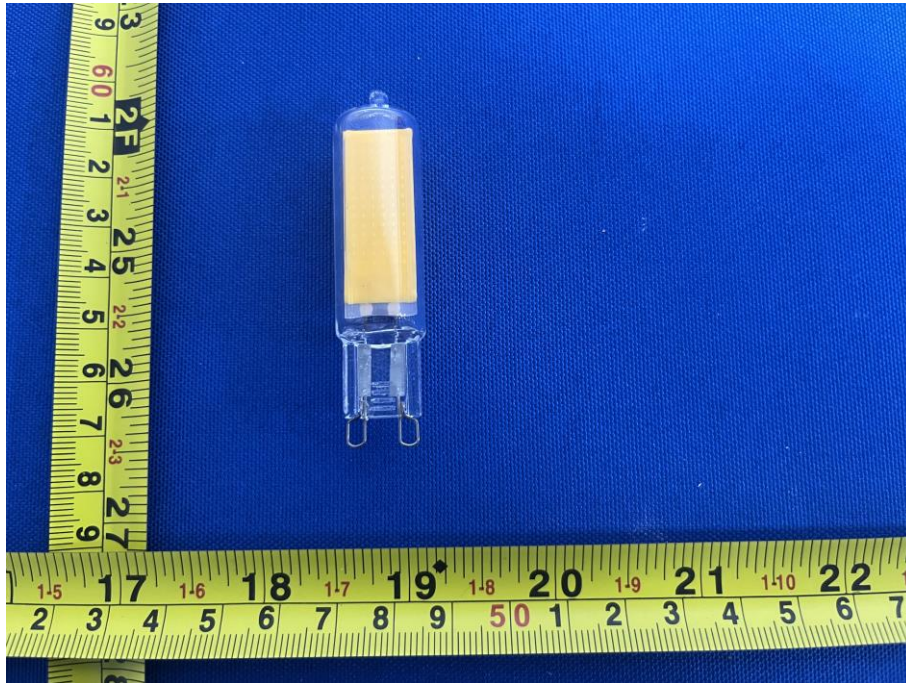


Fig.1

-- End of Report --

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